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EARLY EFFECTS OF THE WAR UPON THE FINANCE, COMMERCE AND INDUSTRY OF PERU

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EDITOR'S PREFACE

The purpose of this study is to present in succinct form the effect of the outbreak of the World War on the commerce, industry and finances of Peru. The material was collected by Dr. Rowe in the course of a visit to the country in 1915, and the manuscript was submitted soon after his return. The publication has been unavoidably delayed, but inasmuch as it presents a matter of enduring interest this delay is not of serious moment.

The facts presented show the far-reaching effect of the war in Europe on the life of a people far removed from the theater of the conflict and which at the time maintained a strictly neutral position, although subsequently diplomatic relations with the Central Powers were severed. Conditions in Peru, as set forth in this monograph, illustrate the close interdependence of national interests and the deep and vital concern of every nation in the maintenance of world peace.

DAVID KINLEY, *Editor.*

CONTENTS

EARLY EFFECTS OF THE WAR UPON THE FINANCE, COMMERCE AND INDUSTRY OF PERU

CHAPTER I

Conditions Preceding the War

The economic and financial condition of Peru during the year immediately preceding the war was far from satisfactory. Commercial and industrial depression, due to the low price of sugar, rubber, cotton and copper—the staple products of Peru—together with the political disturbances which occurred during the early part of 1914, had created conditions which not only threatened the leading industries, but also placed a severe strain on the financial system of the country.

Of Peru's agricultural products, the most important is sugar. The declining prices of the year 1913 placed this basic industry in a most unfavorable condition. In 1911 Peru produced 178,533 metric tons of raw sugar; in 1912 the output was increased to 192,754 metric tons,[1] whereas the acreage under cultivation increased from 86,880 acres to 91,750 acres and the persons employed from 16,977 to 19,945.[2] During the same period the number of plantations increased from 65 to 81 and the number of sugar mills from 32 to 38. In 1912 the producers received for their output $4.08 per English hundredweight of 112 pounds of granulated sugar of 96 per cent polarization.[3] In 1913 the price dropped to $2.80 per hundredweight, and even reached the low figure of $2.39. Exportation to the United States suffered a severe decline, dropping from 362,671 tons in 1912 to 259,982 in 1913.

NOTE: The author desires to acknowledge his deep obligation to the Peruvian Government as well as to the American Minister in Lima, and the American Consuls in Callao, Salaverry and Paita, and to the Chief of the Bureau of Foreign and Domestic Commerce of the Department of Commerce, for data and assistance.

[1] Metric ton is equal to 2,204.6 pounds.

[2] Includes the pasture lands belonging to plantations.

[3] Report of Consul General Handley, Callao, Peru.

During the same period the unfavorable condition of the rubber industry served to accentuate the commercial depression. It has been evident for some time past that the cultivated rubber of the Far East will soon become a menace to the South American product unless the careful scientific methods observed in the East are adopted in South America. The declining prices resulted in the bankruptcy of a number of important companies, and reduced the total export of rubber to $3,957,591 in 1913, as compared with $6,343,925 in 1912.

Cotton is second in importance among the agricultural products of Peru. A number of varieties are grown, the most important of which, constituting about sixty-five per cent of the total, is what is known as the "American upland." But a small quantity of the finer grade, known as "sea island" and "mitafifi," is grown, representing about two per cent of the total. Most of this is grown in the valley of the river Supe. The remaining thirty-three per cent is a product peculiar to Peru, known as Peruvian "full rough" and "moderate rough," with a long crinkly fiber, which is used to mix with wool for the cheaper woolen fabrics.

Fortunately for the country, cotton was more favorably situated in 1913 than in 1912. Prices both for the "semi-rough" variety and the soft "Egipto" were higher in 1913 than in 1912, and production increased nearly fifty per cent, as will be seen from the accompanying table:

Year	Cotton Produced lbs.
1909	38,017,650
1910	33,029,105
1911	38,389,535
1912	37,565,130
1913	52,344,640

In 1913 the export of cotton to the United States increased nearly thirty-three per cent, as compared with 1912; reaching a total of $1,224,508.

As regards copper, the leading mineral product of the country, the situation in 1913 was fairly satisfactory, although the in-

dustry was by no means in a highly prosperous condition. Nevertheless, although the total output of 1913 was very little in excess of that of 1912 (27,940 in 1913, as compared with 27,813 in 1912) the market conditions were more favorable. Since 1905 copper has gradually assumed a position of leadership in the mineral output of Peru. Up to that time silver had been the leading mineral product. The discovery of economical processes for the utilization of relatively low grade ores has given a tremendous impetus to copper mining throughout South America, but particularly in Peru. Two large American companies are at present operating, one at Cerro de Pasco, extracting from 20,000 to 30,000 tons of ore per month and producing copper in bars to the extent of about 45,000,000 pounds a year. The other company has its plants at Morococha and Casa Palco.

As will be seen from the accompanying table, the mineral output of Peru other than copper is comparatively small.

MINERAL EXPORTS OF PERU (1912)

Minerals	Pounds	Value
Bars:		
Copper, small	489,867	$10,812
Copper and silver	44,126,359	8,889,187
Lead and silver	376,084	96,290
Silver	8,503	82,826
Bismuth	609,666	44,944
Blocks, copper	63,493	10,150
Borate of lime	3,251,950	64,793
Cement, copper	187,347	12,128
Coal	3,606,603	21,732
Matte:		
Argentiferous copper	23,049,013	2,231,764
Lead	473,332	23,920
Leaden	769,997	51,272
Ore:		
Copper	3,930,313	100,674
Copper and lead	5,077,929	106,079
Gold, silver and copper	116,697	22,147
Lead	6,149,530	138,257
Lead and silver	11,212,527	744,899
Silver	1,849,658	165,251
Silver and copper	12,592,779	841,566
Silver, copper, lead	10,022	3,942
Silver and gold	82,512	17,298
Tungsten	372,034	69,989
Residue, mineral	5,004,275	64,320
Salt	7,729,426	37,523

MINERAL EXPORTS OF PERU (1912)

Silver, spongy	3,003	22,535
Sulphides:		
Copper and silver	8,960	27,921
Gold, copper, silver	2,295	7,846
Silver	152,697	1,078,500
Vanadium	6,721,210	742,233
All other	234,919	14,852
Total	138,263,000	$15,745,650

The total value of the mineral exports in 1912 was $15,745,650. Of this amount $12,093,500 went to the United States. In 1913 the total mineral exports advanced to $18,519,450 with the same proportion going to the United States. The export of copper alone to the United States in 1913 was $8,188,791; of silver, $4,039,764.

The other important articles of production that must be taken into consideration in any review of the economic situation are coca, petroleum, wool and rice.

The coca leaf, from which cocaine is extracted, is used in part in local consumption, although the greater part is exported for the purpose of extracting the drug. The native Indians are addicted to the chewing of the coca leaf, which seems to deaden the nerves of the stomach, enabling them to get along with comparatively little food. The value of the total production of coca leaf in 1913 amounted to $5,236,000.

The exploitation of the petroleum resources of the country is still in its initial stages, although a number of companies have been operating in the northern departments of Peru for several years, in fact as far back as 1862. The total production during the year 1913 was $4,429,770. In 1913 and 1914 the most important properties were taken over by the Standard Oil Company, and a thorough reorganization of the methods of exploitation is being undertaken. Everything indicates that the petroleum industry soon will be one of the most important of the country, and will contribute, in no small measure, toward counteracting the unfavorable economic conditions that have prevailed during the last few years. Another product of some

importance is wool, of which the production in 1913 was a little over three and a half million dollars. The greater portion of this, viz., $3,162,280, was exported. The rice crop, amounting to $2,127,000 in 1913, is consumed locally; in fact Peru does not produce sufficient for home consumption and is compelled to import considerable quantities each year.

The other products of the country are of comparatively little importance, and may be briefly summarized by citing the total production in 1913:

Grapes	$1,555,000
Coffee	849,000
Tobacco	428,000
Cocoa	100,000

CHAPTER II

Government Finances Preceding the War

In order to understand the financial condition of Peru, it is necessary to recall the disastrous influence of the war of 1879, which left the country prostrate and from which full recovery has never been effected. The dire straits to which the government was reduced are fully reflected in the financial history of the period. With an empty treasury the government found it impossible to pay the arrears due the army, as well as other obligations due her citizens arising out of the war. To meet this emergency the government issued what are known as "consolidated notes" to the amount of $13,303,225, bearing one per cent interest. As these were insufficient to meet the obligations recourse was then had to what are known as "redeemable bonds," bearing no interest, with a yearly amortization quota of $125,000. Of these $5,671,050 were issued. The "consolidated notes" together with the noninterest bearing redeemable bonds constitute what is known as the "deuda interna" or "internal debt of Peru." The consolidated notes are quoted on the stock exchange at about 14½ per cent of par, and the redeemable bonds at ten per cent of par. In July, 1914, there remained outstanding $13,303,225 of the notes and $4,269,300 of the bonds.

The "deuda externa," or funded foreign debt of Peru, has had a most interesting history, and is intimately related with the formation of what is known as the "Peruvian Corporation."

In 1869, 1870 and 1872 Peru floated a series of loans in England amounting to $158,864,225. Soon after the war with Chile the desperate condition of the national finances made it impossible to pay the interest on the bonds. By 1890 the indebtedness to foreign bondholders, namely, British, French and

Dutch, amounted to $268,316,386.38. In view of the prolonged default the bondholders began to bestir themselves in order to save their holdings from complete destruction. After prolonged negotiation an arrangement was entered into with the Peruvian Government, under which the bondholders constituted themselves a company known as the "Peruvian Corporation." In consideration of certain privileges and concessions granted to the corporation the foreign debt was canceled. These privileges and concessions included:

First—The cession to the corporation of all the Peruvian state railways for a period of sixty-six years. These railways included the lines operating

Between Mollendo and Arequipa
" Arequipa and Puno
" Juliaca and Santa Rosa
" Pisco and Ica
" Callao and Chicla
" Lima and Ancon
" Chimbote and Sucheman
" Pacasmayo and Yoman and Guadalupe
" Salaverry and Trujillo and Ascope
" Paita and Piura

Second—The right to extract and dispose of two million tons of guano from certain guano islands off the coast of Peru. In the original contract of 1890 the amount was fixed at three million tons, but was reduced to two millions because of the failure of the corporation to build certain railway extensions.

Third—The right of free navigation on Lake Titicaca, and the obligation to take over the government steamers then plying.

The contract of 1890 gave rise to endless differences which finally led to a revision of the same in 1907. In this contract the attempt was made to simplify the obligations of both parties, as well as to make clear the points hitherto in doubt. This attempt has not been successful and the differences between the government and the corporation have been growing with each

year. The most important change in the new contract is the obligation on the part of the Peruvian Government to pay to the corporation annually, for a period of thirty years, "the sum of £80,000, in monthly instalments, as from July, 1907, while the corporation undertakes the continuation of the Central Railway to Huancayo, of the Southern Railway to Cuzco and of the Pacasmayo Railway to Chilete." In addition the corporation lease of the state railways was extended for seventeen years, "during which period the government will receive fifty per cent of the net receipts (the service of railway obligations up to £6,000,000 being deducted) and the taxation of the corporation railways fixed for thirty years."

The franchises granted to the corporation have not enabled it to pay any dividends on its common stock. The total capitalization of the company is £21,900,000, of which £5,400,000 represents six per cent first mortgage bonds, £7,500,000 four per cent cumulative preferred stock and £9,000,000 common stock. The interest on the bonds has been paid regularly and the dividend on the preferred stock has ranged from 1¼ per cent in 1903-1904 to 2½ per cent for the fiscal year ending June 30, 1914. The conditions which made necessary the arrangement with the Peruvian Corporation resulted in an almost total eclipse of Peruvian credit, and it was not until within comparatively recent years that the government again found it possible to borrow money in Europe.

The desire of the Peruvian Government to strengthen its navy led to an arrangement with the Deutsche Bank in Berlin under which the necessary funds were advanced for the purchase of two small cruisers. For the payment of interest and liquidation of this loan, the government pledged the net returns of the national salt monopoly, which was administered by a corporation organized for this purpose—La Compañía Salinera del Peru. In 1910 the amount owing the Deutsche Bank together with certain additional obligations into which the government had entered were paid through a loan secured from two French banks. The amount of the loan was £1,200,000 at 5½ per cent.

In 1911 this loan was converted into funded obligations by an English banking house.

In 1912 the obligations entered into by the government were such that it again became necessary to borrow money. Recourse was had to the Compañía Recaudadora de Impuestos,[1] which loaned to the government £1,245,000 at seven per cent. Later in the same year a group of local banks, the Bancos del Peru y Londres, Alemán, Popular and Internacional advanced £664,800. In October, 1913, a further loan of £200,000 was secured in Europe, and this was followed in July, 1914, by a second loan for a similar amount. In October, 1914, the government secured from the five leading banks in Lima a further loan of £500,000 in return for the privilege of issuing "circular checks," a form of paper money issued under authority of the laws of August 22 and October 1, 1914.[2] Since October 1, 1914, the government finances have been in an unsatisfactory condition, owing to the rapid decline in customs revenues consequent on the European war. In fact, during the period from January 1 to July 31, 1915, the government has attempted to borrow small sums in various quarters. Although the amounts have been small their total is sufficient to make it impossible to state with accuracy the precise total of the indebtedness of the country.

It is evident from the foregoing review that the national debt of Peru is relatively small. The available data bring the total to $22,039,128. This would seem to be a comparatively small amount for a country of such varied resources, but, as we shall have occasion to see, it represents a real burden owing to the mortgaging of so considerable a portion of the government's assets to the Peruvian Corporation, and to the further circumstance that each of the more recent loans has involved the further mortgaging of national resources. A review of the financial system of the country, together with a discussion of the effects of the European war thereon, will fully explain this situation.

[1] For description of this company, see page 12.
[2] For further description of these notes, see page 25.

CHAPTER III

Financial System and Effect of the War Thereon

The fiscal system of Peru rests on the customs revenues, on certain internal revenue taxes on alcohol, spirituous and malted liquors, sugar and matches, and on the salt, tobacco and opium monopolies.[1] No attempt has ever been made to build up an adequate system of real and personal property taxes, nor is there anything approaching a real income tax.

One of the peculiarities of the Peruvian system is that the collection of all taxes, with the exception of customs dues, is placed in the hands of a private company known as the Compañía Recaudadora de Impuestos which collects the taxes, reserving as commission one per cent of the proceeds after deducting from the gross receipts the cost of collection. Under the contract entered into with the government in 1913, the company collects the following taxes:

1. Tax on alcohol, spirituous and malted liquors.
2. Tax on sugar intended for local consumption.
3. Tax on matches.
4. Registration taxes.
5. Tax on income from stocks and bonds.
6. Stamped paper tax.
7. Licenses in Lima and Callao.
8. Transfer taxes.
9. Sale of stamped paper for payment of fines imposed by the courts or by administrative authorities.
10. Mining tax.
11. Sale of paper for customs declarations.
12. Local taxes on consumption of vinous and spirituous liquors.
13. Port charges.

[1] These taxes have been supplemented recently by the introduction of export taxes on copper, sugar and borax.

The same company administers the state monopoly of tobacco and opium. The salt monopoly is administered by another company—the Compañía Salinera. This company is allowed £20,000 annually by the government for expenses of administration. The commission which it receives, and which enables it to pay a dividend of twelve per cent, is arranged on a sliding scale and based on gross receipts from the sale of salt. The scale is as follows:

First year	3½ per cent
Second "	3 " "
Third "	2½ " "
Fourth "	2 " "

The original contract entered into in 1910 was made for a period of four years, and would naturally have expired in 1914. In Article 2 of the contract there is a clause providing for the continuation of the contract until the government has repaid the amount advanced to it by the company. Inasmuch as such repayment has not been possible, the contract continues under the terms stated, viz., a two per cent commission.

The relative importance of the various sources of income is shown in the following table.

	1912	1913
Customs revenues	$7,376,887	$7,019,220
Alcohol tax	1,612,111	1,687,606
Sugar tax	493,708	473,403
Tax on matches	140,600	169,779
Salt monopoly	1,191,410	1,259,484
Tobacco monopoly	2,101,483	2,194,411
Opium monopoly	91,616	84,034
Denatured alcohol tax	97,501	94,848
Mojonazgo[a]	521,828	545,550
Sale of guano	15,615	16,456
Fines imposed by police courts	185,652	21,870
Departmental incomes	67,442	92,972
Income from docks and wharves	32,023	22,871
Consular fees	.....	326,752
Postal revenues	.....	698,358
Telegraph	.....	168,457
Miscellaneous revenues	2,720,234	1,538,414
	$16,648,110	$16,414,485

[a] A municipal tax, similar in many respects to the French "octroi," imposed on wines and spirits, also on agricultural products on entering the city. It also includes peddlers' license taxes, which are imposed by the municipality.

We have had occasion to refer to the fact that the years 1912 and 1913 were years of industrial and financial depression in Peru. The low price of copper and of sugar had placed the leading industries of the country in a precarious condition, and these unfavorable economic circumstances were further aggravated by unstable political conditions. Guillermo Billinghurst was elected President of Peru in 1912. Soon after his accession to power differences developed with the national Congress which became more acute during the course of the year 1913. A situation finally developed which led the Congress to express its opposition by refusing to vote the budget for 1914. The President thereupon declared that in view of this refusal he would regard the budget of the previous year as in force, and proceeded to act accordingly.

In February, 1914, a military uprising led by Colonel Benavides forced the resignation of President Billinghurst and exiled him from the country. The Congress thereupon proceeded to elect Colonel Benavides, whose rank was raised to that of general, to the provisional presidency of Peru pending a new election.

Whatever may have been the rights or wrongs of the situation, the political unrest and uncertainty incident to this violent change served to aggravate the commercial depression from which the country was suffering.

The outbreak of the World War found Peru, therefore, in the most unfavorable economic, financial and governmental situation to withstand the strain which the European conflict involved. Under the most favorable conditions, Peru is a country financially dependent on Europe. Her merchants have been accustomed to long term credits, her banks are in the main financed by European capital. In order to avoid confusion, we will confine the present discussion to the effect of the war on government finances, reserving for a subsequent section the analysis of the effect on general commercial and financial conditions.

The immediate effect of the war was to bring about a violent

decline in customs receipts as well as a marked, although less serious, decline in the revenues from other sources. The extent of this decline is readily seen from the following tables:[1]

CUSTOMS RECEIPTS AND INTERNAL REVENUES

Source of Revenue	Last 6 mos., 1913	Last 6 mos., 1914
Alcohol tax	$988,204	$813,404
Excise tax	92,703	97,666
Sugar tax	296,468	210,337
Dues paid to captains of ports	6,117	4,683
Denatured alcohol tax	49,413	51,069
Opium monopoly	45,877	31,815
Tobacco monopoly	1,200,240	1,106,640
Lighthouse	8,761	6,885
Matches	90,630	71,494
Mines	109,794	89,337
Stamped paper	75,988	63,942
Customs house paper	20,670	11,760
Patents	198,235	125,400
Registry of property	29,521	24,909
School taxes, including		
Dept. incomes	415,733	371,800
Police, Callao	3,760	3,269
Revenue stamps	68,192	51,920
Mine revenue stamps	4,188	1,787
Contributions and fines on alcohol	4,876	3,422
Total	$3,759,349	$3,182,322

Decrease, $577,027

Total customs receipts, 1913 ..... $6,109,650
Total customs receipts, 1914 4,692,799
Total customs receipts, 1st 6 mos., 1914 3,082,456
Total customs receipts, 2d 6 mos., 1914 1,610,343
Total customs receipts, 1st 4 mos., 1915 845,631

CUSTOMS REVENUES

	1914	1915	Decrease
January	$510,509	$220,756	$289,753
February	462,982	152,151	310,831
March	569,992	226,373	343,619
April	595,857	246,351	349,506
May	468,470	177,340	291,130
June	474,646	208,441	266,205
	$3,082,456	$1,231,412	$1,851,044 (60%)

[1] For these figures the author desires to express his obligation to the Honorable William W. Handley, Consul General of the United States at Callao, Peru.

DECLINE IN REVENUES

	Total Receipts		Increase	Decrease
	1913	1914	1914	1914
January	$477,582	$510,509	$32,927	$.....
February	465,505	462,982	.....	2,523
March	487,788	569,992	82,204	.....
April	569,218	595,857	26,639	.....
May	558,404	468,470	.....	89,934
June	499,608	474,646	.....	24,962
July	460,762	422,591	.....	38,171
August	550,837	186,672	.....	364,165
September	447,985	217,678	.....	230,307
October	594,237	288,320	.....	305,917
November	460,869	262,147	.....	198,722
December	536,855	232,935	.....	°303,920
Totals	$6,109,650	$4,692,799	$141,760	$1,558,621

CUSTOMS REVENUES AT THE INDIVIDUAL PORTS, 1914

Months	Paita	Eten	Pacasmayo	Salaverry	Callao	Pisco	Mõllendo	Ilo	Total
January	$29,947	$21,739	$14,595	$29,495	$320,551	$16,446	$75,952	$1,784	$510,509
February	23,712	19,182	9,837	21,224	302,467	15,848	69,376	1,336	462,982
March	25,068	24,514	11,018	28,480	374,230	11,416	92,593	2,673	569,992
April	27,532	19,863	6,109	25,802	412,488	23,814	79,476	773	595,857
May	29,213	20,072	13,564	20,397	305,359	12,092	65,766	2,007	468,470
June	27,687	19,294	9,948	18,201	312,935	15,858	69,615	1,108	474,646
July	20,674	13,195	4,738	17,574	275,907	16,840	72,414	1,249	422,591
August	14,629	9,910	4,427	9,890	115,347	7,703	22,696	2,070	186,672
September	13,443	11,980	3,363	7,625	136,590	14,920	28,231	1,526	217,678
October	10,566	8,291	2,386	14,075	208,922	11,421	32,081	578	288,320
November	12,184	9,725	3,125	8,777	195,634	5,608	26,798	296	262,147
December	20,971	10,570	2,984	9,171	151,987	6,872	29,534	846	232,935
	$255,626	$188,335	$86,094	$210,711	$3,112,417	$158,838	$664,532	$16,246	$4,692,799
1915	$169,114	$98,848	$27,443	$147,230	$2,165,096	$81,317	$348,016	$7,557	$3,044,621

These figures show that the decline in customs revenues alone in 1914 as compared with 1913 was thirty-three per cent. If, however, we compare the last six months of 1913 with the last six months of 1914, the decrease amounts to forty-seven per cent. The first four months of 1915 show a decline of over sixty per cent, *i.e.*, $2,139,340 for the first four months of 1914 as compared with $845,631 for the similar period of 1915.

Furthermore, to aggravate the situation, the credit of the government practically disappeared. The most important government assets had been mortgaged—the state railways and guano deposits to the Peruvian Corporation, the alcohol tax for the interest and liquidation of an existing loan, the salt monopoly for the construction contract of the Ucayali Railroad. In July, 1915, the government was making frantic endeavors to borrow small or large sums in every possible quarter. Sugar planters were receiving requests for payments of taxes in advance, customs house brokers were asked to pay dues in advance of the receipt of merchandise. For loans of any amount, the government was prepared to accept the most onerous terms. On July 27, for instance, a temporary loan of £44,000 was secured from a German sugar house at eight per cent, and as a bonus a valuable perpetual concession was given for the construction of a pier and railway at one of the northern ports. The question confronting the authorities was the payment of current expenses, as the salaries of many government employes, including teachers in the public schools, were in arrears for a considerable period.

The newly elected President, Dr. José Pardo, assumed office in August, 1915, and immediately began to put into effect plans for securing increased revenue from taxation. The first measure presented to the Peruvian Congress was an export tax on minerals and other national products. The rates as finally adopted by the national Congress are as follows:

1. *Copper:*

When London standard quotation is £60 to £65 sterling,

a tax of 15*s.* per ton of 1016 kilos gross weight is incurred, increasing 2*s.* for each pound increase in price.

2. *Gold:*

   If over ten grams, £2 sterling per kilo fine gold.

3. *Silver:*

   When 23½*d.* to 24½*d.* per standard ounce Troy, a tax of 6*d.* per kilogram; from 24½ to 25½, 1*s.* per kilogram; from 25½ upwards, 2*s.* per kilogram.

Export taxes were to be payable in ninety days drafts on New York or at shippers' option in the equivalent in drafts on London. No exchange rate had as yet been fixed. The Chamber of Commerce was to fix copper and silver prices weekly, based on London quotations. The export tax came into force at once.

4. *Sugar:*

   When the price of sugar was quoted at 11*s.* 6*d.* sterling, on board ship at the port of shipment, a tax of 6*d.* sterling for each hundredweight of one hundred pounds, ninety-six per cent polarization, was imposed.

5. *Cotton:*

   The tax on cotton exported from Peru was based upon the Spanish "quintal" (hundredweight) gross weight, placed on board at the port of shipment.

   For Peruvian Rough Cotton. When the price attained the figure of 7½*d.* per pound, a tax of 7½*d.* per Spanish quintal of one hundred pounds was imposed. For each halfpenny increase in price per pound the tax was increased by 2½*d.* per quintal.

   For Semi-Rough and Mitafifi Cotton. Five pence per quintal when the price reached 7*d.* per pound placed on board at the port of shipment, rising 2½*d.* per quintal for each halfpenny increase per pound in the price of the product.

   Smooth Cotton. Starting from the price of 5½*d.* to

6⅝*d.* per pound, 6*d.* per Spanish quintal of one hundred pounds. From 6½*d.* to 7⅝*d.* per pound, 1*s.* per quintal. From 7¾*d.* per pound, 2*s.* per quintal.

6. *Wool:*

When the quotation in Liverpool for washed wool of first quality from Arequipa reaches 11*d.* or more per pound, the tax is 2*s.* per each quintal of one hundred Spanish pounds, gross weight.

6. *Hides:*

Wet. Three farthings per kilogram.

Dry. One and one-quarter pence per kilogram.

The Peruvian Government contemplated floating a foreign loan for the purpose of meeting a number of outstanding obligations. Pending the negotiation of this loan the proceeds of the export tax were to be used as follows:

		Peruvian Pounds[a] Soles[b] Centavos[c]
Internal Debt:		
For the service of vales of consolidation issued under the law of June 12, 1889	25,000.0.00	
For the service of amortizable bonds created by the law of December 17, 1898	25,000.0.00	
		50,000.0.00
Peruvian Steamship Company:		
For amortization and interest of the first loan	30,000.0.00	
Interest on bank loans, acceptances and advances by the National Tax Collecting Company	25,000.0.00	
		55,000.0.00
Post Office Debts:		
Due to foreign post offices for money orders and territorial transit of mails		10,000.0.00
Treasury Obligations:		
15% on £78,400.0.00, value in circulation		11,760.0.00
Departmental Treasury Drafts:		
25% on £65,565.0.34, value of the drafts drawn by the treasuries		16,391.2.58
Loans by W. R. Grace & Co. Syndicate:		
6½% interest on £85,320.3.08, balance of the first loan of December 3, 1913 (£200,000)	5,545.8.20	
6½% interest on £196,666.6.66, balance of the second loan of July 3, 1914 (£200,000)	12,783.3.33	
		18,329.1.53

[a] Peruvian pound is equal to $4.86, American gold.
[b] Each sole represents 50 cents, American gold.
[c] Each centavo is equal to ½ cent, American gold.

		Peruvian Pounds Soles Centavos
Loan by Gildemeister & Co. (Law No. 2111):		
25% on £41,811.4.99, value of the notes Nos. 5 to 16, and 21, due during the present year.....		10,452.8.75
Banco del Peru y Londres:		
10% interest on £77,696.6.90, advances on account current		7,769.6.69
Banks' Loan of November 20, 1912 (£654,800):		
Interest at 8% on the following balances:		
Banco del Peru y Londres.....243,131.7.64	19,450.5.41	
Banco Alemán Transatlántico... 81,384.2.35	6,510.7.38	
Banco Internacional 2,555.6.62	204.4.53	
		26,165.7.32
Banco Alemán Transatlántico:		
Loan of £180,000.0.00 (Law No. 2111):		
Service of interest at 8% on £36,000, which constitutes the bank's gold deposit with the Junta de Vigilancia.....		2,880.0.00
Banco Popular:		
Loan of £25,500 (Law No. 2111):		
Service of interest at 8% on £55,000, which constitutes the bank's gold deposit with the Junta de Vigilancia.....		440.0.00
Interests for Bank Loans, Acceptances and Advances of the National Tax Collecting Company:		
For the balance due this service.....		4,000.0.00
Bank Loan of £500,000 in Circular Bank Notes:		
10% of the net revenue derived from the tobacco tax, intended for the amortization of the above loan, as per Art. 7 of Law No. 1982.....		32,000.0.00
Peruvian Corporation Limited:		
25% of the annual payment of £80,000 stipulated in the contract of 1907.....		20,000.0.00
Caja de Depósitos y Consignaciones (Judicial Deposits Bank):		
For the service of amortization and interest on the loans made by this institution.....		5,273.9.73
Grand Total		270,462.6.60

In order further to increase the national revenues a system of inheritance taxes has been imposed in accordance with the following schedule:

Inheritances of not more than $120,000 from parents to children..... 1%
Inheritances of not more than $120,000 from children to parents..... 1%
Inheritances from very distant relatives or strangers.....10%

These rates of taxation were applied only to inheritances not exceeding $120,000, while on inheritances above this amount the rates increased until on $240,000 or more, two per cent is the lowest tax paid and eleven per cent the highest. In the case of daughters receiving an inheritance not exceeding $2,400 an exception was made, as well as in the case of bequests received by charitable or public institutions. The highest rates were exacted when natives, as well as foreigners residing outside of Peru, inherit property in Peru. It was expected that this new system of inheritance taxes would mean a considerable increase in national revenues.

Although the war in Europe rendered the financial situation more acute by greatly diminishing the ordinary revenues, the needs of the country are beyond the present sources of income. In no part of the country does real estate pay its due share toward the support of the government. Were this supplemented by a comprehensive income tax it would be possible to dispense with many of the present indirect taxes which weigh most heavily on the poorer classes. In fact, under the present financial system of Peru, the laboring classes are compelled to bear the heaviest burden of taxation whereas the wealthy escape with a totally inadequate contribution to the public treasury.

It is contended by many that with comparatively little effort the government could effect considerable economies within the present budget. While this is undoubtedly true, it is doubtful whether the savings to be effected would be sufficient to restore equilibrium to the national budget. In the meantime large sums are required to meet such pressing necessities as public education, sanitation, hospitals, and asylums for the defective. These can be secured only through an improved fiscal system, which will at the same time strengthen the credit of the country.

It is to be noted in this connection that expenditures for military and naval purposes represent a heavy burden on the Peruvian treasury. The accompanying table sets forth the relative amounts expended by the national government for educational and for military purposes. It is true that the local subdivisions

—the departments—supplement the expenditures for public education by sums which are relatively small and totally inadequate to meet the requirements of a well organized system of national education.

Date	Total Income	Education	% of Total Income Expended for Education	Army and Navy	% of Total Income Expended for Army and Navy
1906	$12,181,036	$133,587	1	$2,189,673	17.9
1907	13,021,233	1,300,886	9.9	2,295,762	17.6
1908	14,567,573	1,301,129	8.9	2,450,261	16.8
1909	14,805,436	1,388,876	9.3	2,741,803	18.5
1910	13,461,777	980,588	7.2	2,406,103	17.8
1911	.....	.....	...	.....	....
1912	15,915,125	144,677	0.9	2,431,492	15.2
1913	.....	.....	...	.....	....
1914	17,242,483	144,065	0.8	3,168,739	18.3
1915	13,837,756	1,271,444	9.1	3,519,563	25.4

Until some final settlement is reached with reference to the status of the province of Tacna-Arica, it is not likely that Peru will be willing to make any considerable reductions in her military expenditures.

CHAPTER IV

Commercial and Industrial Situation Created by the War

We have had occasion to review briefly the commercial and industrial conditions during the years immediately preceding the war. Weakened by a series of years of economic depression, Peru was in no position to bear the exceptional strain produced by the war. It is not surprising, therefore, to find the country compelled to adopt drastic measures in order to prevent the complete ruin of her financial institutions as well as her commercial and industrial enterprises.

The measures adopted may be divided into the following classes:

a. Declaration of bank holidays and moratoria.
b. Measures relating to the issuance of what are known as circular checks.
c. Measures relating to the exportation of gold and silver.
d. Measures relating to the price of necessaries of life.
e. Measures relating to the status of labor.
f. Measures relating to taxation.
g. Reducing the expenditures as authorized by the budget.

A. Declaration of Bank Holidays and Moratoria

The worldwide financial panic precipitated by the war threatened the solvency of all the banking institutions of Peru and led to the promulgation of an executive order dated August 2, 1914, declaring the third, fourth and fifth days of that month holidays. On August 5 a further order was issued declaring the sixth and seventh holidays.

The following day—August 6—the first moratorium was declared for a period of thirty days. The decree provided that during this period the obligation to pay banking and commercial

debts should be limited to five per cent of the total amount owed. On August 7 a further decree was issued modifying the foregoing as follows:

1. Requiring the banks to pay all depositors whose balance did not exceed £5.

2. On balances exceeding £5 the banks are required to pay five per cent of the total, provided that the minimum to be paid shall be not less than £5, and the maximum £150.

On September 10 a further moratorium of fifteen days was decreed, which was again extended on September 25, for a further period of eight days, expiring on October 3, 1914. It may be added that by law of September 8, 1914, the Congress specifically authorized the President to declare such moratoria as he might deem necessary.

On October 4 the President decreed a fourth and final moratorium for a period of ten days, *i.e.*, until October 13. On that date a further decree was issued which, as modified by the law of December 19, 1914, provides that notes, bills of exchange and debts for merchandise received should be paid in monthly quotas of five per cent during the first two months and ten per cent thereafter. Obligations not included in the foregoing, and for which no collateral security existed were to be paid in monthly quotas of fifteen per cent. With reference to bank deposits, Article 4 of this law requires that such deposits be paid in monthly quotas of ten per cent. It is furthermore provided that tenants who made no payments because of the moratorium should be permitted to pay arrears, due from July 1 to September 30 in four monthly quotas of twenty-five per cent each.

B. The "Cheques Circulares" (Circular Checks)

The financial panic produced by the war led to the immediate withdrawal of gold and silver currency from circulation. While the moratoria served to save the financial institutions from ruin, they accentuated the feeling of uncertainty and alarm and emphasized the tendency to hoard gold. An unusual demand for

safes and strong boxes was noticeable throughout the country. The lack of circulating medium became so marked that the banks appealed to the government for power to remedy the situation, for without some remedial measures they would have been unable to meet their obligations at the expiration of the moratorium.

At the urgent request of the banks a series of measures was passed providing for the issuance of what are known in Peru as "cheques circulares," or circular checks. The first of the laws relating to the subject was passed on August 22, 1914. Under this law the banks were authorized to issue circular checks payable to bearer to an amount not exceeding £1,100,000. Under Article 1 of this law the legal reserve against such issues was fixed at thirty-five per cent in gold and sixty-five per cent in real property, mortgages and warehouse warrants. A subsequent law, that of October 1, 1914, reduced the requirement of gold reserve to twenty per cent, the remaining eighty per cent to be distributed as follows: thirty per cent in mortgage "cedulas" assessed at their face value, ordinary mortgages assessed at seventy-five per cent of their face value, real property owned by the bank assessed at seventy-five per cent of its market value or warehouse warrants, fifty per cent in negotiable paper acceptable to the supervising committee established by the law. This supervising committee is composed of two members designated by the national Congress (one representing the majority and the other the minority party), one member designated by the President, one representative of the banks and one representative of the Chamber of Commerce of Lima.

The law of August 22, 1914, furthermore provided that the banks should loan to the government £100,000 of the checks thus issued, the loan to bear interest at seven per cent. Under Article 7 of the law of October 1, 1914, the amount of this loan was raised to £500,000 and the interest reduced to six per cent. As a guarantee of the payment of principal and interest, the government mortgaged twenty per cent of the net receipts of the tobacco monopoly.

Acceding to the urgent demands of the banks, the national Congress, in the Act of October 1, 1914, authorized the banks to increase the issue of "cheques circulares" by an amount not exceeding £1,100,000, thus making their total issue £2,200,000. In addition, the National Savings Bank, which is managed by the National Charity Foundation (Sociedad de Beneficencia) is authorized to issue circular checks to an amount not exceeding £300,000. Thus the total issue authorized by law is brought up to £2,500,000. The law, furthermore, provides (Art. 9, law of August 22, 1914) that all checks must be withdrawn from circulation "six months after the close of the war between France, England and Germany."

From the outset these checks have been received with great reluctance by the retail trade, owing, in large part, to the undermining of public confidence in the banks, and to the fear that the checks would not be redeemed at the time indicated. In the country districts the laboring population has absolutely refused to accept this paper money, demanding the payment of wages in the silver *sole* to which they have been accustomed. The inevitable result has been the gradual depreciation of the Peruvian paper pound. In August, 1915, this depreciation amounted to sixteen per cent.

C. Measures Relating to Exportation of Gold and Silver

On August 8, 1914, the national Congress passed a law forbidding the exportation of gold and of minted silver.

D. Measures Relating to the Price of Necessaries of Life

On August 10, 1914, the Congress passed a law empowering the national executive to take such measures as might be deemed necessary to prevent the undue rise in the price of articles of primary necessity. Other than to undertake a series of inquiries as to prevailing prices, no measures have been taken by the President in pursuance of the power vested in him by the above-mentioned law.

E. Measures Relating to the Status of Labor

With the outbreak of the war and the consequent paralyzation of commerce and ocean transportation facilities, the mining enterprises began to reduce their labor force. Similar reductions were made in many of the cotton mills. The low rate of wages prevailing in all the industries of Peru makes it practically impossible for the laborer to set aside anything for periods of emergency.

Early in 1913, when the industrial depression, especially in the mining industries, had made itself felt in all sections of the country, the President, in pursuance of powers vested in him by the Congress, issued a decree requiring industrial establishments to give notice to the local authorities whenever for reasons of an economic or industrial character they were planning to discontinue operating the plants.

On August 9, 1914, in order to extend further protection to the laboring classes, the President issued a decree requiring employers to give to their working men at least twenty-four hours' notice of dismissal, and to file, in writing, with the subprefect of the department the reasons for such reduction and the names of the laborers discharged.

F. Measures Intended to Increase the Ordinary Revenues of the Government

The violent decline in customs receipts and other ordinary revenues immediately after the outbreak of the war led to an attempt to increase revenues by increasing certain existing taxes and introducing new forms of taxation. These measures were as follows:

1. Requiring corporations and joint stock companies to place a special stamp of the value of two centavos (one cent) on each page of the ledgers and other books which they are required to keep according to the provisions of the Code of Commerce. Letter copy books are exempt from this requirement.

2. Raising by twenty per cent the price of all tobacco sold by the State Tobacco Monopoly.

3. Increasing the tax on all vinous, malt and spirituous liquors and on alcohol.

4. Increasing to six per cent the tax on the income from mobile capital.

G. Reducing Public Expenditures

In an attempt to make the budget balance, a law was passed reducing by thirty per cent the items of the national budget.

Effect of the War on Domestic and Foreign Trade

Owing to the dependence of Peru on foreign countries for most of the manufactured articles consumed in the country, it is exceedingly difficult to deal with the effect on internal commerce without at the same time discussing the situation created by the dislocation of international trade.

Owing to the lack of official data, the condition of domestic trade does not lend itself to statistical treatment. Immediately after the outbreak of the war, the domestic commerce of the country received two staggering blows: first, the sudden cutting off of the European credits to which the merchants had, for generations, been accustomed and, secondly, the almost complete disappearance of regular ocean communication with Europe. To this must, of course, be added the general feeling of distrust toward the banks, the uneasiness created by the appearance of inconvertible paper money in the form of "cheques circulares" and the further discouragement incident to a rapid and steady fall in international exchange. In this emergency Peruvian commerce turned to the United States in the hope and expectation of securing the relief which Europe was unable to give. The general reluctance on the part of American manufacturers and merchants to extend the same credits which their European competitors have been accustomed to extend, has been a source of severe disappointment to the merchants of Peru. They point with pride to the fact that bankruptcies are of less frequent oc-

currence in Peru than in the United States, and that the percentage of loss by European merchants in their dealings with Peru has been exceedingly small. They point to the fact that England's commercial position in South America in general, and in Peru in particular, has been built up on the basis of the ninety day draft, and that in recent years German manufacturers have not hesitated to extend six months' credit.

While a few American manufacturers have been willing to extend credits to a restricted group of merchants, the general tendency has been to refuse to meet the requirements of the Peruvian market. This situation has served to render more acute the difficulties of the local situation. Merchants find their stocks reduced without any immediate prospect of replenishing them. While their fixed charges remain the same the total sales are constantly diminishing in volume and amount. To add to the difficulties of the situation, the internal commerce of Peru, which has always been conducted on credit, has suddenly been placed on a cash basis. The ensuing paralyzation was almost complete, the retailers in the country districts limiting their purchases to the articles that are urgently required for the daily consumption of the people. Fortunately, credit is still being extended for certain articles, such as native cotton goods and the cheaper grades of textiles. Before any return to the former system of liberal credits can be expected, Peru will have to await a return of general confidence in the financial future of the country.

We have had occasion to refer to the general effect of the war on international trade, but it is important to supplement these general considerations with specific data.

Peru is a country consuming but a very small percentage of the articles which it produces. Any curtailment of the foreign market, therefore, immediately reacts upon the entire internal situation. It is this complete dependence on the foreign market, combined with the fact that all the important national enterprises are dependent on foreign capital, that gave to the European war such a disastrous influence on Peru's foreign trade and upon her domestic financial and commercial condition.

The immediate effect of the war was the complete paralyzation of all foreign trade. In spite of the fact that the nations at war needed some of Peru's leading products, especially copper, sugar and wool, the presence of belligerent cruisers in the Pacific made shipments impossible. The result was the immediate curtailment of production in the mines and the accumulation of large stocks in those industries, such as sugar and cotton, in which immediate curtailment was impossible. The only industry in which no marked decline was noticeable was in the cotton spinning factories, which produce the coarser grades of fabric for local consumption. In this industry the leading manufacturers, in order to keep their labor force together, made a determined effort to tide over the crisis without closing down their plants and in this effort were largely successful.

Following this temporary period of paralyzation, during which all the industries of the country suffered equally, the European situation soon began to show its effect in a markedly different way in different industries. It is necessary, therefore, to consider these industries separately.

Sugar

In the discussion of economic conditions immediately preceding the war, we had occasion to refer to the unsatisfactory condition of this industry during the years 1911, 1912 and 1913. Immediately after the outbreak of the war the price of sugar rose violently and although there has been a slight decline within recent months the present price (August, 1915) means a handsome profit to the producer. The price fluctuation is shown in the following table:

	White		
	Price per Quintal (101.416 lbs.) F. O. B., Part of Shipment		
1914		Granulated	Mascabado
July	$2.64	$1.92	$1.41
August	4.80	4.20	2.48
December	4.44 to 4.64	2.58	....
1915			
July	4.24 to 4.44	3.12	2.10

Inasmuch as some 20,000 laborers are employed in this industry, it will readily be seen that the extraordinary prosperity of the sugar industry will contribute considerably toward the industrial recovery of the country. As a considerable section of the cotton lands can be converted to sugar production, there is a widespread tendency to extend sugar cultivation. The total export in 1914 [1] was

Class	Metric Tons	Value
White	7,045	$571,877
Granulated	145,335	11,190,045
Mascabado (Chancaca)	24,288	1,095,013
Total	176,668	$12,856,935

The only serious handicap to the producer at the present moment is the inordinately high freight rate to Liverpool and to New York. The normal rate to Liverpool is about $6.69 per ton. At the present time (August, 1915) the quoted rates range from $17 to $19.44 per ton. With the scarcity of bottoms there seems to be no immediate prospect of an improvement in this situation.

Cotton

In sharp contrast with the condition of the sugar industry, cotton raising in 1913 and during the early months of 1914 was in an exceptionally flourishing condition owing to the high prices on the Liverpool market. As will be seen from the accompanying table, prices began to decline with the outbreak of the war, and have continued a steady downward course.

PRICE OF COTTON, JULY, 1914, TO JULY, 1915 (PER POUND)

1914	Grade Semi-Rough	Grade Fair Egipto	Grade Sea Island
July	14 cents	14⅛ cents	26 cents
September	11¼	12 3/10	25¼
October	10⅞	11⅜	
1915			
July	8 cents	(no quotations)	(no quotations)

[1] See Report of Wm. W. Handley, Consul General of the United States at Callao.

The main reason for the lack of quotations is the fact that the rapid rise in freight rates has made practically prohibitory the export of cotton. Prior to the war the rate to Liverpool, via Panama, was $24.30 per ton. At the present time (August, 1915), the only quoted rate is $48.60 per ton, which makes shipping impossible at the present market price of cotton. As a result of this situation cotton producers are facing a severe crisis, with the prospect of having to market the present crop at prices that will not repay the cost of cultivation.

It may be added that during this entire period the native cotton fabrics have maintained their prices unchanged, the quotation for plain sheeting being fifty-five centavos (about twenty-six cents) per yard.

The export of cotton during 1914 was as follows:

	Kilograms
Egyptian (Peru soft)	16,627,244
Semi-rough	4,429,137
Mitafifi	1,778,354
Sea Island	1,261,673
Lint	133,073
Waste	34,000
Total	24,263,481

Figures for 1915 are not as yet available, but these will show a marked decline in the amounts exported.

Wool

Wool raising, like sugar production, has profited by the war. In the mountainous districts the natives raise not only sheep but also secure wool from the vicuña and llama, but mainly from the alpaca. Of the latter, Peru exports from 3,000 to 5,000 tons annually, which represents three-fourths of the world's supply.[1] The price of alpaca wool immediately before and since the outbreak of the war has been as follows:

[1] See Otto Wilson: "South America as an Export Field," U. S. Bureau of Foreign and Domestic Commerce, 1914.

1914	Price per Pound
May	25½ cents
July	26
December	28
1915	
January	37
May	37

The fact that the total export of alpaca wool is comparatively small, amounting to $1,573,681 in 1913, explains why the favorable condition of the wool market has not had a marked effect on the general economic condition of the country.

Copper

In the introductory discussion of conditions in Peru immediately preceding the war, we had occasion to see that the condition of the copper market was only fairly satisfactory. With the steady decline in price toward the end of 1913 the situation became distinctly unfavorable. Although there was a slight recovery early in 1915, the downward movement soon resumed its course until in July, 1914, the rate for fine copper in bar delivered in New York was 13.50 cents. The first effect of the outbreak of the war was completely to demoralize the copper market. In August, 1914, the nominal quotation was 12.20 cents U. S. average, but the few sales that were effected were in many cases as low as ten cents. This situation continued for several months, and it was not until January, 1915, that the copper market showed real signs of recovery. Transactions were then effected at the market quotation of 13.50 cents per pound. Since January the copper market has been steadily strengthening until July, when the market quotation rose to 19.75 cents, where it remains at the present time (August, 1915). The copper companies are now operating at full capacity, their main difficulty being to secure adequate steamship facilities for the transportation of their product. Freight rates for copper bars have risen from $8.75 per ton in July, 1914, to $12.50 per ton in July, 1915. The extent to which copper production was

curtailed immediately after the outbreak of the war is readily seen when we compare the production of 1913 with 1914.

COPPER PRODUCTION

Long Tons (2,240 lbs.)

Fine Copper	1913	1914
In bars	20,039	23,134
In matte	4,396	670
In ore	2,893	1,266
	27,328	25,070

Much of the curtailment was due to the lack of shipping facilities. At the present time the production has returned to normal, and with the increase of means of transportation it is evident that the output soon will be largely increased.

Silver

The condition of the silver market during the three years 1912-1915 has been exceedingly unsatisfactory, but as Peru exports only between $150,000 and $250,000 of this metal annually (1913—$232,163; 1914—$167,616), the effect on general industrial conditions has been hardly noticeable.

Petroleum

The increasing output of petroleum promises to be an important factor in bringing about a new era of prosperity in Peru. In 1914 Peru's export was as follows:

	Tons	Value
Benzine	28,759	$2,989,848
Gasoline	885	132,111
Crude petroleum	107,536	1,202,681
Total	137,180	$4,324,640

Rubber

The production of rubber, which has been the great staple product of the Amazon region of Peru, has been passing through a severe crisis during the last few years. This has been due

largely to the fact that the cultivated rubber of the Far East, with its larger product per tree, has been gradually crowding out the cruder methods of production used in South America. The relation between the production of plantation rubber and the cruder methods of production prevailing in South America is shown in the following table:

PRODUCTION IN METRIC TONS

	Plantation	Jungle Rubber	Total
1905	145	60,800	60,945
1906	510	65,500	66,010
1907	1,000	68,000	69,000
1908	1,800	63,200	65,000
1909	3,600	65,400	69,000
1910	8,200	61,800	70,000
1911	14,100	61,900	76,000
1912	28,500	70,500	99,000
1913	42,000	73,000	115,000
1914	64,000	60,000	124,000

Within a comparatively few years cultivated rubber will probably completely displace the jungle product.

The rapid decline in price from 1911 to 1914 made the situation more acute than it had been for many years, and brought about marked stagnation in the rubber industry. While the rise in price since the outbreak of the European war would, under ordinary circumstances, have had a stimulating effect on this industry, the lack of adequate means of transportation has prevented Peru from securing the full benefit of this rise. Not only have the freight charges from Callao to Liverpool become almost prohibitive, but there has been such a lack of available bottoms that it has been impossible to ship the accumulated stock.

Imports of articles manufactured from rubber to Peru and exports of crude rubber from Peru in 1914 are as follows:

IMPORTS

	Peruvian Pounds
Rubber and manufactured elastic gums	7,650
Ordinary and dressing rubber combs	4,212
	11,862

EXPORTS

	Kilos	Value
White raw rubber	13,392	£p. 1,628.8.53
White raw rubber, in planks	39,968	4,985.3.56
Rubber	681,227	172,184.5.17
Low grand Putumayo	285,260	29,288.1.58
Sernamby raw rubber	1,118,016	214,033.4.96
Sernamby rubber	134,221	23,671.3.71
	2,272,084	£p. 445,791.7.51

CHAPTER V

Effect of the War on Wages and Labor Conditions

It is at first glance somewhat surprising that in spite of the long continued industrial depression in Peru, the laborers in the mines and in the sugar and cotton plantations have suffered relatively little. It is true that unskilled and even skilled labor in the cities—especially in Lima and Callao—has felt severely the effects of the crisis, and the records of the "Sociedad de Beneficencia" of Lima show that there has existed widespread suffering. This has been particularly true of the dock laborers in Callao, where, since the outbreak of the war, there has been great scarcity of shipping, resulting in a large number of unemployed. This labor is not mobile, and although the sugar planters and the great mining enterprises need additional men, the wages in these two industries are not comparable with those earned by the stevedores, and they are, therefore, unwilling to make the change.

The conditions in Lima and Callao can not, therefore, be regarded as typical of the republic.

The following table will show the number employed in the several industries during the years 1912 and 1913:

1912.....18,000 laborers employed in mining.
1913.....21,000 laborers employed in sugar.
1913..... 2,500 in cotton and woolen mills of Lima.

Labor Conditions in the Mines

Immediately preceding the outbreak of the war, the price of fine copper had fallen to 13¾ cents per pound, and had led the principal companies to reduce their output. The immediate effect of the war was further to emphasize this depression, due in great part to the paralyzation of shipping facilities. In order

to understand the effect on labor conditions, it must be borne in mind that the unskilled labor in the mines is exclusively native Indian, and that the daily wage under the most favorable conditions does not exceed one and one-half soles (72 cents) per day. These laborers belong to two categories:

First. The "enganchados." These are laborers secured by contractors who advance certain sums to the laborers (from 10 to 50 soles, or $4.80 to $24) which enables them to transport their families and purchase certain necessaries of life in the cold "sierra," or mountainous districts. These men receive from 58 to 72 cents per day and at the end of each month one-third of their monthly wages is deducted to repay the money advanced.

Second. The "trabajadores libres" or free laborers, to whom no advances are made, and who receive the same pay (58 to 72 cents per day) but from whose wages it is not necessary to make any reductions to repay advances.

Both classes of labor receive free of rental a house (or rather hut) about twelve by seventeen feet, to which a small kitchen is attached. Supplies are purchased from company stores, which are managed in Peru with greater regard to the welfare of the laborer than is the case in most other countries. In fact, the most important of the mining companies—the Cerro de Pasco Mining Company—has pursued a most enlightened policy in this respect, maintaining the necessaries of life at the lowest possible price at a time when falling exchange is increasing the cost of living in all parts of the republic.

All of the companies have had considerable difficulty in securing sufficient labor, and rather than lose their labor force they continued operating, in some cases even at a loss. Although some reduction was made in wages, such reduction did not amount to more than five or ten cents in the daily wage. It is evident that, at best, a wage of from 58 to 72 cents keeps the laborer close to the margin of existence. Furthermore, the companies feared losing their labor force if any considerable reduction were attempted.

Soon after the outbreak of the war the price of all metals, and especially of copper, began to rise and the companies soon began to increase their labor force. At the present writing [1] the most important companies are gradually approaching full capacity. The greatest difficulty with which the companies have to contend is the lack of adequate shipping facilities for the marketing of their product. As soon as this obstacle is overcome the companies will be working at the fullest possible capacity.

With the improvement of conditions the miners have again secured their normal wage of one and one-half soles (72 cents) and the companies are now looking for additional labor. It is not likely, however, that the improved market conditions will lead to a rapid rise in wages, owing to the lack of organization of the laboring population. In fact, a few years ago the leading mining companies reached an understanding by which they are to refrain from competing with one another for labor and under which a scale of wages was agreed upon.

Although the wage of the unskilled laborer is exceedingly low, the most important of the mining companies [2] has adopted a liberal policy in caring for its laborers. Improved housing facilities have been provided, also adequate and gratuitous medical service, and the company stores managed for the benefit of the laborer rather than with a view to profit. The scale of wages in the copper mines is as follows:

	Per Day	
	Soles	Dollars
Miner	1.20 to 1.50	0.58 to 0.72
Helper	1 to 1.20	0.48 to 0.58
Timberman	3.50	1.68
Timberman helper	2.00	0.96
Mechanic	3.50	1.68
Motorman	5.00	2.40
Blacksmith	3.00	1.44

In the smelters the average wage is considerably higher, being at least 2½ soles or $1.20 per day.

[1] August, 1915.
[2] Cerro de Pasco Mining Company.

Wages on Sugar Plantations Affected by the War

Although the war has had a marked effect on the sugar industry, inaugurating a period of high prices and relative prosperity, the laborers have failed to derive any real profit therefrom. The labor system on the sugar plantations is almost exclusively one of "enganchados," *i.e.*, laborers who are brought together by contractors who advance to them funds necessary for their equipment. The laborers are thereby obligated to repay these advances through the assignment of a certain percentage of their daily wage. It is evident that this system is one that lends itself to very great abuse and it has required great vigilance on the part of the government to prevent such abuses. Nevertheless the abolition of the system would mean a real advance in the status of the laboring population.

Owing to the fact that employment on the sugar plantations is intermittent, it is necessary at certain seasons of the year to transport large numbers of laborers to the plantations. The usual plan is to pay them from 60 centavos (29 cents) to one sol (48 cents) per day, and to allow to each family a ration of two pounds of rice and one pound of meat per day. In addition the laborers are housed free of charge.

Although at the present moment[1] the sugar planters are reaping large profits, the situation of the plantation laborer shows no sign of improvement, unless it be the fact that his ration today represents greater value than before the war owing to the rise in price of the necessaries of life.

Cotton Plantation Labor as Affected by the War

Since the outbreak of the war the cotton raising industry has been in a condition of marked depression. The closing of many European mills led to a violent decline in price, and the lack of shipping facilities made it practically impossible to market the product even at these low prices. Fortunately, the

[1] August, 1915.

local cotton factories have been able to use a considerable portion of the product.

In spite of the gradual increase in the price of raw cotton the high prevailing freight rates have made it extremely difficult to market the product in Europe. In spite of this depressed condition, however, the wages of labor on the cotton plantations have suffered no decline. This is due in large part to the increasing demand for labor on the sugar estates. Furthermore, owing to the fact that employment on the cotton plantations is more intermittent than on the sugar estates, the rate of wages is higher, ranging from one sol, 20 centavos (58 cents) to one sol, 50 centavos (72 cents) per day.

CHAPTER VI

Effect of the War on International Trade

The imports into Peru during the five years preceding the outbreak of the European war are shown in the accompanying table. When compared with the exports it will be seen that the balance of trade has been steadily favorable to Peru:[1]

Year	Imports	Exports
1909	$20,891,327	$31,554,382
1910	24,206,187	34,380,009
1911	26,484,257	36,145,271
1912	25,027,814	45,871,504
1913	29,591,451	44,409,610

During the last six months of 1914 and the first six months of 1915 both imports and exports suffered a severe decline.

Until the commercial depression, which began to make its full effect apparent in 1913, the exports of Peru to the United States increased with great rapidity. In 1913 the export trade suffered a severe setback, due in the main to the unfavorable condition of the rubber, sugar and copper markets. With the outbreak of the war the export trade was temporarily paralyzed, although it began to recover toward the end of 1914, and was well on toward normal conditions during the early months of 1915. The distribution of Peruvian exports amongst the leading countries is as follows:

DISTRIBUTION OF EXPORTS

	1911	1912	1913	1914
United States	$10,187,997	$17,495,279	$14,741,839	$14,807,895
United Kingdom	12,017,921	13,734,561	16,539,110	15,912,116
Chile	6,332,381	5,157,534	5,847,139	6,231,200
Germany	2,776,765	3,205,496	2,963,884	1,598,804

[1] Report of Wm. W. Handley, United States Consul General at Callao, Peru.

Early in 1915 the export trade began to improve, due to the worldwide demand for sugar and copper.

The situation during the latter part of 1914, which is the most recent period for which figures are available, shows clearly the effect of the war on Peruvian exports. The exports[1] to the United States during the last five months of 1914, as compared with the similar period of 1913, were as follows:

EXPORTS FROM PERU TO THE UNITED STATES

	1913	1914
August	$668,439	$1,263,275
September	962,735	752,873
October	1,064,853	765,531
November	1,111,482	999,594
December	1,164,345	841,153

The principal articles of export, and the amounts shipped each year were as follows:

PRINCIPAL EXPORTS

	1912	1913	1914
Cotton	$5,075,110	$6,912,529	$7,026,090
Sugar	6,784,505	6,717,039	13,204,745
Rubber	6,365,508	3,970,159	2,228,945
Straw hats	2,105,358	577,828	255,810
Wool (alpaca)	1,037,042	1,573,681	1,762,225
Copper		8,413,415	7,151,785

Similarly, the effect of the war on Peru's import trade can be followed. The distribution of this trade during the years 1912, 1913 and 1914 was as follows:

DISTRIBUTION OF PERU'S IMPORT TRADE

	1912	1913	1914
United States	$5,763,425	$8,530,523	$7,633,719
United Kingdom	6,648,368	7,769,225	6,505,363
Germany	4,521,729	5,132,039	3,144,434

[1] Otto Wilson: "Forecast of Trade with South America," U. S. Bureau of Foreign and Domestic Commerce.

During the last five months of 1914 the imports of Peru from the United States showed the following decline, as compared with the similar period of 1913:

IMPORTS OF PERU FROM THE UNITED STATES

	1913	1914
August	$581,766	$500,869
September	586,320	237,522
October	575,140	387,588
November	589,274	350,780
December	694,478	552,598

Imports from other countries show even a more marked decline. Although specific data are not available, the indications are that 1915 will show some recovery in imports, especially from the United States. There is no lack of demand for American manufactures, but recovery is being delayed by reason of the reluctance of the American manufacturer to adapt himself to the credit conditions of the Peruvian market. This reluctance has been a source of keen disappointment to the merchants of Peru. They have found themselves cut off from the European sources of supply, due primarily to the lack of adequate transportation facilities and to the inability of the European manufacturers to continue the long term credits to which the Peruvian manufacturers have been accustomed. In this emergency the business men of Peru have turned to the United States for relief, hoping and confidently expecting that the American manufacturer would utilize the opportunity to displace his European competitor. The failure of the American manufacturer to respond to the emergency has not only been a source of disappointment, but has given rise to widespread criticism. An examination of the situation will disclose that the failure of the American manufacturer to respond to the needs of the Peruvian merchant has been due, in part, to certain peculiarities of the industrial and financial organization of the United States, and, in part, to the lack of those facilities for credit information which the European manufacturer has enjoyed for many years and which were developed as a result

of long continued effort and considerable sacrifice. The British and German manufacturer has been able to secure complete and adequate credit information concerning every Peruvian merchant through the German and British banks established in Lima, with branches in most of the important cities of the country. It is to be noted in this connection that the problem of securing accurate information concerning the financial standing of merchants in Peru, as well as the other countries of South America, is far more difficult than in the United States. Inquiries concerning financial standing are resented by South American merchants as an intrusion upon their private affairs, and it is, therefore, impossible for an ordinary commercial agency to secure in a short time the information needed by American manufacturers as a basis for the extension of long term credits. This information can best be gathered through the commercial departments of well organized banking institutions. Not only will such banks be in a position to furnish the American manufacturer with the needed information, but they can perform the further service of discounting the notes of Peruvian merchants, given in payment of the purchases of American products. In other words, the present situation demands the development of new financial machinery which will enable the American manufacturer to offer to the Peruvian merchant the same facilities which he has heretofore enjoyed in Great Britain, Germany and the other countries of Europe.

It is evident from the foregoing discussion that one of the great needs of the present moment is the establishment of American banks with an organization adequate and capital sufficient to meet the needs of the present situation. The emphasis on capital investment is important because of the fact that the industrial and social progress of the country is dependent almost exclusively on foreign capital. The rate of wages of the laboring classes is so low that there is little or no saving on their part. Furthermore, the addition to the nation's working capital through the savings of the middle classes is also comparatively small. The question of increased working capital for the coun-

try is, therefore, a matter of vital importance, and any American bank which is to perform the services of which the country stands in need must be prepared to make a considerable capital investment in the country. A start in this direction has been made through the establishment of one American bank in Lima. This will be followed by other institutions, thus building up in Peru a financial organization equal to that enjoyed at the present time by the manufacturers of Great Britain and Germany.

Effect of the War on Transportation Facilities

In no department of the commercial life of Peru has the effect of the European war been felt with greater violence than in the facilities for the transportation of the leading national products—minerals, sugar, cotton—to the markets of Europe and the United States. It is safe to say that had Peru enjoyed adequate transportation facilities at reasonable rates, since the outbreak of the war, she would have been able to extricate herself from the disastrous depression which has hung as a cloud over the country. With the advance in price of the staples—copper and sugar—Peru has found herself confronted not only with rapidly advancing freight rates but with such a scarcity of available bottoms that the marketing of her products has become exceedingly difficult.

As regards freight rates, it is only necessary to note the contrast between the rates of July, 1914, and July, 1915, to appreciate the situation. Owing to the greater risks of navigation the rates from Callao to Europe have advanced to a far greater extent than those from Callao to New York and even at the rates quoted it has at times been exceedingly difficult to secure bottoms for shipments. The advance in rates from Callao to New York via Panama from the period immediately preceding the war to the present has been as follows:

CALLAO TO NEW YORK VIA PANAMA

	July, 1914 Per Ton of 2,240 lbs.	July, 1915 Per Ton of 2,240 lbs.
Sugar	$8.10	[a] $12.50
Copper in bars	8.75	12.50
Cotton	23.75	[b] 30.00
Hides	25.00	30.00
Wool	23.75	[c] 30.00
Ores [d]	13.75	15.00

CALLAO TO LIVERPOOL (VIA MAGELLAN)

Sugar	£1.10.0	[e] £4.0.0
Copper bars	(Open rate.	All copper from Peru going to United States)
Cotton	4.15.0	[f] 10.0.0
Hides (dry)	4.15.0	
Hides (wet)	3.15.0	9.0.0
Wool	4.10.0	[g] 12.0.0
Ores	1.10.0 (up to value of £10 per ton)	4.0.0 (up to value of £25 per ton)

[a] Although this is the published rate the companies are asking as high as $15.

[b] Although this is the published rate the companies are asking as high as $38.

[c] Although this is the published rate the companies are asking as high as $40.

[d] Up to value of $125 per ton.

[e] Although this is the published rate the companies have been asking as high as £5.10.0.

[f] Although this is the published rate the companies have been asking as high as £12.0.0.

[g] Although this is the published rate the companies have been asking as high as £14.0.0.

APPENDICES

APPENDIX A

Trade with United States

IMPORTS OF MERCHANDISE FROM PERU[a]

Articles	Quantities		Values	
	1913	1914	1913	1914
Articles the growth, produce or manufacture of the United States, returned (free)	.....	.....	$39,654	$11,251
Art works (free)	.....	.....	1,622	216
Chemicals, drugs, dyes and medicines (free)	.....	.....	2,568	600
Chemicals, drugs, dyes and medicines (dut.)	.....	.....	79,778	61,623
Coke, tons (free)	.....	648	.....	2,757
Copper, and manufactures of—				
Ore, matte and regulus (copper contents); lbs. (free)	10,637,861	10,822,341	1,741,406	1,617,793
Pigs, ingots, bars, plates and old, lbs. (free)	40,219,590	46,803,222	4,778,842	6,597,499
Cotton, unmanufactured, lbs. (free)	4,871,835	6,455,946	841,984	1,141,308
Fertilizers: Guano, tons (free)	7,389	.....	74,809	.....
Hats, bonnets and hoods, composed of straw, chip, etc. (dut.)	.....	.....	59,778	97,782
Materials for (dut.)	.....	.....	1,514	.....
Hides and skins (except fur skins), lbs. (free)	867,234	934,893	250,339	263,837
Household and personal effects (free)	.....	.....	3,215	3,537
India rubber, crude, lbs. (free)	352,347	1,016,566	303,292	427,002
Iron and steel, manufactures of—				
Wire, and articles made from (dut.)	.....	.....	5,978	.....
Ivory, vegetable, lbs. (free)	479,475	634,180	18,645	15,419
Minerals, crude (free)	.....	.....	9,192	120
Oils: Mineral—				
Crude, gals. (free)	16,736,715	20,710,023	411,439	506,535
Refined, gals. (free)	6,379,280	12,111,642	402,696	867,020
Paper, and manufactures of: Books, music, maps, etc. (dut.)	.....	.....	14,695	.....
Sugar cane, lbs. (dut.)	13,672,216	8,981,684	325,013	181,519
Vegetables: Beans, bush. (dut.)	.....	7,638	.....	18,391
Wool:				
Unmanufactured, lbs. (free)	.....	164,199	.....	40,954
" " (dut.)	932,559	244,613	292,518	77,924
Hair of the Angora goat, etc., unmanufactured, lbs. (dut.)	.....	766,327	.....	234,570
All other free and dutiable articles	.....	.....	7,602	8,066
Total free of duty	.....	.....	$8,898,360	$11,502,486
Total dutiable	.....	.....	768,219	673,237
Total imports of merchandise	.....	.....	$9,666,579	$12,175,723

[a] "Trade of the United States with Other American Countries, 1913-1914," U. S. Bureau of Foreign and Domestic Commerce.

EXPORTS OF MERCHANDISE TO PERU[a]

Articles	Quantities		Values	
	1913	1914	1913	1914
Abrasives—				
Wheels, emery, and other	.....	.....	$1,528	$1,042
All other	.....	.....	5,003	3,140
Agricultural implements, and parts of—				
Plows and cultivators	.....	.....	42,063	68,962
All other	.....	.....	16,319	13,687
Animals—				
Cattle (No.)	40	42	1,745	4,200
All other	.....	.....	535	2,702
Asbestos, manufactures of	.....	.....	1,991	4,237
Asphaltum, manufactures of	.....	.....	3,163	300
Athletic and sporting goods	.....	.....	1,717	3,545
Babbitt metal (lbs.)	10,447	23,112	2,116	4,949
Blacking	.....	.....	6,091	4,526
Brass, manufactures of	.....	.....	13,927	6,665
Breadstuffs—				
Bread and biscuit (lbs.)	72,022	19,818	5,444	1,776
Oatmeal (lbs.)	20,019	27,688	1,225	1,446
Preparations of, for table food	.....	.....	9,096	8,627
Wheat (bush.)	190,305	21,433	165,309	19,729
Wheat flour (bbls.)	94,343	118,159	374,059	464,946
Broom corn, manufactures of	.....	.....	11,172	5,466
Brushes	.....	.....	1,319	977
Cars, carriages, other vehicles, and parts of—				
Automobiles, and parts of—				
Automobiles, passenger (No.)	70	36	55,646	31,362
Parts of	.....	.....	2,550	5,982
Carriages (No.)	34	10	5,270	1,409
Cars, passenger and freight—				
For steam railways	.....	.....	98,405	22,885
For other railways	.....	.....	89,964	116,518
Bicycles, tricycles, etc.	.....	.....	1,679	1,609
Wagons (No.)	18	60	2,036	5,568
Wheelbarrows, pushcarts and hand trucks	.....	.....	9,396	7,079
All other	.....	.....	1,317	7,859
Cement, hydraulic (bbls.)	92,983	77,923	123,177	109,902
Chemicals, drugs, dyes and medicines—				
Acids	.....	.....	3,059	4,782
Calcium carbide (lbs.)	349,740	652,200	12,258	22,787
Medicines, patent or proprietary	.....	.....	199,585	197,320
All other	.....	.....	83,461	85,432
Clocks and watches, and parts of	.....	.....	3,139	2,631
Coal, bituminous (tons)	9,209	96	27,636	433
Confectionery	.....	.....	8,404	6,198
Copper, and manufactures of	.....	.....	65,755	35,954
Cotton, manufactures of—				
Cloths—				
Unbleached (yds.)	1,000,554	1,181,504	68,710	76,253
Bleached (yds.)	209,476	169,840	14,692	14,999
Colored (yds.)	556,487	594,334	42,072	47,218
Waste, cotton (lbs.)	28,446	454	1,631	36
Wearing apparel—				
Corsets	.....	.....	10,327	4,949
Knit goods	.....	.....	11,196	11,105
All other	.....	.....	34,678	40,975
All other	.....	.....	15,025	20,634

[a] "Trade of United States with Other American Countries, 1913-1914."

EXPORTS OF MERCHANDISE TO PERU—*Continued*

Articles	Quantities		Values	
	1913	1914	1913	1914
Dental goods	.....	.....	$8,319	$7,135
Earthen, stone and china ware—				
Bricks—				
Building (M.)	350	.....	2,565	.....
Fire (M.)	260	554	9,889	16,772
Earthen and stone ware	.....	.....	5,261	6,362
All other	.....	.....	5,772	3,511
Electrical machinery, appliances and instruments—				
Dynamos, or generators	.....	.....	108,816	12,081
Insulated wire and cables	.....	.....	.....	25,496
Lamps—				
Arc (No.)	49	30	990	641
Incandescent—				
Carbon filament (No.)	37,010	26,675	4,536	3,647
Metal filament (No.)	53,018	20,524	10,801	4,186
Motors	.....	.....	83,288	68,350
Static transformers	.....	.....	.....	8,532
Telephones	.....	.....	2,906	5,079
All other	.....	.....	169,224	118,333
Explosives—				
Cartridges	.....	.....	34,961	17,508
Dynamite (lbs.)	108,506	619,064	11,825	56,284
All other	.....	.....	17,953	26,221
Fibers, vegetable, and textile grasses, manufactures of—				
Cordage (lbs.)	924,910	646,801	82,204	56,890
Twine	.....	.....	4,693	4,683
Fire extinguishers	.....	.....	260	1,585
Fish—				
Salmon, canned (lbs.)	513,311	301,374	34,129	19,091
Canned fish (except salmon and shellfish)	.....	.....	2,208	1,243
Shellfish	.....	.....	17,145	8,057
Fruits—				
Apricots, dried (lbs.)	22,254	10,360	2,441	1,363
Peaches, dried (lbs.)	24,100	15,350	1,659	1,041
Prunes (lbs.)	49,335	35,415	3,087	2,668
All other, green, ripe, or dried	.....	.....	2,466	2,908
Prepared or preserved	.....	.....	12,155	7,300
Furniture of metal	.....	.....	1,219	4,026
Furs and fur skins, dressed, etc.	.....	.....	2,090	3,396
Glass and glassware—				
Bottles, vials, demijohns, carboys and jars	.....	.....	1,065	218
All other	.....	.....	16,881	18,768
Grease, lubricating	.....	.....	19,297	24,351
Household and personal effects	.....	.....	1,517	8,245
India rubber, manufactures of—				
Belting	.....	.....	26,308	26,919
Boots and shoes (pairs)	1,050	550	2,810	2,159
Tires	.....	.....	4,303	7,427
All other	.....	.....	8,088	7,650
Ink	.....	.....	3,594	3,614
Instruments and apparatus for scientific purposes	.....	.....	6,403	12,353
Iron and steel, and manufactures of—				
Pig iron (tons)	292	140	5,475	2,470
Bars or rods of steel (lbs.)	2,446,391	3,596,998	41,800	63,254
Bolts, nuts and washers (lbs.)	186,423	199,833	6,508	8,366
Builders' hardware—				
Locks	.....	.....	10,222	10,599
Hinges, and other	.....	.....	44,243	37,925
Car wheels (No.)	474	208	3,239	1,818
Castings, n.e.s.	.....	.....	19,624	25,326
Cutlery	.....	.....	7,508	7,339

EXPORTS OF MERCHANDISE TO PERU—*Continued*

Articles	Quantities		Values	
	1913	1914	1913	1914
Enamel ware—				
Lavatories and sinks	.....	.....	$8,785	$7,774
All other	.....	.....	1,678	2,230
Firearms	.....	.....	22,189	14,633
Machinery, machines and parts of—				
Air-compressing machinery	.....	.....	2,514	10,710
Cash registers (No.)	10	36	1,071	5,965
Cotton gins (No.)	66	52	23,157	18,595
Elevators, and elevator machinery	.....	.....	15,303	6,383
Engines, and parts of—				
Electric locomotives (No.)	1	.....	1,035	.....
Internal combusion—gasoline—				
Marine (No.)	26	61	7,547	14,835
Stationary (No.)	78	60	14,981	12,023
Traction (No.)	2	2	7,153	5,965
Steam—				
Locomotives (No.)	7	9	89,540	96,116
Marine (No.)	1	.....	1,139	.....
Stationary (No.)	7	7	17,486	2,350
All other (No.)	18	6	7,031	3,395
Parts of	.....	.....	39,325	71,138
Laundry machinery	.....	.....	3,134	1,952
Metal-working machinery	.....	.....	40,651	35,294
Milling machinery (flour and grist)	.....	.....	1,464	2,192
Mining machinery	.....	.....	258,870	300,202
Printing presses	.....	.....	14,339	13,792
Pumps, and pumping machinery	.....	.....	51,473	43,998
Refrigerating machinery	.....	.....	6,378	30,181
Sewing machines	.....	.....	67,334	136,193
Sugar-mill machinery	.....	.....	20,531	19,004
Textile machinery	.....	.....	1,693	.....
Typesetting machines, linotype and others	.....	.....	5,915	25,008
Typewriting machines	.....	.....	67,578	40,315
Windmills	.....	.....	4,924	3,764
Woodworking machinery—				
Sawmill machinery	.....	.....	6,336	3,155
All other	.....	.....	6,133	30,286
All other machinery, and parts of	.....	.....	132,669	140,888
Nails and spikes—				
Railroad spikes (lbs.)	160,358	59,700	3,834	1,552
Wire (lbs.)	867,780	806,429	22,054	18,952
Pipes and fittings (lbs.)	6,229,475	6,793,102	152,655	162,283
Rails for railways (tons)	6,439	4,846	181,553	141,329
Railway track material, etc., except rails and spikes	.....	.....	61,748	51,488
Safes (No.)	55	92	2,463	5,065
Scales and balances	.....	.....	14,480	18,855
Sheets and plates—				
Iron, galvanized (lbs.)	4,495,375	1,575,696	131,352	49,399
Steel—				
Plates (lbs.)	1,289,099	499,207	24,988	9,441
Sheets (lbs.)	2,514,795	5,995,723	61,662	158,801
Stoves, ranges, and parts of	.....	.....	4,904	4,636
Structural iron and steel (tons)	568	657	25,593	31,898
Tin plates, terneplates, and taggers tin (lbs.)	650,801	346,923	25,266	12,983
Tools—				
Axes (No.)	25,851	24,928	15,471	15,249
Hammers and hatchets	.....	.....	3,664	4,233
Saws	.....	.....	5,681	4,409
Shovels and spades	.....	.....	2,407	5,164
All other	.....	.....	56,708	60,212

EXPORTS OF MERCHANDISE TO PERU—*Continued*

Articles	Quantities		Values	
	1913	1914	1913	1914
Wire, and manufactures of—				
Wire—				
Barbed (lbs.)	1,108,765	1,667,148	$27,886	$40,420
All other (lbs.)	164,749	577,657	4,828	12,466
Manufactures of—				
Woven-wire fencing	.....	.....	3,111	1,605
All other	.....	.....	10,644	17,176
All other manufactures of	.....	.....	231,357	181,538
Lamps, chandeliers, etc. (except electric)	.....	.....	27,048	27,742
Lead, manufactures of	.....	.....	8,437	9,257
Leather, and manufactures of—				
Leather and tanned skins—				
Belting	.....	.....	8,196	14,052
Patent	.....	.....	16,528	17,963
Upper—				
Calf (sq. ft.)	84,221	63,812	19,094	15,751
Glazed kid (sq. ft.)	236,553	221,713	54,647	46,763
All other	.....	.....	1,493	.....
Manufactures of—				
Boots and shoes—				
Children's (pairs)	3,210	9,049	3,685	10,704
Men's (pairs)	49,676	38,812	144,609	117,800
Women's (pairs)	6,692	10,615	13,778	25,562
Harness and saddles	.....	.....	7,856	5,488
All other	.....	.....	6,017	4,313
Malt (bush.)	10,749	8,331	11,010	8,025
Meat and dairy products—				
Meat products—				
Beef products—				
Beef, canned (lbs.)	122,477	37,141	14,026	4,909
Beef, pickled and other cured (lbs.)	33,140	20,398	3,313	1,947
Tallow (lbs.)	209,248	152,964	14,700	11,515
Hog products—				
Bacon (lbs.)	17,258	47,191	2,628	7,695
Hams and shoulders, cured (lbs.)	64,575	61,366	9,800	9,494
Lard	4,622,077	3,804,701	558,043	452,543
Pork, pickled	9,900	22,423	992	2,422
Lard compounds and other substitutes for lard (lbs.)	591,155	194,192	49,140	17,337
Sausage (lbs.)	13,399	18,729	1,662	2,547
All other meat products—				
Canned	.....	.....	4,823	2,362
All other	.....	.....	2,390	1,308
Dairy products—				
Butter (lbs.)	6,079	9,716	2,079	2,927
Cheese (lbs.)	16,174	6,488	3,084	1,157
Milk, condensed (lbs.)	322,402	536,847	24,802	39,345
Motor boats (No.)	8	5	11,562	12,844
Musical instruments, and parts of—				
Player pianos (No.)	1	4	285	2,052
All other (No.)	15	14	4,371	3,698
All other, and parts of	.....	.....	2,424	1,901
Naval stores—				
Rosin (bbls.)	8,276	3,473	55,507	22,795
Turpentine, spts. of (gals.)	42,575	34,975	21,523	17,966
Oilcloth	.....	.....	2,226	1,710
Oils—				
Mineral, refined or manufactured—				
Illuminating (gals.)	395,580	573,826	53,160	73,357
Lubricating and heavy paraffin oil (gals.)	257,700	312,944	59,164	67,939
Naphthas, etc.—Gasoline (gals.)	3,170	13,823	795	3,812
Residuum, etc.—				
Gas oil and fuel oil (gals.)	7,157,186	.....	104,445	.....
All other (gals.)	5,108,367	16,837,652	78,734	258,233
Vegetable	.....	.....	7,999	3,665

EXPORTS OF MERCHANDISE TO PERU—*Continued*

Articles	Quantities		Values	
	1913	1914	1913	1914
Paints, pigments, colors and varnishes—				
Dry colors	.....	.....	$6,208	$5,511
Ready-mixed paints (gals.)	3,095	9,587	5,207	12,355
Varnish (gals.)	1,161	997	1,322	1,481
All other (including crayons)	.....	.....	4,112	708
Paper, manufactures of—				
Bags	.....	.....	4,005	5,489
Books, music, maps, engravings, etc.	.....	.....	34,887	23,906
Carbon paper	.....	.....	1,251	1,704
Paper hangings	.....	.....	1,247	3,081
Playing cards	.....	.....	2,578	1,849
Printing paper—				
News print (lbs.)	826,929	773,528	19,419	18,472
All other (lbs.)	95,378	135,980	4,958	4,697
Wrapping paper (lbs.)	24,711	11,777	1,450	639
Writing paper and envelopes	.....	.....	20,382	16,068
All other	.....	.....	13,588	11,576
Paraffin and paraffin wax (lbs.)	1,272,844	589,864	50,266	22,745
Paste	.....	.....	143	1,261
Pencils (except slate) and pencil leads	.....	.....	3,340	3,940
Perfumeries, cosmetics and all toilet preparations	.....	.....	46,231	44,791
Phonographs, graphophones, gramophones, and records, and materials for	.....	.....	36,180	17,407
Photographic goods—				
Cameras	.....	.....	2,872	2,749
Motion picture films (lin. ft.)	63,075	7,260	1,534	780
Other sensitized goods	.....	.....	9,104	11,544
All other	.....	.....	4,298	1,703
Plated ware, except cutlery and jewelry	.....	.....	8,192	6,343
Refrigerators	.....	.....	993	3,912
Roofing felt and similar materials	.....	.....	7,694	3,633
Seeds	.....	.....	413	1,171
Silk, manufactures of	.....	.....	1,251	3,344
Soap—				
Toilet or fancy	.....	.....	9,948	6,868
All other (lbs.)	486,647	324,097	22,616	15,069
Spirits, wines, malt liquors, etc.—				
Malt liquors in bottles (doz. qts.)	283	739	463	1,089
Whiskey, rye (pf. gals.)	1,207	628	2,566	1,369
Wine (gals.)	1,617	669	851	325
All other	.....	.....	2,335	319
Straw and palm leaf, manufactures of	.....	.....	2,177	218
Surgical appliances (not including instruments)	.....	.....	20,891	34,438
Tin, manufactures of	.....	.....	2,726	4,080
Toys	.....	.....	1,244	790
Trunks, valises and traveling bags	.....	.....	2,161	758
Type (lbs.)	23,169	13,775	8,706	5,629
Vegetables—				
Potatoes (except sweet) (bush.)	512	1,438	382	1,358
Canned	.....	.....	14,536	7,197
All other	.....	.....	413	1,919
Wood, manufactures of—				
Lumber—				
Boards, planks and deals—				
Fir (M. ft.)	46,844	53,983	602,407	630,598
Oak (M. ft.)	246	436	20,268	28,566
White pine (M. ft.)	21	68	949	4,204
Yellow pine—				
Pitch (M. ft.)	229	1,129	9,198	42,032
All other (M. ft.)	370	174	15,075	7,596
Poplar (M. ft.)	.....	62	.....	2,827
Redwood (M. ft.)	747	2,132	22,630	52,939

EXPORTS OF MERCHANDISE TO PERU—*Continued*

Articles	Quantities		Values	
	1913	1914	1913	1914
Wood, manufactures of—*Continued.*				
Lumber—				
Boards, planks and deals—*Continued.*				
Spruce (M. ft.)	142	217	$2,479	$3,555
All other (M. ft)	38	83	2,863	6,715
Railroad ties (No.)	166,922	359,709	67,563	126,084
Shooks—				
Box (No.)	584,337	240,695	42,702	22,621
All other (No.)	800	1,600	2,472	4,555
Staves (No.)	64,454	43,619	12,784	7,543
Furniture	.....	.....	69,454	68,291
Trimmings, moldings and other house finishings	.....	.....	1,365	236
All other manufactures of	.....	.....	66,453	55,160
Wool, manufactures of—				
Wearing apparel	.....	.....	1,161	1,993
All other	.....	.....	1,785	1,909
Zinc, manufactures of	.....	.....	1,452	470
All other articles	.....	.....	30,979	29,014
Total domestic exports	.....	.....	$7,325,455	$7,115,514
Foreign exports, total	.....	.....	16,448	25,738
Total	.....	.....	$7,341,903	$7,141,252

The following figures show the trade of Peru with the United States before the war, and in each month of 1914 since the war:[1]

	Exports to U. S.		Imports from U. S.	
Month	1913	1914	1913	1914
January-July	$5,852,733	$6,647,515	$4,581,938	$3,847,130
August	668,439	1,263,275	581,766	500,869
September	962,735	752,873	586,320	237,522
October	1,064,853	765,531	575,140	387,588
November	1,111,482	999,594	589,274	350,780
December	1,164,345	841,153	694,478	552,598
Total for year	$10,824,587	$11,269,941	$7,608,916	$5,876,487

[1] Otto Wilson: "Forecast of Trade with South America," U. S. Bureau of Foreign and Domestic Commerce.

APPENDIX B

Trade with Countries of the World

IMPORTS[a]

Country	1911	1912	1913	1914
Argentina	$42,698	$34,054	$13,263	$9,404
Arica	.....	6,998	6,245	5,686
Australia	1,116,720	1,164,251	631,290	909,150
Austria	.....	685	1,293	1,895
Barbados	.....	131	.....	.....
Belgium	1,626,494	1,192,284	1,866,916	1,334,537
Bolivia	5,547	3,849	1,327	16,767
Brazil	43,369	14,784	19,858	7,863
Canada	.....	.....	.....	.....
Chile	389,799	951,136	1,035,554	435,543
China	[b]75,676	753,285	769,668	639,561
Colombia	.....	11,591	45,179	6,415
Costa Rica	.....	22,283	33,014	21,540
Cuba	78,109	112,985	158,990	127,113
Denmark	.....	452	78	2,265
Ecuador	62,120	96,189	85,492	55,914
France	1,410,009	1,547,574	1,363,191	758,034
Germany	4,608,026	4,521,729	5,132,038	3,144,434
Great Britain	8,375,581	6,648,368	7,769,225	6,505,363
Holland	.....	209	45,951	112,514
Honduras	.....	.....	.....	1,113
India	.....	1,620	274,303	270,969
Italy	971,323	1,237,876	1,236,739	979,932
Jamaica	.....	1,142	.....	1,327
Japan	114,731	112,659	62,878	60,565
Martinique	.....	.....	.....	.....
Mexico	39,925	45,042	17,277	.....
Nicaragua	.....	248	.....	1,244
Norway	.....	.....	.....	1,171
Panama	11,486	7,266	7,411	25,845
Paraguay	.....	.....	.....	1,123
Portugal	102,561	117,063	86,192	34,973
San Domingo	.....	.....	24	.....
San Salvador	.....	24,713	20,747	19,513
San Thomas	.....	.....	.....	.....
Spain	387,637	421,624	355,494	303,978
Sweden	.....	.....	267	2,294
Tacna	.....	2,576	7,616	2,649
Trinidad	.....	841	2,255	739
United States	6,082,352	5,763,425	8,530,525	7,633,719
Uruguay	12,164	2,707	11,168	7,936
Venezuela	.....	.....	.....	.....
Miscellaneous	.....	.....	.....	20,650

[a] El Comercio Exterior del Peru, $4.86 equivalent of one pound.
[b] Figures for Hong Kong.

EXPORTS

Country	1911	1912	1913	1914
Argentina	$	$1,652	$7,621	$139,740
Arica	118,158	107,795	139,171	181,331
Australia	130,189	.....	141,326	.....
Austria	.....	.....	5,725	6,891
Barbados	1,896	.....	948	.....
Belgium	494,650	322,369	1,212,555	396,863
Bolivia	730,903	558,200	639,591	420,317
Brazil	.....	23,221	38,501	5,229
Canada	224,368	.....	.....	942,480
Chile	6,332,381	5,157,534	5,847,139	6,231,200
China	.....	185	267	.....
Colombia	76,380	37,884	23,906	39,759
Costa Rica	.....	.....	471	.....
Cuba	.....	3,791	180	.....
Denmark	.....	.....	.....	.....
Ecuador	248,094	143,759	241,673	356,034
France	1,902,446	2,730,698	1,566,495	742,827
Germany	2,776,766	3,205,495	2,966,889	1,598,804
Great Britain	12,017,921	15,734,561	16,539,115	15,912,116
Guatemala	.....	10,206	.....	.....
Holland	.....	13,273	12,743	104,665
Honduras	.....	292	.....	29
India	.....	.....	.....	.....
Italy	13,210	11,849	7,557	49,791
Jamaica	.....	.....	.....	710
Japan	2,202	214	6,682	63
Martinique	.....	.....	.....	870
Mexico	.....	1,166	3,305	267
Nicaragua	.....	.....	.....	.....
Norway	.....	.....	.....	.....
Panama	107,529	116,990	55,754	46,078
Paraguay	.....	.....	.....	.....
Portugal	.....	.....	578	2,308
San Domingo	.....	.....	.....	.....
San Salvador	.....	2,916	.....	773
San Thomas	.....	.....	8,471	554
Spain	299,471	14,998	95,047	11,854
Tacna	.....	58,748	61,008	86,814
Trinidad	.....	.....	680	199
United States	10,187,997	17,495,276	14,741,639	14,807,895
Uruguay	119,897	114,118	43,021	15,916
Venezuela	.....	4,321	972	1,439
Sweden	.....	.....	486	.....
Miscellaneous	.....	.....	254,581	507,603

APPENDIX C

Imports and Exports[a]

Year	Imports	Exports
1908	$25,850,716	$26,663,266
1909	20,919,268	31,596,583
1910	24,206,188	34,425,984
1911	26,484,257	36,090,095
1912	25,027,814	45,878,004
1913	29,591,451	44,409,610
1914	23,463,740	42,611,459

[a] Otto Wilson: "South America as an Export Field," U. S. Bureau of Foreign and Domestic Commerce, 1914.

PERUVIAN COMMERCE (1913)[a]

Items	Total Trade
Imports	[b] $29,631,033
Exports	[b] 44,469,011
Copper	[c] 8,188,791
Cotton	[c] 7,615,313
Sugar	[c] 6,874,739

[a] Commerce Reports, Jan. 2, 1915.
[b] Figures include gold and silver.
[c] In 1909, the latest year of record, the United States took 81 per cent of Peru's exports of copper, 10 per cent of cotton, and 8 per cent of sugar.

EXPORTS OF PERU[a]

The principal products of Peru are minerals, sugar, rubber, cotton and wool, and in 1913 were exported in the following amounts:

Minerals	$18,519,450
Sugar	7,237,500
Cotton	4,197,750
Rubber and gums	4,825,000
Wool	2,653,750
Total exports	$37,722,950

[a] Otto Wilson: "Forecast of Trade with South America," Bureau of Foreign and Domestic Commerce, 1915.

Carnegie Endowment for International Peace

DIVISION OF ECONOMICS AND HISTORY
JOHN BATES CLARK, DIRECTOR

2

PRELIMINARY ECONOMIC STUDIES OF THE WAR

EDITED BY
DAVID KINLEY
President of the University of Illinois
Member of Committee of Research of the Endowment

No. 18

GOVERNMENT CONTROL AND OPERATION OF INDUSTRY IN GREAT BRITAIN AND THE UNITED STATES DURING THE WORLD WAR

BY
CHARLES WHITING BAKER, C. E.
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EDITOR'S PREFACE

The present study by the Honorable Charles Whiting Baker concerns itself with the government administration of the industrial life of Great Britain and the United States during the war. Mr. Baker's verdict on the organization and conduct of the various industrial activities undertaken by the government for war purposes is, on the whole, favorable. With this opinion most of our people will very likely agree. Indeed, the editor is doubtful of the correctness of Mr. Baker's opinion concerning the views of the so-called conservative or middle class on this matter. On the contrary, the editor believes that the great majority of our people of all classes would say "yes" to the question whether the government administration of such industrial activities as it took over was not good for war purposes under the conditions and circumstances that prevailed while the war was in progress. Indeed, the inquiry which one must put in such a matter is not, after all, whether the administration was good or bad, but whether it was as good as it could be under the circumstances, whether other officers, for example, could probably have managed better. Put in this way the answer must again be, on the whole, in favor of the government.

It must be remembered, however, that the favorable answer to the question propounded above by no means carries with it any implication concerning the value of government industrial management in ordinary times of peace. The industrial activities of the government in war differ from the country's industrial activities in times of peace in several important respects. The scope of industrial activity of the government in war is more limited and capable of more definite control. The government has certain war munitions to provide. Their character and amount are known, and the industrial energies necessary to secure them can be definitely

directed to that end, without embarrassment from competition to divert the country's industrial activities to other ends. It is one thing to make a success of any business under such circumstances and quite another to make a success of it, however success be defined, under ordinary circumstances. For the government in the one case is virtually in the position to determine its own conditions of production and to exclude all competitors from the field. Moreover, it must be remembered that the government succeeded in some matters, notably in the case of the railroad management, only by resorting itself to practices which it had forbidden to the railroads under ordinary management, and also at a financial expenditure that had no relation and no reference to the earning capacity of the railroads.

In short, even if we were justified in pronouncing a wholly favorable judgment on the industrial activities of the government in its conduct of the war, it is doubtful, in the editor's opinion, whether we would get much help in determining the wisdom of extending the scope of government operation in the economic field in ordinary times. To put the matter in another way, it may fairly be doubted, at least, whether war socialism, as it has sometimes been called, has any lessons favorable to peace time socialism, however that term may be defined. The limitation of the province of government is an age old subject of debate. It would be difficult to show that there has ever been in any age or country a large public opinion or, indeed, an important school of thought, which would have eliminated the government from all relation to the private industrial life of its citizens. Indeed, one may say, I think truthfully, that those critics of what they please to call a *laissez faire* policy, who interpret that phrase to suit their arguments as meaning that the government should have no relation to and indulge in no interference with industrial life at all, are quite mistaken in the meaning which they give the phrase. No school of thought has ever advocated such a view. Rather the right and desirability of government interference have always been admitted, but its extent has

been a subject of debate. Under some conditions of national life a larger interference is both desirable and necessary than under other conditions. Since the conditions of national life differ in different generations and centuries, we find the emphasis placed at one time on the importance of widening the scope of government economic activity, and at other times on the importance of limiting this scope. The world at present seems to be, on the whole, pretty generally of the opinion that the complex conditions of modern civilization require a larger interference by government, in the sense, at least, of stricter regulation of the conditions under which private economic activities are carried on. Many are of the opinion that the scope of directing the conduct of industrial life by the government should be enlarged. It is the editor's opinion that there appears to be little in the government's conduct of the war on the industrial side to lay a foundation for justifying the latter contention.

DAVID KINLEY,
Editor.

UNIVERSITY OF ILLINOIS,
June 10, 1920.

CONTENTS

GOVERNMENT CONTROL AND OPERATION OF INDUSTRY

PRELIMINARY ECONOMIC STUDIES OF THE WAR

EDITED BY DAVID KINLEY

President of the University of Illinois
Member of Committee of Research of the Endowment

1. EARLY ECONOMIC EFFECTS OF THE WAR UPON CANADA. By Adam Shortt, formerly Commissioner of the Canadian Civil Service, now Chairman, Board of Historical Publications, Canada.

2. EARLY EFFECTS OF THE EUROPEAN WAR UPON THE FINANCE, COMMERCE AND INDUSTRY OF CHILE. By L. S. Rowe, Professor of Political Science, University of Pennsylvania.

3. WAR ADMINISTRATION OF THE RAILWAYS IN THE UNITED STATES AND GREAT BRITAIN. By Frank H. Dixon, Professor of Economics, Dartmouth College, and Julius H. Parmelee, Statistician, Bureau of Railway Economics.

4. ECONOMIC EFFECTS OF THE WAR UPON WOMEN AND CHILDREN IN GREAT BRITAIN. By Irene Osgood Andrews, Assistant Secretary of the American Association for Labor Legislation.

5. DIRECT COSTS OF THE PRESENT WAR. By Ernest L. Bogart, Professor of Economics, University of Illinois.

6. EFFECTS OF THE WAR UPON INSURANCE WITH SPECIAL REFERENCE TO THE SUBSTITUTION OF INSURANCE FOR PENSIONS. By William F. Gephart, Professor of Economics, Washington University, St. Louis.

7. THE FINANCIAL HISTORY OF GREAT BRITAIN, 1914–1918. By Frank L. McVey, President, University of Kentucky.

8. BRITISH WAR ADMINISTRATION. By John A. Fairlie, Professor of Political Science, University of Illinois.

9. INFLUENCE OF THE GREAT WAR UPON SHIPPING. By J. Russell Smith, Professor of Industry, University of Pennsylvania.

10. WAR THRIFT. By Thomas Nixon Carver, Professor of Political Economy, Harvard University.

11. EFFECTS OF THE GREAT WAR UPON AGRICULTURE IN THE UNITED STATES AND GREAT BRITAIN. By Benjamin H. Hibbard, Professor of Agricultural Economics, University of Wisconsin.

12. DISABLED SOLDIERS AND SAILORS—PENSIONS AND TRAINING. By Edward T. Devine, Professor of Social Economy, Columbia University.

13. GOVERNMENT CONTROL OF THE LIQUOR BUSINESS IN GREAT BRITAIN AND THE UNITED STATES. By Thomas Nixon Carver, Professor of Political Economy, Harvard University.

14. BRITISH LABOR CONDITIONS AND LEGISLATION DURING THE WAR. By Matthew B. Hammond, Professor of Economics, Ohio State University.

15. EFFECTS OF THE WAR UPON MONEY, CREDIT AND BANKING IN FRANCE AND THE UNITED STATES. By B. M. Anderson, Jr., Ph.D.

16. NEGRO MIGRATION DURING THE WAR. By Emmett J. Scott, Secretary-Treasurer, Howard University, Washington, D. C.

17. EARLY EFFECTS OF THE WAR UPON THE FINANCE, COMMERCE AND INDUSTRY OF PERU. By L. S. Rowe, Professor of Political Science, University of Pennsylvania.

18. GOVERNMENT CONTROL AND OPERATION OF INDUSTRY IN GREAT BRITAIN AND THE UNITED STATES DURING THE WORLD WAR. By Charles Whiting Baker, C.E., Consulting Engineer.

19. PRICES AND PRICE CONTROL IN GREAT BRITAIN AND THE UNITED STATES DURING THE WORLD WAR. By Simon Litman, Professor of Economics, University of Illinois.

*20. COOPERATIVE MOVEMENT IN RUSSIA. By E. M. Kayden.

*21. THE GERMANS IN SOUTH AMERICA: A CONTRIBUTION TO THE ECONOMIC HISTORY OF THE WORLD WAR. By C. H. Haring, Associate Professor of History, Yale University.

*22. EFFECTS OF THE WAR ON PAUPERISM, CRIME AND PROGRAMS OF SOCIAL WELFARE. By Edith Abbott, Lecturer in Sociology, University of Chicago.

*23. (Omitted.)

24. DIRECT AND INDIRECT COSTS OF THE GREAT WORLD WAR. By Ernest L. Bogart, Professor of Economics, University of Illinois. (Revised edition of Study No. 5.)

25. GOVERNMENT WAR CONTRACTS. By John F. Crowell, Ph.D., LL.D.

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*These numbers have not yet been published.

CHAPTER I

Introduction

For more than a generation there has been going on in the two great industrial countries, Great Britain and the United States, a sharp conflict between those on the one hand who believe that there should be no government interference with private industry, and those on the other hand who advocate either government control or government ownership and operation, first, of public utilities, and second, of other processes of production, whenever and wherever the normal processes of competition fail to protect the public.

It is well known that during the last forty years a complete revolution has occurred, not only in economic thought but in public policy, both in Great Britain and the United States. Doctrines that were deemed ultra-radical thirty years ago and which a professor of economics expounded only at the risk of losing his position and being branded a socialist—a term which at that day was regarded by probably nine-tenths of average newspaper reading Americans as synonymous with anarchist —these doctrines are accepted today without question by railway presidents, financiers and captains of industry.

The change in popular sentiment has in fact far outrun the change in governmental practice. There has been a very great extension of government control and regulation, not only in the field of public utilities, but in a great number of matters where public health or safety, or the welfare of wage workers is concerned. As examples may be cited the workmen's compensation laws, which place the burden of industrial accidents on the industry and not on the injured employe; the extension of building regulations, factory laws, inspection of food products, restrictions on the employment of women and children. All these laws, which were originally enacted in the face of great opposition, are now accepted by

all concerned as a necessary part of modern industrial life. This great extension of governmental functions, however, has not satisfied the public. There is probably as widespread favor today for government ownership and operation of public utilities as there was a generation ago for government control.

The business men who a generation ago were opposed to public control, and who now accept it as "a necessary evil," are today as strongly opposed to public ownership and operation of industries. It is curious indeed to note the contrasting points of view.

One may talk with the responsible officers of public utility corporations which have been under public regulation, and hear almost invariably the story of the defects of public control as it is actually carried out. He will learn that the average "regulator" is a politician, to whom the small salary which the office pays is a consideration of importance. He will be told that these "regulators" generally lack all technical knowledge of the industries over which they are placed in authority, and are always inclined to give the public the benefit of the doubt, rather than administer even-handed justice between the corporations and those whom they serve.

But when one talks to the average citizen, he discovers a belief, in many parts of the country, at least, that the regulating commissions have protected the corporations rather than the public and that we must look forward to a great extension of government ownership and operation as the only satisfactory solution of the problem.

Into this conflicting arena the great event of the war has projected itself. While it has to a certain extent diverted attention from the problems of economics and government, it has been on the other hand a great experimental demonstration of the results of an enormous extension of the field of governmental activity.

The "man in the street," as the English say, has learned from his daily newspaper how the governments of Great Britain and of the United States have undertaken enterprises

under the stress of war conditions which only the ultra-radical has hitherto dared to advocate. Fixing the prices at which food and fuel and steel and copper shall be sold; controlling buying and selling and transport in international trade; operating the entire railway systems of the United States and Great Britain; building and operating ships on a scale that makes the operations of the greatest private shipping company seem trifling—these are typical of the greatly enlarged range of government activities as a result of the war.

These facts have had and are bound to have in the future a profound effect on the minds of men the world around. Whatever the verdict of the scientific economist or the business man may be on the results of government operation and control of industry during the war, the effect on the popular mind has already been registered. For a generation to come, at least, in every appeal for direct government action to fix the price of commodities and prevent extortion and profiteering, the precedent will always be cited as to what Great Britain and the United States did in fixing prices in the world war of 1914–1919. Arguments based on that precedent are not likely to be upset in the mind of the average voter by any later showing as to the specific results of this exercise of the government's strong arm.

It may be accepted without question, therefore, that in the popular mind government operation and control of industry in the past four years has not merely driven the last nail into the coffin containing the defunct *laissez faire* theory of government; it has dumped that coffin without benefit of clergy into the grave already dug to receive it and has heaped high the earth over it.

But if one would hear opinions diametrically opposed to those just set forth, he need only interview some of the experienced business men who have had occasion to come closely in contact with government operations in some sphere of industrial work during the war. He will hear detailed recitals of concrete examples of ignorance, inefficiency and incompetence on the part of responsible government officers

which to the reciter of the incident are proof conclusive that government operation of industries—or government control, for that matter, to any greater extent than circumstances compel—would be a most deplorable result.

The manufacturer or merchant or railway officer who relates this experience and renders this opinion is as honest and sincere in his verdict as is "the man in the street" who has based his verdict on his general information. Further than this, it is noteworthy that the one has little or no respect for the opinion of the other. The captain of industry believes the opinions of the man in the street to be based on too superficial knowledge to be worthy of attention. The man in the street believes the captain of industry opposes government ownership because he wants to retain industry under private control for his own profit. And, as Mr. Dooley says, "there you are."

In the face of these diametrically opposed opinions, it is worth while surely to undertake an impartial investigation, to find if possible where the truth lies. What have been the results of the wide extension of government control and operation of industry during the war in the two great English speaking countries? Attention may well be confined to these two nations because they are the two great industrial nations of the world which have been developed almost entirely on the basis of private enterprise. Here, in these two nations, in the years before us, will be settled the question whether industry is to be carried on as a private business or a public business.

At the outset it is well to explain some of the difficulties in the way of solving the problem before us. It is easy enough for "the man in the street" to conclude from his desultory newspaper skimming that these governments have greatly extended their control of commerce and industry; but to give a categorical appraisal of the governmental activities in this field is far from an easy task. Official government reports are often delayed years in publication even in peace times. In the exigencies of war, the responsible government officers have been too busy trying to keep up with the manifold

demands of daily work to write detailed reports. Again a good share of these government activities in the control and operation of industry was withheld from publication for military reasons. The importance to the enemy of knowing the economic condition of his opponent, the extent to which government interference is necessary, and the causes operating to bring it about may be as important as knowledge of an army's strength and its location.

But to answer the question "how has government operation worked?" it is not enough to know that the government carried on, or controlled, a certain industry. It must be known to what extent the results are good or bad. It would doubtless be possible for a competent investigator, empowered with the necessary authority, to take a single specific enterprise which has been placed under government control or operation, and by spending weeks or months in examination of its books, records, operations and product in comparison with such records as were available of the same industry's operation under private management, a judicial verdict might be reached as to where and how far the change to government operation had been an advantage or a detriment.

If a similar investigation were made of all industries wherein government control or operation had been made effective in the two countries during the war, a foundation would be thus laid for a complete estimate of the results of government control.

It is needless to say that such an investigation would be an impossibility. Even if the government were to finance the enterprise with unlimited funds, and draft an army of trained economists to conduct the work, there would be no means of reducing to mathematical terms the precise results attained in each specific industry. Without that, the averaging necessary to obtain the final result would be a matter of balance of mental impressions, rather than of arithmetic. Again, both here and in making the original ratings, the personal equations of the experts would have a determining effect on the final result.

Of course no government would finance, or even permit, such an impartial investigation of the results of its work. In time of war, the government will permit no facts to become public regarding any defects or failures in its operations that it can prevent.

At the very time these lines are written, the administration is engaged in a severe struggle with Congress over the question whether the government operations in connection with the war are being carried on efficiently. The absolute necessity of maintaining the popular support of the government while the war continues is so generally recognized that a large proportion of the public condemns any publication in time of war regarding inefficiency in the government work, or even statements concerning it in Congress.

Obviously, then, one need not expect to find, either in the official reports or in the public prints, any adequate statement as to the ways in which government administration has fallen short. Such information must be sought from the isolated statements and items which reach the public prints, supplemented by information gathered at first hand, and great caution must always be exercised not to accept such items of information at their face value until checked and found reliable by other methods.

The above briefly reviews some of the underlying reasons why it is impossible to present any exhaustive and complete review of the entire field of governmental activity in connection with industry since the war began. What the author has attempted to do in the following pages is to set forth such broad, general facts with regard to the problem as he has been able to obtain.

It is, after all, on such general facts that useful conclusions may be safely based, rather than on a multitude of details which, even though collected with impartial effort, often tend to confuse the mind and hinder, rather than help, clear thinking and sound conclusions.

It seems necessary also, in the introduction, to say a personal word. The author undertakes this study entirely

free from bias for or against the policy of public ownership and operation of industry. As an engineer, and as the editor-in-chief for more than a quarter of a century of the leading engineering journal of the United States, with a wide acquaintance among engineers, both those engaged in work for corporations and those in public service, the writer has had unusual opportunities to become familiar with underlying facts regarding both fields of work.

The writer approaches the problem, moreover, with full recognition that revolutionary changes are impending and are indeed greatly needed in our industrial system. He recognizes, on the other hand, that these changes, if they are to result in achieving the greatest good to the greatest number, must have a sound economic basis and be made with due regard to existing conditions and prejudices. A reform may be entirely sound in theory and may conform to the principles of justice, and yet prove disastrous in operation, if the public is not sufficiently informed concerning it to accept it in good faith.

CHAPTER II

Efficiency in Government Operated Industries

In the examination of the question to what extent government operation and control of industry has been a success, it will be necessary again and again to inquire to what extent the operation was efficient. It is well to set down in advance, therefore, the reason why efficiency in the conduct of industry is important and also the essential conditions upon which efficient operation depends.

There appears to be a widespread belief that when an industry is carried on by the government, efficiency in its operation is of no great importance. The groundwork for this belief has been laid by the wide commercial exploiting of so-called efficiency systems that aim solely to secure a large output from the wage worker per dollar paid to him. For example, when a man is told that municipal operation of a street railway is less efficient than operation by a private company, he construes it to mean merely that the private company showed greater net earnings because it made its men work longer hours for lower wages.

If efficiency meant no more than this—a mere question of how the earnings of an industry are to be divided between the capitalists who own it and the workers who operate it—then efficiency would not be of such vital concern to the public. But the events of the war have demonstrated that efficiency is a far broader and more important essential to national welfare than has ever been realized. Indeed it early became evident that victory in this great world struggle would be greatly influenced, if not determined, by the degree to which either of the two great contending groups of nations excelled the other in efficiency.

In the United States, waste and extravagance have long been prevalent national sins. In Great Britain, the blunder-

ing governmental methods commonly employed are well expressed in the current expression "muddling through." In both nations this vice of inefficiency in government matters has been lightly passed over in peace times because it *apparently* meant nothing more than the loss or inconvenience of a few individuals and a heavier burden laid on the taxpayers.

National Security Depends on Efficiency

The war has aroused us to a realization that inefficiency in governmental methods can bring about defeat in battle and a nation's downfall. To give a concrete illustration, had Great Britain not succeeded in organizing its manufacturing industries for munition production with an efficiency never before approached in operations on such a huge scale, the war would have been lost before the United States was prepared to exert its strength.

There is hardly a more important economic lesson that the war has taught than the vital importance of efficiency in all the processes of production. And this is true in peace as well as in war. The feeding and clothing and sheltering of the world's teeming millions require the operation of industries on a vast scale.

If all these processes of production, transportation, manufacturing and distribution are carried on efficiently, with all the utilization of power driven, labor saving machinery that the progress of science and the arts has placed at the service of mankind, then a limit can hardly be set to the degree of comfort which the masses of mankind may attain. If, on the other hand, inefficiency prevails, then the world's production will soon fall below the line necessary to supply the necessities of life, to say nothing of its comfort.

It seems important to emphasize this matter at this particular time, when the doctrines of the Bolsheviki have innundated the most populous nation of the world and threaten to spread elsewhere. Whatever beliefs may be held concerning the distribution of the products of industry, it is too evident to require argument that there must first of all

be products to distribute, or rich and poor will go down to destruction together. The greater the efficiency of a community or a nation, the greater will be its volume of production available for the benefit of all.

It is generally agreed that the war will bring about profound changes in our social and industrial organization. Whether these changes will be for the better or the worse will depend very largely on how they affect the productive efficiency of society as a whole. This, then, is the reason why the most important question of all respecting the government's action, in controlling industry during the war, is what effect did it have on efficiency?

Three Conditions of Efficiency

And now it is useful to go one step further in our analysis. In order that an industry shall be operated efficiently, it is necessary that there shall be efficiency in three places. First, there must be efficient labor—the rank and file of the workers must carry out their set tasks diligently and faithfully. Second, there must be an efficient organization—the system on which the whole body of workers, from highest to lowest, is organized must be such as to make efficiency at least possible. Last, and most important, those who guide and direct the organization must be competent for their tasks.

It is on this last element, more than any other, that the efficiency of the whole organization depends. The workers may be ever so diligent and faithful and the plan of organization may be faultless, and still the enterprise may suffer shipwreck because the men at the head are lacking in good judgment or in knowledge of their business.

All this is, of course, elementary to experienced business men. It is well known that the success of an enterprise depends on the quality of the men who run it,—that one man at the head will make a business yield large profits where another, apparently not much inferior in qualifications, will steer a straight course to bankruptcy.

These three essentials of efficiency apply exactly the same

when an industry is carried on by the government as when it is carried on by private enterprise. If a city is operating an electric lighting plant, for example, in order to get efficient results, it must have an efficient labor force, an efficient plan of organization and competent men to direct the work. The question whether it will secure higher efficiency or lower than a private company in the same field will attain depends on the degree on which the city owned plant excels or falls below the privately owned plant in each of these three particulars.

The Standard for Measuring Governmental Efficiency

There is another matter which needs to be clearly understood in order to form a just opinion as to the results of government industrial activity during the war. When we examine the operations of a government industry and desire to judge its efficiency, the question at once arises, by what standards shall we judge it? If we attempt to mark it on a 100 per cent scale, so to speak, then we shall inevitably reach an erroneous conclusion. There is no such thing as 100 per cent efficiency in any art or industry, whether carried on by a private firm or by the government. Furthermore, the larger an organization becomes, the greater is the difficulty in securing a high degree of efficiency. There is a widespread fallacy to the effect that production on the largest scale is the cheapest production. That fallacy is based on superficial and limited knowledge. Those most familiar with the inside of the great industrial combinations know how often the advantages which they possess by reason of their size are overbalanced by serious disadvantages.

This is a field, moreover, in which there is no rule to fit all industries. The size of the economical operating unit varies greatly. In agriculture in the temperate zone, for example, the farm large enough to be worked by a single family has developed by survival of the fittest, the world over, as the size of the economical operating unit. In raising sugar cane, in Cuba, great plantations with hundreds of diligent workers are essential. In manufacturing industry, while production

on a large scale is generally essential to economy, the experience of the past twenty years has demonstrated in many cases that the production costs of some of the so-called trusts are materially larger than those of some of the concerns of moderate size.

A mistake very commonly made by critics of government administration is to compare government methods and results with those obtainable in some small private business. It is said, for example, that the government worker does not have the incentive to energy and industry and initiative that the man does who is working for himself. Of course, this is true; but exactly the same thing is true of the individual employe and to a large extent of the officers as well of a great public utility or manufacturing corporation.

Again, it is common to hear criticism of government administration of business because of the "red tape" involved. It is overlooked that a large part of the so-called "red tape" in connection with government business merely represents the system which must be established in connection with every large scale business to avoid waste and loss.

This "overhead expense" of carrying on business increases generally with the size of the business. To take a familiar illustration, compare the elaborate system and organization of a great department store, with its army of specialized employes, and the simple methods in use in a small retail store, where the proprietor and a half dozen assistants constitute the entire force.

The same illustration will serve to present what is perhaps the greatest difficulty to the maintenance of efficiency in any great business. The proprietor of a small retail store is in intimate personal contact with every one of his assistants. He himself must be efficient in the conduct of his business or he will be left behind in the race of competition. He can maintain efficiency in each of his assistants because he is on the spot to see and know. But in the great department store, or in any great business employing hundreds or thousands of workers, the individual employe's defects as well as his

merits are often overlooked. Other economic conditions may drive out the small competitor; but in estimating the success of government organization in carrying on any work, the question must always be, not as to whether defects exist, but whether the results attained were on the whole as good as a private business concern would have attained *on work of similar magnitude.*

New Achievements in Efficiency Resulting from the War

The economic lessons taught by the war ought to lead to a study of national efficiency from a broader standpoint. The world has been amazed at the enormous rate of production which the war has shown to be possible through the combination of modern machinery, trained labor, free from artificial restrictions upon its output, skilled technical direction and ample supplies of capital and of raw materials. In many respects this war production has been carried on with an efficiency never before known. It is unthinkable that this efficiency once attained should be sacrificed for a return to the methods of the past. For one thing, the coming world-wide competition in international trade will put out of business any industrial nation which fails to put in practice the principles of efficiency which the war has taught.

It may be thought, however, that this is a view of the problem from the capitalistic standpoint, and that in order to square with the theories of the socialist and the labor leader, there must be a return to such labor restrictions as prevailed in England before the war.

If we are indeed to return to the prewar conditions in other respects, there is much to be said in defense of the labor union standpoint. Suppose, however, that artificial restrictions on the distribution and sale of the output were likewise swept away. Suppose we think of the world as a family of workers. Under these conditions, the greater the production of raw materials and manufactured products, the greater will be the product of goods for everyone to use and enjoy. Under

these conditions, the greater the use of labor saving machinery, the more efficient the utilization of material, the more diligent the workers at their task, the greater will be the amount finally produced to divide among all for their use and enjoyment.

This ideal we must approximate so far as possible. The nearer we can approach it, the nearer will we attain national prosperity and the welfare of the individuals that make up the nation.

Why It Is Necessary to Watch Efficiency

It is not often realized why efficient organization is a vastly more important matter today than it was a few years ago. It is because under a competitive order of business, efficiency is automatically provided for. The least efficient organizations fail and disappear while the most efficient succeed and grow. But under modern large scale production, competition no longer has free play. Further, the larger an organization grows, the more difficult is it to conduct it efficiently. Inefficiency in the conduct of private monopolies or in their control by the public authorities or industries carried on by the government directly is always paid for by the public at large in the form of high prices or poor services, and there is no automatic stimulation of efficiency, such as exists where industries are carried on on a freely competitive basis.

CHAPTER III

Organizing a Nation for War

When the world war began in 1914, the two great Anglo-Saxon nations were not only unprepared in a military sense; they were wholly unprepared industrially, and they were wholly ignorant of this latter unpreparedness. No one dreamed that the coming struggle was to be a conflict between the farms and workshops and mines and mills of the nations quite as much as between the armies in the field. The popular slogan among the British business men when the war cloud broke was, "business as usual." "Let our brave British soldiers and sailors fight the battles and we will go steadily on buying and selling, mining and manufacturing just as if there were no such thing as war." It was not an unpatriotic sentiment by any means. The underlying thought was that Britain's trade and industry, on which her prosperity depended, must be maintained to support the armies in the field. There was no conception of the extent to which the war would affect the life and the daily tasks of every individual, from the captains of industry to the poorest laborer.

We know now that the world war was a struggle between the industrial forces of the nations engaged quite as much as between their armies in the field and their navies on the seas. We know now that organization for that definite end was just as essential for the industrial forces of the nation as drill and discipline for the military forces; but none but the Germans knew this when the tempest broke in 1914.

The Necessity of Organization

A hundred thousand individuals may collect in a crowd; but without organization they are powerless for attack or defense, and will perish in a few days for lack of subsistence

except as organization is effected to supply their needs. The hundred thousand may even be organized in detached groups formed for different purposes, but until the groups are brought together and organized for a common purpose, they are incapable of effective effort.

The great task which confronted Great Britain and the United States when each entered the war, therefore, was the task of organization. How to convert the entire man power and machine power and money power of these great nations from operation in detached units for peace purposes to operation as a united and harmonious whole for the one great aim of winning the war, was the problem to be solved.

It was only very gradually that this great controlling fact came to be recognized. It was only piecemeal and by painful process of trial and error in many cases that the reorganization was effected. If the government at the outbreak of the war, in either Great Britain or the United States, had immediately undertaken the wholesale interference with every individual and every business which in the end became necessary, a storm of public protest would have gone up that would have made success impossible.

Government Organization Defective

In both Great Britain and the United States private industry had attained a high degree of efficiency prior to the war, but government activities were on the whole poorly conducted. The inefficiency of government work was due, not so much to the rank and file of government workers, as to defective organization, lack of intelligent planning and direction, and long delays in action on the part of higher officials.

Hon. Franklin K. Lane, on retiring after seven years' service as Secretary of the Interior, gave the following keen analysis of the federal government as a business organization:

> Washington is a combination of political caucus, drawing room and civil service bureaus. It contains statesmen who are politicians and politicians who are not statesmen. It is rich in brains and character. It is honest beyond any commercial standard; it wishes to do everything that will promote the public good; but it is poorly organized for its task. Fewer men of larger capacity would do

the task better. Trust, confidence, enthusiasm—these simple virtues of all great business are the ones most lacking in government organization. We have so many checks and brakes upon our work that our progress does not keep pace with the nation's requirements. There are too few in the government whose business it is to plan. Every man is held to details—to the narrower view. We need for the day that is here and upon us men who have little to do but study the problems of the time and test their capacity at meeting them. In a word, we need more opportunity for planning, engineering, statesmanship above, and more fixed authority and responsibility below.

How could a government, which in the ordinary routine of peace is unable to efficiently plan and organize its own activities, undertake to efficiently organize and exercise absolute control over the productive activities of the nation? To state such a proposition was almost to condemn it.

It would have seemed an entirely safe prediction at the outbreak of the war that government interference with industry, where industry was essential to win the war, would be the best means of ensuring defeat. And yet in both nations, as one step after another was taken in government control, the necessity was so obvious that the industries affected acquiesced with hardly a word of protest.

The most marvellous accomplishment of the great struggle was the successful organization of both these great nations into a vast machine, all of whose operations were shaped toward the one end of winning the war.

Of course this huge machine did not operate with 100 per cent efficiency. No machine and no organization which fallible human beings originate and direct ever operates with anywhere near perfection. The story of the war organization in these countries and in every country is full of records of failure and incompetence, gross error and scandalous waste. But when the great organization is viewed as a whole and measured by the results attained, it is recognized that the failures and mistakes bulk small in comparison with the general success.

Time Necessary for Efficient Organization

In the ordinary operations of commerce and industry, the building up of an organization has been generally recognized

to be a task for which a long time is essential. Mr. Carnegie, at the height of his business success, declared that the premier position of his companies was due neither to their control of raw materials nor to their superb mills and furnaces, but to the organized group of men which directed these activities. But the building up of this efficient organization had occupied the best part of his life. So it is with every enterprise which has attained a high degree of efficiency. It has been gradually built up, usually from small beginnings, and by a process of trial and error and gradual growth has advanced its position.

But when the demand came that the nations should reorganize for war, time was the element most lacking. It was evident not only that the victory would fall to whichever side was able to achieve greatest efficiency in organizing its people for war; but to whichever side was first able to get this organization into operation.

In the ordinary operations of peace times, efficiency is commonly measured in money. The most efficient steel making plant in peace times is the one which can turn out its products at the lowest cost. The most efficient in war times is the one which can fill an urgently needed order most quickly.

How could a government with all its machinery adjusted to peace time operation at a phenomenally slow speed accomplish the task of reorganizing all the activities of an entire people to the highest rate of speed possible? The task seemed impossible. It would have been impossible save that its successful accomplishment was absolutely essential to national existence. Had the task been presented as a whole at the outset of the war, as we can see it now, its very magnitude would have appalled those on whom the burden was laid. But taken as it was, one task after another, as one urgent need after another became plain, the great accomplishment became possible. Where one man failed another took up his task; where one means was found insufficient a substitute was rushed forward and made to serve.

A military campaign can not be carried out on a hard and fast plan made long in advance. Its plan must be subject to change from day to day and from hour to hour, as the movements of the army or other changes in conditions make necessary. So the government organization of industry had to be subject to continual change as different needs became urgent.

For example, in the early part of the war Great Britain turned as much as possible of her shipbuilding facilities toward production for the navy in order to make as near certain as possible her control of the seas. Later, when the destruction of merchant vessels by enemy submarines endangered the Allied food supply, the shipyards were turned back to merchant work.

Party Policies Opposed to Government Interference

At the outbreak of the war, governmental policy in both Great Britain and the United States, so far as it was formulated in party policies, was strongly adverse to government interference with private industry. Historically, the Democratic party in the United States was the party least in favor of the exertion of federal authority. In Great Britain, the Liberal party is historically the defender of the *laissez faire* theory of government. The dominant political issues of the past quarter century have placed these older ideals in the background, but they still have influence with great masses of people.

The governments of both nations were unprepared with any principles or policy for dealing with the war emergency. So far as any principles or policy had sway, they were contrary to the course which the stern logic of necessity gradually compelled both nations to adopt.

When Great Britain entered the war, it was at first assumed that the great government owned and operated munition factories, added to the great private works in Great Britain which had specialized in war material, would be able to supply the needs of her armies.

It was promptly found that these would be wholly inadequate. Great Britain not only had to equip her own new armies but supply to a large extent the armies of her allies. There was no time to enlarge the government factories or to build up new organizations to carry on government work. The thing to do was to get munitions from every source possible. Every factory in Great Britain capable of making guns or shells was at once appealed to to undertake such work and the government extended whatever help was needed. This was not done on any system. There was no time to formulate a system. What was done was to give whatever aid was needed to enable the factory to equip itself for the work. In some cases loans were made, with or without interest. In other cases the government paid for the new plant, either directly or indirectly through an allowance on the price of the output which it purchased.

There was in those early months of the war no conception of the length and magnitude of the struggle ahead, and little attention was given to the prices paid. The idea that it would be as necessary to husband the financial strength of the nation as its industrial strength came later. There was no time to haggle over prices or to advertise for bids in the usual manner on government work in peace times.

The government did not embark on this work with any idea of controlling the industry with which it dealt. It took the shortest and most direct means of supplying its urgent necessities. It had the power, indeed, to have commandeered the plants to which it let contracts; but such a course would have defeated the end in view. The organization which the manufacturer had built up was in most cases as important as the plant. To set this organization into operation on government work was the thing desired.

Breakdown of the Competitive System

The very magnitude of these operations very rapidly made necessary an elaborate system of government control.

It was the magnitude of these operations that soon brought

into bold relief the inadequacy of the competitive system, or the law of supply and demand, to meet the nation's necessities. There was no limit to the demand for munitions. The supply had to be created from sources that did not exist. To proportion the price to the urgent necessity of the purchaser was manifestly unjust.

This is indeed typical of the situation that has existed in hundreds and thousands of industries. The world has been accustomed for generations to conditions under which the supply of commodities is somewhat in excess of the demand, or can be increased to meet the demand as a result of the stimulus due to a slight rise in price.

The world war has created a demand far beyond the supply. There was not enough labor, there was not enough steel, not enough food, or coal, or ships, or wool or leather. More than this, *raising the price would not materially affect the supply available for immediate needs.*

How Rationing Became Necessary

These things were developed as the result of practical experience in the British Government's dealings with the munitions making industries. The government had contracts with thousands of manufacturers to produce shells in enormous quantities to feed its artillery. All these makers had to be supplied with steel, and this at a time when steel was urgently demanded for warships and merchant ships at home, for export to munition works in France and Italy; for a multitude of other war manufactures. Had supply and demand been left free to take their course, the prices of steel would have gone on rising until some purchasers would have been forced out of the market. Those industries alone would have secured steel which were able to pay the highest price for it; and they would have bought a surplus in order to be sure of keeping their plants in operation.

This would have resulted automatically in concentrating the profits of the steel using industry in the hands of the makers of steel.

But such an operation would have been most detrimental to the nation's welfare. The thing to be desired was that everyone who needed steel for war uses should secure a proper supply and be assured of such a supply without the necessity of hoarding. It was also extremely desirable that profits should be equitably distributed all along the line, and not concentrated in any one holding. The steel maker should have enough profit to induce him to push his production by every possible means, but so should the coal operator who furnished him with coal, and the mine operator who produced the ore; so should the manufacturers who made the steel into shells and tanks and ships; and the workmen employed by all these concerns must have wages sufficient to satisfy them and prevent strikes.

Never was there better illustration of President Cleveland's famous remark that "it is a condition and not a theory that confronts us." The theory of the law of supply and demand and its relation to price was unaltered; but a condition had arisen that made the rise of prices in accordance with this law and the distribution of products according to price operate against the public interest, instead of for it.

Price Fixing Becomes Necessary

The government of Great Britain was forced to fix prices for steel to meet this condition, although it did not do this until the war had been going on nearly a year and a half. Nor was this enough. The government was obliged to step in and direct how steel should be distributed. It could not permit steel which was urgently needed for munitions to be exported, even though the purchaser in a neutral country might offer a tempting price to the steel maker. It could not allow steel to be rolled into building material when it was more needed for ships. Where the supply was insufficient for the demand, it had to decide which of the war industries most urgently needed the metal.

It was obvious that where price fixing by government authority is made effective, some adjudication of priority

rights is essential; otherwise, who shall decide which purchaser shall receive the most of a limited supply? Under normal operation of the law of supply and demand, the man who can afford to pay the highest price is the one who receives the goods. This is supposed to automatically measure his need for them. But if the price is the same for all and there is no means of equitably adjudicating priority rights, then the goods would probably go to the buyer who made the largest present to the seller's sales agent or other responsible official.

Control in the Labor Market

The labor situation was the one which soonest made clear the necessity of government control. This again was not foreseen at the outset. It had to be demonstrated by the process of trial and error. Lack of skilled workmen was quickly felt as a limitation on the output of munitions. The various competing manufacturers began bidding against each other for the services of workmen skilled in shell production. This had the effect of increasing the labor turnover and unsettling the rank and file of workers, while it tended to make the small class of specially skilled men hold on to their advantageous position and oppose attempts to impart their skill to others.

The government had to interfere and establish restrictions against the transfer of skilled workers from one district to another. It had to bring back skilled workers who had volunteered for army or naval service. It had to establish a vast system for training labor; and for "dilution" of skilled labor with unskilled labor and with women workers.

It was impossible for the employers of labor to grapple with the labor situation themselves, either individually or in combination. Labor was too distrustful of capital to make this at all possible. The matters at issue were not alone commercial and economic. They were political and social. The whole issue of the war was at stake. Unless the rank and file of British labor could be enlisted to contribute their

best efforts to swell the industrial output of the nation, defeat was certain.

How Lloyd George Saved the World

The fate of Great Britain and of the world never hung on a more slender thread than during those months when the question whether British labor would sacrifice its dearly purchased power over wages, hours of labor, working conditions and output was undecided.

It is very doubtful whether any living British statesman save Lloyd George could have accomplished the feat of pursuading labor to make the sacrifice. Had he performed no other service than this during the five momentous years of the war, he would deserve perpetual honor as the savior of his country and the world.

Government Welfare Work

And having induced the workers of Great Britain to make the sacrifice, it was then the responsibility of the government to see that these workers were properly cared for. The government had to establish tribunals to adjust differences between employers and workmen and avert strikes. It had to suspend the factory laws, which limited the hours of labor and the employment at night work for women and children, and having done this it had to take extensive means to curb abuses, such as working unduly long hours. It had to provide housing for the workers on an enormous scale, it had to provide special transport service to carry workers to and from their tasks. It had to provide for adjustment of wages to meet the rapid increase of living costs. It had to provide for limitation of profits by the firms engaged in filling government contracts. Previous to the war a few individual firms, more progressive than their neighbors, had undertaken for the benefit of their employes various enterprises classed under the general head of welfare work. Under the stress of war conditions, the government had to organize welfare work on an enormous scale for the army of munition workers, to con-

serve their health and productive capacity, to cultivate their spirit of patriotic service, and to keep them contented so as to ward off industrial strife.

A volume might be written on the measures taken by the government for the control of industry in connection with the relations of labor alone. In fact, the government reports, which describe in detail the measures employed in the dealings with labor, comprise many volumes.

What is desired here is to point out how the control of the munitions industry in every particular—capital, profits, labor, skill, materials, and transportation—grew out of the nation's necessities for an enormous supply of munitions, a necessity which could not possibly be met in any other way.

Very few British statesmen or business men believed before the war, or believe now, that the British Government could run a factory for making guns, or projectiles, or explosives, better than, or even as well as it could be run by its private owners. The government control was exercised when experience demonstrated its necessity, and not before.

How Did Government Control Work?

When one asks the question how did government control work, he receives two diametrically opposite answers and, curiously enough, both of them are true. Government control was established by a process of trial and error; and there was a vast amount of error in it. Nobody was wise enough to know exactly what was the best plan of solving each new and unprecedented problem as it arose. Time was generally lacking to permit the investigation and study necessary for deciding on the best course. The government had to build up a great organization to control the munition business at a time when it had to create numerous other organizations to conduct the war activities. Mistakes were inevitable. Waste was inevitable. Confusion was inevitable. There were cases where capital was unjustly treated, there were cases where labor suffered. These things would have happened with any man or set of men in control and under

any form of government or of private enterprise—had it been possible for private enterprise to undertake a task which required the authority and prestige of government for its performance.

So if one views the work done by the government in the control of industry in its details, he will naturally take a pessimistic view. It is only when he views the accomplishment as a whole that he can appraise at its true value the remarkable achievement in organization and control which England and America achieved under the stress of war.

The Necessity of Central Control

One of the most difficult of all the problems in connection with the government organization was the problem of concentrating authority. Everyone knows how the success of the Allies' military operations that turned the tide of defeat into a current of victory began with the bestowal of supreme authority on Marshal Foch as commander of all the Allied armies.

In the industrial field, both Great Britain and the United States failed of effective action until, after many months of disastrous delays, an effective central control was finally established.

Bureau Control *Versus* the General Staff

Even in the military field, the outbreak of the war found the United States with its army organizations handicapped by a fatal lack of central authority. The army was organized in a number of different bureaus, each charged with its own special duties; but all of them overlapping and conflicting more or less with each other and with traditional enmities, personal and otherwise, that continually interfered to prevent cooperation.

In theory, of course, a central authority over the whole existed in the authority of the President as Commander-in-Chief, exercised through the Secretary of War; but no such control could be effective. The need was not a one man

authority, but a central organization to plan for and direct all arms of the service. This need had been long recognized even in peace times, and legislation had been enacted authorizing the creation of a General Staff to exercise this very power. But as long as peace continued, the defenders of the old bureau system, under which each bureau was supreme and could conduct its own affairs as it pleased, were too strong to be overcome. It was not, in fact, until the nation had been for months at war and the conflicts going on between different bureaus became an evident, serious danger to the nation's welfare, that the organization of the General Staff to exercise central control over the entire army was undertaken in an energetic way.

The Council of National Defense

It was dimly seen, also, in the months before the United States declared war that the nation had no means of uniting all its forces for action, and a first attempt to supply this lack was made in the creation of the Council of National Defense. This was a body made up of the several Cabinet officers who were heads of departments which were supposed to have something to do with the war, and half a dozen or more men who had been selected almost at random—manufacturers, army officers, college presidents—all patriotic but greatly varying in ability, and the whole organization possessing advisory powers merely, and no real authority. The council did an immense amount of work. There was nobody else to do it; and the temper of the American people was such that advisory power was in many cases as good as legal authority.

But when it came to really important matters, where a central *authority* was most needed, the council was powerless. In those early months of the war, men went to Washington on important missions and came away despairing at the chaos they found. The Council of National Defense had no organization competent to act upon and decide questions. It was swamped with work, so that its members broke down under

the physical strain. When it came to matters where real authority had to be exercised, one had to see a Cabinet officer after all, and the Cabinet officer in many cases said, "Only the President can pass on that."

That was the condition of deadlock that for months paralyzed many efforts to mobilize the nation's industries. Had President Wilson been twenty supermen combined in one, he could not have discharged the multitude of responsibilities which were at the time placed on him alone. What was needed was not a central man, but a central organization, with authority to guide and direct and harmonize all the energies of the nation.

It was at this stage of affairs that a strong movement arose in Congress, in which leading men of Mr. Wilson's own party were prominent, to have a central body created corresponding to the Ministry of Munitions in Great Britain, to exercise a control over the industries of the country. This movement was opposed by the President; but afterward, under the broad authority granted him by the Overman Act to reorganize the war activities of the nation, the War Industries Board was created.

This board became, by a process of natural evolution, the chief authority in coordinating and directing the entire industrial forces of the nation. Besides determining all matters of priority, it had the responsibility of fixing prices of the staple commodities of trade, and it was the central organization which brought together for cooperative action the Federal Trade Commission, which controlled the exports and imports of the nation, the Department of Labor, the Fuel and Food Administration Bureaus, and the foreign representatives purchasing for the supply of the Allies.

It would be difficult to exaggerate the difference between the atmosphere of official Washington in the summers of 1917 and 1918. In the first months after the declaration of war, hundreds of organizations, industrial and governmental, were feverishly at work, each on its own affairs with little or no knowledge of what others were doing; constantly get-

ting in each other's way and undoing what the other had done. Hosts of men were assuming authority they did not possess, and as many more were "passing the buck" to some other fellow. On many war activities, whole months of time were lost through sheer inability to get decisions on important matters.

A year later, Washington was directing the whole nation like a great machine. Calmness and confidence had succeeded the frantic hurry and distrust and bickering of a year before. It is almost impossible to appreciate the hugeness of the task accomplished. A nation of a hundred million people had been coordinated in all its activities and directed toward a single object. From the hour of their rising—an hour earlier than ever before—men worked, ate, drank, bought and sold till their day was ended, and not an hour passed that the course of their actions was not touched at some point by the nation's plans to win the war.

Establishment of Central Control in Great Britain

To turn now to an earlier chapter in history, it is to be recorded here that Great Britain went through a similar and even longer period of chaos in her governmental activities before a central control was established.

In fact, Great Britain was not industrially organized to win the war, as has been already indicated, until the Ministry of Munitions was created and Lloyd George was placed at its head on May 25, 1915.

Just prior to this, the situation was described by the *London Times* as follows:

> The central difficulty in obtaining a sufficient supply of munitions of war arises from the multiplicity of government departments, all more or less overwhelmed by the emergency, all clogged by official routine, all unused to business methods and ignorant of manufacturing technicalities, all issuing confused and often contradictory orders, all pressing their own requirements without regard to the rest. Manufacturers eager to help fell back baffled by a fog of official confusion; they apply in one quarter and are referred to another; they receive contradictory instructions and not infrequently fail to elicit any reply at all.

The picture is as faithful a one of Washington in 1917 as of London two years earlier.

Nobody looking back now at the situation doubts that coordination of organization under a central authority in both Great Britain and America was essential to the winning of the war; and yet what a ponderous barking the critics of the daily press and many men in high places set up at this monstrous assumption of authority by the executives of the two nations! How many times were Lloyd George and President Wilson declared to be grasping more autocratic powers than the Kaiser had exercised. How many sage editorials berated Congress and Parliament for abdicating their powers!

Only the Executive Could Create Efficiency

Because of this criticism—which those who made it must now read with shame—it is worth while to consider what was done to effect this organization. And the central fact which stands out is that the waging of war can only successfully be done by the executive branch of the government. The legislative and judicial branches have their place, but their place is not in carrying on a war. Congress acted wisely in passing promptly and with little opposition a few statutes placing full authority in the hands of the President or those to whom he should delegate it, and not attempting to insert a multitude of details in the acts.

Of course, as has been already said, the great executive organizations created under this authority made a vast number of mistakes and betrayed a great amount of incompetence and worse; but that would not have been prevented in any way had Congress attempted to interfere with detailed directions, as it is very apt to do in enacting laws.

In Great Britain the volume of war legislation passed by Parliament was much larger than that enacted by Congress, perhaps on the theory that parliamentary action is essential there, the executive being merely the representative of Parliament.

And finally it should be said that the coordination of industry in the United States, and of all the multitudinous war

activities, was only possible because the executive authority was backed by an overwhelming public opinion. The criticisms that the executive was assuming autocratic powers fell on deaf ears. The sound common sense of the people perceived that central leadership and control was absolutely essential. There were few to inquire whether the executive's action had warrant in law. A great chorus of criticism arose when Fuel Administrator Garfield decreed public holidays and suspension of business to save fuel in the cold winter of 1917–18, but the order was obeyed. When gasless Sundays stopped pleasure riding in automobiles in the fall of 1918, a few lone individuals who had the bravado to defy the order found themselves such objects of public contempt that there was no need to appeal to the police to enforce the order.

This was true of government control of industry all along the line. Millions accepted it gladly as a necessary part of winning the war.

It is this fact that particularly needs to be borne in mind whenever the government's action in war is taken as a precedent for its actions in peace. The patriotic devotion of the millions of individual citizens was an enormous factor in the success of government control of industry and all activities during the war. In theory, the citizen ought to be equally devoted to his country's welfare in time of peace; but everyone knows that human nature is not made that way.

CHAPTER IV

Railways in Great Britain

On the day following Great Britain's declaration of war, the entire railway system of the country was taken over by the government. The reasons for this action are as important as the action itself. Government ownership and operation of railways has been more or less actively discussed in England for years and the discussion has turned generally on the relative economic advantages of government and private operation. With the coming of war, economic considerations were put in the background and the railways were taken over by the government as a military necessity. It has long been recognized that in the time of active military operations, railways are as important an element as weapons. This world war has demonstrated that the operation of transportation lines in far distant lands across the seas may have an important influence on an army's campaign.

The necessity for direct government control of railway lines in the event of war had long been foreseen in Great Britain. Legislation providing for such control was enacted in 1871, when the military lessons of the Franco-Prussian war were impressed on the world, and only an official order was required to put it into effect.

On the surface, the change was exceedingly slight at the outset. Every wheel and cog of the vast railway organization continued in motion the same as before; every employe and official, from the navvy delving beside the track to the General Manager in his office, went on with his work as before. The sole difference was that the general managers of the thirteen great systems which constitute the railway net of Great Britain were made a Managing Board for the whole, with the president of the Board of Trade (a govern-

ment official) as the official chairman, and the general manager of one of the companies as the working head.

As is well known, Great Britain, where the railway originated, started out on the theory that the railway business should be a freely competitive business, and has always aimed through governmental action to preserve competition and prevent monopoly. There has been for many years a steady decline in the amount of competition between the different companies. With the taking over of the railways by the government on August 5, 1914, the competition which the government had for so many years labored to preserve was terminated at a stroke. The questions of divisions of traffic between the different companies were at an end. All the railways of the country were to be operated as a single system.

This difference did not at the outset make any apparent great change in the railway operations. The thing of most importance at the start was the organization of the railways to meet the necessary movement of the troops and supplies. With the government in direct control, this was a far simpler matter than would have been the case had the operation by private companies continued.

One matter which was greatly simplified by the change was that all government traffic, whether of freight or of troops, was moved without charge. The saving in delay by reason of no weighing and billing and ticketing being necessary was, under war conditions, a matter of vital importance.

The British railways handled the military traffic during the war with marvellous efficiency. The mobilization of Great Britain's first army of 120,000 men, which was landed in France within a fortnight of the declaration of war, required the movement of 1,500 trains, and 9,000 cars were required to carry the 60,000 horses of the force. Southampton, the point of embarkation, was closed to all but military traffic. On one day, 104 trains carrying 25,000 troops, over 6,000 horses, and 1,000 tons of baggage were scheduled to reach Southampton at 12 minute intervals during the 16 hours from dawn to dark. If any train was as much as 12

minutes late, it had to take a side track and wait until all other trains had passed. During the whole embarkation of the expedition, not a single train failed to keep its place in the procession conveying troops from different points of the country.

Sydney Brooks, writing in the *North American Review* in February, 1918, stated that the British railways had then, since the outbreak of the war, transported for purely military purposes, more than 13,000,000 persons, 2,000,000 horses and mules and some 25,000,000 tons of explosives and war material. Of the depletion of the staff by the war, he states that of 540,000 employes, 170,000 enlisted, whose places were partially filled by 60,000 women.

The basis of the agreement under which the government would take over the railways from their owners had been decided on long before the war. The final terms were settled and announced in September, 1914, within a month after the railways were taken over. Substantially these terms were that the companies owning the railways received a rental equal to their net earnings in the year preceding the war. They were not concerned, therefore, with the manner in which the government conducted the business, the way it distributed traffic among the different lines, or the rates it might charge.

When the railways were first taken over by the government, the necessity chiefly in mind was the military necessity—the operation of troop trains, possible direct control of the lines in case of an invasion, etc. Under the exigencies which the war created, radical measures were taken which would have been scarcely possible had operation by private companies continued. For example, a great mileage of military railways was built in France. Because of a scarcity of rails and rolling stock, many of these French roads were laid with rails taken from British roads.

Again, the British railways had to move an enormous traffic with an operating staff depleted by military recruiting, with deficient rolling stock and a scanty coal supply. Under peace conditions it was exceedingly difficult for a railway

company to secure consent from the Board of Trade for the abandonment of a single railway station. The necessities of war made necessary the abandonment of more than 500 country stations. Entire railway lines in isolated districts were put out of business in order to send the rails to France and other theaters of war. Over 4,000 miles of military railway line were built by British railway men after the war began.

Under peace conditions, also, the service the companies had to render was under rigid rule fixed by Act of Parliament and Board of Trade orders. The necessity of moving freight traffic in time of war made it necessary to cut down passenger traffic by drastic measures, and especially the running of nonessential trains. On the London & Northwestern system alone, 500 passenger trains were canceled and 44 stations were abandoned. Passenger fares were raised 50 per cent and many of the luxuries of travel were restricted, such as seat reservations and the use of sleeping and dining cars.

In the movement of freight, also, drastic measures were put in force to reduce unnecessary traffic movements. Coal shipments were required to be made from the nearest producing mining district to the territory to be supplied, and long distance shipments from a mine to a customer, who should draw his coal supply from mines in his own district, were prohibited. Severe penalties were laid down for delays by shippers in loading and unloading cars.

These are typical of the radical measures which were adopted under government railway operation in Great Britain. They would have been impossible with the railways under private company control. They would have been impossible for even the government in times of peace. In the presence of the war calamity, however, everyone recognized that the radical measures were adopted in the interest of national safety, and there was general acceptance without protest.

More important than all the other reasons for government control, however, was the railway labor situation. In times of peace, entire paralysis of a nation's transportation facilities by a strike of its essential railway operatives is an overwhelm-

ing public calamity. In time of war, when the nation is in peril, a great railway strike might easily cause the collapse and capture of its armies in the field.

During the past quarter century there has been steady progress in the organization of railway operatives into unions and in the federation of these unions to enable them to take united action. In Great Britain, in years previous to the war, the government had several times been obliged to exert its influence to break a deadlock between the companies and the employes. Of course, direct operation of the railways by the government is no panacea against railway labor difficulties, as events in different countries have fully proved. Such recent events as the strike of the police force in London, in Cincinnati and Boston and of the fire fighting forces of Pittsburg, in August, 1918, are illustrations of the fact that the employment of labor directly in the service of the community does not prevent it from making organized demands and backing them up by the strike.

There is no doubt, on the other hand, that organized labor can be better dealt with by the government as an employer than by a private corporation. In dealing with labor matters nowadays, the attitude of the men themselves is all important, and their attitude toward the government—especially a democratic government, of which they realize themselves a part—is inevitably far different from their attitude toward a private employer.

At the time the British Government took control of the railways, an agreement was in force between the companies and their employes fixing the wages and working conditions. This agreement had been made in 1911 as a result of conciliatory efforts of the government officials of the Board of Trade, and was to expire November 30, 1914. It was obvious that a conflict over its readjustment under war conditions, or even the danger of a conflict, was to be avoided, if possible. The government in October, 1914, concluded an agreement with the Union leaders whereby the arrangement made in 1911 was to be continued.

The conditions at that time were peculiarly favorable for the making of such an agreement. The patriotic spirit of the nation was at fever heat. The railway employes, who have long favored the nationalizing of the railways, had heartily welcomed the taking over of the railways by the government. Besides this, unemployment was prevalent. The paralysis of business and industry at the outbreak of the war had not yet been broken. Under the existing circumstances, the railway employes doubtless felt they were being fairly treated by a continuance of their old wages, and they accepted the extra work and more onerous conditions of service resulting from the military traffic as part of the fortunes of war.

Hardly anyone at that time foresaw the sweeping changes in prices and values that were close at hand. The British railway employe—and for that matter, the British employe in nearly every occupation—works for wages which are so far below the standards to which Americans are accustomed that the constant wonder is how they live. One answer to the problem is that where a low standard of wages prevails, most of the elements that make up the cost of living are likewise low.

The margin of the British railway worker's wages over his cost of living, however, is inevitably much narrower than that of the American railway worker in a similar grade. When the war had been in progress a few months and the prices of food and fuel, shelter and clothing had started on their long journey upward, the railway employes demanded an increase in wages to correspond to the increased cost of living, setting the amount at 5s. per week.

Into the conferences over this demand, the representatives of the companies entered. While their rental was secure for the period of the war, they looked forward to the time after the war when the railways would be turned back to them, and knew that it would be a hard matter to reduce wages after they had once been raised. The result of bargaining between the representatives of the men, the companies and the government was the grant to the men of a "war bonus,"

fixed at 3s. per week for those whose wages were 30s. or more, and 2s. per week for lower paid men. This meant an increase in the railway payrolls of nearly $20,000,000 per annum.

This was but the beginning of a series of demands by the railway workers for higher wages to keep pace with rising prices, demands which were justified also by the increases in rates of wages paid to other war workers. In the fall of 1915, the "war bonus" which had been fixed in the spring at 3s. was increased to 5s. A year later there was widespread agitation for an increase in the war bonus and the date was fixed for a strike to enforce the demands. An agreement was finally concluded on September 20, 1916, by which employes over 18 years of age had their war bonus raised from 5s. to 10s., and those under 18 years were raised from 2s. to 5s. Six months later, in April, 1917, the war bonus was raised to 15s. per week.

In the following summer a further readjustment was effected between the Union representatives and the railway offices, which altered rates for overtime and Sunday work and effected a further considerable increase in the payroll.

At about the same time the locomotive engineers and firemen made demands for the establishment of an 8 hour day, prompted thereto, there is hardly a doubt, by the success of a similar movement by locomotive engineers and firemen of the United States.

This movement came the nearest to serious results of any railway labor difficulty since government control was established. It was difficult and even dangerous for the government to grant the demands of the men. While on its face a demand for a shorter day, it was really a move for a much higher wage scale. Obviously, with the force depleted by enlistment in the army, and with the enormous traffic to be moved, it was out of the question to reduce the working day to eight hours. The adoption of the 8 hour day would have meant an enormous increase in payments for overtime work. Heavy as this burden would have been, it might have been carried had that been all; but the government, had it conceded

this demand, would have established a precedent. If the 35,000 locomotive engineers and firemen were granted an 8 hour day, the 400,000 other railway employes would have been prompt to demand a similar ruling in their behalf and the demand could not have been refused. Moreover, with an 8 hour day for railway workers, an 8 hour day for the millions of munition workers, coal miners, ship builders, and so on, all through the unionized trades would have been well-nigh inevitable.

A nation at war must, for its own safety, conserve its financial strength as carefully as it does its military strength. It was, therefore, highly dangerous for the government to grant the demands of the locomotive engineers and firemen. The president of the Board of Trade, Sir Albert Stanley, answered the demands with the statement that the 8 hour day was an impossibility under war conditions. Pressure was brought to bear upon the men from every source, including the influence of patriotic leaders of the Labour party, who emphasized the fact that the demand was contrary to the "truce" entered into between the government and the labor leaders at the outbreak of the war. Conditions became so acute that the delegates of the engineers' unions announced that a strike would be ordered unless these demands were granted within 24 hours. The government replied with a proclamation declaring a strike illegal until arbitration by the Minister of Labor had been tried. Settlement was finally effected, and the strike was declared off; but Sir Albert Stanley pledged as one of the conditions of settlement that during the period of government control of the railways after the war, an opportunity would be afforded for appeals from the men for a shorter work day, which would have immediate and sympathetic attention.

The conditions during the fourteen months intervening between the conclusion of the armistice and the signing of the peace treaty have been, in some respects, more trying even than during the war. Prices of the necessities of life have been higher than during the war, and the patriotic fever that

burned high while the issue of the war was doubtful has been succeeded by the inevitable reaction. Labor conditions have been tense in all industries: and the demands of railway labor culminated in a general strike in the summer of 1919 of substantially all railway employes.

A notable feature of the strike was the extent to which the public rallied to the support of the government and showed an understanding of the fact that the government was representing the public welfare in its refusal to concede the demands of the employes. The strike lasted for a week. The interruption to business and industry was, of course, enormous. On the other hand, England is a small country. Distances are short. All the army motor trucks were at once put into service to replace as far as possible the railway in distributing perishable necessities like milk and meat. The railway workers did not expect the firm resistance which the government displayed, and at the end of a week consented to a compromise and returned to work.

Whether the railways will be eventually turned back to the companies or permanently retained by the government is apparently not finally decided; but all the probabilities favor the latter course. A great body of popular sentiment favors nationalization; and the owners of railway securities are fully aware that the change in conditions resulting from the war makes it practically impossible to restore the labor conditions which prevailed before the war and which enabled the British railways to remain solvent under their enormously heavy capitalization. Under those conditions the owners may well prefer to sell out to the government on any reasonable terms rather than take back their property and attempt to earn profits from its operation.

CHAPTER V

Railways in the United States

The government of the United States did not assume control of the railways until nine months after the declaration of war. If plans for such control had ever been made by the military or other government authorities, it is unknown to the public. It is safe to say that in this, as in most other planning with relation to the war, the United States was wholly unprepared. Like many other matters in connection with the United States' procedure with reference to the war, the assumption of control over the railways came when necessity dictated, and not as the result of a policy logically planned in advance.

When the United States entered the war, there were very few, probably, who did not believe that the railway companies would be able to satisfactorily carry on their business during the war without interference from the government. Throughout the business community, indeed, the sentiment was strongly adverse to government control.

And yet a few months earlier, before war was declared, the federal government had interfered in the affairs of the railways in a way that had great influence undoubtedly in preparing men's minds for the taking over of the railways by the government, which occurred at the close of 1917.

The Adamson Law

In the early summer of 1916, unions representing all the railway trainmen of the United States presented demands on the railways for the establishment of an 8 hour working day in train service. Probably the largest scale collective bargaining ever undertaken in the world was that which was carried on at the long daily sessions of the heads of the trainmen's unions with the committee of railway managing officers

held day after day on the stage of the Engineering Societies Building in New York City, while the auditorium was filled with delegates from the different local branches of the unions, keeping close tab on their representatives.

When a deadlock came at the end of long conferences, the scene was shifted to Washington, where the government at both ends of Pennsylvania Avenue surrendered to the demands of the trainmen and enacted an 8 hour law at their dictation, rather than have the country's traffic paralyzed by a nationwide strike.

It was the most threatening labor difficulty which the United States had ever faced; and the fact that it was terminated by direct action by the federal government awakened men to a new realization of the inherent dangers in the railway labor situation and to the importance that the federal government, in the tense international relations then existing, should be in a position where it could take prompt and decisive action.

The Railway Companies' Finances

No less important than the railway labor situation was the situation of railway finances. The rates of fare and freight which the railways could charge were fixed by law and custom and the rulings of State and federal regulating commissions. By the middle of 1915 the value of the dollar, as measured by its purchasing power, began a rapid decrease. That meant that the railways had to pay more for all their materials and had to raise employes' wages because of the increased cost of living; but the commodity the railways produced (transportation) had to be sold at the old price. The only thing that saved the railways from a rapid descent to bankruptcy was the very heavy traffic which the business prosperity of 1915 and 1916 furnished, and which partially offset the increase in operating expenses. By the end of 1916, however, the traffic had grown on many roads to the congestion point, so that the cost of handling it was increasing faster than the revenues.

The railway companies should have expended large amounts

of money from 1913 to 1917 on the enlargement of terminals, on the purchase of cars and locomotives, on repair shops and on improvements in a permanent way; but during these years of steadily increasing traffic the railways were spending barely enough on improvements to keep the wheels moving. They could not do it out of surplus earnings for the surplus was too small, and with expenses growing faster than earnings, their credit did not permit borrowing on a large scale.

It should be recorded, of course, that the railways had repeatedly appealed to the Interstate Commerce Commission for permission to advance their rates. There was long delay in acting on the appeal and then came refusal, followed later by a partial consent. The experience of the years from 1914 to 1918, in fact, conclusively proves that long delays in making changes in rates on railways or other public utilities under present commission control may cause grave harm to the public interests.

While it is true, therefore, that the railways lacked the capacity to accommodate the heavy traffic that came upon them in the fall and winter of 1917, it was not because of incompetence in management, but because the companies had been financially unable to do the work they well knew should have been done.

Why Consolidated Operation Was Necessary

It was obvious to experienced railway officers, as soon as the United States entered the war, that the railways ought to be operated for the war emergency as one system. Even the brief experience in the movement of troops and supplies to the Mexican border, a short time previous, had demonstrated this.

For years progressive officers of the railways had labored diligently, through such organizations as the American Railway Association and the Master Car Builders' Association, to bring about such voluntary cooperation between the individual companies as would result in general benefit to all the railways and to the public. A vast amount of good had been

done in this way; but it was limited by the lack of legal authority. Companies which found it more profitable to disregard the rules of the associations than to obey them often neutralized the work done.

The railways had, in fact, gone just as far in cooperating with each other as the law against combinations permitted. Well understanding the need of complete cooperation to meet the war emergency, they sought to effect it by the only method the law allowed. A general committee made up of some of the ablest railway officers in America was created, and it was announced that this committee would *direct* the operations of all American railways.

There was no possible way, however, to clothe the committee with the legal authority necessary to make its control effectual. Not that there was any general disposition to go contrary to the committee's directions. The railway officers were patriotically anxious to work for the national welfare. It was easy to see, however, the grave difficulties ahead. It might, for example, be desirable under the war emergency so to operate the railways that the business of Company A would suffer very seriously, while the business of Company B would be enhanced. Would the president of Company A be legally justified in so operating his road as to sacrifice the interests of its owners, the stockholders, simply because a body with no legal authority (the National Railway Committee) requested it?

This is but a single illustration of the many legal and practical difficulties in operating the railways of the country as a single system, so long as the individual companies continued in control. Even if there had been no great financial difficulty looming up ahead and no wholesale demands from railway labor, the establishment of complete government control over the railways was a necessary step if the railways were to be operated as a single system; and it was in fact recommended by the Interstate Commerce Commission, after the operation by private companies under war conditions had had a thorough trial.

Control by a Director General

President Wilson in his proclamation announcing the taking over of the railways by the government, placed the supreme authority in the hands of Secretary of the Treasury McAdoo, as Director General. In Great Britain the government authority over the railways is centered in the president of the Board of Trade, which corresponds roughly to our Interstate Commerce Commission. This officer, however, interfered little with the detail operations of the railways; in fact the British railways have been run about as if all the owning companies had been consolidated into one, with the general managers of all the different companies acting as a Board of Directors, which board is responsive to every demand of the military authorities.

Government control in the United States has been conducted in a different way. Mr. McAdoo, in the position of Director General, did not delegate his powers to anyone, but became the actual chief executive and absolute authority over the entire railway business of the country.

One would search far to find a case where one man has exercised such a measure of power over so vast an aggregation of capital. The railways of the United States, over which he held sway, operate over nearly 400,000 miles of tracks and control nearly one-third of the entire railway mileage of the world.

Mr. McAdoo resigned after a year's service, and President Wilson appointed as his successor Walker D. Hines, former general counsel of the Atchison, Topeka & Santa Fé, and generally recognized as one of the ablest of railway officers.

Public Demands Return to Private Ownership

After two years' experience in government control, there is a practically unanimous demand on the part of the business community that the railways be returned to the companies. The general verdict is strongly condemnatory of the government operation. It is even declared that the government ought not to have taken over the railways at all.

This is the public verdict as voiced by almost the entire public press. It expresses the sentiment of business and professional men and of the leaders of public thought.

Organized labor, on the other hand, and that large body of voters which protests against the established order of things, has exerted all its influence to have the period of government control extended. It has declared its belief that there has been a conspiracy of those in authority to operate the roads badly so as to make government ownership and control unpopular and ensure the return of the railways to the private companies.

Has Government Operation of Railways Been Fairly Tried?

Both of these opposing parties believe that we have actually had during the past two years a practical test of government operation of railways, and that it has worked badly. The fact is, however, that the railway operations during the past two years furnish no test whatever of government operation as a permanent policy. The further fact is that the operation of railways during the past two years has been *on the whole* remarkably successful, and not at all the dismal failure that the public so firmly believes.

These statements will, of course, be received with incredulity. It is necessary, therefore, to state fully the ground on which they are based.

The Decline in Railway Net Earnings

The ordinary and proper test of the successful operation of a railway is the financial test. The railway manager who increases net earnings is held to have proved his ability. The manager under whom earnings fall off is discharged as incompetent.

The legislation under which the control of the railways was taken over provided that the government should pay an annual rental to the railway companies equal to the average net earnings for the three years preceding federal control.

Six months after government control was established, a

horizontal increase of rates was ordered by Director General McAdoo. Freight rates were raised 25 per cent and passenger rates were increased to 3 cents per mile. In addition to this, an internal revenue tax was placed on both passenger and freight charges.

With the establishment of federal control and the operation of the railways as a consolidated system, numerous economies became possible through the elimination of expense due to competition of the different companies with each other. Great publicity was given to these savings, effected by the Administration.

Notwithstanding these economies, the large increase in rates and the record breaking volume of traffic, the net earnings of the railways have fallen far below the amount necessary to pay the standard return to the companies. The deficit for the two years will probably exceed half a billion dollars, and in addition, the physical condition of the railways has deteriorated materially.

The Increase in Railway Wages

The chief reason why railway net earnings have fallen off is the great increase in railway wages. The public believes that the railway employe is a profiteer, who is receiving higher wages than are warranted and has been unduly favored by the federal administration in its grant of increased wages and better working conditions.

In order to determine the truth concerning this, there are here presented tables and diagrams comparing the increase in railway wages and the increase in prices of commodities. The changes in prices and in railway wages are shown from 1903 to the present time, the average prices and wages for the three years' period—1903 to 1905—being taken as 100 per cent.

A comparison is also made of the prices and wages of 1913 and the increase which has taken place since. The figures for railway wages are taken from the official reports of the Interstate Commerce Commission and the federal Railway

Administration. The figures for wholesale prices are the index numbers published by R. G. Dun & Co. It may be remarked here that the United States Bureau of Labor index figures show a materially greater increase of prices in 1917, 1918 and 1919 than the Dun figures.

It will be seen from these tables and diagrams that in 1916 and 1917 the railway employes were hard hit by the increase in the cost of living and that the increase of wages which the

TABLE I

AVERAGE ANNUAL EARNINGS OF ALL RAILWAY EMPLOYEES 1903 TO 1919[1]

Year ending June 30	Total amount paid all railway employes (1=1000)	Total number of railway employes (1=1000)	Average earnings per employe	
			Per year	Per month
1903	$775,942	1,312	$591	$49.25
1904	817,598	1,296	631	52.58
1905	839,945	1,382	609	50.75
1906	932,400	1,521	613	51.25
1907	1,072,386	1,672	641	53.41
1908	1,935,438	1,436	721	60.08
1909	988,324	1,503	659	54.91
1910	1,143,725	1,699	673	56.08
1911	1,208,466	1,670	724	60.33
1912	1,252,347	1,716	737	61.41
1913	1,373,830	1,815	763	63.60
1914	1,337,344	1,640	815	67.91
1915	1,134,666	1,366	831	69.25
1916	1,366,101	1,599	854	71.16
1916 Yr. ending Dec. 31	1,468,576	1,647	892	74.33
1917	1,739,482	1,733	1,004	83.66
1918	2,581,885	1,821	1,418	118.16
7 months ending July 30				
1919	1,513,227	1,852	1,401	116.73

In the returns for 1906 the pay of employes of the Southern Pacific Co. was not reported and in place of the actual figures there has been used an average of the Southern Pacific payments for 1905 and 1907. A similar correction is used for the payments by the Chicago, Milwaukee and St. Paul in 1903.

For the year 1908 and following, the returns of switching and terminal companies are not included. For the year 1913 the returns cover Class I and Class II companies only. For the year 1914 and following the returns cover Class I roads only.

Figures for the years 1903 to 1914 are taken from the Statistical Reports of the Interstate Commerce Commission for the year ending June 30, 1914. Figures for the years 1916 and 1917 are from the published reports of the commission. Those for 1918 and 1919 are obtained from the federal railway administration.

[1] Statistical reports of the Interstate Commerce Commission.

federal Administration granted them in 1918 and 1919 was not sufficient to offset the increase in the cost of goods.

Had the railways continued under private control, instead

TABLE II

COMPARISON OF INCREASE OF COST OF LIVING AS SHOWN BY INDEX NUMBERS FOR WHOLESALE PRICES AND INCREASE IN RAILWAY WAGES 1903 TO 1919

Year	Dun's Index No. of Wholesale Prices Aver. for 12 Mos.	Aver. yearly earnings of all railway employes	Percentage of increase over aver. for the 3 yrs, 1903 to 1905	
			Wholesale prices	Railway wages
1903	$99.3	$591		
1904	99.7	631		Increase
1905	100.6	609		Per cent
1906	106.3	613	6.4	0.5
1907	111.6	641	11.7	5.0
1908	109.8	721	9.9	18.2
1909	117.8	659	7.9	8.0
1910	118.8	673	18.9	10.3
1911	116.8	724	16.9	18.3
1912	124.3	737	24.4	20.8
1913	120.9	763	21.0	25.1
1914	122.2	815	22.3	33.6
1915	126.4	831	26.5	36.2
1916	148.8	854	48.9	40.0
1917	204.1	1,004	104.2	64.6
1918	229.2	1,418	129.3	132.4
1919 (6 mos.)	224.4	1,401	124.5	129.6
1919 (12 mos.)	230.8		130.9	

TABLE III

COMPARISON OF INCREASE OF COST OF LIVING AS SHOWN BY DUN'S INDEX NUMBERS FOR WHOLESALE PRICES AND OF INCREASE IN RAILWAY WAGES OVER 1913

Year	Dun's Index Number of Wholesale Prices			Railway wages		
	Aver. for 12 mos.	Increase over 1913 Actual	Per cent	Aver. for year ending June 30	Increase over 1913 Actual	Per cent
1913	$120.9			$763		
1914	122.2	1.3	1.0	815	$52	6.8
1915	126.4	5.5	4.5	831	68	9.0
1916	148.8	27.9	23.0	854	91	12.0
1917	204.1	83.2	68.8	1,004[a]	241	31.6
1918	229.2	108.3	89.5	1,418[a]	655	85.8
1919 (7 mos.)	224.2	103.3	85.4	1,401[b]	638	83.6
1919 (12 mos.)	230.8	109.9	90.8			

[a] Year ending Dec. 31.
[b] Figures cover period from Jan. to July inclusive.

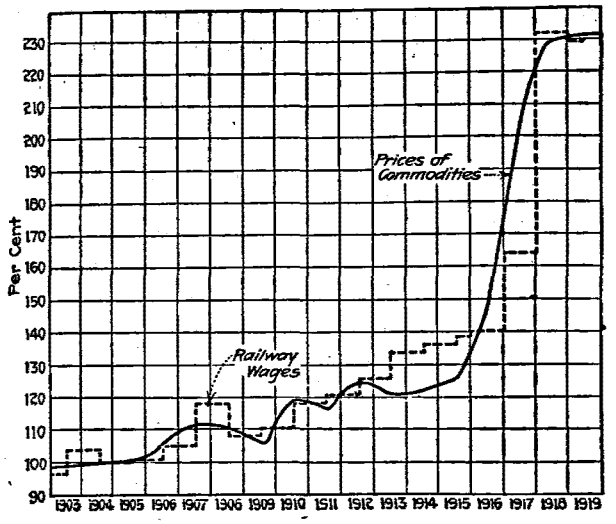

FIG. 1. INCREASE IN COST OF LIVING (R. G. DUN & CO.'S INDEX FIGURES) AND RAILWAY WAGES FOR A PERIOD OF SIXTEEN YEARS

(Percentage of increase for both prices and wages is the increase over the average of prices and wages for the three years, 1903 to 1905, which is taken as 100 per cent.)

of being taken over by the government, wages would have had to be increased just the same. In fact, the increases in wages to railway employes have been less than the increases to factory workers.

The New York Bureau of Labor in December, 1919, reported the average earnings of all factory employes in the State as $25 per week, an increase of 100 per cent over 1913. The average earnings of all railway employes in 1919 were $27 per week, an increase of 83 per cent over 1913. Remembering that a large proportion of factory employes are girls and women and unskilled workers, and that fidelity to duty and reliability are very important in the railway employe and deserve proper compensation, the conclusion is inevitable that the increases in wages made by the federal Administration are certainly no more than were deserved.

It is worth while to note further the showing of the diagrams that in the seventeen years since 1913 the increase in

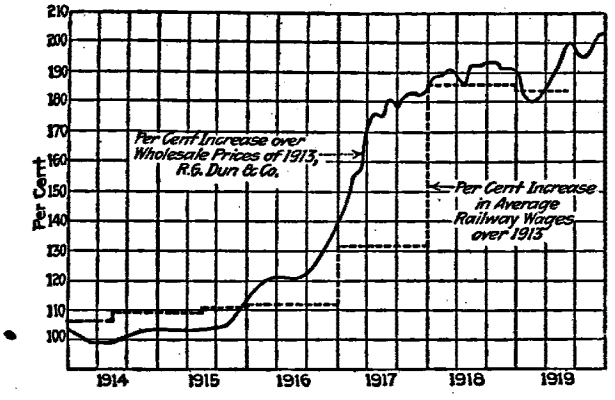

FIG. 2 PERCENTAGE OF INCREASE IN COST OF LIVING AND OF RAILWAY WAGES DURING THE WAR PERIOD

railway wages has on the whole no more than kept pace with the increased cost of goods. That means that the average employe today can buy no more with his wages and live no better than he could 16 years ago, when he earned $591 a year, or slightly over $49 per month.

Is Railway Labor Efficient?

But those who indict the federal Railway Administration declare that its yielding to the railway employes on the eight hour day and on other matters where conditions of working are concerned, has also been responsible for a great increase in railway expenses. There is a certain measure of truth in this charge. The eight hour day, it is fair to recall, however, was established in train service by the Adamson law fifteen months before the government took over the railways. Its general extension to all classes of railway employes was sooner or later inevitable. A number of other concessions were made to the railway employes, for some of which, very likely, the Administration may properly be criticised.

In dealing with the general question before us, however, we must look at the broad, general results in order to reach sound conclusions, and not at minor details. It is possible

to determine from unimpeachable statistics whether there has been actually a great falling off in the amount of work done by the average railway employe.

If the eight hour law and the other concessions in working conditions have really greatly reduced the amount of work done per employe, then there would have to be a large increase in the number of employes. Indeed, a large increase would be looked for anyway, for there has been a great increase in the volume of traffic handled. The ton miles of freight traffic were 25 per cent greater in 1918 than in 1913 (409 billion in 1918, and 301 billion in 1913). But actually the number of employes in 1918, the first year of federal control, was only 3 per cent greater than in 1913, nothing like as large an increase as the growth in traffic would call for.

Of course, in 1918 there was a great scarcity of labor. The railways got along with as few employes as possible, and did as little as possible in the way of maintenance, repairs and improvements. In the first six months of 1919, however, when plenty of men were obtainable, the number of employes was not much increased.

Surely the above figures are a complete answer to the common belief that the federal Administration has granted higher wages or better working conditions to employes than justice demands.

What the Railway Accident Record Proves

There is still another way to test the efficiency of the government in its dealing with the employes. It is charged that the easy concessions to the employes and the recognition given to the railway labor organizations have destroyed *morale* and discipline. If that were true, there would be an immediate effect on the accident record. The remarkable safety of railway travel is only made possible by the thorough organization of the operating force and its subjection to discipline. If this discipline were relaxed so that the employes became neglectful, an increase in the accident record would be inevitable. The carefully kept statistics show no evidence whatever of such an increase.

Electric Railway Finances Are in Worse Shape

There is another interesting parallel that should be drawn. The public condemns the federal Railway Administration because of the financial deficit of the steam railways. The electric street and interurban railways are in much worse financial condition than the steam railways, and they were not taken over by the government but were left in the hands of the companies. It would be as sensible to say that the street railway collapse demonstrates the failure of company control as that the steam railway deficit shows the inefficiency of federal control.

The fact is, of course, that the real reason why both steam and street railways are on the rocks financially is the great change in the value of the dollar and *the fact that the public does not yet understand this change.*

The increase in railway freights and fares put into effect in 1918 was not nearly enough to counterbalance the change in the value of the dollar. Measured by an absolute standard of value, freights and fares are not higher but lower today than ever before. The dollar the railway receives is only worth what it will buy. It will buy today so much less coal and steel and lumber and labor that the railway is in exactly the same position as the man on a small salary, which has only been slightly increased, and who is wrestling with the problem of how to pay his living expenses and the interest on his debts from his income.

The public verdict that the financial results of the railways demonstrate the failure of federal operation is, therefore, an unjust one, based on a complete misunderstanding of the facts.

Why Rates Were Not Raised Higher

It has been said that Director General McAdoo or his successor should have put into effect a greater increase of freights and fares so that the railways might have shown better financial results.

If the railways were a private business, that would doubt-

less have been done. What other industry than railway transportation has passed through the war and raised the price of its chief product only 25 per cent? But railway transportation is not a private business. One of the chief reasons why the business community condemns the Railway Administration is because it increased rates as much as it did. There are plenty who believe that if the companies had only been left in control, there would not have been any such raise in rates. A large part of the public demand for return of the railways to the companies is due to the belief that the companies will restore their former rates.

No Real Test Yet of Government Operation

The public is not only mistaken in its idea that the federal Railway Administration has been a monumental failure; it is equally mistaken in its belief that any real test of government railway operation has been made. The operating force which has carried on the railways during the two years of government control has been the same force and the same officers who did the work previously, when the companies were operating the roads. There were a few changes only in the officials at the head when Mr. McAdoo took charge, but there was no introduction of politics or favoritism into the service. The men placed in authority were nearly all of them men who had won distinction as railway officers.

It is only necessary to compare the way in which the government carries on business which is under its entire control and the way the railways have been run during the past two years to satisfy anyone that whatever faults and blunders are chargeable to the federal Railway Administration, they are trifles compared with the waste and inefficiency which prevail unfortunately in most of our government business.

Were the railways to be taken over and permanently operated by the government, as appears at the present time only too probable at no distant day, we shall have appointments to official positions in railway service either made for political reasons, or else controlled by the fatally mechanical

routine of civil service examinations. We shall see necessary work on our transportation lines suffering fatal delay until Congress makes an appropriation. We shall see an exodus of able men from the railway service because the low standard which Congress sets for the compensation of men of large responsibility drives away all but mediocre men from the government service.

This is but a beginning of the catalogue of what direct government operation of the railways would mean. It is to be hoped that some of the greatly needed reforms in our governmental machine needed to make it operate with anything like efficiency may be carried into effect before the railways are finally turned over to the government, if that event does occur.

While we have not had a real trial of government railway operation during the past two years, we have had an object lesson as to some of the evils which government operation is almost certain to bring in its train. Perhaps the most important of these is overcentralization.

Director General McAdoo did well to establish a tribunal to hear wage appeals when he took control. The work done by the Railway Wage Board, headed by Secretary Lane, was a more thorough investigation of the railway wage situation, doubtless, than any that any railway company had ever undertaken. The permanent board on railway wages and working conditions, on which the employes have representation, is also a notable achievement. On the other hand, the concentration of all wage decisions at Washington and the attempt to apply wage rates to the whole country and all classes of service alike is both wasteful and unfair. There are great variations in the cost of living in different parts of the country. A wage that will barely keep section hands from deserting to other jobs in the neighborhood of large cities gives the colored track laborer in the South such riches that he prefers to work only half the time, or less, to have leisure for his enjoyment.

This undue centralization applies also to other matters. Standardization of rolling stock was given an undue import-

ance, which delayed for months the placing of coal and locomotive contracts. A great construction program of much needed work on terminals and tracks was planned for 1918; but because a single board had to pass on work covering the entire country the work was delayed until far into the summer.

One of the most unfortunate blunders of the Administration was its magnification of the position and authority of the Director General. Mr. McAdoo discharged 400 railway presidents and other high salaried executive officers. He held that their services were not necessary for the operation of the roads and that where their work was required for carrying on the corporations they should be paid by the corporations and not by the government.

It is undoubtedly the case that many of the railway presidents thus discharged were not rendering service as operating officers at all proportionate to the salaries they received. There have been many cases where railway presidents have drawn large salaries through the influence of some banking house which held control of the property and not because they were expert railway officers. Such methods of dissipating railway revenue are of course properly put an end to under government control.

On the other hand, the summary discharge of so many men of high reputation in the railway service, many of them of known great ability, spread a feeling of more or less doubt and uncertainty through the entire official organization.

In the place of the discharged presidents, Mr. McAdoo set up an entirely new operating organization with seven "regional directors," reporting to Mr. McAdoo, district directors under the regional directors and in charge of subdivision of the regional areas, and federal managers, general managers and terminal managers under the district directors.

The centralization thus effected was not of benefit to the service. Even though the men selected were capable railway officers, it takes much time for any such radically new organization to get into working order, so that responsibility will be defined and smooth operation will be possible.

It is not generally realized that the source of efficiency in the railway service does not lie at the top. It is the rank and file of the operating officers, from general managers all the way down to the foremen, on whose initiative and fidelity we must rely for safe and efficient operation of the railways. These men did hard and patriotic service during the war; but their sense of loyalty to the companies they served, their feeling of responsibility, their desire to receive credit for good work performed, were all seriously hurt by the sweeping changes in organization established by Mr. McAdoo. These men are strongly condemnatory of federal control, from their experience.

It became evident by the time Mr. McAdoo had been in power a few months that what he planned was no mere emergency use by the different railway companies of each other's facilities. He aimed to bring about the practical consolidation of the railways of the United States into one operating organization, with all the changes that would be made were the consolidation to be permanent. All the machinery of competition was wiped out: advertising in every form was stopped; soliciting freight and passenger agents were discharged; competitive train service for both freight and passengers was cut off. Terminals were put to joint use, the most notable instance probably being the hundred million dollar terminal of the Pennsylvania Railroad in New York City. This was built for the distinct purpose of giving the company an advantage over its competitors for through passenger service, but was freely opened to its old time rivals. Insurance formerly carried by many of the companies was canceled and the government carried its own insurance. The great railway supply industry, with a normal production of some $2,000,000,000, found competition among its customers wiped out and only a single customer, the government, to deal with.

It was inevitable that these sweeping changes, upsetting to the employment and business and customs of thousands and hundreds of thousands of men, should create widespread

criticism. Much of this would have been inevitable. Much of it might have been averted, however, had a less radical policy been pursued.

For many things, the Administration deserves much more credit than it has received. The barring out of politics from the organization, the selection of able men for important responsibilities and paying salaries sufficient to secure and hold such men—all these and similar well judged actions were of the greatest service to the country. Credit is due also for carrying out many reforms and economies which have long been urged by progressive railway men, but were impossible as long as the railways were operated by independent companies.

On the other hand, the Administration erred in centralizing too much the control of railway operations; it erred in some of its arbitrary orders and methods. It erred especially in sweeping aside small conveniences of the traveler and the shipper, which had grown up under the competitive system and whose loss is largely responsible for the deep resentment toward the government administration of the railways which the public undoubtedly feels.

The abolition of the privilege of reserving berths by telephone, the consolidation of ticket offices, making long trips a necessity to buy tickets and long standing in line to obtain them—these and similar petty annoyances have had far more weight in influencing business men against the federal railway administration of railways than have the really important arguments against government control.

CHAPTER VI

Public Utilities in the United States

The economic changes resulting from the war have had a marked effect on the street railways, gas and electric lighting companies of the United States, and of all other public utilities rendering municipal service. Notable changes in the relations between these companies and the public have resulted.

In the United States more than in any other of the leading industrial nations the operation of municipal public utilities has been left to corporations operating under franchises for the use of the streets. With the exception of water supply, it is the rare exception where an American city owns and operates any of its public utilities. The endeavor to curb the financial and political power of these franchise holding companies has been one of the chief features of governmental reform movements for the past forty years.

It is already apparent that the changes resulting from the war are certain to have a profound influence in altering the relations between the franchise companies and the public.

The chief of these changes is the great fall in the value of the dollar, as measured by its purchasing power. Every economist knows—in a theoretical way, at least—that the dollar is not a fixed unit of value; but how few business men or men in public life have had any practical understanding of the varying value of the dollar and its results? The rates which a street railway or a lighting company may charge for its service have often been fixed in its franchise, or have been determined by statute or by long contested litigation, or by commission rulings. None of the eminent lawyers or financiers or business men who framed these franchise agreements or contracts or court orders had any realization that the dollar is not a fixed standard of value.

The fall in purchasing power of the dollar during the past four years has placed a large proportion of the public utilities in financial straits. It could not well be otherwise. The increased cost of living compelled the raising of wages and the market prices of materials were often doubled or trebled in 1918 over 1914; but in nine cases out of ten the companies were still obliged to sell their product at the old rate.

Street Railways Suffered Most

The street railway companies were the most seriously affected because other changes had been operating for years to reduce their margin of profit. The five cent fare was established in the early days of the electric railway, when lines were short, wages low and the light and cheaply built lines earned large profits. Those were the palmy days of electric railway promotion and franchise grabbing, when every privilege to operate a railway in a city street appeared to be a gold mine.

The street railway magnates of that day had "the nickel fare" as their slogan. Rather than consent to any reduction in it, they gave free transfers. Not a man in the street railway industry foresaw twenty years ago that the day was coming when the nickel fare would be the ruin of many a street railway company.

As time went on it was found that the cost of maintaining track was far higher than had been anticipated. The extension of the systems increased the average length of a journey without increasing the revenues. During the past four years the jitney bus and the privately owned automobile have diverted millions of passengers from the street car lines.

All these and other causes have been gradually reducing the profits of the street railway companies and, to a lesser extent, of other public utilities. Had these conditions not been partially offset by the great increase in business, financial disaster would have come long ago. As it was, the entry of the United States into the war found many companies close to the edge of the precipice.

Federal Action Toward Utilities

The federal government did not take over municipal utilities for operation during the war; but it had to deal with the problems resulting from their situation. The prices of their chief supplies, coal, oil, steel, copper, etc., were generally fixed by federal government boards. The price of their most important supply, labor, was also fixed eventually in many cities by the War Labor Board, a federal government body created as an arbitration tribunal of last resort to harmonize differences between labor and capital.

This board ordered sweeping increases in pay, especially to street railway employes, who ever since the horse car era had been paid very low wages. The great increase in the cost of living, or decrease in the value of the dollar, made such an increase imperative; but when it came to increasing the street car fare or the prices of gas or electric current, the companies found, in many cases, they were running against a stone wall.

In many cases the public authorities of state or municipality did grant an increase, but in many other cases the increase was denied. The ground for the denial was usually the old bargain between company and city, by which the five cent fare was fixed. "You insisted on the nickel fare," said the public officials, "even though it gave you an exorbitant profit. We have a right to insist on it now, even though you lose money by it."

Had it not been for the enormous increase in traffic, the street railways would have suffered even worse. As it was, they were able to continue operations in all save some of the smaller cities; and their disastrous condition did not become fully evident until after the armistice and the falling off in traffic which promptly came.

The federal government had authority to take over operation of the street railways; but when the steam railways were taken, the street railways and the electric interurban lines were specifically excepted in the President's proclamation. The obvious reason at that time was that no such emergency

condition had arisen in street railway service as then existed on the steam railways.

Afterward, when the effect of the war conditions upon the street railways had become evident, there were many appeals for federal government interference. The federal price fixing and the orders of the federal War Labor Board had enormously increased expenses; hence it was held the federal authority should be exercised over the State and municipal authorities to compel readjustment of fares.

President Wilson's administration had troubles enough on its hands, however, without projecting itself into this strained situation. So long as the street railways in industrial and commercial cities were able to continue operation there was no disposition to interfere. Had any serious stoppage of street transportation occurred, no doubt the federal authority would have been exerted to any extent to reestablish it.

In fact, the various federal war agencies cooperated with the utility companies to keep them from suspending service. Priorities were offered them for obtaining necessary supplies of steel and coal and oil and copper. The government itself furnished the money for street railway extensions to reach munition plants and shipyards. Just before the armistice, plans were completed for an expenditure of $200,000,000 by the government on power station construction, to supplement the demand for power to supply the street railways and electric central stations and industrial plants along the Atlantic seaboard section, where the demand for power had outrun the supply.

The conditions resulting from the war are likely to have a far reaching effect upon the relations between the utilities and the public. That there must be a radical readjustment of these relations is everywhere admitted. At one time it seemed likely that a broad movement toward municipal ownership of public utilities would result. Later, there occurred, so far as one may judge from current expressions in public journals, a certain revulsion of public sentiment against government operation of industry; but whether this

expresses the real sentiment of the millions of voters is far from clear.

One notable fact is that investors and financiers are far more favorably disposed toward the transfer of utilities to public ownership than they were a few years ago. A sale to the public of properties which have poor prospects of profit ahead appears to them a good solution of the problem.

Boston's "Service at Cost" Plan

Brief record may properly be given here to the remarkable plan adopted at Boston a year ago to meet the street railway emergency. All the city passenger lines of Boston—surface, elevated and subway—are owned by the Boston Elevated Railway Co. The financial condition of the company had been growing steadily worse, due to the conditions above outlined, and the company had appealed to the State authorities for relief through an increased rate of fare. Relief was imperative, since the company was building extensions which the public authorities had ordered and the company's credit had to be maintained to enable it to raise money for the work.

It was recognized, however, that to order an increase in the rate of fare, with the company still in control, would be severely condemned by the voters. A law was therefore passed by the Massachusetts Legislature which provides for the taking over of the entire property of the company by the State and its operation for a period of ten years by a board of trustees appointed by the Governor. These trustees are to pay from the company's revenues the interest on the company's bonds and a dividend on its stock, at first 5½ per cent, to be later increased to 6 per cent. The trustees must fix such rates of fare as will be sufficient to pay the above charges on the invested capital, and in addition the operating expenses and maintenance of the roads. A scale of fares is to be fixed by the trustees which will effect this, and these fares are to be periodically raised or lowered as may be necessary to keep a stated amount of surplus in the company's treasury.

The conditions were favorable for making this settlement

because for many years all the company's financial and other operations have been under supervision by the Massachusetts Railroad Commission, so that its capital represents cash paid in and not water, and is entitled to a fair rate of return.

This plan, commonly known as the "service at cost" system, met general approval; but the results of its operation have been disappointing. The trustees have inherited the "flat fare" system long in force, and they attempted to obtain the necessary increase in earnings by raising the fare to eight cents. The result was a huge falling off in the short distance riders who yield the lines their profits, while all the long distance riders who are carried at a loss remained. The increase in net revenues was too small to meet the company's necessities. A second increase to 10 cents was then tried, and this met such public opposition that a boycott of the street railways was put in force in various parts of the city. Soon after that, a strike of the entire body of railway employes for a large increase in wages tied up the entire system for several days. The strikers quit work because a decision by the War Labor Board had not been reached in their case. The strike was settled with a large increase in wages to the men.

The operation of the lines on the present wage scale has already produced a deficit of some $2,000,000 which the State will have to raise from the tax payers.

The final result is likely to be a great extension of municipal and State ownership of street railways and cancelation of old franchises. The companies accept this cancelation today, which they would have fought a few years ago, because the rates which were named in the old franchises are no longer profitable.

The federal government is not likely to interfere in these settlements, although a federal commission appointed by the President has taken testimony in the street railway situation. It is a fact, too, that the tense relations between labor and capital and the general urgency of the whole industrial prob-

lem tends to make such questions as these matters of national concern. We can not let any city or any State get into too serious difficulty in solving these problems, for a blaze of anarchy once kindled at one point might spread with dire results.

Control of Wire Communication

In Great Britain, as in most other countries of Europe, the telegraph and telephone systems are owned and operated by the government. In the United States, which has the credit for originating both these industries, the business has remained in the hands of private companies. The telegraph business has long been in the hands of two great companies, the Western Union and the Postal Telegraph, between which there is a certain amount of competition. The telephone business has been largely concentrated in the hands of the American Telephone & Telegraph Co., the direct successor to the corporation which originally developed the invention of Alexander Graham Bell, although competing companies, particularly in the rural districts, control in the aggregate a large amount of business.

A few years ago the Bell company acquired control of the Western Union, and effected marked improvements in its service. The arrangement was condemned by the federal authorities, as being an unlawful restraint of competition, and the Western Union was thereupon placed under an independent management.

When the European War began, the United States Government promptly took steps to censor all cable and wireless communications overseas to guard against infringement of the country's international obligations. When the United States itself entered the conflict, this control was extended and made more rigid. No reason appeared, however, for exercising control over the lines of communication on land. The telephone business especially has been conducted with a regard for public obligations and on a sound and conservative financial basis that is in marked contrast with the record of

most other public utilities. Especially noteworthy is the policy which the company has long pursued of expending very large amounts in the promotion of original research to perfect further improvements in its methods and apparatus. The service rendered by the company is, by general agreement, far superior to that rendered in the countries where the business is carried on by the government. . . .

There have been occasional recommendations for government ownership of the telegraph lines; but they have not attracted serious public attention. President Wilson, however, had authority under the emergency war legislation to take over on behalf of the government all lines of "communication" as well as transportation.

His final action in doing this on August, 1918, appears to have been precipitated by a labor difficulty on the Western Union lines. The matter had been submitted to the federal War Labor Board, which had ruled against the contentions of the Western Union president, to the effect that the employes joining a labor union would be discharged. At a time when the support of organized labor to the war program was of great importance, this action by the Western Union official, running counter to the order of the War Labor Board, was most unfortunate. The President's order taking over the telegraph and telephone lines promptly followed.

The lines were placed in charge of a committee, of which Postmaster General Burleson is the head. At one time there were reports that Mr. Burleson would introduce some such radical changes in the telegraph business as were ordered by Director General McAdoo in the railway organization. There is, without question, opportunity for great economies by consolidating the telegraph and postoffice organizations, and greatly increased use of the telegraph might result. There seems good reason to believe that some such reorganization was planned; but before there was time to carry out such plans it became evident that the war was nearing the end. This, with the campaign of newspaper criticism against Secretary Burleson, were probably the reasons why any radical

changes in the telegraph and telephone organizations were not carried out, if they were planned.

So far as the public was concerned, the operation of telegraph and telephone during the twelve months while the lines were under government control suffered very little change. There has been, however, a general and well founded complaint of the great falling off in the quality of the telephone service, and it is customary to hear this ascribed to the government operation of lines.

There is very little foundation for such criticism. The quality of the telephone service has fallen off because during the war the normal expansion of the system was stopped. The demand for copper and for all sorts of telephone and telegraph apparatus for war purposes had priority, of course. The expansion of the telephone system was confined to the lines made absolutely necessary by the requirements of the war industries and the government administration. An enormous number of experienced men in the telephone and telegraph service were called to the aid of the government.

The close of the war, therefore, found the telephone system greatly overloaded, which means, of course, "busy" cables and slow service. It will take many months to install the additional circuits and apparatus necessary to give the telephone system such a normal margin of capacity over its load as it had before the war.

It is obvious therefore that while the war is the primary cause of the defective telephone service now general, the government control of these lines is not to be blamed for these defects.

In fact, it is a little difficult to perceive now what useful service was accomplished by the government control that might not have been equally well obtained with the lines in private ownership.

CHAPTER VII

Shipping

As one follows closely the record of government control of industry during the years since the war began, it becomes evident that that control has been put into effect as fast as necessity dictated, and seldom before. British railways were brought under control at the beginning of the war for military reasons, but no reasons were apparent why the government should exert a like measure of control over the shipping business.

There was of course an immediate requisitioning of ships by the British Government on a huge scale, for use as transports, supply ships and other auxiliaries for the navy. There was no time for the charter of these ships by bargain and agreement in the ordinary way, and the government commandeered the vessels it required. Where charter rates had not already been provided for in advance, as on vessels which were auxiliaries of the navy, arbitration boards were created to fix the price. This system has been extended and developed with the great extension of government operation of vessels, and the rates fixed are known as "blue book" rates. They have ruled materially below the rates which have been earned by shipping engaged in commercial business, but have generally been high enough to yield a very good return to vessel owners.

There were weighty reasons why the government did not go further in its control of shipping at the outbreak of the war. The business of railway transportation is a natural monopoly; the business of water transportation on the ocean by means of the tramp freight vessel, which carries the bulk of international traffic, is about as perfect an instance of free competition as can be found. Government control has seldom been invoked where competition has had free play.

The operation of competition as an automatic force tending

constantly to reduce the cost of service to the ultimate consumer, through the constant stimulus to efficient operation at the lowest cost is admirably illustrated by the history of the shipping trade. As a result of that competition it has come to pass that experience and specific knowledge are especially necessary for success in the shipping business. The prominence of England in this field has been due as much to the special knowledge and experience in the ocean transportation business of her shipowners and managers as to her position as a shipbuilding nation.

There was thus no reason apparent at the outbreak of the war why the government should undertake the control and operation of the British merchant marine, provided its owners were willing to keep their ships in operation, a matter of some doubt in the early weeks when German commerce destroyers were taking toll of British vessels in every ocean.

Government Insurance for War Risk

At this point, indeed, the government had to extend relief by establishing a war risk insurance bureau. True to the British traditional policy of leaving as much responsibility as possible to the individual, the government did not assume the whole burden of risk. Instead, it arranged to help out the vessel owners through certain cooperative insurance associations by underwriting 80 per cent of their risks for 80 per cent of the premiums.

In the United States, a similar, though less acute, problem led to the establishment of a government marine insurance bureau, which provided owners of American vessels with insurance against war risks. The measure was necessary to enable American vessels to continue to be operated and carry American exports abroad, and was enacted practically without opposition.

The Change from Famine to Feast

The paralysis of business during the early months of the war was reflected in the shipping trade. The unprecedented

interruption of the currents of traffic seemed at the outset to mean a smaller demand for ships. Few foresaw the enormous prices for ocean transportation which were close at hand.

By the close of 1914, the effects of reduced supply and increased demand in the shipping business began to appear. About one-seventh of the world's merchant marine, the vessels of Germany and Austria, were shut up in ports or destroyed. The British Government had taken for war purposes some 1,500 merchant vessels, or about a fifth of the total British tonnage. Many British merchantmen had been sunk by the German raiders. In the British shipyards operations had been greatly interrupted by enlistments in the army and navy, and every effort was being bent toward the construction of naval vessels at the expense of merchant construction. Traffic was so congested in all European ports that ships had to wait a long time for unloading.

All these conditions developed at a time when the urgent demand for ships to carry war necessities was just making itself evident. The result was a sudden astonishing rise in ocean freight rates and in the prices of ocean vessels at the opening of 1915, quite without precedent. In a few weeks' time ocean freights were doubled and tripled. Speculators in ships made fortunes overnight. The shipowners, who a few months before had been filled with worry over the paralysis of trade, found their property suddenly doubled or even quadrupled in value, without an effort on their part.

The Causes Which Brought About Government Control

Even so, there seemed at first no reason why the government should interfere. The shipping business has long been one of alternate feasts and famines. The shipowners held that the war profits were properly theirs to enjoy, in view of the risks they were taking. The absolute necessity of the service tendered by the shipowners to keep Great Britain supplied with food and other necessities and carry similar supplies to the Allies was fully recognized, and it was agreed that the higher the profits of the shipowners, the more energetically would they keep their vessels moving. The high

shipping rates also operated automatically to sort the traffic and cause that to be moved whose importance was such that the shippers were willing to pay the high rates. If rates were lowered, some authority would have to be set up to say what traffic should have the preference.

At certain points indeed the government did exercise a very stringent control over the shipping from the outbreak of the war. On the commercial side it cut off at once all exports to enemy nations and soon restricted those on their way through neutral countries. On the operating side it rigidly controlled the movements of vessels in every particular that military considerations dictated.

The sudden and rapid rise in ocean freights in the spring of 1915 coincided with a rapid rise in the price of food and other necessities of life and gave rise to public agitation to have the government take over the shipping business, or fix freight rates. In response to this demand, the government requisitioned in April, 1915, the entire business in the importation of refrigerated meat from Australia, New Zealand and South America. The large use of these meats for the supply of the Allied armies gave a special reason for this action.

By the close of 1915 control over shipping was further extended. A special committee was created made up of experts in ocean transportation, with authority to see that the food necessities of the nation were provided for from overseas at a reasonable rate. This committee acted with decision and made requisitions of shipping space for the importation of food on a huge scale. Its action effected a reduction of over 50 per cent in wheat freights across the Atlantic before the close of 1916. At the same time, the movement of vessels was brought more directly under government control by the requirement that every vessel of over 500 tons must obtain a special permit for every voyage.

Ships Necessary to Win the War

It was by this time clearly evident that ocean shipping was one of the most urgent necessities in order to win the war. The depredations of the German submarines were steadily

reducing the tonnage available to bring food and raw materials to Great Britain and enable her industrial plants to supply munitions to her Allies. The attention of the nation had been so concentrated on the immediate needs of the army and navy that the building of cargo vessels had been markedly reduced. By the spring of 1916 the tonnage of merchant shipping still in service was only about two-thirds that which existed at the outbreak of the war.

Under these conditions, direct action by the government was obviously necessary. Shipowners were urged by the government to order more ships from the builders and to buy largely abroad, and were promised they would be allowed to make profits enough from the vessels to recompense them for the high prices charged by the shipyards. An elaborate scheme for the regulation of imports was put in force, with the object of restricting the use of shipping space to bring in bulky or heavy articles, such as baskets, cement, furniture, stone and plate. A long list of nonessential luxuries and articles obtainable from home manufacture was added. In order to relieve port congestion so as to permit the more rapid discharging and loading of steamships, a special port committee was organized, with power to take command in case any local port authorities proved incapable of properly discharging their responsibilities. This committee caused the return from the army and navy of the skilled dock workers who had enlisted at the outbreak of the war.

By the close of 1916, the necessity of more radical action to make good the losses from submarines was recognized. Great Britain had built nearly 2,000,000 tons of merchant vessels in 1913. In 1916 the construction was less than 600,000 tons. A Controller of Shipping was created and active measures were undertaken to increase output from shipyards. A great number of skilled workmen was brought from the army, the navy, munition factories, and even from the naval shipyards, to undertake the work on merchant vessles. Vessels were purchased in the United States and Canada up to the limit of the supply. By these various means the additions to the

British merchant fleet in 1917 were nearly as great as in 1913, before the outbreak of the war.

Complete Control Established

The shortage of shipping during the summer of 1917 was so serious that supplies of raw cotton and of wool for Great Britain's textile industry ran low. It was necessary to adopt a rationing scheme. Under the direction of a Board of Control, on which the principal manufacturers, labor unions and merchants were represented, cotton spinners were required in September, 1917, to operate only 60 per cent of their spindles. In the woolen industry the same end was reached by an order reducing the working hours of employes by 20 per cent or from 55 hours a week to 45.

The great profits of the shipbuilding and shipowning concerns were the cause of frequent protest to the government, it being contended that these high profits were closely related to the high cost of living. Year by year, however, the number of vessels requisitioned by the government or put on "Blue Book" rates and set to work on specified trade increased. In 1917 the Controller of Shipping established complete control over the Merchant Marine by requiring all ships to be operated under direction of a general committee, on which their owners are represented. All profits above those arising from "Blue Book" rates revert to the government. This control did not include, however, the 4,000 to 5,000 small coasting vessels, as there appeared to be no need there for the state to interfere with individual enterprise.

Why an American Merchant Marine?

The Democratic party in the United States has by tradition and record opposed government interference with industry, and particularly government aid to the American merchant marine by subsidies. The conditions which developed soon after the war began, however, demonstrated the importance to the United States in time of war—even though in the war it were a neutral—of a merchant marine under its own flag.

The cotton growers of the South, the wheat raisers of the West and the manufacturers of the East, all were eager to send their products abroad to take advantage of the urgent demand and high prices. No one knew how long the German raiders might continue their depredations and it was felt that transport by British ships on the high seas might at any time be cut off.

It was a former Democratic President who made famous the phrase that "a condition and not a theory confronts us." The Democratic administration, regardless of the traditional attitude of the party on this question, recognized the evident need and enacted a law in September, 1916, providing a fund of $50,000,000 (which seemed then a very large sum) to be expended in the construction and purchase of merchant vessels to sail under the American flag.

It was very soon found, however, that the operation of economic laws was building up the American merchant marine even more rapidly than the law enacted by Congress. In 1913 competition in ocean transport was so severe that only by very capable business management could a tramp freighter be made to earn a profit for her owners. In 1916 any greenhorn could run a shipping business and make fabulous profits. When Congress passed the bill fixing new standards for the rights of seamen and their basis of compensation, the consensus of opinion among American vessel owners was that the resulting handicap would be too great to permit them to compete with the ships of other nations—at least until the seamen made good their declared intention of forcing the passage of similar laws in other countries. In a few months the enormous increase in ocean freight rates made the handicap of the seamen's law a matter of trifling importance.

When a ship could earn freight money enough in a single voyage to pay her cost, there was no lack of Americans to engage in the shipping business, and there was no better flag than that of the United States to do business under. The only limit to the rate of expansion of the merchant marine

was the ability to buy or build ships. Shipbuilding in the United States has been an industry of small and uncertain profits. The established shipyards were largely filled with naval work, for the threatening conditions in Europe started a program of naval expansion in the United States.

The Shipbuilding Campaign

Matters were in this condition when Germany began her wholesale campaign of destruction by submarines at the opening of 1917, followed shortly afterward by the entry of the United States into the war. It was at once apparent that an enormous expansion of ship production was the first essential to win the war. Unless ships enough were available to carry men and munitions and food from the United States to the battle front and to carry supplies to her allies as well, the great potential power of America could be only partially exerted.

It was obviously hopeless to rely on private enterprise to undertake the work. The building of emergency shipyards to build emergency ships, in a race against time and German submarines, was a task that only the government could finance. The manner in which the task was undertaken is particularly instructive. It was well realized that for the government to undertake this work directly, creating its own organization and hiring its own workmen, would be far too slow. It was realized, too, that if the general administration of the work were placed in the hands of a government bureau, subject to existing laws, precedents and customs, the desired speed might not be obtained. Instead, the Shipping Board under the authority granted it by Congress, incorporated the Emergency Fleet Corporation, a body which, while it is conducted entirely by government officials, can operate under laws made for the conduct of private business corporations and can escape thereby much of the red tape requirements which ordinarily hamper government action.

This corporation has used the vast appropriations turned over to it by Congress, not in building ships by its own organ-

ization, but in hiring ships built by a great variety of concerns. To many of these the Emergency Fleet Corporation has advanced the money, or a large portion of it, required to build and equip the shipbuilding plants, and it pays all the cost of the yards and of the ships built, plus a certain percentage for compensation to the concern which organizes and conducts the work.

Under the great extension of government control over industry, which has taken place in the United States during the past year, the government, through its various agencies, allots to these shipbuilding plants the coal and oil and steel and other metals necessary; it provides for the transportation of these materials; it collects workmen through its employment agencies; it stimulates their patriotic interest in their work; it adjusts labor difficulties; it provides homes for the workers; it furnishes armed guards for protection; it closes saloons around the plant to prevent loss of working energy through drink.

Cost Plus a Percentage Contracts

Severe criticism has been made because the government is building many of these ships on cost plus a percentage contracts instead of doing the work itself or paying the contractor a lump sum for a ship. The sufficient answer to these criticisms is that the enormous expansion of the shipbuilding industry within the required time could have been secured in no other way. As far as the lump sum contracts on the huge new shipbuilding plants are concerned, the risks involved are so great that even though the government could have secured lump sum bids, they would have averaged a higher cost, if from responsible contractors, than the cost under the percentage plan. Besides, no private financiers would have backed so huge an enterprise as the government shipbuilding program and carried the financial risk. The government alone had the power to carry the risk of war, and this work of shipbuilding was as truly a war work as the charge of tanks against German machine gun nests, or the

battering of the forts around Metz by General Pershing's cannon.

With equal certainty may it be said that had the Emergency Fleet Corporation attempted to create itself an organization vast enough to do the work required within the brief limit of time, failure would have been certain from the start. Instead, a hundred or more groups of business men with established reputations for financial and executive ability were given the task of producing the ships, while the government furnished the necessary funds.

High Prices to Save Time

It may be said that the government paid a high price to these men for the service they required; but no price is too high to pay in war if it furnishes the means to victory. The organizing ability of the men who formed these shipbuilding companies was as necessary to the work as the skill of the workmen or the money raised from the tax payers.

There is no doubt that the conduct of the work has been very far from perfect. High efficiency can not possibly be secured where work is done under high pressure, with insufficient time for planning, and the shipbuilding work had to be done that way.

There has been great criticism because of the high prices paid for land, labor and materials in many cases. It would be strange indeed if the men in charge of the work had been as economical in expenditure as if the money had been coming out of their pockets. This is, of course, one of the inevitable objections to the conduct of contract work on the percentage plan. The answer to this again is that if money had not been spent lavishly, the desired speed could not have been obtained. Wages had to be set high enough to attract and hold men, who had to work under most unfavorable conditions. Material had to be bought where it could be most quickly obtained. There was no time to shop around for lower prices.

In studying government control of industry under war

conditions, as exemplified in this industry, as well as in numerous others, it is well to bear in mind a remark made to the writer by a famous general officer, who has been very near the top in a government organization which has been foremost in marshaling the industrial forces of the nation: "You can't run a *war* economically."

Building Ships to Win the War

It is probably hardly realized by the American people even now how essential the shipbuilding program was to the winning of the war. Investigators after the war will very likely uncover enormous waste, many mistakes, gross inefficiency and probably a considerable amount of profiteering and direct or indirect graft. So far as these were wilful, they should not be condoned, for these acts endangered the nation; but a great part of the failure and defects in the shipping program was due to the attempt to accomplish an enormous task in the face of tremendous difficulties. Those who did their best at this task are not to be blamed although they fell short of the full accomplishment that was planned at the outset.

When the shipbuilding program was laid down, the Allies' cause was in extreme danger. Those best informed knew that the rate at which the sinkings by German submarines were going on was reducing the merchant marine so fast as to endanger the food and munition supply of the Allies, and seemed to make well-nigh impossible the transport and supply of the huge armies which the United States was planning to send to the Allies' aid.

The only possible way in which success could be attained was for the United States, which had never had a large shipbuilding industry, to build ships in enormous numbers. That meant shipyard building first of all on an unprecedented scale, and then the provision of shops, tools, schools for the instruction of workmen, cities around these new yards and the entire outfit of machinery and supplies required by these vessels, from boilers to compasses.

Why the Shipbuilding Program was Advertised

It was necessary to lay down this program and give it wide publicity for its effect on the *morale* of both our friends and our enemies in Europe, and to carry out as much of it as was humanly possible. The rate of speed in ship production which had been laid down was not attained. Perhaps those who laid it down realized there was small chance that it would be reached; but its announcement and the wide publicity given to the stupendous plans had great value in their effect on public opinion here and abroad.

Fortunately the unexpected success of the anti-submarine warfare, and particularly the success of the convoy plan of sending ships across the Atlantic, made the submarine losses much less in the later months of the war, and made up largely for the extent to which ship production of the Emergency Fleet Corporation fell behind its program.

It was a close call, nevertheless. When the armistice came, shipping was so deficient that the government would have shortly been obliged to stop the sending of troops overseas, for lack of ships to keep them supplied.

Finally, giving all credit to the many able men who labored patriotically for the success of the government's work in shipbuilding and operation, and with entire certainty that under the war conditions the task could not possibly have been accomplished in any other way, it must be said that the government's work in shipbuilding and operation during the war does not demonstrate that it can continue such operation to advantage when the competitive conditions of peace are restored. Undoubtedly certain notable advances in shipbuilding and operation were brought about under the stress of war conditions. Probably a much larger measure of government control and regulation will prevail in connection with shipping and all other matters of trade and commerce in the future; but when the world's supply is again in normal relation to its business, and competition reduces rates to old levels, the task of operating ships at a profit will call for qualities that the government organization has not exhibited.

CHAPTER VIII

Labor

Nowhere, perhaps, has government interference with industry during the war been more severely criticised than in its action for the control of labor. The criticism comes, it must be said, chiefly from the business interests; and the charge is that the concessions to labor in wages and working conditions during the war have "spoiled" labor,—put "foolish notions" into the heads of wage workers, which are very hard to eradicate; laid the foundation for the epidemic of strikes that has followed the war; sowed the seed for socialism and anarchism and Bolshevism.

To many, of course, such criticisms will appear absurd on their face; yet such ideas are widespread. It is worth while, therefore, to state just what the government did in the control of labor.

Labor Policy Not Planned in Advance

In the first place, it is important to note that neither in the United States nor in Great Britain did the government formulate in advance a clear, definite policy with respect to the control of labor during the war. As in many other fields of government control, no action was taken until urgent necessity compelled it. No statesman in either country *wanted* to interfere with labor; and when interference became necessary it went no further than the needs of the hour demanded.

In a previous chapter it has been made clear that complete organization of all the productive forces of the nation was essential to winning the war; and the most important of all these forces is labor.

Conscription

There were not a few who declared that the government should proceed to conscript labor of every sort as it conscripted

men for military service. Those who held such notions, however, merely betrayed their crude ideas of what government really is at the present day. Fortunately, the responsible men in charge of public affairs in both Great Britain and the United States knew well that government can only speak and act as it expresses public sentiment. It can, indeed, *lead* public sentiment, but it can go far in advance only at great peril, as events since the armistice conclusively prove.

Government Control Necessarily Indirect

Government control of labor in the war, therefore, had to be an indirect control; it had to be exercised as and when necessity demanded; and public sentiment would not have permitted it to advance much farther or faster. Nevertheless, nothing that the heads of the nations have done in connection with the control of industry has contributed more to the winning of the war than the successful control of labor.

The famous Clayton Act makes it the law of the land that labor is not a commodity. It was easy to write that law upon the statute books; but the laws of economics, under which we all live and which are beyond our power to repeal, decree that so long as labor is bought and sold, its buying and selling is governed by the same economic laws as the buying and selling of commodities. It is also true, however—and the laws of economics do not at all infringe this—that the vast multitude of men and women who sell their labor in the market make the public sentiment by virtue of which governments stand or fall. They must be fairly satisfied with the terms of labor's sale or the government itself is imperiled.

The problem of President Wilson and of Lloyd George and of the hundred thousand officials under each who dealt directly with these problems was, how to control the buying and selling of labor as a commodity so that all operations of industry would go on unchecked and at the same time so that the rank and file of the labor army would loyally support the government.

Because the government refrained from interference until

necessity compelled, it followed that the first movement toward the control of labor was to aid in the settlement of strikes. The next step obviously was to provide machinery to settle difficulties between employers and labor before a strike was declared. The third was to create such conditions as would keep smooth the relations between capital and labor and avoid the difficulties that might lead to strikes.

Each of these steps was necessary, was generally approved by public sentiment when it was taken, and no one knows today what serious disaster might have befallen the nation had not these steps been taken.

The Law of Supply and Demand

Those who criticise government interference in control of labor, and who glibly say that employers and workers should have been left to settle their differences by themselves, have no comprehension of the serious dangers that threatened us time after time during the war. Those who glibly say that wages should have been left for the law of supply and demand to settle are ignorant of how completely the law of supply and demand broke down as a means of fixing wages, as well as prices of other commodities.

Under the conditions of peaceful industry, under which nearly all the civilized world has lived for nearly half a century until four years ago, there is always a certain surplus in the world's markets—a surplus of raw materials, of transportation, of factories and stores and a surplus likewise of labor. The war transformed this condition into one where there was a scarcity of all these elements. There was not enough sugar and steel and coal and wheat; there were not enough transportation facilities by land or sea; there was not nearly enough labor.

It could not well be otherwise. All the man power of the world's great industrial nations that could possibly be spared had been turned aside from constructive work and set at the task of destruction. Not only were a hundred millions or so of the world's most active workers withdrawn from the ranks

of peaceful industry and set to building and using engines of destruction; but the world's usual daily necessities of food, clothing and shelter had still to be supplied as before, even though on a less liberal scale.

The result of this condition was, first, a rapid and unprecedented rise in the wage scale. This was justified, not alone by the economic law of supply and demand, but by the simultaneous rise in the cost of living, which compelled an increase in wages to give the workers the bare means of subsistence.

When the price of other commodities rises, production is stimulated; but the rise in the price of labor does not necessarily increase the amount of labor performed. On the contrary, the higher wages and the conditions which produced the higher wages may even reduce the amount of work done, as has actually happened in certain special fields.

To those who urge that the government should have left capital and labor alone to settle all these matters between them, it may be answered that that very thing was done in both Great Britain and the United States until it was evident that the government must step in to avert national disaster.

The present opinion is that government interference during the war resulted in undue favors to labor. The fact is that government interference was all that prevented an increase in the wage rate and a reduction in output that would have meant the gravest national peril.

The government itself was by far the greatest employer of labor. In the building of camps and barracks and hospitals and munition plants, in the production of ordnance and army supplies, in the building of shipyards and ships and aeroplanes, the government paid in most cases the entire cost of the labor employed. Those who conducted these industries were bidding for labor in competition with each other and in competition also with the employers of labor on farms and railways and in mines and factories.

There is no doubt whatever that hundreds of millions of dollars were wasted in paying labor exorbitant wages, often

for very little work produced. In the dark days of 1917 and 1918 it was a grave question whether the nation's financial strength would last to win the war. Exorbitant wages to millions of workers were a peril from this point of view. The falling off in production that accompanies high wages was another grave peril. A third and hardly less serious peril was the rapid rise in the price of all commodities, part of which rise was due to the increase in the cost of the labor used in their production. This rise in prices was a most fruitful source of dissatisfaction to all classes.

How Government Control Operated

The government's war labor control was exercised through a great number of separate bureaus, generally independent of each other, each carried on according to the ideas of those in charge. The general aim, of course, was to increase the output of labor and keep down the cost while stimulating in every possible way the *morale* and patriotism of the workers; but the details of plans and policies were made by each chief for himself.

When the very first step toward organizing the nation for war was taken in the creation of the Council of National Defense, Mr. Samuel Gompers, head of the American Federation of Labor, was made chairman of the Council's Committee on Labor. This was merely a wise tactical move to bring labor in as a recognized partner in the great enterprise of prosecuting the war.

As real organizations for war industries succeeded the Council of National Defense, it was found necessary in each organization to establish a separate department to have charge of labor problems. This was true of the railways, of shipping, of ordnance production, of work in the food control and fuel control fields. General supervision over labor control was gradually developed in the Department of Labor. That department secured the service of some of the ablest economists in the country, who assisted in working out its plans and policies.

The National War Labor Board

Perhaps the most notable organization under this department was the National War Labor Board, of which Ex-President Taft and Frank P. Walsh were chairmen. This board was created by the War Labor Conference, a body made up of five representatives of labor and five of employers, which was invited by Secretary of Labor Wilson, on January 28, 1918, to work out a plan for the settlement of strikes during the war. The War Labor Board and the plan under which it operated were devised by this conference after sessions lasting several weeks. The board was called in to settle labor controversies where all other means of adjustment had failed, and its decisions were almost without exception accepted as final by both parties to the controversy.

United States Employment Service

The business of finding jobs for men and men for jobs is most inefficiently conducted under private enterprise. War conditions made a bad matter worse. Private employment agents were a great factor in increasing the labor turnover. Employes who were eagerly grasping every possible means of increasing their working force paid large bonuses for obtaining men; the employment agents would stimulate dissatisfaction and labor difficulties at a plant in order to get the men for another plant.

The Department of Labor established the United States Employment Service, which opened more than 700 employment offices in all parts of the country. A separate branch known as the Public Service Reserve dealt with technical and professional experts; another branch organized boys for work on farms.

The Division of Conciliation, Labor Adjustment Service, which was organized prior to the War Labor Board, settled 322 industrial disputes affecting nearly a million workers, in the last six months of 1917.

Other important war bureaus in the Department of Labor dealt with women in industry, working conditions, industrial

housing and transportation and information and education. The job of the last named bureau was to develop a sound public sentiment among employers and workers concerning the issues of the war. For example, speakers were sent into plants working on war industries and posters were placed in them to stimulate a sentiment among the employes that would favor industry and condemn slacking.

It would be difficult indeed to appraise the work of each and every separate bureau of the government which had to do with labor control during the war, and determine the value of its contribution. Here, as everywhere else, the work of organization had to be done under great pressure and such men were used as were available. There was no time to carefully build up by the process of trial and error an efficient organization, and the results varied greatly, of course, according to the fitness of the men who happened to be placed in charge.

In judging the results obtained by government control of labor, therefore, attention must be given to the broad general result, and not to the detail of some little corner, where the critic may have discovered an instance of gross inefficiency; and judging by these broad results, it must be agreed that government control of labor was one of the most powerful and necessary factors in winning the war.

Testimony from a Business Leader

As stated at the outset, however, there is a large body of business men who condemn the work of the government in connection with labor, and who have evidently forgotten the conditions which developed during 1917, the first year of our war activity, and which created an overwhelming public sentiment that compelled the government to take action.

A vivid picture of this condition is given in a statement by Mr. James A. Emery, of the National Industrial Conference Board, an organization of large employers of labor, to which was largely due the establishment of the War Labor Board.

Mr. Emery's statement, made in April, 1918, was in part as follows:

The need for devising an effective means of preventing the continuously increasing interruption of our war production has become steadily greater. So far as it has and is being caused by agents of the public enemy, it has been and will be the subject of increasingly drastic legislation and police administration; but so far as it has been due to economic differences, intensified by circumstances of war production, agitation and suspicious discontent, it is but partially and ineffectually met by existing agencies or the experimental policies of the government.

Soon after the declaration of war, labor dispute adjustment machinery was created by agreement between the Secretary of War and Mr. Gompers in relation to cantonment construction, by the Shipping Board, and the international officers of the craft unions involved, while the Department of Labor and various temporary committees and commissions, including the President's Mediation Commission, undertook the investigation, mediation or arbitration of general classes of employment controversies. Despite these various agencies, none of which were coextensive with the field of industrial production, from our entrance into the war, strikes steadily increased in number, extent and intensity.

An investigation of strikes between April 6 and October 6, 1917, made by the National Industrial Conference Board, showed during that period a verified loss of 6,285,519 production days. The Bureau of Labor Statistics, Department of Labor, in its December, 1917, bulletin reported for the preceding month of September, 171 strikes involving 147,349 persons, whose average loss of time indicated a minimum labor loss of more than a million work days.

The same bulletin, reporting from official statistics of the German Empire, indicated that the United States lost through strikes in the single month of September, 1917, more work days than the German Empire from the same cause in the whole year 1916.

Whether we prefer the conclusions of a private body predicated upon painstaking inquiry or the comparisons afforded by official figures, either indicates an actual and threatened loss of production through labor disputes, with their social reaction upon national unity of thought and action, constituting a tragic menace. Whatever the motive of those who stop, or threaten to stop, the production of ships or supplies for ourselves or our allies, they consciously or unconsciously perform the work of the public enemy.

Great Britain met this condition by the famous Treasury agreement of March, 1915, between the government and the representatives of all the British trade unions. The unionists were asked to abandon every restrictive shop practice or custom threatening the maximum output of munitions, to agree that there should be no strikes affecting such production, and that a dilution of unskilled, female and unorganized labor be accepted, with a compulsory arbitration of all differences. In return for this the government assured a limitation of employers' profits and the restoration, without prejudice to the unions, of the customs and practices which they abandoned for the period of the war. In other words, highly organized Great Britain became an open shop to win the war, for organized British labor accepted the proposal and has kept its pledge with magnificent loyalty.

American labor conditions as we entered the war were substantially those which

Great Britain reached by agreement. There from 80 per cent to 90 per cent of the war industries, including shipbuilding, were highly unionized. Here the reverse was the fact. The Naval Consulting Board, which examined and classified plants available for munition production, reported, prior to our entrance into the war, 18,654 establishments, of which 1,867, or slightly more than 10 per cent, were union shops. We therefore possessed, as a matter of fact and law, upon entering the war, a condition which Great Britain sought and established as a national policy through negotiation and after learning its necessity by costly experience.

As evidence that Mr. Emery did not overstate the condition as to stoppage of production by strikes during 1917, another quotation may be made: At the annual meeting of the National Civic Federation early in 1918, a British labor union leader who was present said that if Great Britain had suffered from strikes as severely as did the United States during 1917, she would already have lost the war.

It was this condition which brought about the establishment of the War Labor Board and the great development of the Department of Labor already reviewed.

To what extent the experience in government control of labor during the war is applicable to peace time conditions, is another story. There is no doubt that the war exigency made it possible for the government to secure concessions from the leaders of both the employers and the labor unions that would not have been granted otherwise. There is no doubt, either, that the reaction from government regulation has helped to create the widespread belief that the government should no longer interfere between capital and labor. On the other hand, there is a growing appreciation of the extent to which the public suffers by industrial strife and a growing belief that some government body should act to protect the public interest. The great epidemic of strikes in the year 1919 has created a new demand that government regulation of labor shall be established on a permanent basis.

CHAPTER IX

Capital

Government regulation of labor was necessary to win the war, notwithstanding the right of the worker to sell his labor where he pleased, or not to work at all. Government regulation of capital for the war emergeny was exercised notwithstanding the right of the owner of property to do what he pleased with his own.

Great Britain, where the burdens of war pressed far more closely than in the United States, early recognized the necessity of conserving capital by every means possible. The government needed not only all the money it could raise by taxation, on a scale never before known, but all it could borrow. To obtain the necessary funds, it had to embark on a great campaign to encourage thrift, so that those of small means would have money to loan to the government. It had also to see to it that capital, so urgently needed, not only for loans to the government but to maintain the war industries, was not diverted to nonessential enterprises. During the war British cities were not allowed to undertake improvements in drainage, paving, water supply or other public utilities, or to expend any money except for necessary operations and maintenance. The private property owner could not erect a building or even make extensive repairs without demonstrating the necessity to a public authority. No enterprise could obtain capital unless its prosecution was necessary to the war.

These restrictions were not difficult to enforce. Public opinion recognized their wisdom and any individual who, for his own pleasure or profit, desired to transgress them knew that his just punishment would be the condemnation of his neighbors and friends.

While the United States was at no time under any such

pressure as England, systematic control of capital to prevent its diversion from war purposes became nearly as complete here as the war progressed and the government organization became effective.

The Capital Issues Committee had authority over all issues of stocks and bonds; and restricted all issues of new securities by city authorities to necessary requirements.

It was the War Industries Board, however, which was most effectual in controlling expenditure so that the least possible amount should be devoted to luxuries and nonessential industries. This board, established by President Wilson on March 4, 1918, with Bernard M. Baruch at its head, was rapidly built up to an organization which controlled the entire productive activity of the United States and directed it to the one object of winning the war. The board controlled the buying and selling, the allocation of raw materials and labor and the facilities of transportation by land and sea.

An excellent illustration of its operation was given when in September, 1918, Senator Calder of New York introduced a resolution in the Senate calling on the board for information as to why the board had "promulgated orders which would completely destroy the building industry of the country." In reply Chairman Baruch stated that the war needs of the United States and its allies would call for 21,000,000 tons of iron and steel during the last six months of 1918. The output of iron and steel by the United States during the first six months of 1918 was less than 17,000,000 tons. The production of building materials normally consumes about 30,000,000 tons of fuel annually. Their transportation amounts to 25 per cent of the total tonnage moved by rail. In order to conserve the iron and steel, the fuel, the transportation and the labor urgently needed for war necessities, the production and transportation of building material was restricted by the War Industries Board to that required for war building purposes.

Against the action of the government in its control of capital there was little protest and there has been little criticism since hostilities ceased. The same thing is true in England.

Every thinking man knows now that the "business as usual" slogan, with which England began the war, and which had its day in the United States, would have meant national defeat and disaster. Every thinking man knew when the war reached its crucial stage that the nonessential industries and the war industries could not both be carried on; and that government action to prevent diversion of capital, labor and materials to nonessential industries was a necessity.

CHAPTER X

Food

A narrow view of the subjects discussed in this book—government control of industry—might possibly exclude the two great bureaus which exercised control over food and over fuel, as having to do with the control of consumption. On the other hand, it was through these two bureaus that control was exercised, not alone over consumption but over the vast industry of producing and manufacturing every form of food products and over the other vast industry of producing and distributing every form of fuel.

Government control over food was like its control over labor in one important respect. It had to be exercised in an indirect way for the most part, and it had to be limited to what public opinion would approve. Even more than in the control of labor, the control of food production and use had to depend on the education of popular sentiment.

The food bureau had to deal with hundreds of thousands of producers and millions of consumers, where the War Industries Board, in dealing with the production of copper, for example, could control the whole situation by contact with a dozen great corporations. Of necessity, the food bureau in its work had to interfere with the daily life and fixed habits of all the people. In doing this, however, it had the great advantage that the absolute necessity of its work was all but universally recognized. Every man, woman and child knew that in Europe the issue of the war depended as much on which side could make its food supplies hold out longest as on which side had the greatest military strength.

The policies and practices of the Food Administration and the extent to which it had established new precedents in economics were admirably set forth by Herbert Hoover in an address before the Pittsburgh Press Club, April 18, 1920.

He explained first that the necessity for America's conserving food to supply the Allies arose from the scarcity of ships. There was food enough for Europe in South America and Australia, but to carry 5,000 tons of food per month to the Allies would require 15,000 tons of shipping if brought from Australia, 10,000 tons if brought from Argentina and 5,000 tons if brought from North America. In order that ships should be available to carry the American army to France it was necessary that America, rather than the more distant continents, should supply the bulk of the Allies' food requirements.

The United States normally produces a small surplus of food for export. In order that she should be able to honor the draft of her allies three possibilities were open: She could slightly increase the flow to them by a partial embargo on food shipped to neutral countries; she could increase production by expanding the area planted; and she could reduce consumption by cutting out the 15 to 20 per cent used in excess of what is necessary to maintain public health. All these three plans were put into effect so far as possible.

Why Rationing Was Not Adopted

In the other countries at war, a system of food rationing was early established and was enforced more or less rigidly as urgency required. In the United States Food Administration, Mr. Hoover, in the address above referred to gave reasons for rejecting rationing as follows:

> Fifty per cent of the population are either producers or live in intimate contact with the producer, and, therefore, cannot be restrained in their consumption by any rationing. The consumption of the very poor is not beyond the necessities of health and strength.
>
> Our industrial population varies greatly in its habit of consumption of any given commodity in different parts of the country. For instance, the Southern worker consumes perhaps not more than 2 pounds of wheat products per week per capita, whereas in some parts of the North he consumes 8 pounds. Rationing of wheat on any broad national lines would increase the consumption beyond necessity in the South and decrease it in the North below necessity.
>
> Furthermore, to adopt rationing as a positive system would cost the government $10,000,000 or $15,000,000 annually for bureaucratic expense, as we should have to place tickets and coupons with every householder and behind these tickets would have to be erected a vast administrative organization.

Argument Against High Prices

There were strong arguments by theoretical economists that the Food Administration should rather favor high prices than low, because that would operate to check consumption. Mr. Hoover answered this proposal as follows:

> Reduction of consumption to the extent that we require by an increasing price is simply to place certain commodities out of reach of those classes of the community who have not the purchasing power. This whole conception is simply conservation for the rich and against the poor. The adoption of this principle of rising prices would simply mean that the poorer sections of our community would pay in suffering and the better-to-do classes would pay many score times the cost of any other system of reduction.
>
> Furthermore, if we are to increase the price of our foodstuffs merely to decrease their consumption, we must enter a vicious circle of constant readjustment of wages, for our working people must live.
>
> Beyond this, again, we could no doubt reduce the consumption, for instance, of sugar by 20 per cent, if we doubled the price; but to double the price of sugar alone means an annual drain on our population of $600,000,000 and this $600,000,000 would go into the hands of a vast number of middlemen. This would give rise at once to profiteering and discontent and would lay the foundation for social revolt.

Voluntary Conservation

The plan adopted by the Food Administration was to call for voluntary food saving. A nationwide campaign of popular education was undertaken to bring home to the head of every household and every individual that economy in the use of food was a patriotic duty. Concerning this, Mr. Hoover said:

> I do not believe there is another nation in the world in which the proportion of individuals of a willing sense of sacrifice is so high as in the United States, and in which a sufficient voluntary reduction in the use of food could be obtained.
>
> This basis of reduction gave some trepidation to the Allies for fear of our failure; but I am happy to say that the Allies will all have been fed during this harvest year so far as the obligation falls upon us, almost wholly on a voluntary basis.

It would be difficult to justly appraise the results of the food survey campaign and its effect on the individual consumer and the private family. There is no doubt that the savings made by certain classes were offset by the increased consumption of others. Millions who received far higher wages than ever before and were more continually employed

naturally bought food more liberally. The consumption of beef products in the United States, for example, increased 10 per cent in 1917. The Food Administration, however, was not in full operation till near the close of that year.

Where the food saving campaign had very great results was with the larger users of food—hotels, restaurants, hospitals, army camps. The saving effected in such places was enormous.

Thus, partly by outright saving, partly by substitution, partly by increased production, the necessary food was obtained. The United States has ordinarily only about 20,000,000 bushels of wheat over its home consumption available for export. In 1918 the Food Administration originally planned to spare 100,000,000 bushels of wheat to Europe. The scarcity of ships to bring wheat from Australia and Argentina made it necessary to increase the contribution to 160,000,000 bushels, and the Food Administration did it.

World Food Statistics

Under peace conditions the figures for world food production and consumption are collected and studied by the dealers who buy and sell on the central exchanges and are used, of course, for their own profit. The Food Administration, in cooperation with the food control bureaus of the Allies, brought together these statistics as a guide to the economical collection and distribution of the world's food, and also as a guide in fixing prices. This in itself was an epoch making event.

How Price Fixing Became Compulsory

The policy of the Food Administration from the start was against rigid price fixing. The difficulties experienced in European countries with price fixing were well known. In a public statement on February 25, 1918, Mr. Hoover said:

> I wish to say at once and emphatically that the Food Administration is not a price fixing body, except with regard to certain commodities which today are dominated by wholly abnormal overseas commercial relations.

And yet by the logic of events, the Food Administration was compelled to fix prices. It had to use its knowledge of world

supply and world consumption to adjust prices so that production would be stimulated without bearing too hard on the consumer of small means. How the price fixing was forced on the Food Administration was told briefly and forcibly by Mr. Hoover himself:

It was found by experience to be absolutely impossible to trust to the normal commercial agencies to select the prime commodities necessary for national existence among the Allies and to trust to the incidental operations of trade to maintain the maximum handling of shipping. Furthermore, these commodities are distributed by their governments under rationing systems, and thus must, in any event, come into government hands.

Therefore, the European governments have been compelled to undertake, as the consequence of shortage of supplies, the single-handed purchase of their supplies both for civil and military purposes. There has thus grown up an enormous consolidation of buying of 120,000,000 European people, a phenomenon never before witnessed in the economic history of the world.

Furthermore, we have aggregated in this country something like 2,000,000 men under arms, and we shall probably expand our forces to 3,000,000 or 5,000,000 before we are finished. The buying for these men is necessarily concentrated in one agency and we have thus a second great engine growing up in our midst as a necessity of war conditions.

In order that these two buying agencies should not get in each other's way, it has been necessary to place them under joint direction. In the final outcome, therefore, we find ourselves in the presence of a gigantic monopoly of buying just as potent for good or evil as any monopoly in selling, and in many instances either making or influencing prices. Therefore, not through any theory, but through an actual physical fact, the price made by this gigantic buyer dominates the market.

This is price fixing in a light never contemplated in economic history or theory, and it is time that economic thinkers denuded themselves of their procrustean formulas of supply and demand and took cognizance of it.

In commodities where this situation arises, the government must necessarily stabilize the price, and all theories to the contrary go by the board.

It is entirely possible for the government to make these purchases to the best advantage of the Allies and to the army and navy and to disregard totally the civilian population, either the consumer or the producer. Where these purchases aggregate such a volume as to make inroads on the normal consumption of the civilian, it would mean that the residue would go to the highest bidder.

This would be conservation again—for the rich and not for the poor—with a vengeance. Had we allowed this to go on in wheat, flour would today be $40 a barrel, instead of at a universal price of $12.

The producer is also subject to damage by these great buying agencies. Production of food does not take place evenly over the year; it is seasonal. It is entirely possible for such a purchasing monopoly to force down prices in the season of surplus marketing below the producers' cost.

Again, transportation both inland and overseas is subject to every vicissitude of war. Temporary stoppages in transport can produce every speculative disaster

unless some stability is given to markets. Therefore, both sides, consumer and producer, must be safeguarded by wise direction of this buying power, and this is bound to result in price regulation for certain commodities, in just protection to both.

Because the Food Administration fixed prices through its power over the markets and not by the method of arbitrary public order, with penalties for infraction, there has been general failure to appreciate the extent to which price control was effected by the Food Administration.

How Much Food Was Sent Abroad?

In a bulletin issued September 19, 1918, at a time when the continuance of the war for at least another year was fully expected, the Food Administration issued a bulletin summarizing the food it had sent to the Allies in the year ending July 1, 1918, and what it proposed to do during the succeeding year in furnishing food to the Allied civilians and armies, the American Army, and certain neutrals dependent for food on the United States, as follows:

	Average 3-year prewar shipments	Shipped year ending July 1, 1918	Must ship year ending July 1, 1919	Increase this year over last year
	Tons	Tons	Tons	Tons
Meats and Fats (Beef, Pork, Dairy, Poultry and Vegetable Oil Products)	645,000	1,550,000	2,600,000	1,050,000
Bread Stuffs (Wheat and substitutes in terms of grain)	3,320,000	6,800,000	10,400,000	3,600,000
Sugar (From United States and West Indies)	618,000	1,520,000	1,850,000	330,000
Feed Grains (Mostly Army Oats)	950,000	1,950,000	2,700,000	750,000
Totals	5,533,000	11,820,000	17,550,000	5,730,000

The Effect on Prices

If prices had been left to the free operation of the law of supply and demand, this great increase in purchases of food for foreign shipment would have very greatly increased food prices to the American consumer. It is of great interest, therefore, to see what actually happened.

The following table was made public by the United States

THE NATION'S FOOD BILL DURING A YEAR OF WAR

	2d Quarter, 1917		3d Quarter, 1917	
	Total cost in dollars	Cost per capita	Total cost in dollars	Cost per capita
Breadstuffs	$314,906,915	$3.0383	$393,732,314	$3.7844
Vegetables	330,709,747	3.1905	152,884,830	1.4694
Sugar	200,674,663	1.9363	205,527,930	1.9754
Fruits	78,361,156	.7559	71,290,290	.6852
Oils and Nuts	52,302,765	.5046	58,304,496	.5604
Fish	26,140,445	.2522	26,326,613	.2530
Meats	764,882,651	7.3804	777,233,981	7.4705
Poultry and Eggs	221,956,895	2.1417	226,038,723	2.1726
Dairy Products	573,665,667	5.5354	584,068,678	5.6138
Totals	$2,563,600,904	$24.7353	$2,495,407,855	$23.9847

	4th Quarter, 1917		1st Quarter, 1918	
	Total cost in dollars	Cost per capita	Total cost in dollars	Cost per capita
Breadstuffs	$348,554,753	$3.3372	$351,952,618	$3.3567
Vegetables	136,899,969	1.3107	143,179,060	1.3655
Sugar	210,439,897	2.0148	190,016,407	1.8122
Fruits	70,506,614	.6750	75,057,007	.7158
Oils and Nuts	68,495,873	.6558	72,652,456	.6929
Fish	33,133,947	.3172	40,631,802	.3875
Meats	878,708,620	8.4131	838,387,663	7.9961
Poultry and Eggs	266,500,892	2.5516	304,216,881	2.9014
Dairy Products	641,510,693	6.1421	676,389,410	6.4510
Totals	$2,654,751,258	$25.4175	$2,692,438,304	$25.6791

	2d Quarter, 1918		Per cent increase or decrease over 2nd Quarter, 1917
	Total cost in dollars	Cost per capita	
Breadstuffs	$349,626,283	$3.3216	+ 9.3
Vegetables	123,903,476	1.1768	−63.1
Sugar	188,723,860	1.7930	− 7.4
Fruits	103,881,429	.9868	+30.5
Oils and Nuts	81,964,541	.7786	+54.3
Fish	24,732,401	.2349	− 6.9
Meats	938,789,266	8.9192	+20.8
Poultry and Eggs	262,577,561	2.4947	+16.5
Dairy Products	619,553,054	5.8863	+ 6.3
Totals	$2,693,751,871	$25.5919	+ 3.5

Food Administration on September 19, 1918. It shows the total consumption of staple foods and the cost based on the average wholesale price for each quarter. During the second quarter of 1917 (the first three months of the United States' participation in the war) the Food Administration's work had not begun. The Lever Bill, which gave it its charter of authority, was enacted August 10, 1917. Thus the table demonstrates that notwithstanding the large purchases for export, food prices rose on the average only $3\frac{1}{2}$ per cent in the year covered by the tables.

It was also stated in the same bulletin that there had been more than a $3\frac{1}{2}$ per cent increase in the prices paid the farmer, so that a reduction had been effected in the contributions which the consumer pays to the various middlemen—speculators, jobbers, etc.—between the producer and the wholesaler.

Control of Manufacture and Trade

The Food Administration had to use the existing agencies for the production, manufacture and distribution of food. No other possible course was open. These agencies had all been engaged in business for profit and for all the profit they could make. Legally the man who produces or who buys and sells has a right to sell at the highest price he can get the purchaser to pay. The Lever Act for the first time applied to this business the rule hitherto only applied to natural monopolies such as public utilities, that prices and profits must not be "unjust, unreasonable or unfair." It further gave authority to the President (acting through the Food Administration) to fix "what is a just, reasonable, nondiscriminating and fair storage charge, commission, profit or practice."

Had the power which the Lever law placed in the hands of the Food Administration been used in an autocratic way, as it might easily have been from lack of judgment in establishing policies at the start, the whole Food Administration might have been wrecked with resultant disaster to the nation and its allies. It was not only necessary that the producers and

makers and dealers in food should be controlled, but that they should voluntarily accept such control and work effectively under it.

In an admirable summary of the work of the Food Administration by Mr. Thomas H. Dickinson, in the *North American Review* of July, 1918, the principles which were to govern the Food Administration, as laid down by President Wilson and Mr. Hoover in the spring of 1917, were as follows:

> The encouragement of production through the protection of the interests of the producer; a resolute scrutiny of costs and trade practices in the great producing and distributing food trades; an insistence upon the principle in the dealing of these trades of the "reasonable profit" and no more; the segregating by requisition or otherwise of the food stocks necessary for the war purposes of America and the Allies; the utilization as far as possible of the extant machinery of the food trades without radical and unnecessary reorganization; the maintenance of the food trades in the hands of their legitimate agents; the establishment of food distribution, if necessary, upon a scientific nutritional basis; the conservation of food and the elimination of waste by the people of the United States; the centralization of responsibility and the decentralization of administration; the dependence upon volunteer cooperation by all classes, producers, distributors and consumers.

Licensing the Food Traders

The main instrument by which the purposes above described were carried out in the Food Trades was the system of licensing. Of it Mr. Dickinson says:

> The system of licensing is to be explained as the means whereby the voluntary cooperation of the food trades of the country is moulded into the execution of the national will as revealed in the food control law and in the decrees of the Food Administration. The license system enlists the patriotic majority for the control of the recalcitrant or seditious minority. It is more a system of convenient administration than of governmental control. By means of the license system the trade is protected as well as is the government. It provides standards where standards are much needed. It relieves the anxiety of competition under unfair conditions.
>
> The punishments provided for the violation of the license provisions are of a new and interesting order. While backed by the power to take criminal action, punishments have been as a rule of the more direct order that attacks the licensee's right to do business. Revocation of license is a much more serious punishment than a fine and much more easy of application.

It is probably true that the American public has never sufficiently appreciated the work that the Food Administration did on its trade control side. The consumer knew that he bought his food from the same men as before; he knew

that many prices rose apace, as the table above shows; and the public has a better memory of the price that rose than of the price that fell. He knew that men in the food trades were making good profits, as was inevitable when business was more active than ever before in history and the volume of trade unsurpassed. It was entirely natural to conclude that the Food Administration was letting things take their course, and that its sole activity in trade control was a rare fine or suspension of the license of some profiteer.

In other words, because the Food Administration did not openly publish fixed prices and limit profits for the whole food industry, and enforce compliance with them under severe penalties, the public failed to appreciate the extent to which its control over the miller and manufacturer and dealer was effective.

The question may be raised, of course, whether the Food Administration's control went as far as it might have gone—whether greater stringency in control might not have further reduced the profits of the trade. As to this, no one possibly can be wise enough to say; but in forming an opinion on such a question it is only fair to give heed to the difficulties and limitations of the Food Administration. Like every other government war bureau, it had to be organized in the briefest possible time with such men as were available and with no opportunity to try them out. For the most part it had to be made up of men from the trades to be controlled. An error of policy in endeavoring with such a staff to enforce too closely limitations of profits might have wrecked the whole plan for cooperation and done irreparable harm.

The best of all evidence of the success of the Food Administration's control is the course of events since its work terminated. The increased food prices that have prevailed during 1919 compelled Congress to continue the control over the sugar market. The nationwide outcry against profiteers is an unconscious testimonial to the work done by the bureau during the war under the direction and inspiration of Herbert Hoover.

CHAPTER XI

Fuel

The oft repeated economic lesson of the war, that supply and demand relations utterly fail to fix prices equitably when absolute necessity prevails, was nowhere better illustrated than in the fuel industry. Civilized man has become not merely a tool using animal but an animal who has harnessed the great powers of nature to his tools. And of these great powers, that stored in fuel is now nearly the sole reliance.

Ships to win the war lie idle when coal or oil is lacking. Guns and shells and transportation, and all the industries that supply the daily necessities of both war and peace, all come to a dead standstill when the fuel supply stops.

The rulers of Germany alone of all the great nations clearly understood at the outbreak of the war that control of fuel meant national supremacy, not only commercial supremacy in peace but military supremacy in war. Germany's invasion of Belgium was not merely because topography made an attack on France easier by that road. Germany knew that her possession of the rich coal and iron mines of Belgium and Luxemburg would give her an enormous military advantage. She added to that by invading Russia far enough to secure control of her principal coal fields.

Control in Great Britain

It would be difficult to overestimate the enormous handicap to the Allies and advantage to Germany which resulted from Germany's capture of coal fields. Italy and France had short rations of fuel for their war industries for years. They were continually on the ragged edge of a precipice. Great Britain, with the best will in the world, failed to comprehend in the early years of the war that coal was a prime necessity to win victory.

The traditions and prejudices of the British business man,

and of that nation's intellectual leaders and statesmen, have been for a century strongly opposed to all government interference with industry. "Business as usual," was the slogan with which the Britisher began the war. He was converted by the experiences of the first disastrous year to see that government must take the lead in a vast campaign for the production of guns and shells; but he had no comprehension of the fact that coal and shipping were just as essential to win the war.

At every extension of government direction of ship operation and coal digging and distribution, a vociferous protest arose from the great influential middle class that so largely dominates public sentiment in Great Britain.

The government, headed by Mr. Asquith and later by Lloyd George, had to reckon with this prejudice—just as President Wilson had to wait until public sentiment in the United States had reached a point that would permit this country to enter the war without danger of serious civil discord. For nearly three years the Government of Great Britain temporized with the coal situation and interfered with the coal trade only when troubles arose that made interference necessary.

And these troubles came thick and fast. Coal production fell off just at the time when coal was most urgently needed. Coal prices rose apace, arousing widespread protest from both householders and industries. Coal miners demanded large increases in wages and strikes started whose continuance meant certain national disaster.

The destiny of Great Britain and of the world seldom hung on a more slender thread than when on July 20, 1915, Lloyd George's personal appeal, after all other means had been tried and failed, induced 200,000 Welsh coal miners, who had been on strike for a week, to return to work.

The "Price of Coal" Act

Looking back on the situation now, it is easy to see that measures should have been adopted from the start to prevent such dangers, but few could see it then.

It was while the nation was awakened to the dangers of the coal situation by the strike in South Wales, that Parliament took the first step toward control by passing the "Price of Coal" Act. This limited the price of coal at the mine to not more than 4 shillings advance above the price prevailing in the year ending June 30, 1914. While this protected in some measure the home consumer, it left the coal industry free to profiteer from the necessities of France and Italy and Russia. Not till a year later were arrangements made to control prices of export coal.

Those who opposed government interference with the coal industry based their opposition on the argument that private enterprise unhampered would produce more coal and would distribute it to those who needed it most and could afford to pay the higher price. At the end of two years of war the statistics of two years of coal output and export proved that a continuance of past policy meant national disaster. Here are the figures:

TOTAL PRODUCTION OF COAL BY GREAT BRITIAN

	Tons
August, 1913, to July, 1914	281,133,000
" 1914, to " 1915	250,368,000
" 1915, to " 1916	250,748,000
Total Exports	
1913	73,500,000
1914	59,000,000
1915	43,500,000

It was the showing which these statistics summarize that broke down the opposition to complete government control of the mines of South Wales. Three months later similar action was taken for all other coal mines in the United Kingdom. A Coal Controller for the United Kingdom, Mr. Guy Calthrop, was appointed and a new government department was created under his direction. This organization undertook the regulation of prices and limitation of profits in the field of both production and distribution. An agreement was reached and enforced by Act of Parliament, under which each coal mine owner was guaranteed profits at least equal to those made

during the year before the war. Additional profits up to 20 per cent excess allowed by the War Finance Act were permitted, but three-fourths of these were to go to a fund to make good losses of mines where profits fell below the standard return.

Conclusion of arrangements with the coal miners' organizations, providing for increased wages and removal of restrictions on output, were the next important work of the department. After nearly a year of negotiations and compromises, wages were agreed upon involving an advance of some $100,000,000 annually to the mine workers. The advance in the price of coal fixed by the act of 1915 was increased in October, 1917, from 4s. to an amount varying from 6s. 6d. to 9s.

Limiting Consumption

Campaigns to reduce consumption by preventing waste were also undertaken, both to stimulate voluntary economies and to enforce saving by a system of rationing.

Everyone can now see that every bit of work done by the Fuel Control Department was necessary. With all that this department was able to do, Great Britain's output remained far below the requirements of the nation and its allies to the end of the war. The heavy drafts to fill the armies limited the man power available to operate the mines. Coal for the navy, for munition works, for railways at home and abroad, for other works of absolute necessity, had to be found. Household consumption and nonessential industries had to be cut off to supply the deficiency and nothing but the strong hand of the government could effect this.

Is Government Ownership of Coal Mines Ahead

In Great Britain, even before the war emergency, government ownership and operation of the coal mines was a live political issue. The experience of the war has brought it into still greater prominence. It is true that the war time method was control and not actual ownership and operation; the mine owners continued to operate the mines while the

government directed their methods and limited their profits. A precedent has been established, however. The public has learned that coal is king. The mine owner and the coal dealer and mine worker can reign in peace so long as their rule is beneficent; and in the past Great Britain has had its coal supply furnished at a marvellously low price. Hereafter, the workers at the mines must have higher wages, and this the public will concede; but it will not have its coal supply shut off by disputes between the workers and the employers. Government control of the coal industry in Great Britain may be for a time relaxed, but the coming of any emergency will surely see it reestablished, probably in a permanent form.

Control in the United States

Great Britain took control of its railways when it entered the war and delayed for two and one-half years taking control of its fuel industry. The United States Government, enlightened probably by Great Britain's experience, took control of fuel within four months after declaring war, but delayed control of the railways until it had been at war for nine months.

One thing which compelled early action in the United States was the course of coal prices. The United States has far cheaper coal than any other country in the world. During the greater part of 1916, notwithstanding the stimulus which business had received from Europe's great purchases, coal prices remained low; $1.25 to $1.50 per ton at the mine was the prevailing price. During the latter part of the year, however, demand outstripped production, users of coal bid against each other to secure a supply, and prices went suddenly soaring in a way that amazed coal producers as much as it did coal users. By the summer of 1917 soft coal was selling at $7 to $8 per ton, with every prospect of further advance. Nearly all of this price was added directly to the profit of the mine operator and the coal dealer. There had been little increase in miners' wages and none in freight charges.

The business community, which commonly is bitterly

opposed to any government interference with industry, found itself in a position where it had to pay to the coal industry such a price as the latter chose to ask. Hence, vociferous appeal for government control arose from quarters where the contrary is always expected.

Since the demand for government control arose from the above described cause, price control was the first task undertaken. Prices at the mine for soft coal produced in 28 different mining regions were fixed by Presidential proclamation on August 21, and on anthracite two days later. In the proclamation establishing prices it was revealed that the aim had been to limit excessive profits on the one hand and on the other to increase production. "The prices provisionally fixed here are based on the actual cost of production and are deemed to be not only fair but liberal as well. Under them the industry should nowhere lack stimulation."

These provisional prices were subject to appeal and 41 complaints were investigated up to the end of 1917. These affected only a small part of the total tonnage produced (about 11 per cent) and the additions in price allowed as result of the appeals added only $3\frac{1}{2}$ per cent to the total outlay for soft coal.

New prices for coal made necessary new wage rates to the coal miners. A national conference of mine owners and operators was called at Washington October 6, 1917, and an agreement was formulated under which 45 cents per ton was added to the price of coal to cover increased wages. The miners agreed "not to strike or cease working without cause," and the mine operators to refrain from lockouts. A penalty clause was adopted, enforceable against either mine owners or miners for infraction of the agreement. These penalties were fixed separately in each mining district by agreement between the operators and miners.

A special labor department was established to aid in the adjustment of differences, and, according to the report of the Fuel Administration, for the first ten months of its work, to the end of 1917, had averted strikes in a dozen different States.

Increased Production

The need for price fixing and settlement of strikes brought about the establishment of the Fuel Administration. The need for increasing production and stopping waste and non-essential use soon became its greatest task. In 1916, a year of unprecedented industrial activity, the total production of soft coal in the United States was 502,519,682 tons. This was about 60,000,000 tons more than was mined in 1915. In 1917, notwithstanding the diversion of labor by the draft and the stoppage of immigration, leaving coal operators short-handed, 554,000,000 tons were mined. In a pamphlet issued by the Fuel Administration August 1, 1918, when the war activities were at their height, the quantity of soft coal needed from April 1, 1918, to April 1, 1919, was estimated by the Fuel Administration at 735,000,000 tons, of which 100,000,000 tons would be drawn from the anthracite fields. In other words, substantially 80,000,000 more tons of soft coal were needed for war industries and transportation than were mined in 1917.

Transportation

The limiting factor in coal production in 1917 had been transportation even more than labor. During the latter half of the year, railway congestion blocked the movement of coal. The United States Geological Survey's reports showed a total loss of production of 34,992,680 tons in the period from August 18 to December 29, due to car shortage. The condition grew rapidly worse toward the end of the year. In the week ending December 15, 4,506,135 tons of possible production were lost through failure to obtain cars at the mines.

This was while the railways were still under company control. No wonder the Fuel Administrator said in his annual report:

> The Fuel Administration views with the greatest satisfaction the appointment of a Director General of Railways, in whose hands is concentrated the power to utilize the railways and their equipment to an extent impossible to several lines separately managed.

The year 1918 opened with the worst railway congestion ever known, while for two months the most severe winter weather for a century blocked railway operations to an extent without precedent. Coal scarcity prevailed over a large part of the country during the winter and spring. Relief of congestion came with summer; and coal production then reached records never before approached. In April and May the output of coal was 63 to 77 per cent of the total capacity. In the nine weeks from April 1 to June 2, the average reduction of production (below 100%) was about 26 per cent, of which car shortage caused 13 per cent, labor shortage 5.8 per cent, mine disability 3.2 per cent, lack of orders 1.6 per cent and all other causes 2.4 per cent. Of course, conditions varied greatly in different districts. In some localities car shortage reached 50 per cent to 60 per cent.

In the week ending June 8 a great improvement appeared. The output rose to 82.3 per cent of the total capacity, or 12,427,000 net tons. Car shortage dropped to 7.8 per cent; lack of orders fell below 1 per cent. In order to reach the output of 634,594,000 tons, estimated as the requirement for the year from April 1, 1918, to April 1, 1919, the deficient production during the first two months made necessary an average weekly output of 12,400,000 tons of coal for the rest of the year. This record was reached during June and July, notwithstanding the decrease in mine labor due to the call to the colors.

In this estimate of 635,000,000 tons as the required output, allowance was made for the reduction in use by a countrywide campaign for economy and for the restriction of nonessential industries. The table reproduced on the following page is an analysis of the country's coal requirements made by the Fuel Administration on June 6, 1918.

This table is an interesting illustration of the way in which systematic statistical work was applied in the operation of government control. For the first time it became possible to direct an entire industry from a central authority. This made possible among other things some remarkable econ-

omies in distribution. In the United States, as in Great Britain, it was found that coal was being shipped needless distances. Some markets were supplied from a distant source to the neglect of a nearer one.

The prevailing competitive system and the railway rate structure is planned to give the distant producer a chance in each market.

Necessary as this is when competition alone governs price, it has no justification when the government fixes the prices. In March, 1918, the Fuel Administration, in cooperation with the Director General of Railroads, established a zone system to cover the distribution of soft coal. Shipments of 2,000,000 tons of Pocahontas coal to Chicago, with an average haul of 660 miles were stopped and Chicago had to draw from the Southern Illinois coal field, 330 miles away. The Wisconsin market was forced to give up its Kanawha River coal and draw from nearer fields. These are but a few examples of many such changes made in the distribution of coal. Not only was useless hauling saved, but release of cars from useless hauls made them available for mine supply, and thus added to the total tonnage output

CONSUMPTION OF COAL IN THE UNITED STATES FOR VARIOUS PURPOSES DURING WAR YEARS

Class of use	Required 1918–19	Consumed 1917	Per cent increase
	Net tons	Net tons	
Industrial	249,025,000	204,907,000	18
Domestic	75,678,000	66,915,000	13
Gas and electric public utilities	37,941,000	33,038,000	15
Railroads	166,000,000	155,000,000	7
Exports	24,000,000	24,000,000	..
Beehive Coke	52,450,000	52,450,000	..
Bunker—Foreign	10,000,000	7,700,000	30
Bunker—Domestic, inc. Great Lakes	5,000,000	5,000,000	..
Power and heat at coal mines	12,500,000	11,000,000	14
Substitution of coal for oil, mainly in the Northwest	2,000,000	.....	..
Totals	634,594,000	560,010,000	13.32
Deduct: Imports	.....	907,000	.....
" Used from storage	.....	4,375,000	.....
Net tons of production	634,594,000	554,728,000	14.4
Increased requirements over 1917	.....	79,866,000	14.4

possible. The diversion of 2,000,000 tons of Pocahontas coal from Chicago, for example, made possible an additional output of at least 700,000 tons of Pocahontas coal.

A great deal was accomplished in stimulating the production of more coal by fewer miners. Systematic encouragement to miners to make large outputs and to hold in abeyance custom and traditions and union regulations limiting the output was notably successful. Machine mining had made possible enormous outputs. The Fuel Administration, in a bulletin issued August 1, 1918, noted the record of a miner in the Bliss Colliery of the Lehigh & Wilkesbarre Coal Co. In a single month he mined 350 mine carloads of coal and removed 58 cars of rock, and his total earnings were $350.

A "production committee" of six men in each mine, three chosen by the mine operators and three by the miners, had for its duties to urge all to work to the best of their ability and make full time, to keep track of individual workers, and to report short hours or absentees.

Restriction of Consumption

There has been little criticism of the work of the Fuel Administration in its control over prices and production, but restrictions on the use of coal for nonessential industries caused widespread protest, as was to be expected. The policy here, however, was not to wholly stop an industry classed as nonessential, but to place it on short rations of fuel. This was not so much of a hardship as might appear, because such industries were generally making goods for which the demand was light, and their supply of capital and labor was depleted as well as their supply of coal. Among the industries thus restricted were brewing, clay products, manufacture of pleasure automobiles, florists, window glass making, and musical instruments. Use of coal or fuel oil in private pleasure yachts and use of any fuel by country clubs, except wood or peat hauled without railway transportation, was wholly cut off.

The campaign of education to prevent waste was well planned and had undoubted good results. A very large pro-

portion of the coal mined is wastefully burned. Because of her very cheap fuel, America has been always the worst sinner of all nations in this particular. Waste benefits no one, and with the much higher scale of fuel prices which are a certainty of the future, greater economy in the use of all fuel is imperative.

Heatless Days and Lightless Nights

The acts of the Fuel Administration, which were of the least consequence so far as fuel saving was concerned, caused more discussion and criticism than all its other acts combined. These were the orders establishing "heatless days" and "lightless nights."

The heatless days were an outcome of the coal famine in the winter of 1918, when unprecedented severe weather combined with railway congestion created a situation of grave public danger. There were 250 ships laden with war materials tied up in port for lack of fuel. Street railways and electric lighting plants were scraping the bottom of their coal bins. Private consumers and whole towns and cities were clamoring for coal. By order of the Fuel Administration all business not absolutely necessary in connection with the war was ordered suspended, so far as use of fuel was concerned, from January 18 to January 22, and on Monday of each week following. Eight such "heatless days" were observed. The actual amount of fuel saved was not great; yet at the end of the five-day period of business suspension, every ship of the 250 held in port for lack of coal had filled her bunkers and gone to sea, and towns and cities where coal famine had prevailed had been supplied.

Of equal value with the coal directly saved was the forcible impression made upon the public as to the great need for economizing in fuel at every point and increasing its production.

The "lightless nights," when all unnecessary street lights and advertising signs were discontinued, had a similar value. It was not merely the amount of coal saved by the reduced consumption of current for blazing street lamps and signs;

the very absence of these signs advertised to everyone that a national emergency called for economy by every patriotic citizen in the use of fuel.

Looking back on the work of the Fuel Administration, there is no escape from the conclusion that its work was a necessary contribution to the part of the United States in the war. It was not necessary here to take any such drastic measures as were required in France and Italy, where coal for domestic heating was cut down to an almost unbelievably low point in order that the war industries might be supplied. In the use of fuel, as well as food, government control of the private consumer was exerted in the form of moral suasion and appeals to patriotism, rather than outright compulsion. The result obtained justified this method; and for his entire work as Fuel Administrator President Garfield deserves a much larger measure of public credit than he has generally received.

CHAPTER XII

Some Unforeseen Results

The War as a Stimulant to Industry

The careful student of government control of industry during the war can not fail to note that one reason why that control was accepted so readily was not alone because of the great wave of patriotic sentiment which swept over the country but because of the amazing prosperity which the war brought to almost all kinds of business.

A graphic revelation of this is given in a curious little book, written by a British manufacturer in 1916. He is so delighted with government control of industry as it applies to his own business—apparently an iron working shop under the control of the Minister of Munitions—that he rushes into print to praise the operation of government control and to urge that it be adopted as a permanent policy!

One can read between the lines just the type of man the author is—a representative of that sturdy, conservative, slow thinking John Bull, so well depicted in the pages of George Eliot and Charles Dickens.

This manufacturer plaintively recalls his troubles before the war. He had to have a selling department working hard to get orders and taking them under sharp competition, which kept down his profits so that he could only pay low wages. Even then his business was often slack. His workmen were constantly bothering him with demands for higher wages or new shop rules to restrict output, with threats of strikes in the background.

And now, behold, what a change! The government keeps him busy with all the orders his plant can possibly fill. His employes are turning out work at a rate never before known. They are getting higher wages than ever before, but the government pays prices which permit this wage and leave him

a fair profit. He is not one of the men anxious to reap a sudden fortune; his ideal is a safe, easy going business that will relieve him of worry and give him a comfortable income. And government control has realized this ideal for him. Loss of orders, bad debts, protesting workmen, even difficulties in the purchase of raw materials—all these anxieties, which once so interfered with his digestive process, are happily ended.

"Why then," says John Bull, "since it is demonstrated that government control is so beneficial, should we not continue it after peace comes, instead of returning to that beastly old system of competition, where one had to be worrying about so many things, don't you know?"

This is all very amusing to an economist; but it is not at all improbable that the expressions above quoted represent the views of a good many people. The war was the greatest stimulant to industry and production and trade that the modern world has ever known. It is human nature to enjoy the effect of a stimulant and to overlook the depression that has eventually to follow stimulation.

Probably many other men besides the John Bull whose sentiments are depicted above confused the effect of the war as a stimulant with government control that distributed that stimulant to labor and industry and transport and distribution, so that all should have a portion.

Many other men with greater insight than John Bull are sure to ask whether some of the beneficial results that did follow, first, from the great stimulation and, second, from the exercise of government control, can not be attained for the benefit of the world in time of peace.

It was a revelation of the world's surplus production capacity, of which no one ever dreamed, that for five years the population should be able, while still supplying its daily necessities, to spare so many millions of men to carry on the work of killing and destruction.

Suppose that this huge surplus capacity of labor and machinery had been applied for five years, not to the work of

destruction, but to works for the benefit of mankind—to the building of ships and railways and roads; of houses and stores and factories and schools; to the drainage and irrigation of waste lands; to the planting of forests and the fertilizing of barren soils; to works for the higher development of the race, through religion, art, literature, education.

Had the labor and machinery and raw materials, so lavishly poured out to effect destruction in the war, been applied to work for the benefit of mankind, there would have been the same great beneficial stimulus to labor and industry that the war brought, and great strides forward would have been made in the enrichment of men's lives, the world around.

We all know now that one of the underlying causes of the war was that supply had outrun demand. Great industrial nations were eagerly competing for the world's markets. In 1913 and 1914 many hundreds of millions of dollars worth of ships and factories and mines and machinery in Europe and America, and hundreds of thousands of workers were idle for lack of a market for their product.

And yet human wants are well nigh limitless. If the competitive system can not find a way whereby it can utilize the surplus producing capacity of the world, then there will sooner or later be an insistent demand that government shall establish a control over industry which will enable idle labor and idle machinery to be set at work. If it can do nothing else, it can supply the needs of those who, because of their poverty due to lack of employment, have not been able to purchase goods.

The Effect of Government Control on Competition

The operation of government control during the war has rendered more acute the problem of monopolies. The war has greatly stimulated the development of trade combinations to limit competition. Before the war, the Sherman Law, although largely ignored, was ever in the background as a specter that might make trouble if the limitation of competition was too open and flagrant.

When government control was established, the trade asso-

ciation, which had been hitherto either an outlaw or an object of suspicion, became at once a valued aid of the government. It was entirely natural, and indeed necessary to prompt action, for the government bureaus, in dealing with a specific trade, to go direct to the representative associations of the trade and to use them as a direct means of reaching the scattered members.

One chief object of trade associations is to limit wasteful practices resulting from competition. Since the stopping of all waste in war time was a paramount necessity, the very government which a short time before had frowned upon such acts as criminal, now joined to aid the culprit trade association in promoting just the acts which had recently been accounted unlawful.

There is no question that those engaged in the same trade have come to know each other better in the past four years than ever before. They have learned how to cooperate with each other, to cut out wasteful competition; they have learned how to operate and adjust fixed scales of prices to suit varying conditions and locations. They have learned how to act together in dealing with labor, with the purchase of raw materials, with the distribution of product, with the conduct of "drives."

All these things have been done openly, with the encouragement and even at the request of the government. They will not unlearn these things now that the period of government control has passed and an era of free competition is supposed to be reestablished. Nothing is more natural than that the experience of the war in limiting competition should lead those who practiced it then to continue to practice it now. Indeed, it is not at all improbable that a considerable part of the great rise in prices since the armistice is due to the action of the trades who during the war learned how to control competition better than ever before.

It must be remembered, however, that the cooperative action of the various trades and industries during the war was not wholly bad by any means. Waste benefits no one. More

intelligent study has been given to the problem of preventing waste in a hundred different industries during the past five years than ever before. Enough has been learned to point the way to the saving of hundreds of millions of dollars worth of labor and material annually which now go to waste. But, in order to actually make this saving, continued cooperation of the members of a given trade will usually be essential.

The problem is, how can this cooperative action be secured, and the individual members still maintain active competition with each other. A solution is far from easy. Some prominent public men go so far as to declare that the day of free competition is passed. If that be indeed so, then the day of uncontrolled private enterprise is past also. It is unthinkable that the public will long submit to paying the prices fixed by monopolies for its food and clothing and other necessities. Government control will have to be established over industry and trade, as it has been over all public utilities, if and where industry and trade succeed in establishing a monopoly able to exact tribute from all.

CHAPTER XIII

The Popular Verdict and the Truth

If the question were asked, was government control of industry during the war on the whole successful, the answer of the typical business or professional man would be in the negative. The "bourgeois" and the "intellectuals"—to use terms which are now becoming familiar—are well nigh unanimous in condemnation of the way the government's business was carried on, and their condemnation is very apt to be expressed in lurid terms.

The situation has been well summed up by saying that the present public sentiment is conservative. It demanded the return of the railways to private ownership, and would hear nothing of proposals for reforms which might avert a later swing of the pendulum to outright government operation. In Great Britain, Parliament rejected by an overwhelming majority the proposal for nationalization of the coal mines, even though that policy had been recommended by a government commission.

These are merely typical illustrations of the swing of public sentiment toward conservatism.

The public sentiment thus expressed is the dominating sentiment. Labor and the socialists and the farmers may hold more radical beliefs and in a voting test might far outnumber the conservative element, but the latter holds the position of influence and leadership.

The facts set forth in the preceding chapters point to the conclusion that in its estimate of government control of industry during the war the ignorant and radical majority is nearer right than the intellectual and conservative minority. Government control of industry as a war measure was far more successful than the intellectual public realizes.

This is not by any means saying that its continuance under

peace conditions would be beneficial or advisable. That is an entirely different question.

This is not saying either that there were not grave defects, waste, loss and even outright graft in the government conduct of operations. Such things occurred under the United States Government in the World War, and under every other government; they occurred also in works carried on by private enterprise. There is no defense for such things; but as preceding chapters have made clear, the government's work must not be judged on the basis of 100 per cent efficiency. War work was all emergency work. Saving time and not saving money was the essential of success. Time to create efficient organizations was not to be had. Those on whom the responsibility was laid had to go ahead with such men and materials and tools as could be had.

There is no need of reciting further the conditions already reviewed in previous chapters, which hampered not only government control of industry itself, but industry conducted wholly by private enterprise, and would have hampered it whether the responsibility had been in the hands of Republicans or Democrats, of a captain of industry or a labor leader. The fact to be emphasized is that no fair judgment can be formed of what government control effected without taking these limiting conditions into account.

But it may well be asked, how is it that the popular verdict of the thinking, intelligent people of the United States is so mistaken? Doubtless many, perhaps the majority of those who read this, will be unconvinced that the author can be right against this apparently overwhelming agreement of popular opinion. It seems worth while, therefore, to examine the basis on which this popular verdict has been made up.

(1) The failure to make allowance for conditions of the war emergency has already been alluded to. Few men are such careful thinkers as to take this into account in forming their opinion. They hear of some case where a government bureau made a decision that turned out wrong or was guilty of some neglect that resulted in heavy loss. They do not stop

to inquire whether the man responsible for the blunder may not have been the best man obtainable at the time, or whether the mistake would not have been equally likely to happen in a private business.

(2) Again, most men form their opinions on public matters from their newspaper reading and most influential newspapers are notably on the side of conservatism. Nor is the editorial attitude of newspapers the most influential factor. The newspaper publishes sensational attacks on public officers, or instances of failure and loss and mismanagement. These make a good story, worth large type headlines on the front page. There is no news whatever in the record of good work well done. Thus the man who "reads only head-lines and forms his opinions thereby—as a vast number of people do—has to live with some very badly warped opinions.

(3) There is no doubt that partisan sentiment, often entirely unconsciously, has shaped the popular verdict condemning government control.

The phenomenon of a Presidential administration waning rapidly in popularity as it draws toward a close is no new phenomenon in American politics. On the contrary, it has been the invariable rule for a generation.

The American people always expect their executives to be supermen; and are always disappointed when they finally learn that they are fallible and prone to error like the rest of mankind. Partisan critics of an administration can always make a far greater impression than its defenders. Besides this, no one feels any particular responsibility for defending the organizations which exercised government control. They have been broken up and scattered; there is no one in authority to speak for them. Republican orators may make good campaign capital by dilating on the failings of these war bureaus; and it is well nigh useless for the Democrats to reply. A dozen will be impressed by and remember the attack, where one could recall the refutation.

(4) The reaction after the war manifests itself in many ways. The American people, like the rest of the world, are

tired of war. From a glow of patriotic enthusiasm over the exploits of soldiers and sailors and the government, it has swung to the other extreme of critical fault finding. It is as ready to magnify the faults and blunders of 1917–1918 as it was to condone them at the time. Thus the politician who arraigns the government for interfering with private industry during the war meets general applause and the public accepts his statements without question.

(5) Because government control of industry during the war is conceived to have been an entering wedge for socialism, a vast number of excellent people are ready to condemn that control offhand. The revolution in Russia, with the development of Bolshevism there, the heavy tide of social and economic unrest with its strikes, syndicalism and anarchism sweeping all over Europe and the United States, have generated a great wave of conservatism—a demand for law and order that is evident all over the United States and also in Great Britain. This conservative sentiment has no patience to inquire which of the reputed 57 varieties of socialism the government control of industry which was exercised during the war may represent, or even whether it had any real relation to socialism, properly so called. This conservative sentiment would go the limit in wiping out all government interference with industry, and is in no mood to give fair examination to the record of what actually happened under war control.

If the above is a true picture of the state of mind on which the present widespread condemnation of government control of industry during the war is based, the reader may perhaps conclude that the author's generally favorable verdict on this control may have a sound basis, even though it runs counter to the popular verdict.

CHAPTER XIV

Inevitable Extension of Government Control

As recited in the previous chapter, it is popular just now to condemn government control of industry and to declare that its exercise during the war was so faulty that the public will have no more of it, but demands freedom from all restrictions upon business. One sees expressions of this sort almost daily in the public press and many people honestly believe that they hold such opinions. And yet, when a concrete case, instead of an abstract principle, is involved, the trend toward the steady extension of public control over industry appears as irresistible as the movement of a glacier.

A notable illustration is furnished by events in the railway world. An overwhelming public sentiment decreed that the government should turn the railways back to the owning companies. The newspapers have been filled for a year with denunciations of the government control exercised during the war, in large part, as has already been shown, without justification. The superficial reader might have supposed that the public desired the roads to go back to the companies on some such limited basis of government supervision as prevailed twenty years ago. But everyone directly concerned with the railway problem—not only the national legislators but the railway officers themselves—knew that was impossible.

The executive control by the government over the railways ended on March 1, 1920, but in its place the Cummins-Esch Law established an authoritative supervision by the Interstate Commerce Commission far more drastic and rigid than that which the influence of President Roosevelt put in force in 1907, when the Hepburn Law was enacted. What an avalanche of malediction from the railway and financial and business world that legislation brought down upon President Roosevelt's head! In 1920 the same railway and financial

and business world accepts the Cummins-Esch Act, establishing the Interstate Commerce Commission in supreme authority over the railways, with approbation instead of protest!

One should not be deceived, therefore, by the current published invectives against government control. They remind one of the school boy who at the end of the term flings his textbooks on a bonfire and holds a revel over the cremation. What the textbooks contained remains with him nevertheless.

The people of Great Britain and America in their reaction from war's restrictions, are in a mood to condemn that control which saved the nation's life, and declare that they will have none of it in peace times. But the lessons the war has impressed on us will not be unlearned.

Perhaps the greatest economic lesson the war has taught is how inadequate and inequitable the fixing of prices by the law of supply and demand becomes when one party is under pressure of absolute necessity, and either supply or demand is limited. This principle has been slowly working its way toward recognition all through the development of the modern industrial system. The object lessons of the past five years have done more to establish it in economics and sociology and jurisprudence than all the events of the preceding half century.

The establishment of government control over such natural monopolies as public utilities was fully accomplished before the war, but the great majority of people wished to stop there and refrain from interference with other industries. The war has demolished this halting place. The public is as bitter today toward the profiteers in food and clothing and houses as it was toward the railways a generation ago. No government can be or will be deaf to appeals for relief from the rapacious landlord or the meat packer and distributor or the maker of shoes. No government can or will refuse to act when deadlocks in fuel production or food supply endanger the state.

Government control of industry is very imperfect of course; as is everything which human and imperfect men carry on, including industry itself. There will be general agreement

among all conversant with the problem, too, that wherever industry can function efficiently and justly without government interference and with satisfaction to both producers and consumers, it may well be let alone. But when the machine runs badly, where the industry becomes prostituted as a means to exploit producers or consumers or those who carry it on, then an appeal for government interference will inevitably arise, and the experience in the World War has made it certain that in some way control on behalf of the public will be established.

There is no doubt that government control is far from ideal in its operation and that the special circumstances of the war, as has been fully explained in previous chapters, made the control then exercised especially faulty in many ways. That is no reason for its rejection when necessity compels; and the logic of necessity will compel its gradual extension in the future as in the past, no matter what political party may rule.

Men and women who look with understanding eyes on the great social and economic problems of the time see clearly the necessity of meeting the increasing power of business and class organizations with an increasing authority of the government, representing the whole people, to protect the public interest.

There is no more important task imposed on this generation than the overhauling of our government organization and methods so that it may become more efficient, not for the purpose of extending the field of government control, which is already enormous in extent, but that whenever and wherever that exercise of government control becomes necessary, it may be exercised efficiently.

CHAPTER XV

Conflict Between the Executive and the Legislative Branches of Government

"The principal good which humanity will get out of the war will not be a victory of Democracy over Prussianism. It will be a victory of Democracy over its own weakness." These were the opening words of an address by Dr. Frederick Cleveland before the American Academy of Political Science at a national conference on war economy on June 5, 1918. Dr. Cleveland's thesis was that inefficiency and waste in our governmental affairs are not necessary features of a democratic form of government; but are due to the lack of proper organization in our governmental machine. He said:

> Our weakness and our wastefulness have not been democratic. We Americans have been institutional anarchists. Our institutions have been built with the purpose of making our Executive weak. We have designed an irresponsible system of administration with a view of fostering "pork barrel" politics, with all its accompanying wastefulness. In our political philosophy we have been Bolsheviks. True, we have not stood our officers up in line and shot them, as did some of the Bolsheviki of Russia; but we have been just as wasteful of experience gained in the management of our affairs.

Dr. Cleveland, who was chairman of the Commission on Economy and Efficiency created in President Taft's administration, urged in the strongest terms the necessity of making our government machine efficient by strengthening the authority of the executive and confining Congress to its true function of dealing with broad questions of public policy.

The fierce controversy over the exercise of government control of industry during the war has such a close relation to this vital question of our governmental organization that further discussion here seems necessary.

The Attack on the President as an Autocrat

In the *New York Sun*—that joyfully virulent critic of President Wilson—there appeared on January 19, 1918, a remarka-

ble arraignment of the President's assumption of autocratic powers in control of industry during the war, under the title, "What One Man has Taken on Himself to Do."

The editor began by quoting from an address by President Wilson, just before his inauguration, in which appeared an oratorical flourish condemning the concentration of power in government.

The editorial then proceeded to categorically enumerate the powers which had been concentrated in President Wilson's hands, under the authority of and "with the practical abdication of Congress." The catalogue may be briefly summarized as follows: (1) "He has undertaken to be not only the executive administrator of the laws enacted by Congress, but the fountain-head of legislative policy, the dictator of his political party's creed, the inspirer and leader of public opinion for the whole country." (2) He has taken control of the food production and distribution. (3) He regulates the supply of food to the Allies and the neutrals. (4) He has taken control of fuel. (5) He has become the nation's price fixer. (6) He regulates the sumptuary affairs of the nation. (7) He has absolute control of the entire railway system. (8) He has control of American shipping and has undertaken, "under the compulsion of manifest necessity," to create a merchant marine. (9) He has undertaken to plan federal taxation and expenditure. (10) He is financing the Allies' military operations. (11) He is "getting ready to undertake the regulation of the issue of new securities by every private concern for the money market." (12) He is reported as proposing further war legislation authorizing government control of *all* necessaries and their production and price. (13) He is formulating the ethical principles and political considerations that should determine the hereafter of the international structure. "His words on these extra-constitutional subjects command respectful attention wherever civilization has ears to hear."

The editorial concluded as follows: "This process (of concentration of powers in the Executive) if continued into times of peace, means also the destruction of that government of

distributed powers which the founders of the Republic defined in the Constitution."

The above quoted editorial is typical of a long continued campaign of criticism which has had, without doubt, an enormous effect on public opinion. The animus of this criticism is in a large part personal. Every President of the United States draws down on himself, as his administration draws toward its close, an avalanche of bitter personal denunciation, coming usually from all the members of the opposition party and a large part of his own. President Wilson, however, has created more bitter personal enemies than any President since Andrew Johnson.

Partisan feeling accounts for another large part of the criticism. It has been considered good Republican politics to exploit such criticism as the *Sun* editorial above. The result has been that the Republican party has been led, merely through its attitude of opposition, into the position of supporting Congress in its antagonism toward the Executive. The result has been a deadlock in our governmental machinery that has paralyzed a large part of the work of reconstruction and prevents the nation's effective participation in international affairs.

Conflict Between Congress and the President Not New

There is no intention here to discuss either personal or partisan aspects of the question, but it is proper to point out that antagonism between the executive and legislative branches of the government is no new phenomenon in American government. At the close of the Civil War it played a large part in the attempted impeachment of President Johnson by members of his own party. President Cleveland's administration was so unpopular with members of his own party, as well as with the opposition, that the public business was seriously obstructed. The most popular President for a generation, Theodore Roosevelt, was during the latter part of his administration so bitterly opposed by the Congress in

which his own party held a majority, that a recommendation from him for a measure was sufficient to condemn it in the eyes of Congress.

These historical facts are only cited here to clear away the common delusion that the defects in our government machine are going to be removed either by eliminating the personality of Mr. Wilson or transferring control from the Democratic party to the Republican party, or any other.

No one can study with open mind the experience of the United States and of Great Britain in the government control of industry during the war without being convinced that that control was absolutely essential to the war's success and, further, *that concentration of power in the Executive was essential for successful control.*

Experience in the Revolution

The United States has had experience in the operation of government without an executive. The nation was born at a time when men's minds were dominated by antagonism to the autocratic government of the King and the Colonial governors and they organized a government consisting of a legislative body only—the Continental Congress. The wonder is, as one reads the history, that the War of the Revolution was not lost a dozen times over—as it repeatedly became near being, from the incapacity of the Continental Congress. Not that its individual members were incompetent or unpatriotic, but the inevitable inability of such a body to exercise executive functions drove General Washington repeatedly to the verge of despair.

The years which followed the Revolution, when the government of the nation in the time of peace was attempted by Congress, acting through committees, proved that even for the simple and primitive requirements of government at that day, executive powers were necessary.

It was in the light of that experience that the Constitution was framed and a separate executive department was created; but the division of authority between the executive

and legislative departments was left undefined, opening the door thereby for future controversy and deadlocks between the coordinate departments of the government.

The Spanish War Experience

We do not have to go as far back as the Revolution by any means to find positive proof of the necessity of a strong central executive authority in time of war. The Spanish War was fought by the United States only a score of years before it entered the World War. And what a carnival of inefficiency it was! The task of 1898 was a mere trifle to what faced the nation in 1917. Shafter's expedition to Cuba mustered only 17,000 men; President Roosevelt himself, then a responsible member of the Administration, has told how ludicrously and lamentably the government of that day failed to care for its army and provide it with the things necessary for its work.

Why did the federal government in 1898 fail so completely compared with that of 1917? It was not because President McKinley was inefficient compared with President Wilson. It was not because a Republican administration is less efficient than a Democratic. It was because the army in 1898 was controlled by a dozen different, independent, jealous bureaus, between whom there was no cooperation, each of them existing by authority of Congress, and so protected by statute and precedent that the Executive himself was unable to establish a unified control. Dr. Cleveland, in the address above referred to, says of that dismal record of monumental inefficiency in the Spanish War:

> In violation of the spirit of the Constitution, and of every ideal of democracy, Congress had taken to itself control over each bureau of the administration; had taken the initiative and the leadership that belong to the Executive in any scheme of responsible government; had taken over this initiative and dealt it out in sections to over a hundred different standing committees who, sitting behind closed doors, became both the real Congress and the real head of the administration.
>
> This was the institutional provision for leadership that existed at the time of the Spanish-American War. And it still exists—exists not alone in the national government but in most of our State governments as well.

* * * * *

The Wilson administration has done much to overcome institutional weakness. Lack of team work? Yes—of the same kind that we have had for decades—the kind that Mr. Taft tried to overcome all through his administration. Inefficiency? Yes—the kind that goes with our system. It is a tribute to American manhood and American citizenship as well as to the Wilson administration that so much has been accomplished—that the confusion and waste has not been much greater. Only a few days ago was Congress driven by the necessities of war to give to the President the power to reorganize bureaus and departments in a manner to make them effective. But note the reservation. It was done with an apology and a promise that after the war is over we will return to our good old ways by again taking the initiative out of the hands of the Executive and putting it back into the hands of a hundred or more irresponsible committees of Congress.

The Danger in Present Antagonism to the Executive

What happened in the war is past history. From one point of view it may seem to matter little to the American people how government control of industry operated during the war; but if through misinformation the American people are led to condemn the concentration of power in the Executive that made our success in the war possible and to oppose provisions for making the executive branch of government more efficient, it will be a matter of most serious moment.

We should surely be able to deal with this important matter more wisely than any previous generation, for the science of organization has made great progress in the past dozen years. It is elementary knowledge now that a legislative body can not possibly perform executive work. The United States Senate can not negotiate a treaty any more than the board of directors of a corporation could arrange the details of a contract. Further, the experience of the war has demonstrated anew that where authority over executive work is given to a committee or commission it should confine its work to deciding the broad questions of general policy and delegate to an individual official the authority to carry out this policy and decide on all matters of detail.

It is true that President Wilson's unfortunate tendency to make the concentration of authority in the Executive a matter of his single personality has tended to confuse the issue and make those who contend for the supreme authority of Congress seem to be in the right. This temporary condi-

tion should not, however, lead us to reject sound principles. The government of the United States is by far the hugest business organization in the world. Steadily the inexorable logic of events forces it to assume new and larger tasks. It is of great importance to the public welfare that this government business should be efficiently performed. Especially is this true when the work consists of control over private industry.

It is therefore a work of the highest patriotism to seek to build up in our government a strong executive organization clothed with full authority for efficient operation and yet subject itself to such control through Congressional enactment as will prevent abuse of power.

Those who have given most serious study to our government operations realize that we can only hope for progress through changes in organization and in methods. Without these, changes in personnel can effect little. The framework of our government, bequeathed to us by those who adopted the Constitution, was only a framework after all. Those who drafted it had not the remotest dream of the social and economic conditions under which the nation is today living. We are unworthy descendents of those great men if we are unwilling to face the task of adapting the government they established to the conditions and needs of today.

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[1] There are of course a very great number of official reports of similar character to those listed above. These named in the list above are merely documents which have been found particularly useful by the author in collecting the material for this monograph.

INDEX

Carnegie Endowment for International Peace

DIVISION OF ECONOMICS AND HISTORY
JOHN BATES CLARK, DIRECTOR

PRELIMINARY ECONOMIC STUDIES OF THE WAR

EDITED BY
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Professor of Political Economy, University of Illinois
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No. 25

GOVERNMENT WAR CONTRACTS

BY
J. FRANKLIN CROWELL, PH.D., LL.D.

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EDITOR'S PREFACE

Three points stand out prominently in the procedure described under the name of war contracts. The first is that the established system of doing business in the War and Navy Departments broke down early in the war. The second is that the civilians, expert and inexpert, who attempted to carry on business which properly belonged to the departments, where they succeeded at all in doing better than the departments themselves, did so usually by violation of the law—the very law which, in large measure, prevented the departments from doing as well as the civilians did. The third is that it was found necessary to replace a bureaucratic order with the more elastic and freer methods of private business.

The history of war contracts shows clearly that there were many men in the War and Navy Departments who were entirely competent to foresee the needs of the country in the crisis and to prepare plans adequate to meet them. They were prevented, however, from doing this by the laws or administrative regulations defining the scope of their authority. Therefore, as is usual at a time of heated public opinion, they were accused of incompetence because they did not get results which they were unable to get only because this very public had insisted on tying them hand and foot. This is a commonplace of governmental administration to which public attention needs to be called again and again.

To put the matter in another way, the public of this country is so afraid that its servants may be occasionally dishonest that it prescribes in great detail the methods by which they may do public business. We have sacrificed and will always sacrifice efficiency and dispatch for what we think is safety. Even when we happen to get a competent public servant for the niggardly pay which the people of the country are willing to give for any public office, we tie his hands in this way and make him bury his talent. There were numerous cases of this kind in both the War and Navy Departments, and men

suffered in reputation, not because of their inability to measure and provide for enlarged responsibilities in the crisis, but because the public was impatient of their inability to do so under the conditions that the public had laid down. Criticism of departmental officers in the War and Navy needs to be temperate in the light of this fact.

Efficiency in the conduct of business implies not only that high personal responsibility but great liberty of action is assigned to those who are charged with doing the work. This liberty of action we are constantly refusing to our public officers on the ground that they will either be corrupt or autocratic. Perhaps it is a relic of the old idea that anyone in a democracy can do any government job.

Some students of this history may very likely fall in with the view of those people who would lay the blame of our failure to be prepared and to push our participation in the war in a more businesslike way on the shoulders of the administration and of Congress. Making allowance for all that may be charged to both for short-sightedness and unsound principles of action, it still remains true that this kind of criticism is too cheap. Many of those who make it are the very people who would have found fault if money had been expended in preparation for war which did not eventuate, and now find fault because money was not spent for war that did eventuate. In other words, they are the people who ask that their representatives shall have unerring foresight and wisdom. To be sure, we may fairly expect men who are elevated to the high office of representing the people to be men of larger caliber, greater wisdom and farther foresight than the rest of us. We get some such in our halls of legislation and of administration. But it is too much to expect that all of them will be so, especially when we remember the niggardly treatment which this great democratic country gives all its public servants. We expect first class men to take first class jobs at third rate pay, and then abuse them if they do their work in what is really a first class way. The public is more largely to blame for the failure of the government through recent

years to do its work adequately in the way of "preparedness" than is the government itself. Nevertheless, it is true that men in public office must be ready at times to take the responsibility of doing their duty in ways that are for the public interest, even when those ways are criticised by public opinion. One who does this is truly a great public servant. But he must be strong enough to withstand criticism until the event justifies his wisdom.

Looked at in a large way, the greatest lesson of our "war contract" experiences, in the mind of the editor, is not the fact that we devised excellent business methods for the discharge of the duties of the government officers, even in the time of war, valuable and important as those were. It is rather the fact that in a large way we can not expect permanently to find business efficiency, in the sense in which the best organized, most honest and most capable business men use the term, developed to a high degree in a democratic government. For such efficiency implies a degree of autocratic authority in management which the public will not long tolerate. There is a feeling that the cry for business efficiency in public administration, while easy to understand because of waste and mismanagement in public business, can not be pressed too far because of the feeling, almost instinctive, on the part of the people that this good can be purchased only at the sacrifice of some degree of freedom. In this the public is right. To put the matter in another way, we might say that the most democratic method of doing business is the old town meeting plan of New England. Everybody takes part in the decisions. But no one would claim that you can do business efficiently in this way. We can not have the utmost of democracy and the utmost of efficiency at the same time in the conduct of a business operation, even if it is a public one. This lesson needs to be taken to heart in these days, particularly when there is on the one hand a demand for what are called business methods in public administration and on the other a demand for a wider participation in these transactions on the part of the public.

The student will find many new illustrations of important matters in this study of Dr. Crowell's. He will find illustrations of new methods of organization for business purposes and methods of expediting business. But our business experience in the war has not added any new fundamental principle either to the science of economics or to the science of accounting. None the less, its lessons are highly valuable.

DAVID KINLEY,
Editor.

University of Illinois,
October 19, 1920.

FOREWORD

The subject of contractual relations between government and private concerns in time of war has as yet received comparatively little attention. There are a few books on the legal aspects of war contracting. But neither the economists, with a few exceptions, nor the public officials have given the matter the consideration which it seems to deserve. One fares better in the search for discussions of these matters by going to the files of engineering journals—an ever increasing source of applied economics. Consequently, this inquiry in both its methods and results has something of a pioneering character about it. The field has impressed the author, for many years a teacher of economics, as having much that might be utilized with advantage in the research work of graduate instruction, if not even in the more advanced courses of undergraduate instruction in quasi-public economics. Besides being closely related to engineering, the subject is neighbor to that of accounting. In these three subjects—of government contracting, contract engineering and contractural accounting—we have a group of economic literature representing achievements of which the representatives of scientific economics are bound to take early account if the latter subject is destined to keep abreast of the progress of economic research in closely allied domains of enterprise.

It has been the purpose to keep clear the distinction between the war time and the peace time contracting, because the problems and the conditions affecting their solution are different under the two régimes. It is not always easy to detect where the departures began. But the role of the United States of America, as associated with the Entente Powers in the World War against the Central Empires of Europe, is always the essential viewpoint from which this exposition proceeds. The events cover the better part of three years, 1917–1919. The materials are to be found in the Congres-

sional proceedings of the period, in military and naval records and reports of the several departments and bureaus concerned with the war, in the hearings and appendices of the several special investigations and reports, in the enactments, resolutions and executive orders and in the current discussions of engineering, aeronautical, maritime and economic organizations among others. Reports and Minutes of the Council of National Defense are valuable. Nor should the contents of the weekly and the daily newspaper press be overlooked. The more reliable issues are helpful in getting a good grasp of conditions and of events which helped to shape contractual terms, systems and policies.

This task has proved to be full of difficulties and not a few discouragements, owing mainly to the intricate and bewildering complexity of the mass of materials. The lack of ready access to ultimate sources, among other things, added to the burden of maintaining scientific fidelity in a milieu sometimes surcharged with personal or partisan bias. Under these conditions, however, there has been whipped into shape a tentative statement of the working principles in the light of which public policies were formulated and the hydra-headed problems of war worked out as they arose. The major part of this study has consequently had to be descriptive in character; a minor portion could be given to rigid analysis, and a still smaller part to the tempting formulation of the theoretical aspects of government war contracting. The idea has been kept in view that descriptive analysis should always lead to some helpful criticisms, if not to definite conclusions, in order that sounder methods of administration might result from the exposition of the mistakes and the masteries of the past. For, in the wide survey of the entire panorama of this eventful era in history and economics the masteries of governmental problems far outweigh the mistakes; the patriotic fruitage of national fidelity in contracting enterprise far outshines the profiteering exploitation of a war stricken citizenship, and moral worth triumphs in spite of unparalleled material wastefulness.

For courtesies I am indebted to the various bureaus of the War and Navy Departments, to the committees of Congress which had most to do with the war, to the District War Claims Boards and to many contractors communicated with by letter or interview. Commercial organizations have been helpful in getting the business viewpoint, as have also the officials of the district offices of the Federal Reserve Bank. To the staff of the Free Public Library, East Orange, N. J., I am indebted for more than the usual facilities and courtesies. Use was made of the Endowment's office rooms and library at Washington while collecting public documents. For painstaking care in the preparation of the manuscript, for verification of references and for helpful suggestions I am sure that this monograph owes most to my wife.

Congressional investigations relating to the war contributed the larger volume of information and opinions. From these the following may be mentioned as the more important sources of research material:

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Relative to Contracts: Hearings before the House Committee on Military Affairs, 65th Congress, third session, on House Bill No. 13,274, to provide relief where formal contracts have not been made in the manner required by law. Begun December 9, 1918. Pp. 34. Testimony of Crowell, Goethals, etc.

Hearings on Hitchcock Bill, Sen. 5,261, before Senate Committee on Military Affairs, January 7, 1919, on acquiring lands for establishment of mobilization and training fields for artillery and small arms, including testimony of Secretary of War. Pp. 59.

War Expenditures: Hearings before the Select Committee on Expenditures in the War Department, including five subcommittees on Aviation, Camps, Foreign Expenditures, Quartermaster's Corps, and Ordnance. Sixty-sixth Congress, first session. Begun June 23, 1919, and continued during 1919. Published in pamphlet form for distribution, and numbered as Serials and Parts, as "Aviation, Serial 1, Part I."

For a large part of the information here presented these several documents have served the author's purpose. The testimony is usually of a first-hand character, by the official in authority on that particular division of service. Easily the most voluminous source is the hearings last mentioned, on war expenditures. In fact, this testimony on the several matters of military interest covers practically every one of the major fields of inquiry relating to the war. It has been practicable to do no more than refer to some of the most informing testimony, owing to the limitations of this monograph. These documents are literally mines of information on war conditions as they affect contract relations, conditions of production, methods of settlement, etc.

From all of these and other documentary sources one thing stands out in bold relief, namely, that Congress exercised its influence on the conduct of the war not on the military side but preeminently on the side of its economics. And in this respect its influence was felt in three main directions:

1. In historic enactments providing for raising revenues and the appropriation of funds on a scale never before undertaken by any government.

2. In promoting the work of equipping the army by prompt investigation of abuses, delays and official inefficiency in business operations, as criticism of these and other conditions were reflected into the legislative branches of government; and in applying correctives where practicable.

3. By investigating conditions at the end of the war, as to the transition to peace and the liquidation of war assets, so as to formulate sound policies and enforce prompt adjustment, along lines of economic sanity and political safety.

JOHN FRANKLIN CROWELL.

CONTENTS

PART I—WAR CONTRACT CONDITIONS

PART II—WAR CONTRACT OPERATIONS

GOVERNMENT WAR CONTRACTS

PRELIMINARY ECONOMIC STUDIES OF THE WAR

EDITED BY DAVID KINLEY

Professor of Political Economy, University of Illinois
Member of Committee of Research of the Endowment

1. EARLY ECONOMIC EFFECTS OF THE WAR UPON CANADA. By Adam Shortt, formerly Commissioner of the Canadian Civil Service, now Chairman, Board of Historical Publications, Canada.

2. EARLY EFFECTS OF THE EUROPEAN WAR UPON THE FINANCE, COMMERCE AND INDUSTRY OF CHILE. By L. S. Rowe, Professor of Political Science, University of Pennsylvania.

3. WAR ADMINISTRATION OF THE RAILWAYS IN THE UNITED STATES AND GREAT BRITAIN. By Frank H. Dixon, Professor of Economics, Dartmouth College, and Julius H. Parmelee, Statistician, Bureau of Railway Economics.

4. ECONOMIC EFFECTS OF THE WAR UPON WOMEN AND CHILDREN IN GREAT BRITIAN. By Irene Osgood Andrews, Assistant Secretary of the American Association for Labor Legislation.

5. DIRECT COSTS OF THE PRESENT WAR. By Ernest L. Bogart, Professor of Economics, University of Illinois.

6. EFFECTS OF THE WAR UPON INSURANCE WITH SPECIAL REFERENCE TO THE SUBSTITUTION OF INSURANCE FOR PENSIONS. By William F. Gephart, Professor of Economics, Washington University, St. Louis.

7. THE FINANCIAL HISTORY OF GREAT BRITAIN, 1914–1918. By Frank L. McVey, President, University of Kentucky.

8. BRITISH WAR ADMINISTRATION. By John A. Fairlie, Professor of Political Science, University of Illinois.

9. INFLUENCE OF THE GREAT WAR UPON SHIPPING. By J. Russell Smith, Professor of Industry, University of Pennsylvania.

10. WAR THRIFT. By Thomas Nixon Carver, Professor of Political Economy, Harvard University.

11. EFFECTS OF THE GREAT WAR UPON AGRICULTURE IN THE UNITED STATES AND GREAT BRITAIN. By Benjamin H. Hibbard, Professor of Agricultural Economics, University of Wisconsin.

12. DISABLED SOLDIERS AND SAILORS—PENSIONS AND TRAINING. By Edward T. Devine, Professor of Social Economy, Columbia University.

13. GOVERNMENT CONTROL OF THE LIQUOR BUSINESS IN GREAT BRITIAN AND THE UNITED STATES. By Thomas Nixon Carver, Professor of Political Economy, Harvard University.

14. BRITISH LABOR CONDITIONS AND LEGISLATION DURING THE WAR. By Matthew B. Hammond, Professor of Economics, Ohio State University.

15. EFFECTS OF THE WAR UPON MONEY, CREDIT AND BANKING IN FRANCE AND THE UNITED STATES. By B. M. Anderson, Jr., Ph.D.

16. NEGRO MIGRATION DURING THE WAR. By Emmett J. Scott, Secretary-Treasurer, Howard University, Washington, D. C.

17. EARLY EFFECTS OF THE WAR UPON THE FINANCE, COMMERCE AND INDUSTRY OF PERU. By L. S. Rowe, Professor of Political Science, University of Pennsylvania.

*18. GOVERNMENT CONTROL AND OPERATION OF INDUSTRY IN GREAT BRITAIN AND THE UNITED STATES DURING THE WORLD WAR. By Charles Whiting Baker, Consulting Engineer.

19. PRICES AND PRICE CONTROL IN GREAT BRITAIN AND THE UNITED STATES DURING THE WORLD WAR. By Simon Litman, Professor of Economics, University of Illinois.

*20. THE RELATION OF THE ECONOMIC AND SOCIAL CONDITIONS IN SOUTHEASTERN EUROPE AND IN ALSACE-LORRAINE TO CONDITIONS OF PEACE. Two volumes. By Stephen Pierce Duggan, Professor of Education, College of the City of New York.

*21. THE GERMANS IN SOUTH AMERICA: A CONTRIBUTION TO THE ECONOMIC HISTORY OF THE WORLD WAR. By C. H. Haring, Associate Professor of History, Yale University.

*22. EFFECTS OF THE WAR ON PAUPERISM, CRIME AND PROGRAMS OF SOCIAL WELFARE. By Edith Abbott, Lecturer in Sociology, University of Chicago.

23. MONETARY CONDITIONS IN WAR TIMES IN INDIA, MEXICO AND THE PHILIPPINES. By E. W. Kemmerer, Professor of Economics and Finance, Princeton University.

24. DIRECT AND INDIRECT COSTS OF THE GREAT WORLD WAR. By Ernest L. Bogart, Professor of Economics, University of Illinois. (Revised edition of Study No. 5.)

25. GOVERNMENT WAR CONTRACTS. By J. Franklin Crowell, Ph.D., LL.D.

*26. COOPERATIVE MOVEMENT IN RUSSIA. By E. M. Kayden.

THE CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE
2 JACKSON PLACE, WASHINGTON, D. C.

* These numbers have not yet been published.

PART I—WAR CONTRACT CONDITIONS

CHAPTER I

Distinctive Character of Government Contracting

Payments arranged by contract, even in ordinary times, comprise a major portion of the annual disbursements of modern governments. In times of peace these public engagements in volume of transactions give to national governments a place of primacy among the purchasers of the products of industry and the services of men and women. When, however, the making of war becomes the main business of the state, the proportionate importance of the government's contractual relations with the business world overshadows every other material consideration. Here we have, on the one hand, the mobilizing of the actual and potential economic resources of the belligerent nation; on the other hand, the military and naval organization and operations in all their complexity. Between them the war contracting relations stand as the bridge by which the man power and the materials are coordinated and converted into the means of public defense and destruction of the public enemy.

This vital role of government war contracts has not been fully enough appreciated in the study of the conditions and causes that lie back of the phenomenon of wars. Failure duly to appraise the contractual relations of governments in times of peace is possibly responsible in the main for the almost total absence of treatment of the subject as related to war. Consequently some introductory reference to the distinctive character of the governmental contract, as distinguished from the commercial contract, is deemed advisable. It will help to define the viewpoint and to disclose the features of this most basic structural relation of modern governments to the economic order of the nation and the world.

General Features of Peace Time Contracting

In the first place, this branch of business relationship is unique in other respects than mere volume or gross value. Even a casual comparison of contractual practices and principles in this field with those in vogue in commercial circles will disclose many inherent peculiarities. These differentiating elements are of such a character as to mark off this domain of bargaining as a realm of methods and relations quite unto itself. So much is this the case that one can not go far into the subject under consideration without convincing himself that economics has here a promise of almost untouched research for the student of the future. Government has much to learn, from this source, about business relations; and business concerns should more readily avoid what is unsound in their efforts at private service of public interests.

The distinctiveness of the federal contract arises largely from the fact that its requirements belong to fields of operation in which the government has a monopoly of functions. This applies primarily to the War and Navy Departments, but by no means exclusively so. Generally, the government has its own periods for making its purchases. It follows its own methods of carrying out its agreements, to which the trade must conform. It often buys in quantities quite unlike what commercial purchasers require. In some of its departments the question of reserve supplies enters fundamentally into the contractual program. Furthermore, its standards of both kind and quality are distinctive. It often requires that deliveries be made in sizes and forms and packing conditions after one plan for the army, another for the navy and a third or more for the civil administration.

Not only have the general provisions regulating contracts in this sphere of business differed for each department, but within the same department of government the different bureaus have had an extraordinary liberty of specification, even for the identical commodity. In fact, some bureaus have had so wide a scope of specialized requirements as to give to their contracting system a still more attenuated variety

of bargaining units under divisional if not sectional contracting officers. Compared with commercial contracting, these governmental agencies are prone to require far more elaborate details in specification. As they operate in ordinary times, they insist on stressing the standards of inspection much more rigidly. So, too, they enforce more exactly the penalties for nonfulfilment. As the final appeal, outside of the Court of Claims, is generally to the second party to the contract, the two members in the agreement are by no means on an equal footing in final adjustment of disputed points. Owing in large part to these and other conditions, dealings with the government on this basis have tended to become a more or less specialized branch of contractual undertaking. Although accompanied with its inviting lump sum awards, it is on the contrary beset with some of the more forbidding business hazards. Even though banking credit is usually responsive to advances on hypothecation of a public contract, the hazards involved in acceptable execution are by no means lacking in speculative quality. It is not, therefore, surprising that the enterprise of filling government contracts and orders, whether in the fields of construction, of manufacturing or of merchandising, should tend in times of peace to fall into the hands of a comparatively limited class and coterie of competitive bidders.[1] It is common knowledge in business circles that this group of successful contracting concerns is not as a rule fairly representative of the better types in the industries and trades directly concerned. As a rule, the conditions of award have been too divergent from the prevailing commercial standards to encourage wide competition. The exactions of compliance have been too prone to emphasize incidentals at the expense of essentials to make it worth while for many of the most capably equipped to share in the bidding. The terms of compensation have been beset with too many routine reports and too much "red tape" to attract and hold that type of business firm which places

[1] Investigation of the War Department, Hearings before Committee on Military Affairs, U. S. Senate, 65th Cong., 2d Sess., pp. 3, 1453, 1603. Testimony of John P. Wood and Lincoln Cromwell.

probity and fidelity to the public interests above the amount and rate of pecuniary profits.[1] Consequently, government contracting, to a far larger extent than is for the public welfare, had gravitated in some of its more vital relations with business into the hands of subaverage grades of business standing. Hence, the net effect of the policy and practices in the official attitude was not only to narrow down the contracting interest in governmental needs to a limited, specializing class of concerns; but also to exclude in times of peace, from that group on which the government had to depend in an emergency, the more capable, competent and public spirited of concerns in their respective fields of business.

Basic Factors in War Time Contracting

Against this rather narrow background of peace time experience, a new chapter in contracting history opens. With amazing rapidity the shadow of the European War was lengthening in the direction of America. Almost before we had recovered from the shock of the collapse of international relations on the older basis, we suddenly discovered that we had become the arsenal for the waging of a world war. That situation proved to be a boon of inestimable value as a preparation for national defense in the business of war contract work. Probably the most valuable lesson which came out of the two years of American service as the neutral reservoir of war materials and munitions was that of the necessity for the reconstruction of the war contract itself.

That was accomplished by three definite acts of Congress. One of the reconstructive measures was the Act of National Defense of June 3, 1916,[2] ten months before the United States entered the war as a belligerent. A second enactment bearing on the business of war contract relations was the act creating the Council of National Defense with its Advisory Commission. That act was approved August 26, 1916, so that both of these reconstructive provisions became laws

[1] *The Engineering Record*, May 24, 1917, p. 428.
[2] Public, No. 85, 64th Cong. (H. R. 12,766).

before the outbreak of war on our part. A widespread and overruling demand on the part of public sentiment for a better state of preparedness insisted on profiting by European experience. Under the terms of these two acts the United States finally entered the war against the Central Empires. We were not long in discovering at appalling costs that neither the commandeering of the war contractor, nor the voluntary mobilization of the industrial and the commercial agencies and resources of the nation could win the war, without reorganization within the War Department itself in its methods and systems of handling contracts. Congressional investigations disclosed newer methods emerging and not always within the limits of the law.

That much belated remedy was expedited by the Overman Act of May 20, 1918. It applied especially to the coordination of departmental agencies. Its purposes were to eliminate the abuses of disjointed competition of the government against itself, to consolidate the agencies and to concentrate the aims of military and naval power on the one thing—the winning of the war against Germany. At one fell sweep, this act enabled the war authorities to centralize contracting operations upon a scale that promised to meet with reasonable promptness the needs of the preparing process at home and those of the Expeditionary Forces abroad. Although the Overman Act came six months after the actual reorganization of the contracting machinery of the department had begun, it had the virtue of heading the government in the right direction in what proved to be the home stretch of the war. The era of unreconstructed contracting had given the country three examples of how not to do things. These appeared in the bargaining operations of the Quartermaster General's office, in the delays and difficulties of the Ordnance Department and in the misleading prophesies of the aviation program of the Signal Corps. All of these preceded the passage of the Overman Act. As the last link in the series of contract reorganizing enactments, however, it had a basic relation to both what had gone before and what followed it.

CHAPTER II

Government Contracts in the World War

Government war contracts as here considered refer to that period included within the years of 1917, 1918 and 1919. During most of this period a state of hostilities existed between the United States and the Central Empires of Europe.

The scope and character of this inquiry is not, however, limited strictly to the war contract expenditures on the part of the two federal departments which bore the brunt of military and naval enterprise. It also includes other departmental and special branches of government. These, although under civilian auspices, nevertheless supplemented and effectively fortified the two regular military establishments. Such were the United States Shipping Board, the United States Housing Corporation, the National Council of Defense. All of these and some others figured in a more or less direct way in the contractual experience of the government under conditions of war. No treatment of the subject would, therefore, be adequate which failed to take into account the contribution of each of these elements to the situation. Each in its own way throws some essential light on the process of contractual development. And it is only by consulting this wide and richly equipped range of governmental experience that we can hope to answer profitably the questions of what policies were followed, what problems arose and what principles best served the people and their government through this era.

Enormous Volume of Contract Operations

The size of the task thus proposed is by no means a modest one. It involves a body of information which has as yet had almost no attention on the part of research. Its scope is rapidly expanding with the economic powers of government. And the business contract in general, as well as that between government and private enterprise, is one of the oldest

as well as one of the most fundamental instruments in the evolution of modern economic life. Under this form of pecuniary agreement by far the larger proportion of war expenditures was disbursed on the stupendous scale of outlay which characterized the prosecution of the world's war. The director of finance of our War Department indicates only part of the problem, when, in his capacity as one of the government's principal contracting officers, he reports disbursements of $14,544,610,213.65 for the War Department alone, from April 6, 1917, to June 1, 1919.[1]

Probably no exhibit of contractual operations could be more illuminating in this connection than that which shows along what lines the aggregate just quoted found its way through the channels of military disbursements into the possession of the people. According to the official statement of the Director of Finance the thirteen different departments, corps or bureaus in the War Department expended during the period above indicated $12,704,822,224.49 within the limits of the United States, and $1,839,787,989.16 through the disbursing officers of the American Expeditionary Forces abroad. This division of outlay is amplified in the table following:

TOTAL SUM CREDITED TO WAR DEPARTMENT DISBURSING OFFICERS FROM APRIL 6, 1917, TO JUNE 1, 1919

(OFFICE OF DIRECTOR OF FINANCE, WAR DEPARTMENT)

Department or Corps	Expended in United States	Expended by American Expeditionary Forces	Total Expenditures
Quartermaster Corps	$7,142,250,947.32	$1,123,454,486.28	$8,265,705,433.60
Ordnance Dept.....	3,783,345,386.02	359,138,436.14	4,142,483,822.16
Medical Dept.....	298,003,436.56	25,603,565.51	323,607,002.07
Engineer Corps....	435,762,558.32	204,298,597.45	640,061,155.77
Signal Corps proper	120,601,757.80	8,517,848.72	129,119,606.52
Military Aviation and Aeronautics	783,975,555.85	118,334,605.06	902,310,160.91
Adjutant General..	148,404.15	.....	148,404.15
Judge Advocate Gen.	None	.....	None
Provost Marshal Gen.	30,873,427.44	.....	30,873,427.44
Contingent expenses	2,514,951.10	440,450.00	2,955,401.10
Additional employes	23,411,978.08	.....	23,411,978.08
Chemical Warfare Service	83,933,821.85	.....	83,933,821.85
Total expenses...	$12,704,822,224.49	$1,839,787,989.16	$14,544,610,213.65

[1] Hearings before the Select Committee on Expenditures in the War Department, House of Representatives, 66th Cong., 1st Sess., Ser. I, part 1, p. 40.

It thus appears that the distribution of disbursements on a geographical basis gives the domestic field 87.3 per cent of the total, leaving 12.7 per cent as the proportion for disposal in foreign lands. But of far greater import is the distribution among the several divisions of the departmental service. This analysis brings into clear relief the fact that it is the contracting for supplies and munitions that makes war expensive. The Quartermaster Corps, the main supply agency of the department, and the Munitions Department, both of whose functions are now consolidated in the Purchase, Storage and Traffic Division under the General Staff, had combined disbursement credits of $12,408,189,225.76, or 85.3 per cent of the department's entire outlay. Of this proportion 56.8 per cent, or more than one-half of the departmental expenditure, reached the market through the Quartermaster Corps; and 24.8 per cent for the production and distribution of munitions. Outlays for supplies were just twice as large as those for ordnance account, and the two together account for almost seven-eighths of the expenditures of the War Department.

Dynamic Import and Scope of War Contracts

War contracts have a dynamic aspect of tremendous economic import. In the transition from the peace time era to the war contracting regime there is a sudden enhancement of governmental purchasing power. For instance, the regular and deficiency appropriation for the service of the entire military establishment (army) for the year ending June 30, 1917, was only $384,496,086. Prior to 1914 it averaged about $100,000,000 a year. For the year 1918 it rose to $9,016,688,201, and for 1919 to $15,416,440,084.

To this grand total of $14,544,610,213.65 of army disbursements must be added $4,324,279,754 for the corresponding three years of naval appropriations; also the amount of $2,732,786,821 on account of Shipping Board contracts, and of $150,000,000 for the Housing Corporation under the Department of Labor. The Department of the Interior figured to

the extent of an appropriation of $8,000,000 for the settlement of so-called invalid contracts or claims for mineral production and prospecting on account of the war. Other items might be added, but those mentioned, together with certain supplementary totals expended in various directions, such as contracts paid out of the presidential fund of $100,000,000, would easily bring the aggregate up to $21,850,000,000 as the direct money cost of the war.[1]

Within this stupendous sum lies the core of the government war contracts question. But not all of this was, of course, paid out to contractors. It is probably safe to say that not over 20 per cent was disbursed on army, navy, Shipping Board and other noncontract payrolls, and on the civilian personnel for salaries of officers and employes, etc. That would allow 80 per cent for contractual disbursements. At that ratio we get a net total of $17,480,000,000 as having been expended in the form of contracts or commitments, purchase orders, procurement orders and the like during the war regime. This does not embrace some tens of millions which other departments of the government spent directly and indirectly on war account. It, nevertheless, gives one a fairly approximate idea of the size of the question measured by statistical and financial standards.

With this delimitation of the field we pass to the consideration of some of the more general phases of experience within the domain of governmental bargaining. Obviously, to grasp the significance of war time procedure, it will be necessary to get in hand the general character of contracting practice in times of peace. It will be equally essential to bring out into clear relief the main statutory provisions which control in the government's contract policies under war time or national emergency conditions. Likewise, the question must be answered as to what administrative principles guided the war authorities in applying the legalized powers and policies to the exigent conditions which confronted them.

[1] Leonard P. Ayers: *The War with Germany, A Statistical Summary*, p. 131, War Department, Washington, 1919.

Finally, we must sketch at least in tentative outline the colossal reorganization of contracting machinery involved. The peace time supply system of the army alone called for an average annual appropriation for the five prewar years of only $100,000,000 a year for the entire support of the military establishment. Imagine the increase in the power of economic demand to a world war scale of supply command, in which the average annual appropriations for the War Department were $8,272,541,457, and the total appropriations for the nineteen months of actual hostilities at the rate of $15,674,280,000 a year.

CHAPTER III

Principles of Procedure in War Contracting

In the handling of government contracts the principles of procedure vary according as the contracts apply to times of war or of peace. In ordinary times the laws require that contracting be done under competitive bidding. In war times, in view of emergency considerations, the competitive procedure may be waived in favor of other methods of purchasing better adapted to the changed conditions. An analysis of the Revised Statutes, Acts of Congress, General Orders and Supply Circulars of the War Department, together with legal opinions and official rulings or decisions, discloses a mass of material from which the following classification of contract principles and procedure may be deduced:

Statutory Principles of Procedure

The policy of the federal government toward contracting concerns, during the World War, was formulated in the National Defense Act of June 3, 1916. In section 120 the specific procedure is outlined for the "Purchase or Procurement of Military Supplies in Time of Actual or Imminent War." It runs as follows:

War Time Purchase Methods and Priorities

The President, in time of war or when war is imminent, is empowered, through the head of any department of the government, in addition to the present authorized methods of purchase or procurement, to place an order with any individual, firm, association, company, corporation, or organized manufacturing industry for such product or materials as may be required, and which is of the nature and kind usually produced or capable of being produced by such individual, firm, company, association, corporation, or organized manufacturing industry.

Compliance with all such orders for products or material shall be obligatory on any individual, firm, association, company, corporation, or organized manufacturing industry, or the responsible head or heads thereof, and shall take precedence over all other orders and contracts.

This act went still further. It authorized the Secretary of War to determine a reasonable price as compensation, and that said compensation for "products or material, or as rental for use of any manufacturing plant while used by the United States, shall be fair and just." In case the owners or operators of any plant equipped for the manufacture of arms, or ammunition, or parts of ammunition, or any necessary supplies or equipment for the army, should refuse to manufacture any kind, quantity or quality of arms or ammunition, as ordered by the Secretary of War, then—

> The President, through the head of any department of the government, in addition to the present authorized methods of purchase or procurement herein provided for, is hereby authorized to take immediate possession of any such plant or plants, and through the Ordnance Department of the United States Army, to manufacture there in time of war, or when war shall be imminent, such product or material as may be required. . . . Any individual, firm, company, association, or corporation, or organized manufacturing industry, or the responsible head or heads thereof, failing to comply with the provisions of this section shall be deemed guilty of a felony and upon conviction shall be punished by imprisonment for not more than three years and by a fine not exceeding $50,000.[1]

In order to safeguard itself against the possibility of excessive costs in private plants, this same act provided for an investigation into the comparative expenses of manufacturing arms, ammunition and equipment on governmental account. A board of five citizens, of whom two were to be civilians and three army officers, was authorized to report "showing also what the government plants and arsenals are now doing in the way of manufacturing arms, ammunition and equipment, and what saving has accrued to the government by reason of its having manufactured a large part of its own arms, ammunition and equipment for the last four years."

Kernan Report on Ordnance Manufacturing Policy

This report came to light in Senate Document No. 664, dated January 4, 1917, Col. Francis J. Kernan, President.

[1] In this Act $20,000,000 are provided (Section 124) for nitrate supply, with which the abandoned project of Nitro, W. Va., has been concerned. See the advertisement of this property in the *New York Times*, August 26, 1919. According to the press dispatches of December 7, 1919, this plant, which cost the government approximately $75,000,000, was sold for $8,551,000.

Its thirteen recommendations had an important bearing on the ordnance contracting policy of the war authorities. It found and recommended that it was not desirable for the government to manufacture its arms, ammunition and equipment exclusively; that such a policy was neither practicable nor feasible, with regard to economy and preparedness in a reasonable time; that while the government plants, especially the Rock Island Arsenal, should be increased in capacity and a plan of coordination with private industries be worked out for full day-and-night capacity, it was desirable to arrange with private industry for a supply of whatever reserves of arms, munitions and equipment might be suited to war time needs; that at least a year's supply of all raw material needed and not found within continental United States be accumulated; that a full supply of drawings and gauges be accumulated so as to equip coordinated industries with these basic facilities and that standardized gauges, jigs and tools be provided as soon as practicable; that skilled labor be enrolled for selected factories; that assemblage plants for field gun ammunition be established at strategic points, with due regard to safety and facility for distribution.[1]

The National Defense Act applied especially to contract conditions as related to the purchase of army supplies and the production of munitions; it left undefined the powers and procedure in that other important field of food and fuel supply. That was accordingly embodied in the so-called Food and Fuel Control Act of August 10, 1917. By means of these two basic statutes the war contracting program was buttressed and balanced so as to place on equally firm foundations both the command of economic resources and the equipment and support of the military power.

Contract Control in Food and Fuel Act

In some respects this Food and Fuel Control Act was the most important piece of economic legislation which the war regime called into being, because it brought the nation back

[1] National Defense Act of June 3, 1916, Sec. 121. Public, No. 85, 64th Cong.

to the assertion of faith in its fundamental principles of official responsibility and commercial integrity in public bargaining. Its comprehensive authorizations were among the most sweeping of statutory provisions in the field of war contracts. Its principles were extraordinary both on account of what it provided for and also on account of what it put an end to. It established on a firm legal basis the government's price fixing power in a realm of contract that had been subject to some of the most abusive types of speculative exploitation in these public necessities. It likewise helped to put an end to that situation in the contracting operations whereby members of advisory trade committees had been functioning in such relations with government agencies as to be virtually selling to themselves in violation of the federal anti-trust statutes. It expressly avoided, however, the temptation to react in the reverse direction, cutting off the more helpful lines of civic and voluntary cooperation. This was done by empowering the President, as commander-in-chief, "to enter into any voluntary arrangements or agreements, to create and use any agency or agencies, to accept the services of any person without compensation, to cooperate with any agency or person, to utilize any department or agency of the government, and to coordinate their activities so as to avoid any preventable loss or duplication of effort or funds" (sec. 2).[1] This particular provision came very near making unnecessary the Overman Act of May 20, 1918.

To Prevent Collusion, Control Speculation and Fix Prices

The principle of public contracting, that the person who acts in behalf of the government should have clean hands and be safeguarded against even the appearance of having a pecuniary interest in the bargain, is set forth in section 3 of this act:

> That no person acting either as a voluntary or paid agent or employe of the United States in any capacity, including an advisory capacity, shall solicit, induce, or attempt to induce any person or officer authorized to execute or to direct the

[1] Public, No. 41, 65th Cong. (H. R. 4961), p. 1.

execution of contracts on behalf of the United States to make any contract or give any order for the furnishing to the United States of work, labor, or services, or of materials, supplies, or other property of any kind or character, if such agent or employe has any pecuniary interest in such contract or order, or if he or any firm of which he is a member, or corporation, joint-stock company, or association of which he is an officer or stockholder, or in the pecuniary profits of which he is directly or indirectly interested, shall be a party thereto. Nor shall any agent or employe make or permit any committee or other body of which he is a member to make, or participate in making, any recommendation concerning such contract or order to any council, board, or commission of the United States, or any member or subordinate thereof, without making to the best of his knowledge and belief a full and complete disclosure in writing to such council, board, commission, or subordinate of any, and every pecuniary interest which he may have in such contract or order and of his interest in any firm, corporation, company, or association being a party thereto. Nor shall he participate in the awarding of such contract or giving such order. Any wilful violation of any of the provisions of this section shall be punishable by a fine of not more than $10,000, or by imprisonment of not more than five years, or both: *Provided*, that the provisions of this section shall not change, alter or repeal section forty-one of chapter 321, thirty-fifth Statutes at Large.

The ancient common law bulwarks, by which the consuming public is enabled to keep out of the conspiracies of commercial distributors, are here reiterated as the principles of public safety in the sections which follow. The provisions against destroying necessities in order to enhance the price or restrict the supply (sec. 4); against unjust, discriminatory, or unfair or even wasteful storage without license; against hoarding (secs. 5–6) or combining to restrict supplies (sec. 9)—these are aimed at those age long evils occurring under the legal triology of "engrossing, forestalling and enhancing" so recurrent in the history of English speaking municipalities. Still more drastic and direct control over "foods, feeds, fuels and other supplies necessary to the support of the army or the maintenance of the navy, or any other public use connected with the common defense," is authorized by requisitioning existing stocks (sec. 10) and by taking over "for use or operation by the government, any factory, packing house, oil pipe line, mine or other plant." Just compensation shall be ascertained and paid.[1] But if said compensation be not satisfactory, then 75 per cent of the offered amount shall be

[1] Public, No. 41, 65th Cong. (H. R. 4961), pp. 1–5.

paid, with the privilege of suing in the United States Circuit Court for the determination and collection of the difference (sec. 12).

The Theory of Government War Contracting

Contractual control over private property and economic resources expands with emergency speed in the other sections of the act. An absolute guarantee of wheat prices which will insure producers a reasonable profit, but not under $2 a bushel, basis No. I, northern at interior markets (sec. 14); a complete suspension of the production of distilled spirits for beverage purposes at thirty days' notice (sec. 15); fixing the prices of coal and coke "for the efficient prosecution of the war" (sec. 25); and the regulation or even prohibition of operations on the commodity exchanges, boards of trade, clearing houses and similar institutions having to do with the prices and transactions in necessaries where the evil practices of market manipulation or unfair and misleading quotations are resorted to (sec. 13)—there the bargaining power of the President is made supreme in the interest of public necessity.

The theory of the government war contract is that the collective emergency of the national struggle for existence dominates every phase of economic life. This law step by step brought man power, manufacturing, the supply market, agriculture, mining and merchandising under its dominion in the form of federal statutes. By the Urgency Deficiency Act of June 25, 1917, the President was empowered to build, requisition and acquire ships. Reaching out still farther, by the act of March 21, 1918,[1] the rail transport systems of 255,000 miles passed under federal control. And lastly the military establishment itself, by the Overman Act of May 20, 1918, empowering the President to consolidate executive bureaus, agencies and offices, had to capitulate to the public demand for less formality and more effectiveness.[2] By this redistribution of army supply functions the policy of consoli-

[1] Public, No. 107, 65th Cong. (S. 3752).
[2] *Ibid.*, No. 152, 65th Cong. (S. 3771).

dating the supply service, transportation and finance completed the statutory provisions of emergency control over war contract relations.[1]

Administrative Principles of Procedure

Apart from war time legislation affecting government contracts, there had been developed a large body of special acts and regulations which defined the administrative procedure in entering into contracts. Some of these had come down from Civil War time, in which obligations by army and navy had at first been rather loosely assumed. An investigation by Congress in 1861 and 1862 resulted in a remedy for the method of indefinite agreements and uncertain liabilities being then placed upon the government. In the World War the same tendency to waive the regular methods of procedure in concluding contracts came to prevail very extensively. Among these informal awards the most common were the procurement orders during the second year of the conflict. This situation came out in the days immediately following the armistice, when the Comptroller of the Treasury ruled against the validity of the so-called informal or verbal contracts. The government, it was suddenly discovered, was in no sense obligated, especially when goods had not been delivered, because the act of 1862 expressly provided that a contract could not be valid unless it was signed in writing.

Formal Requirements of a Valid Contract

That requirement is thus quoted from the Revised Statutes, sec. 3744:

> *Contracts to be in Writing.*—It shall be the duty of the Secretary of War, of the Secretary of the Navy, and of the Secretary of the Interior, to cause and require every contract made by them severally on behalf of the government, or by their officers under them appointed to make such contracts, to be reduced to writing, and signed by the contracting parties with their names at the end thereof; a copy of which shall be filed by the officer making and signing the contract in the Returns Office of the Department of the Interior, as soon after the contract is made as possible, and within thirty days, together with all bids, offers, and proposals to

[1] War Expenditures Hearings, Ser. I, part 1, p. 182.

him made by persons to obtain the same, and with a copy of any advertisement he may have published inviting bids, offers, or proposals for the same. All the copies and papers in relation to each contract shall be attached together by a ribbon and seal, and marked by numbers in regular order, according to the number of papers composing the whole return.

Contracting Officer Disclaims Interest Under Oath

One of the most common difficulties arising under this requirement occurred when the contracting officer who had begun negotiations and informally entered into agreement with a manufacturer was called to duty elsewhere, maybe in France, leaving the drawing up of the terms in writing and the signing to his successor. Another source of irregularity was the practice of having a subordinate under direction of the authorized contracting officer do the signing. Hundreds of contracts as filed in the Returns Office are of this sort. They are, however, none the less irregular in procedure when this is done in the original contract. In order that this return may be made in due form the statute requires an oath of disinterestedness to be affixed by the contracting officer representing the government. That part of the procedure is contained in the Revised Statutes, sec. 3745:

Oath to Contract.—It shall be the further duty of the officer, before making his return, according to the preceding section, to affix to the same his affidavit in the following form, sworn to before some magistrate having authority to administer oaths: I do solemnly swear (or affirm) that the copy of contract hereto annexed is an exact copy of a contract by me personally with .....; that I made the same fairly without any benefit or advantage corruptly to the said ....., or any other person; and that the papers accompanying include all those relating to the said contract, as required by the statute in such case made and provided.

The penalty for omitting returns as thus required "unless for unavoidable accident or causes not within his control," made the contracting officer guilty of misdemeanor, and imposed a fine of from $100 to $500 and not over six months' imprisonment. The chiefs of the several supply bureaus are required by law to "insure a precise and immediate compliance with these statutes," and contracting officers shall familiarize themselves with their provisions.

Advertising for Proposals the Standard Procedure

Although competitive bidding is waived in emergencies, it is a mistake to assume that it is entirely set aside by war. Practically all of the contracts made by the reorganized Quartermaster General's Office (after January, 1918), under the Purchase, Storage and Traffic Division of the General Staff, were made on the open advertising basis. This principle of procedure is based on the idea that a fair price is more likely to result from competitive bidding after due publicity in ordinary times. War conditions might change the method without abandoning the policy. So it was held that even in emergency times, with proper cost accounting and price determining facilities, such as this division then had in the War Industries Board, better results could be gotten by the open bidding than by the cost-plus plan of award. For the further protection of the government, Army Commodity Committees were later constituted.[1] The law which defines the method of letting contracts under this plan reads as follows:

> All purchases and contracts for supplies or services in any of the departments of the government, except for personal service shall be made by advertising a sufficient time previously for proposals respecting the same when the public exigencies do not require immediate delivery of the articles or performance of the service. R. S., sec. 3709.
>
> When immediate delivery or performance is required by the public exigency the articles of service required may be procured by open purchase or by contract at the prices and in the manner which such articles are usually bought and sold or such services engaged between individuals.

This was and is always the standard procedure in the purchase of supplies, except when a duly authorized exigency makes more direct methods necessary. In the absence of such authorization by the head of the department or order of the President, the proposal must be advertised in the open market. The Comptroller of the Treasury has ruled that when newspaper advertising is impracticable, it should be done by circulars, letters or posters, directly or indirectly advising

[1] Supply Bulletin, No. 22, Purchase, Storage and Traffic Division, August, 28, 1918, pp. 3–9.

dealers. The navy did this effectively throughout the war period.[1]

Elimination of the Contract Broker with Contingent Fees

Shortly after the passage of the National Defense Act of June 3, 1916, the government's purchasing assumed such increased proportions as to attract an unduly large clientele of contract or contingent fee brokers. These functionaries had figured largely in American contracting with European belligerents before we entered the war. Many became unduly rich, until the Allied Governments consolidated their purchases on this side of the waters. They swarmed into the field of negotiation between the departments and the market, usually operating on a 5 per cent basis. This loaded the cost to our government by just so much more in addition to the manufacturer's price. At least, that is the view the Attorney General took of the practice, for whose prevalence the War Department was mainly but not wholly responsible. In order to do away with this "insidious and reprehensible" method, which the courts had universally condemned, the following covenant was prescribed for insertion in all government contracts and orders:

> The contractor expressly warrants that he has employed no third person to solicit or obtain this contract in his behalf, or to cause or to procure the same to be obtained upon compensation in any way contingent, in whole or in part, upon such procurement and that he has not paid, or promised or agreed to pay to any third person, in consideration of such procurement, or in compensation for services in connection therewith, any brokerage, commission, or percentage upon the amount receivable by him hereunder; and that he has not, in estimating the contract price demanded by him, included any sum by reason of any such brokerage, commission, or percentage; and that all monies payable to him hereunder are free from obligation to any other persons for services rendered, or supposed to have been rendered, in the procurement of this contract.[2]

Purchasing Through Jobbers Discountenanced

A further step in clearing middlemen from the field of contract relations between government and the manufacturer was taken by the more rigid enforcement of the general policy

[1] Report of Paymaster General of the Navy, 1918, pp. 15–16.
[2] Letter dated June 18, 1916, by the Attorney General to heads of all departments.

of the six supply bureaus of the War Department to buy directly from manufacturers, after the reorganization in 1918.

On this matter the Director of Purchases, Storage and Traffic, of the General Staff, found it necessary to issue Supply Bulletin No. 1, dated June 1, 1918, stating again the essential features of the general policy of direct purchasing. This policy was summarized as follows:

A. That the War Department discountenances purchases through jobbers in general.

B. That purchases through jobbers are almost entirely confined to small emergency purchases where quick deliveries are necessary and can only be obtained or can best be obtained from jobbers' stocks.

C. In certain cases of comparatively small purchases involving a list of miscellaneous articles it may be advantageous for the government to place one order with a jobber for the complete list of articles rather than place several orders with manufacturers of the various items.

D. In certain clearly defined and well known and understood cases purchases are made through selling agencies set up by and representing one or more manufacturers. These selling agencies are at times the sole authorized agency for handling the selling of the manufacturers' goods.

E. The general policy of all bureaus is that purchases through jobbers are exceptional, and exceptional reasons, therefore, must be presented before such purchases are authorized.

Other principles of a more or less technical character governing the validity of contracts were brought to the front in connection with the cancelation of contracts ensuing upon the armistice. These are dealt with in a later chapter. The substance of the questions involved is, however, to be found in the Hearings before the House Committee on Military Affairs, Sixty-fifth Congress, Third Session, on H. R. 13,274, "To provide relief where formal contracts have not been made in the manner required by law."[1] These proposals on the part of the War Department officials, especially relating to munitions, represented probably 25,000 outstanding contracts, on November 11, 1918.

Organic Principle of Governmental Supply System

It required the greater part of the nineteen months of the war to get rid of the older supply system and work into the

[1] Public, No. 107, 65th Cong., 3d Sess. Approved March 2, 1919, usually known as the Dent Act.

new. In the prewar organization of supply in the War Department the bureau system of independent purchase prevailed generally. That soon proved its incapacity to do business satisfactorily. It had defeated its own usefulness, by forcing prices up to highly speculative levels by wasteful rivalry among the contracting officials, if for no other reasons. It had been a survival of conditions in the War Department of which it is charitable to say that the country generally was ignorant. For years the public had been entertaining the illusion that with the outlay of a hundred million of dollars a year it was maintaining a military establishment that was within reasonable distance of being ready for war. The test of experience brought to light the facts as opposed to the official fiction. The facts of the official investigations go to show that the older supply system was, like most other interests in the department, dominated by two internal forces of about equal strength. One of these made for progress; the other for reaction; together they automatically deprived the nation of its rightful proprietorship in an adequate system of public defense. The military establishment as such had many examples of splendid service and of devoted individual efforts under adverse conditions. Yet it remains true of the establishment as a whole, with the exception of two or three of its branches of service,[1] that much of the department's business machinery for handling a real war in the spring of 1917 proved to be incapable of adapting itself to the needs of the hour.

In no particular respect was this situation more evident in actual practice than in the supply functions. Its more glaring inadequacies had been exposed in the mobilization of troops and their care on the Mexican Border. Then the country let it pass with a Congressional investigation or two. But, with the advent of the war with Germany, the patience of the business world soon reached the limit of toleration. To relieve the army supply situation, as a result of the failure in

[1] The Corps of Engineers, whose business relations have been even in peace times maintained at a high standard of efficiency, likewise found itself best prepared for war. See Report of Secretary of War, 1917, pp. 34–36.

departmental circles to meet the conditions adequately, a large number and variety of individuals and business organizations volunteered to cooperate, each seeking to assist in whatever way practicable. To cut a long story short, the efforts of the department to adjust its supply machinery to the business organization of the country brought into being the General Munitions Board, later merged into the War Industries Board, as the means of mediation between the two.[1]

Joint Powers of Purchase and Industrial Control

On what organic principle did the supply system of the War Department ultimately work out the problem of contract relations with business through the War Industries Board? This is answered in the statement issued by the Purchase and Supply Branch, Supply Bulletin No. 22, dated August 28, 1918, defining the duties of the army commodity committees and army representatives on commodity sections, as related to the War Industries Board.[2] These commodity committees were units of the Purchase and Supply Branch of the General Staff; the commodity sections were the corresponding units of organization on the War Industries Board. War Department representation in these sections could become effective only to the extent that the departmental representatives were competently equipped for service thereon. The principle of procedure is thus stated officially to the army committees and representatives having part in the supply of commodities for the army in cooperation with the War Industries Board:

> Conditions of modern warfare demand more than the mustering of armies; they tax the productive capacity of the nation to its limit and require the mobilization of all our material resources for the purposes of war, among which are the maintenance of the civilian population and the preservation of the economic fabric. The provision of funds and unlimited power of purchase is not alone sufficient to this end. With governmental power of purchase must be coupled governmental power to control, administer, and mobilize industry and material resource. Every other belligerent nation has recognized this necessity and provided for it by creating a single agency or ministry of munitions possessing both the power to purchase and

[1] See the Second Annual Report of the Council of National Defense (1918), pp. 117–119: "The War Industries Board and Its Subordinate Agencies."
[2] Supply Bulletin, No. 22, pp. 1–2.

the power to control resource. We have provided a similar mechanism, first, by centering the power to control resources in the War Industries Board; second, by vesting vast power of purchase in the War Department and other governmental agencies, and, finally, by making these agencies part and parcel of the War Industries Board coupling the power of purchase with the power to control industry—all to a common end.

War Department Representation on War Industries Board

But the coupling of these two powers and the mechanism so created can not be rendered effective unless all officials and units connected with it have a clear understanding of its purpose and its organization. On the part of some of our units this understanding seems not complete. Two things must be constantly kept in mind.

First, that officers representing the War Department on the War Industries Board or on any of its organizational units are as much a part of the latter organization as the officers of the War Industries Board themselves and that their powers are as broad and their duties and responsibilities as absolute as the powers, duties, and responsibilities of officers of that board.

Second, that the duty of representation of the War Department is not performed by a mere submission of our needs and requirements to the War Industries Board. Our officers must participate in all deliberations and plans for the fulfilment of these requirements, bringing to the knowledge of the industrial fabric that is found among civilian members of the board the technical knowledge of matériel, the experience of war purchase, and the relative urgency of the military demand that is found only in our own organization. Action by those units resulting from these deliberations should be the joint and reasoned action of our own representatives and the civilian and other representatives thereon.

CHAPTER IV

Rise and Fall of Extra-Departmental Contracting

A careful survey of the evolution of army contracting under war conditions discloses three rather distinct developments. First came the older system of each bureau doing its own purchasing independently. That was done on the theory that it takes a military specialist to buy a manufactured commodity for use along professional and technical lines of service. This plan had the pecuniary result, when it came to contracting on the billion dollar scale, of costing the public Treasury many millions of dollars over and above what was reasonably necessary. The second period was that in which the Council of National Defense attempted to cooperate in the contracting functions of the War Department in particular, with the twofold result of landing the business organizations on an illegal basis of cooperation with the government, and of breaking up the unity of departmental responsibility. The third stage was that in which a long advocated plan of consolidating the war purchasing agencies was effected under a single control of the Division of Purchase, Storage and Traffic, under the General Staff.

Isolated Bureau System of Contracting Fails

Under the peace time system of isolated bureau contracting each chief managed a piece of official machinery of varying degrees of contracting efficiency. In their narrower and more intense fields of specialization there was much superior service on economical lines. At intervals the methods of internal administration were overhauled, so as to bring the procedure of a given bureau somewhat more fully into line with prevailing business standards. This, however, strengthened rather than weakened the isolating individuality in functions and in relations to the contracting market. In the main, the

art of interbureau cooperation was more or less atrophied when the war era began to dawn upon the department. Even two years of war in Europe had not served to lower the walls of partition which rendered cooperative capacity across delimiting lines next to impossible under the circumstances. Each specialized in its own contracting field. The established plan was that of advertising for bids, waiting a month or so, then opening the bids in public, and after comparison and inquiry as to the responsibility of the bidders, making the award to the lowest acceptable bidder. It was a safe and fairly satisfactory peace time method, but ill-adapted to the speed of war procedure, without some expediting changes in plan, such as the navy adopted. The ruts of tradition seem to have been too deeply worn for the machinery to get out and speed up for emergency demands by readjustment from within.

Advisory Supplies Committee Negotiates Contracts

It was this that made it comparatively easy for the Council of National Defense to assume, under the guise of assisting negotiations, the virtual role of war contracting for the Quartermaster Corps. By means of its Advisory Commission and its groups of associated committees the real work of contract making rapidly came their way. The supreme exigency of national peril was at hand. Commercial organizations were demanding better coordination of the several purchasing agencies of the government, and Congress was advocating a separate departmental head to take up the production and supply of munitions. About the same time it became evident that the much advertised aircraft production was not functioning satisfactorily under the Signal Corps proper. In fact, the advisory personnel had assumed control of program and policy. The Quartermaster General's Office was depleted of its experienced assistants, consisting of highly capable civilian office employes whom General Sharpe had commissioned, only to have them transferred to other duties than those in which they were preeminently.

needed. Meanwhile documents relating to pending contracts were choking the channels of official machinery in charge of newborn talent. Still, in spite of this, the supreme necessity of coordinating war material purchasing, and thereby checking the flagrant abuse of competitive bidding among bureau chiefs and running up prices by leaps and bounds, was systematically opposed. General Goethals, when he took charge of the Quartermaster General's Corps, December 26, 1917, found only one chief of bureaus to agree with him on this remedy. On this subject his testimony is relevant:

> Of course there was opposition by all the bureau chiefs. We were robbing them, as they viewed it, of some of their authority and some of their perquisites and we met with considerable difficulty in bringing it about.[1]

Belated Advent of Consolidated Supply Service

This came after a supervisory makeshift had failed to work in the pooling of purchases. The really vital contracting plan of a consolidation of purchasing agencies under a single head came into effect slowly. Although taken up with the General Staff as early as February, 1918, and again formulated and put up to the General Staff, in July, 1918, it was not really acted upon until late in September. Even then its actual operation in full scope did not really get under way until the middle of October—less than a month before the armistice. Fortunately, some of the correctives of the government buying in the same market as rival bureau bidders were applied months before the fully coordinated plan of supply service came into being. Fully half of the war was fought under an egregiously uneconomic system of buying, and it took a large part of the other half of the period to drive the war authorities, both the Secretary and the General Staff, and the self-centered bureaus, to recognize and abandon the system for something better.

Contractual Functions of War Industries Board

The necessity for consolidating the supply service was made the more insistent by reason of the fact that the Council of

[1] War Expenditures Hearings, Ser. I, part 6, p. 523.

National Defense had meanwhile assumed a role that was neither to the liking of Congress nor to that of the military bureaus. By the end of 1917, under the ineffective efforts of the War Department in handling the supply situation, the council had practically taken over much of the purchasing of clothing and equipage for the army from the Quartermaster Corps. This was done through one of its advisory committees, especially the Committee on Supplies, acting in cooperation with the large trade organizations. It turned out, however, that the very representatives of these trade and industrial organizations who were assisting the government in making its supply contracts were at the same time interested in the industries and concerns that were selling to the government. This discovery of what turned out to be a violation of the anti-trust laws put that part of the work of the council on an illegal basis. Many resignations of advisory committeemen followed in order to avoid even the appearance of impropriety. The advisory service of the council was embodied in the price fixing and cost determining cooperation of the War Industries Board of a personnel disassociated from any pecuniary interest in contracting procedure. Therein was vested the allocation of contracts on priority bases in supply orders.[1] By this time the Purchase and Storage Division, with General Goethals in charge, had begun to centralize the purchasing work of the Quartermaster Corps. But that was not until civic cooperation had threatened to shelve much of the War Department's out of date contracting machinery.

[1] Report of the Quartermaster General, War Department, 1918, p. 10, under "Clearance" and "Priorities."

CHAPTER V

Types and Forms of War Contracts

Evolution of contract forms as used by the army and the navy dates mainly from the beginning of the Civil War period down to the present time. In the Civil War it was the navy that got itself into trouble from a rather loose method of concluding agreements for supplies. Of this, at least, some enterprising people took advantage and brought in claims of which there was at best doubtful ground for recognition. That resulted in the passage of the act of 1862, after an investigation, making a contract in writing necessary for its validity, and requiring signing by the contracting officer. That law now stands as section 3744, Revised Statutes, and is the cornerstone of our war time contracting policy. It requires other formalities, including the oath of disinterestedness. It implies rather than requires advertisement for competitive bidding in express terms. But competitive bidding was the peace time rule which it was sought with varying success to carry over into war time. The two main classes of contracts and orders in use in the army in peace were competitive awards and procurement orders. The latter were in general use especially on the part of the Corps of Engineers in river and harbor work, where it was not convenient to make purchases of supplies during the short open season of outdoor work by the more formal plan of competitive bidding for articles of standard market price. This was authorized by law, and under that law the other bureaus of the army purchased freely in war time, with the result that there was a vast number of informal contracts outstanding when the Comptroller of the Treasury ruled that they were illegal, whether judged by war or peace standards. They were mainly orders given informally, when they should have been contracts drawn and signed formally. These were later validated by the act of March 2, 1919, known as the Dent Law.

The following classification of war time contracts will serve to indicate the several groups of obligations into which the government entered under different conditions during the war period:

1. *Competitive Awards*, under sections 3744, 3745 and 3746, Revised Statutes, used in time of peace as the only legal form, with certain exceptions. Applied especially to the three departments of the army, the navy and the interior. Used in the army supply purchases after the reorganization of that division under General Goethals, even during the war.

2. *Cost-Plus Contracts.* These were made legal by the National Defense Act of 1916, upon proclamation of an emergency condition making the usual competitive method of award inexpedient on account of urgency of demand to be determined by the President. The features of this type were the payment of the full costs by the government, and compensating the contractor for his organization by the payment of a fee either fixed or in the form of a percentage of the cost.

This form of contract was afterwards prohibited by act of Congress in the contracts for housing facilities.[1] The Poindexter Bill of May 20, 1919, prohibited it as well as commissions in any government contracting. The General Staff, Purchase and Supply Branch, of the Purchase, Storage and Traffic Division of the army, required that an approval section be organized to protect the interest of the government in any supply bureau where that form of cost-plus contract was being used to any considerable extent. (Supply Bulletin, No. 18, August 3, 1918.) The act of Congress applied only to the percentage fees—not to the fixed price fee.

3. *Allocation Contracts.* These were resorted to when the quantity of supplies exceeded the known capacity of mills, when the orders were apportioned among the factories, usually after some conference among the representatives of the trade, on the basis of capacity, including both operating capacity and potential capacity. Many of the contracts for duck and

[1] Public, No. 164, 65th Cong. (H. R. 12,280) amending sec. 7 of act of May 16, 1918, Housing Act.

woolen cloth were placed thus, at a price agreed upon with a 10 per cent profit.

4. *Commandeering or Requisitioned Orders.* This was used as a last resort, when the conditions in the trade or industry were such as to make it in the public interest to waive negotiation and get results by taking over industries or supplies for public account. The compensation for use of premises, plant, etc., had to be at a fair and just price, and in case of dispute to pay 75 per cent down and settle for the balance when and as it may be adjudged.

5. *Procurement Orders.* These have been described in connection with the informal contracts under the head of cost-plus contracts. The use of this type of order, or contract, assumes competitive conditions in the branch of trade concerned. It pertains usually to merchandise as to the prices for which there is an open market and of which no unusual quantities are wanted at one time.

6. *Agency Contracts.* These were the kind used in the construction of the shipyards and the ships at the great government plants for fabrication of tonnage of steel ships. The same kind was used for the purpose of accomplishing various other war time objects, such as the construction of projects at home and abroad. It provided for payment by fee in fixed amount per unit of product, and differed little from the cost-plus contract for a fixed amount.[1]

The competitive contracts were usually lump sum awards, though not always so. But under war conditions the factors entering into the making of prices were fully disorganized. It became necessary, therefore, for the placing of contracts on any terms at all to recognize the emergency conditions which controlled costs and to adjust the government's methods of bargaining to these new requirements.

Early in the war period, owing to the necessity of speeding up all government work, the established lines of procedure

[1] For a specimen, see that of the American International Corporation with the Emergency Fleet Corporation for the building of the Hog Island yards and fifty ships. This was signed September 13, 1917, and is reprinted in full in Investigation of U. S. Shipping Board, E. F. C., Vol. I, pp. 260–271.

in contract making were loosened up, yet the authorities were unduly slow to yield to the policy of allowing larger liberty in official bargaining. Instead of anticipating war conditions, the recognition of an emergency was not authorized under the auspices of the War Department by the Secretary's letter of April 12, 1917, until six days after the declaration of war with Germany. This declared that in view of the existence of an emergency, within the meaning of section 3709, Revised Statutes, and other laws, the advertising requirement for bids in making contracts for and on behalf of the government might be omitted.

It was high time that some departure from the usual formalities be provided for, at the hour when camp and cantonment construction, munitions contracts and other equally urgent arrangements were being effected altogether too slowly for the exigencies of the hour. For instance, in that division of the Quartermaster Corps which had in hand the planning, procurement and building of camps and cantonments, the entire personnel in charge at Washington was composed of one colonel and four men trying to handle the work ostensibly on the prewar basis. Hordes of contractors were crowding the single room in which this ill-equipped staff did its work, while the importuning contractors sat on the sides of the officer's desk at which he was presiding.[1]

Army Supply Offices Hindered by Peace Time Forms

A somewhat similar situation as to the pressure for contract action existed in the office of the Chief of Ordnance of the army. Almost immediately after the declaration of war this office began to experience the incapacity to meet a war situation of which its head had occasion after occasion warned not only his superior in office but Congress as well. To the credit of Congress, however, it must be pointed out that by the National Defense Act of 1916 it had provided for an increase in personnel of the Ordnance Office. Yet, in spite

[1] Testimony of G. B. Clarkson, Director, Council of National Defense, War Expenditures Hearings, Ser. I, part 3, p. 358.

of this emergency provision in the law, no increase, except on the five year peace time basis, in the much needed service on account of the supposed imminence of war was allowed. The appeal of Brigadier-General Crozier, then in charge of ordnance, had been made long before that for authorization to proceed on an emergency footing to make contracts for basic requirements for ordnance production, by "organizing the increments of the Ordnance Department without organizing any other increments provided for in the National Defense Act." But the law office of the War Department, true to the obstructive traditions of departmental interpretation of laws, gave negative answer. True also to the insatiate legal appetite, the remedy was suggested in further legislation. With that decision or ruling the Secretary of War coincided, leaving the contracting capacity of the Ordnance Office bound hand and foot to the limitations of a prewar basis with a personnel of less than a hundred officers at the several arsenals and in the Washington office. A few dates will help to locate responsibility. The Ordnance Office's first letter on the subject was dated December 4, 1916, and the Secretary's reply, endorsing the Adjutant General's negative ruling, arrived only on February 9, 1917. Thus the great opportunity to utilize the lawfully provided presidential discretion in declaring an emergency condition was lost. Meanwhile the country was on the very verge of war. The makers of ordnance and small arms were obliged to enter into provisional contracts or understandings with the federal authorities, under conditions that radically modified the speed of delivery under contracts. To this the Ordnance Office as well as the Quartermaster General's Office were driven by the signal failure of the military establishment's authorities to see ahead and take action in time. Could any more convincing proof of this paralyzing quality of administrative inaction be wanted than the fact that the declaration of an emergency condition existing was not made by the Secretary of War until six days after the country had gone to war with Germany? Every contract, in the meantime, that was made on any but the prewar basis

of advertising first, then waiting for bids and finally awarding to the lowest bidder, was done with the knowledge that it was an indictable offense.

Factors Affecting Forms of Contracts

These are some of the underlying conditions that had a decisive influence on the types and forms of contracts that had to be improvised in the hour of national crisis. The more immediate factors in determining the types of agreements by which the government may get things done are four: (1) costs of production; (2) quality of goods wanted; (3) quantity of goods wanted and (4) time within which delivery is required. These are given in what may be called the peace time order of importance. In war time, when time is of the highest consideration, costs sink to the bottom of the list, and the order of relative importance stands as follows: (1) time of delivery, reduced to the lowest absolute minimum; (2) quality, which retains its relative rank; (3) quantity, and finally (4) costs.

The two types of contracts which were used in the vast majority of cases were the straight purchase-and-sale contract at a fixed price, and the cost-plus contract. The additional compensation in the latter type might either be a definite sum or a percentage of the cost as the second element in pecuniary reward. The former type is often called the lump sum contract, and the latter the cost plus percentage or fixed profit contract. In the one a fixed price per unit is the feature. In the other, both of the elements, of cost of production and of premium or percentage, are or may be variable. The one embodies certainty and definiteness in obligation and compensation, subject to inspection for quality standards and compliance with delivery schedules. The other, owing to the importance of producing results at all hazards, makes both expense and profit a contingent outcome. Consequently this applies to speculative or experimental undertakings, for instance. A third form, the agency contract, employs an already existing or especially equipped organization to produce a given product or perform a desired experiment. Here the

government pays the bills and compensates the agent by a percentage on costs. It is this last named kind of agreement under which the American International Shipbuilding Corporation was organized to carry out a contract for building merchant ships for the United States Shipping Board, under the auspices of the board's subsidiary, the Emergency Fleet Corporation at Hog Island. The largest shipyard in the world was there constructed on a swampy river front in the course of twelve months, and the practicability of quantity production of fabricated ships amply demonstrated.

The field in which the cost-plus type figured most widely in war contract operations was that of camp and cantonment construction,[1] as well as in the building of office buildings, docking and loading facilities and warehouses and storage facilities for the War Department, especially for quartermaster supplies service. By far the most of this work was done under the cooperation of the Emergency Construction Committee of the Council of National Defense.[2] To this advisory agency belongs the credit of working out an emergency form of contract in the crisis of war time needs as well as of applying the cost-plus contract to an extremely difficult situation during the first year of the war. Probably the best known field in which the fixed price purchase-and-sale type of contract figured was in that of the purchasing after reorganization (1918) of the Quartermaster's Department of the army, subsequently merged into the Purchase, Storage and Traffic Division of the General Staff.

Interdepartmental Effort to Standardize Contracts

As might well be supposed, the rather sudden entrance of the country upon a war program led to many departures from the legalized types of agreement in supplying the needs of army and navy. Once the limitations of the law were removed as to the statutory and administrative procedure, and the full swing of emergency freedom realized, we find

[1] Annual Report of the Secretary of War, 1918, p. 62: *Thirty-two Cities of 40,000 Population Each.*

[2] Second Annual Report, Council of National Defense, pp. 188–190.

much confusion arising and criticism current as to the contracts under which war work was being done. Many new officials were inducted into contracting offices, who knew not the routine of the prewar procedure in the War Department. In that situation the suggestion of an interdepartmental conference on the uniformity of contracts and cost accounting methods and definitions was called. The conclusions of the delegates, thirty in number, representing the Departments of Commerce, War and Navy, the Council of National Defense and the Federal Trade Commission, were as follows:

I. That in every instance where fair terms can be obtained, contracts should be in the form of straight purchase-and-sale contracts at fixed prices.

The question of what constitutes fair terms has a twofold bearing. In this committee's view it served as the moral basis from which the entire subject of governmental war time bargaining ought to be regarded. In its definition of "fair terms" the conference laid down six criteria:

(1) Quality and quantity of the article purchased.
(2) Adaptability or inadaptability of the plant to other than war business.
(3) Duration of the job, proportion of plant and capital tied up.
(4) Possibility of fluctuations in material and labor costs.
(5) Loss to commercial business by taking government work.
(6) Comparison with prices of other manufacturers, competitive bidding, etc.

II. That a standard form of straight purchase-and-sale contract be adopted for use wherever practicable.

Among the features of this form it was advised that clauses on the following subjects should be incorporated:

(1) Methods of delivery, storage of product, shipment to designation.
(2) United States to pay for raw material delivered to the contractor.
(3) To have the right itself to supply material and component parts.
(4) To adjust prices on increased material costs above estimated costs.
(5) To adjust price on increase in labor costs.
(6) Liquidated damages.
(7) War termination clause, providing for cancelation, etc.

This conference did not fail to take account of certain conditions which made it difficult to get contractors to undertake government work on the fixed price basis. There were many elements of hazard in the business situation, which made it necessary to follow the cost-plus form of agreement, in order to get work done on fair terms to the contractor of the best intentions. There was, for example, no experience on which to estimate what the cost of making steel helmets by a sheet iron concern might be. In all such untried fields the experi-

mental basis of the cost-plus contract was the best the government could do, short of commandeering the plant or going into business on its own account. This type comes into use in cases where the materials and labor markets are in a state of fluctuation such as to make bidding on the fixed price plan a highly speculative undertaking. Moreover, it was a matter of contract experience on engineering and building construction projects that the cost-plus plan had become a standard type of agreement. Why, then, could it not be applied with confidence to the enormous construction program of the government, provided the contractors were selected with due regard for fidelity and efficiency and were given an inducement to be economical rather than extravagant? Consequently the recommendations—

III. That in cost-plus contracts a fixed profit of a definite sum of money per article be agreed upon instead of a percentage of cost.

IV. That this agreed upon profit be subject to adjustment, so that the contractor may share in the saving of costs, or be charged with part of the excess of actual cost over estimated cost.

V. That a standard form of cost-plus contract be adapted for use wherever practicable.

Obviously the main difficulty in making this plan workable was to ascertain the costs upon which contractor and contracting officer could agree. Thanks to the state of progress of the accounting profession and the existence of both governmental and advisory agencies for price determining and cost accounting, this was a task of organization out of available talent in professional circles. But such a checking up staff had to be at every factory, in every shop and at every camp and cantonment to see that the contractor, whose interest it was to swell costs, was not taking advantage of his opportunity.

There were no cost-plus contracts in the Quartermaster Department, as later reorganized, outside of the construction work; or if any had been arranged before December 26, 1917, they were abrogated later.[1] The plan was opposed, under the reorganization in operation during 1918, because

[1] War Expenditures Hearings, Ser. I, part 6, p. 528.

it produced extravagance, it gave no incentive to the contractor to economize, it imposed all the risks on the government and left the contractor with none. Even though the Shipping Board's contracts with the five fabricating yards were made on the cost-plus basis, it was not considered necessary by the navy as a rule to get contractors on this plan either for yard construction or for shipbuilding, though often used in emergency repair contracts. The conclusion of the Interdepartmental Conference of July, 1917, is consequently sound in the main, when it says:

> The interests of the United States and the contractor are inevitably opposed if the profit is based on a percentage of cost.
>
> The temptation is great to the contractor to inflate his own cost as well as the costs of subcontractors, and the task of the United States is difficult and burdensome in checking and determining proper costs.[1]

Competitive, Cost-Plus and Commandeering Contracts

It is not difficult to see that between the peace time method of competitive bidding and the highly drastic method of commandeering, it may in given circumstances become advisable to take a middle course. Commandeering is a compulsory procedure, and no compulsory arrangement with the owners or operators of an industry can possibly bring as high a degree of efficiency in economic results as a voluntary agreement can. Every productive factor—labor, capital and management—is to some extent subnormalized by such a system of manufacturing. Commandeering limits if it does not largely negative the possibilities of cooperation in the productive process. When the history of this method of meeting the government's war necessities is written, if it ever is, it will be seen that impressment of industry, unless it be made universal, always involved the impairment of the potentialities of team work. Forceful bargaining must inevitably result in lowering of morale in the productive organization. Nor does the competitive selection of the lowest bidder always react favorably on the spirit of the factory and the workshop.

[1] Uniform Contracts and Cost Accounting Definitions and Methods, p. 5. Government Printing Office, 1917.

Often the underbidding is accompanied by underpaid wage schedules—the wage earning producer is "sweated" to make up for the lower bid needed to get the contract, or the quality of the goods delivered is "shaved," or secret understandings neutralize actual competition. In this case the government, under guise of open bidding, gets goods at monopoly costs. With the cost-plus procedure, on the contrary, all inducement to cheat labor, to use inferior material, or to impair the spirit of the management is alienated by insuring the costs plus a reasonable charge for overhead and use of the organization.

CHAPTER VI

Commandeering as a Means of Supply Control

In the contracting world there was a sort of a stigma attached to the fact of having one's industry or supply of commodities in trade commandeered by the war authorities. That very attitude prevented the powers from having to resort to this extreme measure. Even the versatile secretary of the Council of National Defense ventured the opinion in public testimony "that the people would not have stood for it," presumably meaning in the early stages of the war. But, as a matter of fact, the navy had seized stores at New York, and the Quartermaster General of the army had within a short period thereafter commandeered four important supply commodities, including wool, cotton, heavy ducking and canned goods.[1] As a means of protecting the public interests, however, this procedure is, in some quarters, regarded as the only acceptable one by which to place all concerned on a common footing of equity. Certainly, as a method of scotching the war time serpent of riotous profiteering, as was the case in the tin trade in the fall of 1917, it proved effective. In that case, all questions of price, grades and terms of payment were referred to specially appointed district boards of adjustment, while the government lost no time dickering with speculators for the metal urgently needed for the manufacture of ammunition.

The Problem of Fair and Just Compensation

On the wisdom of contracting by means of the commandeering procedure as a general thing, it should be kept in mind that none of the three other methods have proved wholly satisfactory. None will apparently meet all situations and conditions, without some agency by which the necessary negotiations, price fixing and bargaining process in general can be made to function with fairness to both parties to the

[1] War Expenditures Hearings, Ser. I, part 6, p. 536.

contract. This agency the navy developed in the Board of Appraisal and Condemnation at New York. It was created to act as a clearing house to supply the navy with information as to where and in what quantities stores might be procured, and it served admirably for the model of such an agency of intelligence and negotiation. This board of three officers had the duties of preparing lists of tools, of making inventories of goods of interest to the navy as located in warehouses, held by banks or forwarding agents for export and of seizing and forwarding articles needed by the navy. In this capacity, up to June 30, 1918, it had inventoried the contents of 238 warehouses, and holdings of 49 banks, 553 forwarding agents and 223 exporters. Considerable quantities of finished supplies were thus commandeered in and about New York at a substantial saving to the country. These idle supplies, detained from the market in a scarcity state of supply, released just so much labor and manufacturing capacity which new orders of equivalent amounts must have entailed.[1]

Even where the customary form of a contract is employed, the mandatory or commandeering order, accompanied by the means and responsibility for determining a fair and just price, has proved to be of advantage to the public interests, without prejudicing private interests. For instance, in the emergency of having to obtain material for contractors, a letter of commandeering under the signature of the single authority in which this power was vested, cut bales of red tape and saved no end of time. Likewise, in a given shortage of steel products, while congestion at the seaboard for export had caused accumulation of stocks, the navy was enabled to commandeer ample to meet its needs, and by its price determining power to purchase at an advantage without impairing the economic equity of the owners or exporters.

The legality of the commandeering authority was tested in the case of Moore & Tierney, Inc., *vs.* Roxford Knitting Co., in the U. S. District Court of Northern New York. Before

[1] Report of Paymaster General of the Navy, 1919, p. 30.

Justice Ray in Syracuse, June 17, 1918, the decision was rendered that the placing of the informal order under urgent demand for underwear on the part of the navy, irrespective of the form of contract used, was obligatory and took precedence over all other orders and contracts of the manufacturer with private citizens or firms. And it was also decided that no damage could be recovered by reason of the claim that such contract was entered into voluntarily. The contract in this case was placed by allocation for this industry generally, and the alleged injury was claimed to lie in the ignominy of a mandatory order on the theory that the manufacturer's patriotism was questioned thereby.

Form of the Navy's Mandatory Contract or Order

The main clauses in the mandatory order used by the Navy Bureau of Supplies and Accounts, after reciting the acts of Congress conferring authorization, stated that—

"an order is hereby placed with you under the conditions stated in subparagraph ——, to furnish and deliver material needed by the navy as listed below. Compliance with the order is obligatory and no commercial orders shall be allowed by you to interfere with the delivery herein provided for.

(a) The price herein stated has been determined as reasonable and just compensation for the material to be delivered; payment will be made accordingly. If the amount is *not* satisfactory you will be paid 75 per centum of such amount and further recourse may be had in the manner prescribed in the above cited acts (March 4, 1917, and June 15, 1917). . . .

(b) As it is impracticable to now determine a reasonable and just compensation for the material to be delivered, the fixing of the price will be subject to *later* determination. You are assured of a *reasonable profit* under this order. . . .

(c) The order *must* be accepted and filled in any event, and if placed in accordance with paragraph (a), you are only required to indicate below whether the price stated and fixed *is* satisfactory or is *not* satisfactory. If *not* satisfactory a separate letter of comment and qualification must accompany the original order that is to be signed by you and returned. If the order is placed under paragraph (b), original is to be signed and returned. . . .

By direction of the Secretary of the Navy.

(Signed) —— ——
Paymaster General of the Navy.[1]

Contracts or orders under this form, numbering 3,342 in all up to the end of the fiscal year 1918, showed that 1,789

[1] Report of Paymaster General of the Navy, 1918, pp. 34–36.

had been accepted and returned to the auditor signed, 1,274 awaited final determination of prices, making respectively 54 per cent and 38 per cent of the two classes, while the remaining 8 per cent had been canceled.

Bargaining Value of Authority to Commandeer

Authority was conferred, by the National Defense Act of June 3, 1916, for the President, through the head of any department of the government, to take immediate possession of any plant refusing to furnish arms, ammunition or parts of ammunition, etc., at a reasonable price as determined by the Secretary of War, and to operate such plant through the Ordnance Department of the United States Army, at fair and just rates of compensation.

This method of getting ordnance supplies was one of four distinct plans of letting contracts. They were:

(1) By taking time to advertise and getting competitive bids. Emergency considerations, rather than inability to avail of competition, were responsible for the lapse of this method during much of the war.

(2) The second policy was to fix or agree upon the price and other terms, divide the amount required among the various manufacturers and have them deliver according to contract entered into on a noncompetitive basis. This was known as the method of awarding by allocation. It was resorted to in many cases in which the government's demands were far greater than the available capacity of the manufacturing industry in normal times, or where it was deemed wise to distribute war needs equally among mills engaged on private orders. The contractors were all sure of getting orders, in the former case; the only question was the price as it was fixed by expert knowledge of costs. In some of the ordnance contracts proposals were invited and allotments made in the light of these proposals. In this method price fixing by the government is the distinctive feature.

(3) The next method is the cost-plus plan of award. The difficulty of fixing prices at what the manufacturer regarded

as just, fair and reasonable led to this method on a large scale in ordnance manufacturing. Of the total of $1,750,000,000 in contracts entered into by the Ordnance Department up to December 31, 1917, the Chief of Ordnance testified that "the great majority of that sum had been contracted out under the cost-plus method of compensation."[1] Yet there were notable exceptions. The Baldwin Locomotive Works of Philadelphia, which worked wholly on government contracts in 1918 and had $68,400,000 of orders canceled when the armistice came, operated almost if not wholly on lump sum contracts. Much the same was true of the J. G. Brill Company, working on cars, trucks and field equipment.[2]

(4) Commandeering authorized by the National Defense Act pertained directly to the possible needs of the Ordnance Department. It was recognized that government arsenals could not and should not be relied on to make the needed munitions. The Kernan report on the subject settled that as early as January, 1917,[3] reporting adversely on the advisability of exclusive dependence on government manufacture of arms, ammunition and equipment. But in providing for the impressment of private industries it was assumed that commandeering should be an expedient of last resort. The very existence of that authority, to seize plants and fix fair and reasonable prices—thus totally subordinating the existing management and utilizing the working organization on the government's own terms—acted as a potential factor of direct service to the government in making contracts. With that power in reserve there were very few, indeed, who would risk the attitude of obliging the Ordnance Office to make seizure for the country's exigencies. As a bargaining factor, the commandeering authority was, therefore, held in abeyance for the most recalcitrant cases. On the whole, it may be said, it was wisely used, although in some cases unnecessarily and in others most bunglingly.

[1] War Expenditures Hearings, Ser. I, part 5, p. 488.
[2] See annual reports of these two companies for the year 1918.
[3] Senate Document, No. 664, January 4, 1917.

From another point of view commandeering was made unnecessary. As the military establishment had the authority to stop private manufacturers from producing for the commercial trade in preference to the government, the recalcitrant manufacturers could have been and actually were put in a position where the alternative before them was to take the government orders or be prevented from doing any business on private account. Under these conditions nothing short of blind obstinacy or hope of gaining by prolonging negotiations could have forced the war or naval authorities to cut the gordian knot and take over the plants or properties without delay. General Goethals commandeered several woolen mills which did not care to take wool to weave cloth when the army was in urgent need of present and prospective supplies for clothing the soldiers. He also commandeered the output of food products, including canned goods.[1] Probably the term or act of commandeering may also be applied to the policy of the Ordnance Department in its effort to meet the needs of the army for cloth and leather equipment. In his report of 1917, the Chief of Ordnance states that the demands on the productive industries of the country were deemed certain to be so heavy as to justify the policy of purchasing raw materials in large quantities by the department itself. These were distributed among the manufacturers contracting for cotton duck, webbing and leather goods. Otherwise the contractors would have had to go to the open market and compete against one another, with the certain effect of inordinate price inflation. The policy, as thus put into effect, was believed to have resulted in very important savings particularly with reference to leather equipment.[2]

In naval purchases, commandeering was even more generally resorted to, and the Naval Board of Appraisal and Condemnation was especially organized early in 1918, to handle compensation cases, after seizure of tin supplies in New York.[3]

[1] War Expenditures Hearings, Ser. I, part 6, p. 536.
[2] Report of Chief of Ordnance to Secretary of War, 1917, p. 19.
[3] Report of Paymaster General of the Navy, 1918, pp. 30–31.

Conditions Which Apparently Justify Commandeering

We have seen how far from uniform are the agreements by which the public authorities and private interests reach what the lawyers call "the meeting of the minds" in war contracting. These variations are partly due to the fact that under the extraordinary conditions of war nearly every commodity is, as it were, a law unto itself. They are also in part due to the absence of what may be called well conceived and adaptable bargaining machinery. The view that upon the declaration of war all commodities and all services for the use of the government should be put on the same identical basis as that of the drafted soldier coincides with the war contracting policy of declaring everything subject to mandatory orders of the government. Industry was commandeered, but labor was not. In the language of a leading British economist, "Why should millions be kept under the most severe military discipline and other millions be bribed not to strike."[1]

From the viewpoint of equal treatment in the presence of a national crisis we may give tentative expression to some of the conditions under which commandeering of resources seems to be justifiable:

1. Where the partial or complete breakdown has occurred of the usual economic conditions under which values are determinable with any approach to fairness and justice, on the ordinary basis of supply and demand for services and goods.

2. Where the tendency of the trade is, in anticipation of a scarcity condition of supply, to accumulate unduly large quantities for speculative control and extortion of unreasonably high prices from the public powers and private necessity.

3. Where it is impossible to bring holders of commodities and of individual and corporate services to recognize a common basis of obligation not to take advantage of a national emergency by putting personal profit above collective welfare in the hour of national peril.

[1] J. Shield Nicholson, *War Finance*, preface, xvii–xviii. London, 1915.

4. Where the unwillingness to accept compensation on the basis of actual costs plus reasonable profit becomes a serious handicap to the rate of speed and effectiveness of mobilization of national resources.

5. Where commandeering may be required to forestall or prevent the quick rise in the costs of living superinduced by the race for excessive profits and extortionate wages exacted by the crisis in public existence.

6. Where it is difficult or impossible to recoup the extraordinary need for public revenues from taxes on excess profits and unearned incomes from salaries and wages or other sources.

No inconsiderable part of the procedure of the Food and Fuel Administration during the war was conducted in more or less accord with these general principles of safeguarding the public interest as against private or corporate exploitation.

Similarly, the operations of the Australian War Precaution Act, enacted to meet the coal strike in that country during demobilization of the army, were made equally effective by the free exercise of the commandeering power of the government in a public exigency.[1]

Commandeering West Coast Spruce Production

Commandeering a given commodity for war purposes is often if not always forced upon the government by the position which the commercial trade has taken toward the public needs. It is not always the contractor's unwillingness; in fact it is often quite the contrary, when the contractor is tied up with private contracts, as to which agents or brokers are threatening to sue if they do not fill orders as agreed. That was precisely the case on the west coast when the Aircraft Section of the Signal Corps came for a necessary supply of airplane spruce and fir. The Allied governments and the airplane corporations had been there in advance and bought largely through agents and brokers, to the extent of clearing

[1] Report of Trade Commissioner, A. W. Ferrin, U. S. Commerce Reports, July 21, 1918, p. 408.

the timbered log supply. Prices were as high as $250 a thousand, and cost about $90. Consequently one can understand why the brokers were eager to have their contracts cleared before the government became too deeply interested in the situation. Their threat of receiverships, lawsuits and other forms of embarrassment tied the hands of the lumbermen, especially as the agents insisted on having their orders take precedence of governmental orders. In that situation the commandeering order of September 6, 1917, was issued, thereby releasing the contractors of obligation to fill the brokers' orders immediately and clearing the way for the mills to cut for the government. This commandeering order was drawn in the Aircraft Board, approved by Howard E. Coffin, Judge Lovett of the Priority Board and General Squier of the Signal Corps, and signed by the Secretary of War, legally commandeering the aircraft spruce production of the Pacific Coast. It did not cover the timber stumpage, only the lumber cut.[1]

The disadvantage of this position, with brokers' orders relegated to the rear and the government in control of transportation under priority rules, was that the federal authorities were responsible for losses involved in canceling or deferring brokers' contracts. In order to meet this condition and save the public from penalty costs, it was negotiated by the government's spruce lumber representative that the private orders should be reinstated to the extent of 80 to 85 per cent of their volume. This was done only, however, on the condition that the originals were canceled, that mills released the brokers, and that the price of $105, which the government had fixed, be embodied in the terms. Thus the orders were replaced and releases for any damage forestalled subsequent claims.

The spruce lumber commandeering had another advantage. It enabled the aircraft authorities to introduce a corrective on the wasteful system of cutting and grading. The old plan

[1] Investigation of the War Department. Testimony of Maj. Charles R. Sligh, Part 7, pp. 2310–2311.

of selling on the basis of the G grade had resulted in cutting and shipping much timber not suited for airplane uses and made the rejections so large as to leave only from 15 to 20 per cent of the stuff received. By enforcing the more scientific specifications, not only was economy introduced but uniformity was established in lumbering and timbering methods in the logging camps and at the cutting mills. It likewise placed all producers on a common basis of standardization with the market, in establishing the more readily the inspection regulations looking to conservation and economy.

CHAPTER VII

Contractual Role of the Council of National Defense

In the words of the enabling act, the Council of National Defense had the duty of "the creation of relations which will render possible in time of need the immediate concentration and utilization of the resources of the nation." It consisted of six Cabinet members and the Advisory Commission, its *alter ego*, of seven civilians. Each of these seven became the chairman of one of seven separate committees with "power to select the members of its committee from either governmental or civil life, or both." The names of these several committees into which the Advisory Commission divided its labors were medicine, labor, transportation, raw materials, science and research, munitions and supplies. Among its first steps as a council a series of conferences was provided for "with leading men in each industry fundamentally necessary to the defense of the country in the event of war." The council likewise created "an expert body, whose personnel shall be chosen by the commission . . . from among those having special knowledge in industrial, military and naval affairs," to prepare definite plans for the council and commission to consider as a basis for national security and welfare in the event of an international emergency.[1]

The duties of this expert body carried its members and assistants directly into the fields which the various divisions of the War Department traversed in the performance of their established functions. Especially so was this the case with regard to the Munitions and the Quartermaster General's departments, the two principal contracting agencies of the government. How extensively this expert board and the seven special committees headed by the members of the Advisory Commission cut across the regular work of the department's

[1] National Defense Act, 1916, section defining duties.

bureaus and divisions is seen by the commission's request for information as early as February 18, 1917, less than fifty days before the declaration of war on Germany. At the most critical stage in the preparations for national defense, these departmental agencies were called upon to supply the commission for its special committees "detailed lists of materials with specifications and detailed dimensioned blueprints, covering all equipment needs for a balanced force of one million men. Estimates were also to be furnished covering supply of ammunition for the same force in the field during each ninety days of active service."[1] The purpose for which this information was desired was "in order that approximations may be made as to the amounts of material, both manufactured and raw, for which it will be necessary to draw upon the resources of the country."[2] The already overcrowded office of the Quartermaster General of the army had thereby an extra week of work thrust upon it, and more than that if refiguring of its present data were required on the basis of a balanced force as provided by the defense act of June, 1916. The chief of the Ordnance Department replied that it would take a long time to furnish the information requested. Practically no copies of blueprints are available, so that about 10,000 copies will have to be made. Furthermore, in many instances where parts are manufactured at present only in arsenals, no detailed drawings exist. He also calls attention to the fact that to furnish a complete list of the materials, etc., as requested, would require some time on the part of his office force and suggests that the director continue, as at present, to get the information if possible through Colonel Landis, who is employed by the council.[3]

Contracting Methods of Council's Advisory Committees

Under the Advisory Commission regime of intended cooperation with the military authorities a complicated system of committees and subcommittees grew up as if by magic. Somewhere in this jungle of intermediating agencies of an unofficial or advisory character the center of gravity of contracting responsibility disappeared for the time being. Where-

[1] Minutes of Advisory Commission, February 28, 1917.
[2] *Ibid.*, February 15, 1917.
[3] *Ibid.*, February 28, 1917. See pp. 561–577 in Hearings on War Expenditures, Ser. I, part 7.

ever it lay, it was equally as remote either from the parental council on the one hand as it was from the legally liable bureau chiefs of the War Department on the other. This development had its growth and downfall between the beginning of 1917 and that of 1918. In that year's time the work of negotiation for many of the staple commodities hitherto handled by the Quartermaster's Office of the army passed into the hands of outside committees over whose operations often a single civilian was the presiding genius. Such was the case with the section on supplies of the Advisory Commission of the Council of National Defense. Around this individual agent practically all of the cost accounting and the price fixing work centered. The force of assistants and collaborators, of which there were many talented and patriotic business and professional workers, was responsible to this individual agent, the vice chairman of the committee on supplies. In due time even the contracting officer, the highest responsible contracting official in the Quartermaster General's organization, with his seven commissioned officers and twenty-five clerks, was moved over into the offices of the advisory committee on supplies. "He was attached to us to sign and validate the contracts," testified the aforesaid vice chairman, "and generally OK'd everything that we OK'd."[1]

In volume of business transacted this committee on supplies had the remarkable record of putting through 45,000 contracts in the nine months of its existence. This averaged about 200 contracts a day. The requisitions came from the Quartermaster General's Office, but the agreements with manufacturers were always brought about in the purchasing committee's office, where the vice chairman met the manufacturers and negotiated the contracts.[2] Only occasionally did this committee's head ever advise with the trade committees directly concerned; with the contracting officer only when differences arose, which was but once in each 200 contracts on the average; and still less frequently with the Quartermaster

[1] War Expenditures Hearings, Ser. I, part 4, pp. 414–415.
[2] Investigation of the War Department, Part 2, pp. 799–801.

General himself. The committee on supplies had so completely absorbed the purchasing of the woolen goods, cotton goods, knit goods and shoes and leather as to make its acting head, the vice chairman, the *de facto* Quartermaster General. In his written statement, submitted to the War Expenditures Select Committee of the House, June 26, 1919, Mr. Charles Eisenman described the committee's relation to contracts. Instituted May 17, 1917, to assist the Quartermaster's Office in the purchase of clothing and equipage, it occupied itself with collecting all needed data available regarding contracts existing on May 1 and summarizing the facts about contracts made after that date which the committee had recommended. It had ingenious systems of checking up the progress of contract work, prospective requirements, etc., so that after June "all contractors were at once notified to report, on forms supplied them for the purpose, first, of deliveries made to date on each contract and thereafter weekly on the weekly shipments made on each contract."[1]

Allocation of Contracts by Committee on Supplies

Only two different types of contracts were made use of in the handling of 142 different articles, the aggregate value of which was approximately $800,000,000.[2] For the three main classes of textiles, including woolens, cottons and knit goods, the practice was to allocate awards among the mills according to capacity. The other form of contract was by competitive bidding, and figured in the purchases of shoes and leather. Allocated awards were really cost-plus contracts. How they were negotiated is thus described:

Will you tell the committee in just a brief narrative way how you went on about these purchases (asked the chairman of the select committee).

Mr. Eisenman: Well, knowing the needs of the government, we found out the manufacturing capacity of the country, and at the same time we also determined the costs. There is no such thing as one cost in manufacturing cotton, woolen, iron or steel. We took the cost of a very up-to-date mill, the cost of a mill that

[1] War Expenditures Hearings, Ser. I, part 4, p. 412.
[2] *Ibid.*, Ser. I, part 4, pp. 414, 422.

was not up-to-date, and the general mills, and we ascertained what at any particular time it would cost to make a certain thing. Based upon that knowledge, we predicated our prices.

THE CHAIRMAN: How did you do that, Mr. Eisenman?

MR. EISENMAN: By calculating in the ordinary way. When we were in doubt we called to our assistance cotton engineers and woolen engineers that were remote from the job, who had nothing to do with it, except as we called them in for information. We held them here a day or two, got the information, and sent them home.

THE CHAIRMAN: Did you have accountants employed by your council or by the War Industries Board whose business it was to estimate the cost of production?

MR. EISENMAN: We had men—in fact, most of our men, the men that I selected to help me do the job, knew manufacturing costs themselves, and they were of tremendous help. . . .

* * * * *

THE CHAIRMAN: You did not make the contract?

MR. EISENMAN: No.

THE CHAIRMAN: You agreed on the terms of it, however?

MR. EISENMAN: We agreed on the terms. In fact, in our branch of the business it was never a question of who would get the business, but we allocated the business to every mill in the United States. They had to take the business. They did not want it, . . . I mean there was more business than there were manufacturers—and we allocated the business to every mill to its full capacity. The mills were wont to say, "No; we are sewed up, and we cannot take your government business," because they were getting 20 to 30 per cent more from civilians. But that condition was impossible, so we allocated to them their full production.[1]

The allocating principle in war contracting was of much wider application than is at first apparent. As in the navy, so too in the army contracting there was patriotic appeal or moral suasion used along with the consciousness of power to place orders to the capacity of industries concerned. During the first year of the war in the heavy cotton goods industry the needs of the government were about four or more times as large a yardage as the capacity of the mills. The ascertained capacity for tentage duck was twelve or thirteen million yards, whereas the army was in the market for 87,000,000 yards.[2] In such a case the representatives of that industry were called together, told of the situation, and steps taken to enlarge producing capacity. For this and other cottons, carpet

[1] War Expenditures Hearings, Ser. I, part 4, pp. 414–416.
[2] *Ibid.*, p. 404.

mills were drawn in and shown how to turn their machinery to account. The committee of supplies' engineers on duty at the cotton mills were sent to the woolen and the silk mills to meet the crying needs of ducks. Wherever the demands exceeded the capacity and the civilian trade yielded profits of a scarcity market, the allocating plan of contracting had to be resorted to. It was the same in the woolen as in the cotton industry, as the vice chairman to the committee on supplies has pointed out in his testimony:

MR. EISENMAN: The woolen manufacturers were very willing to help when they saw the light, but not all of them were willing to help in the same degree. I mean they wanted to exclude one-fourth of their product for civilian purposes, because they got a lot more money that way. Then some of the manufacturers that were willing to come in and make government goods wanted more than we would pay, so we ascertained what was a fair price, and for five months we maintained that price against all odds. . . . . And when they were not willing, about the first of the year (1918) they spilled the beans and complained to the Senators that we were not treating them fairly. . . .

THE CHAIRMAN: Was that the time the complaint was made that you gentlemen were buying of yourselves?

MR. EISENMAN: Well, you know that broke the fine morale. All the manufacturers we dealt with had absorbed the philosophy that the thing to do was to serve with us and to serve in the highest and best possible degree. There were some selfish men, and unfortunately the Senate committee absorbed their philosophy before they did ours.[1]

The method of ascertaining costs against which there was complaint allowed a profit of approximately 10 per cent after including the elements of labor, materials, overhead and returns on the investment. This was regarded as reasonable profit when working for the government on one thing. The strength of this system of cost determining and price arranging lay primarily in the mastery of the factors of costs, in its treatment of the manufacturers on a substantially common basis, and in the prevention of undue profits by the exploitation of the government in a national emergency. The navy did the same thing in its official capacity as an established feature of contract policy.

[1] War Expenditures Hearings, Ser. I, part 4, p. 416.

Advisory Control of Contracts in War Industries Board

The weakness of the policy or system followed by the advisory committee on supplies, and the fundamental cause of its overthrow came, however, from a quite different direction. There were both constitutional and statutory objections to the setting up of an extra-departmental contracting mechanism. It was all the worse when, as in this case of the committee on supplies, an advisory agency practically preempted the Quartermaster General's functions of purchases by lodging control in the hands of a civilian who had not been in any regular business for thirteen years before coming to Washington. There were also administrative objections, in at least two basic directions. Finally—and this was the rock on which the advisory system went aground—there arose legal difficulties which found voice in Congressional criticism and in the complaints of trade organizations. Of these repeated criticisms in both Senate and House, bearing on the contracting relations of the council and its committees to the War and Navy Departments the Council of National Defense felt obliged to take account at its session of July 18, 1919. It realized that there was a more than ordinary degree of maladjustment both with relation to Congress and to the war making departments in its effort to serve as a medium of intercommunication and interaction between the government and the business organizations of the country. Somehow it had put itself, the advisory commission and their advisory committees, in a false position as to its policy and methods of contracting. To rectify this and to clear away this evident misunderstanding as to the character and value of the services being rendered in the conduct of the war, the following plan was decided upon:

In the conduct of the affairs of the council the Secretary of War and the Secretary of the Navy, who already have the legal power to fix prices, to make purchases, and to authorize contracts for the army and for the navy, should act as *ex-officio* members of the General Munitions Board, and with the chairman of the Munitions Board should act as the War Purchasing Board of the Council of National Defense, which board should finally approve all contracts and authorize the purchase of

all materials by directing the present authorized agents of the government now serving in the two departments, the army and the navy.[1]

In order to divest itself of all contact with the negotiating, the price determining and the cost accounting relations of the contract making bureaus of the departments, the council differentiated these cooperative functions into a distinct agency in the form of the War Industries Board, to succeed the War Munitions Board. This board for the rest of the war acted with the departmental agencies, in the capacity of clearing contracts proposed, on matters of allocation of contracts, checking prices quoted and otherwise guiding the different contracting bureaus, especially the Ordnance and the Quartermaster General's operations in supply contracting. On May 28, 1918, the President made of this board a distinct entity, one main purpose of which was to so reorganize the membership of this board as to prevent any person having any interest in contracts from serving in a contracting capacity on this or any other advisory body. The earlier advisory committees that had been called into being by the Council of National Defense were largely dissolved. In order, however, to avoid all appearance of crookedness, while still retaining the valuable advisory services of these committees representing the country's industries, they were reconstituted into war service committees under the Chamber of Commerce of the United States. They rendered unquestioned service "in correlating procurement of supplies in the several industries," although the main work of industrial mobilization had by this time been done.[2]

The Council's Position in Principle and Practice

In its relations to war contracting the council had in principle only an advisory capacity. The law on the subject was explicit. But in practice it tended to assume administrative functions belonging entirely to the contracting officers of the army in particular. It went even farther; it practically

[1] Resolution of Commissioner Coffin, Council Minutes, July 18, 1917.
[2] War Expenditures Hearings, Ser. I, part 3: Testimony of G. B. Clarkson, p. 341.

wrote the terms of the contracts for supplies and raw materials for the Quartermaster General's and the Ordnance Offices. For instance, it virtually determined the terms for the first big copper contracts for the Ordnance Office in the bargaining with a score or so of the big copper producing and selling concerns which controlled about 75 per cent of the country's output. The War Department's representative "sat in" at these meetings, and was on hand at the finish to sign the agreement.

On this question two quotations may suffice. The memorandum of the Chief of Ordnance, War Department, for which this copper was bought by contract dated April 21, 1917, notes as item 2:

> It is understood that the price was fixed at a meeting between the copper producers and the advisory commission of the Council of National Defense.[1]

The second quotation from testimony of the director of the council runs thus:

> The Council of National Defense did not of itself let any contracts for supplies. It made all the arrangements for supplies, but headed the actual letting of contracts up to the War Department. As time went on it amounted in effect to contractual relations with the manufacturers, but the contracts technically were made by the War Department.[2]

The purchasing policy developed by the Council of National Defense and the plan put into operation, when it came to be examined, was found to be entirely foreign to the business relations of the government before the war. Nor was it deemed necessary under the circumstances, had there been sufficient coordination among the bureaus in the hands of some official of good organizing ability. The very absence of such coordination in the prewar bureau system gave occasion and opportunity for the council to assume the role of a coordinating agency under executive authority. Beginning as an advisory body, its relation to the contracting work demonstrated the necessity for greater unity of contract control, and it ended as the chief purchasing bureaus of the government

[1] War Expenditures Hearings, Ser. I, part 3: Testimony of G. B. Clarkson, p. 69.
[2] *Ibid.*, Ser. I, part 3, p. 337.

became coordinated. Not until March, 1918, when the War Industries Board was cut loose from the council, and assigned to advisory service to the War and Navy Departments, did things contractual begin to right themselves on the normal administrative basis.

Any fair criticism of the position of the council in its relation to the work of inaugurating and shaping up the business arrangements of the government must include the following:

1. It had the effect of dividing the responsibilities of the War Department under executive approval.

2. Instead of curing departmental competition, it caused more of it in some directions by increasing the difficulties of the bureaus in fields of purchase which the council's committees and subcommittees had already invaded.

3. It absorbed constitutional functions belonging to regular departments of government, both executive and legislative.

4. It lodged powers of contract negotiating and price fixing authority in the advisory commodity or trade committees, leaving only a nominal responsibility in the legally liable contracting officer of the government.[1]

5. It was responsible for the arrangements by which representatives of interested industries acted on committees which both sold to and bought from the government in the same act.

[1] War Expenditures Hearings, Ser. I, part 6, pp. 518, 540.

PART II—WAR CONTRACT OPERATIONS

CHAPTER I

Army Supply Orders and Contracts—Quartermaster, Engineer and Medical

The Quartermaster Corps in the modern army is the great provider for the military organization. In the American army in the European War approximately three-fifths (56.8 per cent) of the entire expenditures of the War Department were made by the Quartermaster General under the bureau form of organization, or by its reorganized successor, the Division of Purchase, Storage and Traffic, under the General Staff. The exact figures convey an idea of the relative importance of this arm of the service in the business relations of the army. In round numbers the Quartermaster General's Office spent $8,265,000,000 out of the total for the entire War Department of $14,544,000,000 between April 6, 1917, and June 1, 1919. Of the former total $7,142,000,000 were spent in the United States and $1,123,000,000 by the American Expeditionary Forces abroad. These supply expenses do not, of course, include the Ordnance Office's expenditures, which in total amount were half the size of those of the Quartermaster General's Office.

Here as in other divisions of service the practice of giving procurement orders as well as awarding more formal contracts prevailed in the system of purchasing supplies.[1] This was a rather general method of procurement in the Engineer Corps, and the system seems to have been extended. Although the law required bids and advertising, in order to insure competition, as it was assumed, the purpose of the law was regarded

[1] Contracting and purchasing practice in the Quartermaster General's Office is described under the prewar regime in Circular No. 7, "Purchase of Supplies and Engagements of Services," March 23, 1915. In war time, in Notice No. 28, on "Regulation of Purchasing" July 18, 1918.

as respected so far as these orders pertained to articles and commodities of a standard kind and quality as to which there was a market price competitively determined.

The Quartermaster General's Office was one of the few branches of the military establishment which had undergone an up-to-date reorganization shortly before the European War began. But as that was to meet the needs of the small regular army, including the upbuilding of adequate reserves of supply, it soon found itself out of date for several reasons. First came the mobilization on the Mexican border. That soon exhausted the reserves and disclosed some points of decided weakness both in the structure and in the functioning of the corps. Consequently, when we entered the World War, it was common knowledge from the very start, as the Secretary of War reported, that—

> The supply needs of the department (corps) were vastly greater than the capacity of the industrial organization and facilities normally devoted to their production, and the problem presented was to divert workshops and factories from their peace time output into the intensive production of clothing and equipment for the army. Due consideration had to be given to the maintenance of the industrial balance of the country. Industries already devoted to the manufacture of supplies for the nations associated with us in the war had to be conserved to that useful purpose. . . . In 1917 the normal appropriation for the Quartermaster Department (corps) was $186,305,000. The emergency appropriation for this department for the year 1918 was $3,000,000,000; a sum greater than the normal annual appropriation for the entire expenses of the federal government on all accounts.[1]

Reorganization of the Army Supply System

It was these conditions and requirements that from the very beginning so overloaded the Quartermaster Corps' machinery for handling its own orders and contracts as to produce confusion and give the impression of administrative incompetence. The difficulty was not, however, so much a matter of personnel as of position. The gist of the entire failure to function satisfactorily was more in the traditional isolation of the supply service from contact with the commercial and industrial organization than in anything else.

[1] Report of the Secretary of War, 1917, p. 38.

Between the rise of these conditions in the supply service, under its small scale bureau organization, and the reconstructing process which began early in the war, looking toward comprehensive reorganization, there was an interval of remarkable administrative interest in the business relations of the Quartermaster's Office. When its inability to do the vastly increased volume of work became evident, many of the country's most capable business men volunteered to come to the rescue and serve in any capacity without consideration in order to relieve the swamped supply office. Most of this pressure came by way of the Council of National Defense, through whose advisory committees civilian contact with the various branches of the military service was to be found. Almost parallel with the process of reorganization which was going on within the Quartermaster General's Office there arose the contracting and negotiating activities of the Committee on Supplies in the Council of National Defense—a committee that in the purchasing emergency for a period of several months took the lead in the arranging and issuing of orders and contracts running into hundreds of millions of dollars. Its methods have been described, and the remedy is given in the account of the reorganized purchasing mechanism as it developed under the pressure of actual war and war time criticism.

One of the most instructive instances of reorganization in the course of action is to be found in this reconstruction of the army supply system, which took effect late in 1917. Supply Bulletin No. 29, dated November 7, 1917, as quoted below, outlined the considerations by which the General Staff was moved to take this radical step. The war authorities frankly recognized the reform as the result of public criticism, congressional investigation and confessed inability on the part of the existing bureau system of contracting to function satisfactorily:

1. The prior existing system was organically unsound in such a degree as to render it doubtful, or at least uncertain, whether it could carry the increasing load for even as much as one year.

2. The reorganization was such that it could be effected along the lines of the

natural tendency toward improvement and was not an upheaval by fiat. It involved a plan of gradual improvement toward a specific goal, so arranged as to result in no interference with the "going concern."

3. The principal mistakes, confusions, and delays under the prior system were directly traceable to centers of organic unsoundness.

4. The advisability of the reorganization depended on the proposed plan being such as to cure the faults of the prior existing system and to be capable of being put into effect without delaying the supply program.

A memorandum of similar tenor had been issued under date of July 18, 1917, approved by the General Staff, which had long since seen the necessity of bringing the bureau units of the military organization into some form of coordinated relation and common control. Supply circulars had promulgated at intervals much of this plan, beginning as early as June. These were issued from the Purchase and Supply Branch of the Purchase, Storage and Traffic Division of the General Staff.[1] Into this nexus of procurement control step by step were gathered during these eventful months of supply reorganization the thousand and one lines of contract relations. As the various agencies of supply came to find their focus in the new organization, waste and cost abuses began to diminish. And under modern conditions of warfare the supplying of the army, to quote the official statement, "makes demands that *completely* absorb the economic and industrial facilities of the nation." One of the greatest gains was the elimination of overlapping and lost motion.

In the plan which was gradually put into effect, between the midsummer of 1917 and the spring of 1918, the supply function was subdivided into the three well recognized activities of purchase, storage and traffic. In the theory of the General Staff, as contrasted with that of the highly differentiated bureau system, each of these constituted a separate and clearly specialized task on its own account. Fitness to purchase, it was assumed, resided in men and organizations experienced in commodity transactions, rather than in a large variety of technical divisions, each operating in isolated indifference or

[1] War Department, General Staff—Subject: "Recent Reorganization of Army Supply System," pp. 1–12. Also Supply Circulars, Nos. 80, 101, 103, 109, 110, and P. and S. Notices 19 and 21.

ignorance of what any or all of the others were doing. It was therefore held that purchasing is normally divided into commodity sections, and not by functions of service, as under the peace time system. This is the plan by which the Navy Department, through its Bureau of Supplies and Accounts, achieved the deserved reputation of reducing the business of purchasing to a science of effective contracting. The navy, under its purchasing arrangements, had forty commodity sections, each of which is under a section chief, who is at the head of specialists in that particular market. This principle the Purchase and Storage Division followed; it regarded purchasing, storing and transporting for the army as highly specialized tasks of such sameness as to be well coordinated under one head.

Bureau System's Defects in Practice and Theory

One of the main reasons why the peace time organization of the War Department's contracting broke down under the weight of war time responsibilities was to be found in the fact that it was overloaded with misassigned duties. In the case of its purchasing, the two most important offices of the Ordnance Corps and the Quartermaster General had a mass of accrued routine work. This could have been performed by a common purchasing and contracting agency; but so long as that remained it prevented the particular office from keeping pace with its strictly technical work by concentration of effort thereon. Naturally enough, General Crozier, Chief of Ordnance, in urging an increase of commissioned personnel, December 4, 1916, in view of what was properly regarded as emergency conditions, found his department "instead of getting abreast of its responsibilities, falling constantly farther and farther behind in the production of new designs which progress had shown to represent practical advance in ordnance construction."[1]

This confusing of military function with commercial sup-

[1] Ordnance Office Letter to the Adjutant General, War Department, December 4, 1916. Quoted in Hearings on War Expenditures, 1919, Ser. I, part 5, pp. 453–454.

ply service, of operative duties with supply contracting functions, is possibly the main reason for the failure of the several bureaus to rise to the emergency of the war time demands. In the acid test of practice the theoretically unsound situation in organization was brought to light, too late though to escape the consequences of a thoroughly Brahminic policy in the contracting system. Plurality of supply agencies, besides promoting competition unduly, prevented lower prices for bulk orders, made supervision difficult, multiplied types, quantities, designs, forestalled interchangeability in supply, prevented the balanced accumulation of reserves in keeping with the army program by the different bureaus, required five different sets of property accountability by line officers and duplicated over and over again the processes of distribution, assemblage and storing.

Competition among departmental supply units was a far more potent influence in boosting prices in the earlier stages of hostilities than is commonly supposed. Major General George W. Goethals testified clearly on this matter before the Select Committee of the House on War Expenditures, July 1, 1919. He had assumed charge of the reorganization program as Acting Quartermaster General of the army, December 26, 1917, serving until March 4, 1919. He said, as recorded in these Hearings:[1]

> When I came here as Acting Quartermaster General and began looking into the clothing situation I found the condition of the wool market very serious. I found that the Quartermaster General was buying clothing; that the Signal Corps was buying clothing; that the Medical Department was buying some clothing; that the Ordnance Department was furnishing blankets, so that they were all competing with each other. We were furnishing harness and saddles for mules, and also furnishing wagons; the Ordnance Department was furnishing saddles and harness for horses. We of the Quartermaster Department had launched the Liberty trucks, but the Ordnance Department was buying its own trucks, and the Engineers were buying their own trucks and automobiles, and the Signal Corps was buying trucks and automobiles, and paying no attention to the Liberty truck, which we had developed; all were entering into competition with one another.
>
> THE CHAIRMAN: What was the effect of that competition?

[1] War Expenditures Hearings, Ser. I, part 6, pp. 521–522.

GENERAL GOETHALS: Well, it increased prices to some extent, until we got the War Industries Board to fix prices, and until, as Quartermaster General, I secured the cooperation of the War Industries Board and commandeered all the wool. Even then there was competition between the army and the navy on the wool situation. I became thoroughly convinced of the advisability of a ministry of munitions, but that had been decided against me by the higher authorities, so I concluded the best thing we could do in the War Department was to bring about such coordination and consolidation of purchases as would do away with this competition.

PURCHASE PROCEDURE UNDER REORGANIZED SYSTEM

The theory of this reorganization is that the purchasing of all standard articles of merchandise required by the five main War Department bureaus should be consolidated under one purchase division. This is the practice in all well organized industrial and commercial concerns doing business on an extensive scale. That was the first feature. It did not, however, rob the bureaus of their purchase of highly technical material, such as medical specialties, and as aircraft and ordnance production might require. Its second feature was that of storage and distribution of all War Department supplies, whether standard or special, for issue within the United States and prior to shipment abroad.

This method of contracting involved a wide range of acquaintance with market conditions. It required not only a large staff of commodity specialists but had to have also at its service well equipped agencies for cost accounting and price determining. On the question of price fixing General Goethals throws further light in the testimony following:

THE CHAIRMAN: One thing we would like to know, I think all of the members of the committee would, is who fixed the prices as you observed on the various committees that were purchasing for the government, such as subsistence for the army, and quartermaster stores, during the time you were in the Quartermaster Department?

GENERAL GOETHALS: At first prices were fixed by a committee of the Council of National Defense. As to subsistence, that was fixed by the Food Administration, and subsequently by a committee of the War Industries Board.

THE CHAIRMAN: Had you, during that time, or your department, anything to do with the fixing of those prices?

GENERAL GOETHALS: Not of the raw materials, but of the manufactured product, except when I first went there I went into the market and bought up clothing of all kinds.

THE CHAIRMAN: What was your method of procedure? Did you make requisitions for what you required, and did those civilian committees get the stuff for you?

GENERAL GOETHALS: No; we made purchases direct from the manufacturers. For instance, we purchased cloth and commandeered all the wool and allotted that wool around among the manufacturers for them to manufacture cloth according to the capacity of the mills. Prices were fixed by a price fixing committee. If a mill did not care to take wool to weave into cloth we simply commandeered the mill.[1]

Reorganization eliminated most of the interbureau competition for commodities in the supply market, although it did not wholly relieve the government of that reproach. After the army had commandeered the wool supply, the army and the navy authorities were still competitors in the wool situation.[2] But the industrial situation, as related to the government's war needs, was immensely bettered. The War Industries Board, acting through its local representatives and by the aid of its subcommittees not only prevented the recurrence of such abuses but aided materially in expanding the productive capacity of industries in general in furtherance of the munitions program.

Another result of the reorganization was the rejection of the cost-plus plan of contract. It had been most extensively used in the earlier stages of the war. But now business was better able to foresee costs. Inordinately profitable contracts like those of the automobile industry on Liberty motors were overhauled in the public interest. Contractors preferred bidding to being commandeered.

After July, 1918, the purchasing of supplies and the issuance of orders and contract awards for both the Quartermaster General's Office and the Ordnance Corps was consolidated under the Director of Purchase, Storage and Traffic. Both the Medical and the Engineer Corps joined in this arrangement, excepting as to highly technical supplies. The organic principle of this consolidation in the governmental supply system involved the two essential features of division of labor along lines of specialization by commodities—a principle

[1] War Expenditures Hearings, Ser. I, part 6, pp. 525–526.
[2] *Ibid.*, p. 522.

which found expression in practice in the appointment of army commodity committees. But how was this more highly specialized division of duties to be coordinated into unity of policy? In the Supply Bulletin, No. 14, of July 30, this was answered by the creation of a Superior Board of Contract Review. Its personnel included the Director of the Purchase, Storage and Traffic Division, the Surveyor of Contracts and either the chief procuring officer of each supply bureau or a member of the Board of Contract Review. The circular says:

> It shall be the duty of the Superior Board of Contract Review to consider the form and policy of contracts and contracting methods of the various bureaus, to pass upon particular contracts or other matters relating to purchase.[1]

The field of the commodity specialist involved two kinds of duties in contract work. One of these was to serve as specialist in the respective supply bureaus which consolidation had not obliterated but rather integrated. In order, however, that the commodity specialist might not have too much control over awards of orders and contracts, there was created a Board of Contract Review in each supply bureau. Its duties were "to approve or disapprove of the final form of proposed purchase transactions, bearing in mind particularly the necessity of protecting the interests of the government as to price, terms and conditions."

This method of contract review was especially designed to give an additional safeguard against one sided cost-plus transactions on which there had been much criticism. It was also purposed to take further precaution against awards to favored bidders for the prevention of possible mistakes of judgment of commodity committees, or of collusion, by giving each proposed purchase a final review in line with the established purchase and contract policy of that particular bureau.

The cost-plus contracts came in for another precaution in the Supply Bulletin of August 3, 1918. By this it was required that proposed expenditures for labor and materials by the contractor, in which there had been some padding of

[1] War Department, Purchase and Supply Branch, Supply Bulletin, No. 21, August 16, 1918.

costs, should "be approved in advance by an approval officer of the bureau." It provided that in all supply bureaus in which cost-plus contracts were used to any considerable extent there should be established such an approval officer. These were to be men competent to protect the government's interests in purchases and contracts and subcontracting work of whatever kind.

The policy of fullest publicity for all War Department contracts and awards was restored officially as early as August 3, 1918. As outlined in Supply Circular No. 75, the lists of proposed purchases for which bids were desired had, for military reasons, to be censored by the Military Intelligence Branch of the General Staff. But, otherwise, the status of contractual publicity and competitive awarding had practically passed out of the emergency stage peculiar to the earlier period of the war, and was now reorganized and reestablished on something of the peace time competitive footing. The Supply Circular No. 88, of September 7, 1918, formally defined the provisions to be inserted in all fixed price contracts made by the supply bureaus of the War Department.

High Contracting Standard of the Engineer and Medical Corps

In up to date contracting the Engineer Corps of the army probably leads the War Department in times of peace. Its capacity to adapt itself to the requirements of war was shown in the quiet, unobtrusive adjustment of an excellent peace time contracting machinery to new conditions. This great division has always kept in close contact with business life in its contract work, especially in river and harbor improvement operations, which ordinarily involve an outlay of tens of millions of dollars annually. Its expenditures in the war totaled $640,000,000, and of this nearly one-third was spent in its work with the Expeditionary Forces in France. No other arm of the war service spent so large a proportion of its total outlay abroad. Its contracts and purchase orders were extensive up to the end. Nor was any other better fitted to accomplish satisfactory results. Its main service was that

of constructing railways, building facilities for transport and maintaining equipment for moving men and materials from seaboard to the battlefront in the interior. It did this with but few, if any, cost-plus contracts. In the use of public funds it appears to have carried into the emergency conditions of war the high standards of fidelity and efficiency maintained during peace. From a total of 230 officers and 1,825 men on April 1, 1917, it expanded to 10,000 officers and 284,000 men on November 1, 1918. An idea of the scope of its contracting operations may be had from the twelve branches of construction, repair work, quarrying, forestry, water supply and sapper and pioneer work. In France it created the entire American system of railroads and terminal facilities required for the rapid handling of the troops, equipment and supplies. In time of peace much of its dealing is by means of procurement orders, especially for standard commodities instead of by formal written contracts. Its best known peace monument is the Panama Canal.

Among the branches of service which maintained superior contracting standards during the war one must include the Medical Corps of the army. Its available appropriations during the entire period of the war amounted to $500,000,000. It bought nothing without a contract and made no cost-plus contracts. At the very start it found itself confronted with the problem of improvising production in medical supplies, hospital equipment and other kinds of war needs. In the case of surgical needles, for instance, it was found that theretofore the German importers had supplied American needs. There was not a single domestic industry of any considerable scale of production in this special line. The Medical Corps succeeded in enlisting the manufacturers of sewing machine needles to make the needed surgical instruments. A lack of manufacturing facilities for producing hospital cots was another case. For that work baby carriage and metal toy manufacturing plants were enlisted with the utmost success. In a single plant where these cots were made the government for this and other articles had placed contracts amounting to $25,000,000 when the armistice came.

CHAPTER II

Emergency Construction Contracts on Cost-Plus Plan

No class of awards which marked the nation's preparations for war came in for so much criticism as that providing for the building and equipment of the army camps, cantonments and storage establishments. Nor did any other part of the work of the army stand quite so close to the public interest as these camps and cantonments. For, were not these two kinds of units in the military preparation and training program the actual gateways through which the civilian youth and young manhood passed into the military milieu? On their way thither to these convergent thresholds the drafted contingents of the ten million of enrolled recruits were still only citizens, even after the draft; but once within the gates of camp or cantonment they became something more—they were citizen soldiers. They were now enlisted in the service not simply of their country, nor even only of their continent, but in the service of the civilization of Christendom. The broadest and deepest public interest that the nation had known for half a century had for weeks and months centered on these focuses of training fervor. Within these folds the sons of the people were receiving the discipline and the development of fighting capacity, such as was intended to make them more than a match for the best seasoned legions of dynastic Europe.

Costs and Fees for Building Sixteen Camp Sites

Events moved swiftly in those days of emergency demands on men for prompt measures. As a result, much of the criticism was in the position of the advice of the government lawyer to the then President Roosevelt, who had directed the removal of the long objectionable Union passenger station from the Mall, at Washington. "Very well," assented the President to his obstructive suggestions, "you just look up

the law while we tear down the station." Although a full month was lost before the commanding generals of the several departments of the army were directed to select sites for the construction of cantonments for the training of the mobilized National Guard and national army[1] on May 7—a month after war was declared—the sixteen national army camps were all located in June, contracts were executed within a few days after the selection of the sites, and the various contractors had their work in progress within a few days after the awarding of the contracts. So that within an average of nine days after the camp sites were approved the contractors were at work on their projects, which averaged a little more or less than $8,000,000 each in estimated cost. The maximum compensation which any contractor could get or claim as his profit was $250,000, under the terms of the cost-plus contract for emergency work. That made the per cent of the contractors' fee to the total cost average just 2.84 per cent. The following table combines these results:

DATES RELATING TO NATIONAL ARMY CAMP SITES, CONSTRUCTION AWARDS AND RATES PER CENT PAID CONTRACTORS ON COST-PLUS BASIS[2]

Location of Sixteen Cantonments	Sites Approved	Awards Made	Work Started	Per Cent on Cost
American Lake, Wash., Camp Lewis...	May 31	June 15	June 14	3.57
Annapolis Junction, Md., Camp Meade	June 22	June 23	July 2	2.38
Atlanta, Ga., Camp Gordon.....	June 2	June 11	June 18	3.33
Ayer, Mass., Camp Devens.....	May 31	June 11	June 13	2.57
Battle Creek, Mich., Camp Custer	June 11	June 19	June 19	2.87
Chillicothe, O., Camp Sherman.....	June 21	June 21	July 6	2.60
Columbia, S. C., Camp Jackson.....	June 2	June 11	June 15	2.86
Des Moines, Ia., Camp Dodge.....	June 27	June 22	June 19	3.67
Fort Riley, Kans., Camp Funston.....	June 13	June 20		2.84
Fort Sam Houston, Tex., Camp Travis	June 11	June 20	June 14	3.72
Little Rock, Ark., Camp Pike.....	June 11	June 23	June 17	2.77
Louisville, Ky., Camp Taylor.....	June 11	June 20	June 22	3.55
Petersburg, Va., Camp Lee.....	June 8	June 18	June 20	2.20
Rockford, Ill., Camp Grant.....	June 21	June 21	June 24	2.93
Wrightstown, N. J., Camp Dix.....	June 2	June 14	June 12	2.59
Yaphank, L. I., Camp Upton.....	June 18	June 23	June 21	2.20

The total amount paid to contractors for the work of constructing these camps was $4,000,000. Wherever the dates

[1] Report of Secretary of War, 1917, under "Cantonments," "National Camps," etc.

[2] *Ibid.*, p. 22; and War Expenditures Hearings, Ser. III, part 2, p. 115.

of starting work are earlier than those of the award, verbal understandings had been reached and a start made before the contracts were formally executed and delivered. From these percentages of cost it is evident that the rates of compensation ranged from as low as the minimum of 2.20 per cent at Camps Lee and Upton to 3.72 per cent at Camp Sam Houston, Texas, where one would expect costs to be lower on account of the nearness of a native lumber supply. Evidently material costs were not guarded any better in Texas construction than in the State of Washington, where in another lumber district the costs ran over the average, reaching almost a maximum at Camp Lewis, or 3.57 per cent. These two camps together with those at Atlanta, Georgia, at Des Moines, Iowa, and at Louisville, Kentucky—all within or adjacent to good lumber regions—proved to be the most expensive as to contractors' fees. Probably labor costs would bear the blame for excessive returns to the contractors; yet at Camp Meade where carpenters at one time got $60 a week the contractor's fee was as low as 2.38—considerably below the average of 2.84 per cent.

Methods Employed to Keep Down Costs

In the testimony of Brigadier General R. C. Marshall, Chief of the Construction Division, War Department, before the Subcommittee on Camps, War Expenditures Hearings, July 14, 1919, the methods of safeguarding the interests of the government in the original camps and cantonments were described as follows:

General Marshall: On every job we had a constructing quartermaster and his force, who had as a part of his staff an engineering staff and an auditing and accounting staff, who controlled time keepers and material checkers and who inspected and watched the work of the contractors continuously both as to the quality of the work and conduct of the labor, and all of the things that enter into it.

General Marshall: . . . In the original camp and cantonments we did not have that system of checking. We considered ourselves fortunate in being able to get this work and produce the results in the time that it [*sic*] was produced, but the cost of the original camps and cantonments was not excessive.

Mr. Doremus: This system of cost checking—did it extend to all the various units of construction?

General Marshall: Why, generally speaking, it did. In some places it was run and kept up more effective than in others; in some places it was very

difficult on account of the class of checkers we could get to place reliance in it, but that was always an indication of what was going on, and the cause for investigation. Not only had we supervision of those things on the ground but from Washington office inspectors went out periodically to go over the job and go over the accounts to see that there were no wastes or excessive costs.

* * * * *

MR. DOREMUS: Looking back over the period of the war, General, are you satisfied that everything that could have been done to safeguard the public interest was done?

GENERAL MARSHALL: Yes, sir. I believe that the government got as near a dollar's worth for every dollar spent as it would be practicable to do if we started fresh today. The condition that confronted the country at that time was when the whole material market as well as the labor market was taxed to its utmost. We were at war and the first duty of every government agent was to prosecute that war. The method of conducting construction work or preparing elaborate plans and specifications or asking bids on them and making these awards was absolutely out of the question. And the method of doing what is known as the purchase-and-hire—purchase of material and hire of labor by the government doing the work—was equally out of the question. We were confronted with doing thirty-two jobs, sixteen of which would be at a rate greater than the rate of the building of the Panama Canal in its highest years. The other sixteen were about half the rate, and to attempt to organize thirty-two construction outfits from the material in the hands of the government and not use the already existing organizations, the commercial organizations in existence, would have been in my judgment, the height of folly, . . . it would have thrown the whole draft machinery out of gear.[1]

THE CONTRACT THAT BUILT NINETY PER CENT OF BUILDING PROGRAM

In the war contract program for building purposes there were four distinct governmental agencies each of which had developed a more or less different type of contract. Although some contracting for this purpose was done outside of these limits, by the individual bureaus of the army and navy, practically the entire burden of building operations fell under one or another of these groups. These included, in the main, the following:

1. The navy, in which a tremendous expansion in the original program of storage facilities, and in the building construction work for the Bureau of Yards and Docks are the outstanding feature.

[1] War Expenditures Hearings, Ser. III, part 2, pp. 115–117.

2. The United States Shipping Board, principally through the Emergency Fleet Corporation and the board's Housing Committee, in the construction of shipyards and the necessary buildings connected therewith, including public utilities and towns of dwellings for workers.

3. The United States Housing Corporation, to provide housing, local transportation, and other general community utilities for such industrial workers as are engaged in arsenals and other industries in the United States, including groups of buildings for war workers in the District of Columbia. These comprised nearly a hundred projects.

4. The Construction Division of the Quartermaster General's Corps of the army, in cooperation with the Committee on Emergency Construction and Contracts. The latter was originally a subcommittee of the Munitions Board of the Council of National Defense.

In war time building the last of these four carried the big end of the stick. Between 80 and 90 per cent of the entire governmental building program was executed by this specially organized construction unit.

It is worth while looking at the outfit that put this program into effect. It represents in essential respects the best type of war time contracting cooperation between the war authorities and the organizations which in the national emergency sprang into the gap from business life. It also represents some of the more serious defects of the system followed. The emergency construction division, with Col. I. W. Littell of the regular army in charge, was designed to be a specially built organization for providing quarters and camps for the training and housing of the new national army. Around this agency there crystallized in a phenomenally short time a group of military and civilian executives of remarkable constructive capacity. They had a threefold task. First, they had to build a contract that would meet the conditions and see the program through in the course of a single quarter year. Second, they had to select the contractors whose demonstrated capacity, business integrity and control of resources, with

secondary regard for the pecuniary results, could be absolutely relied upon. Thirdly, they had to put the thing through—and that thing was the first fateful step in the part of the nation in the world's war.

On the government's part it was not very well equipped, to say the least. To be sure there were excellent plans in the pigeonholes of the Quartermaster General's Department, for camp construction in case of war. And that department itself had but recently been organized on the basis of the best business standards. The impression is still too widely current that this arm of the service was caught napping. But that is gross ignorance. On the contrary, a complete and thoroughly thought-out plan of expansion was not only in readiness but was actually put into operation prior to the declaration of war. Capacity to meet emergency conditions was shown by the department in abandoning the customary methods of awarding rush contracts. This was done mainly at the suggestion of engineers in civil life and construction men whose combined experience was a hundred times broader in the field of contracting than that of the entire army. It was seen that strict adherence to the routine method might result in loss of valuable time, when time was everything and cost relatively negligible. And it was by reason of these considerations—considerations under which nobody dared to take uncalled for chances—that the contract for emergency work was constructed on the cost-plus basis of compensation, rather than through competitive bidding.

Sanitary considerations had much to do with abandoning competitive bidding and lump sum compensation. The Quartermaster Corps was determined to take no chances on this score. It was determined to select the healthiest places possible for camps, although in some cases it must have been badly misled. But to insure sanitary construction the advisory committee of town planners, water specialists and sanitary engineers both for speedy building's sake and for efficiency of results, is credited with inducing the war authorities to change from the lump sum to the cost-plus plan of

payment. They also were credited with having resorted to the selection of contractors on the footing of proven integrity, reputation for finishing work on time, equipment, aptitude in controlling men, etc. This plan of selective competition, they reasoned, would give them the best; and why bother with undependable candidates for jobs when the stakes were so vital?

CHAPTER III

Why the Cost Plus Percentage Fee Was Adopted

A fortunate thing was this early coordination of the Construction Division of the Quartermaster's Office and of the Corps of Engineers with leaders in the contracting and engineering ranks of civil life. Even before Congress had made the appropriations for the housing of its millions of soldiers in the training camps, the Quartermaster's Office had plans in readiness; plans, too, in which departmental "red tape"—"the other fellow's way of doing it"—was reduced to a minimum. These were abandoned almost overnight. And why this sudden change? Business leadership in the contracting world had come to the War Department, pointing to such achievements as the erection of the training camp for 5,000 officers at Fort Benjamin Harrison, Indiana, in three weeks, and a similar training camp for 2,400 reserve officers at Fort Myer, Virginia, in only two weeks. These were the work of contracting firms which had made speed records in building skyscrapers in big cities, and had proved their capacity to perform wonders of speed in wood construction. All they asked was that the government, in the uncertainties of advancing price levels and labor costs, should assume the hazards of the emergency conditions; and, besides that, should cover the overhead and compensation for the use of the contracting firm's organization by the payment of a percentage of the total costs. All of these were to be subject to the inspection, checking, cost accounting and control of the army authorities on the spot.

To summarize, the reasons which moved the department to accept the form of contract in question were as follows:[1]

[1] See Testimony of Gen. I. W. Littell, on the Emergency Construction Contract, Investigation of the War Department, Part 7, pp. 2321–2382.

(1) It was a tried and proved method of compensation for emergency work in contracting experience and was so recognized among construction engineers of the highest standing.

(2) It enabled well equipped building organizations to begin work almost instantly on essential parts of the contract without waiting for detailed plans and specifications which on the fixed amount system must be made the basis of estimates. It was therefore a time saver in an hour when time was almost everything.

(3) It admitted of the selection of contractors with special regard to their records of execution and reliability, as against the risky method of award to the lowest bidder who might be a "plunger," thus taking advantage of what amounted to a more effective kind of competition in such selection, on the basis of demonstrated merit.

(4) It—the cost plus percentage or fee system—appealed to the fair minded contractor on the basis of an exceptional opportunity to make a record of his best work, because it was to be done under conditions in which he was released from concern about his own profit, and was thereby freed to concentrate his efforts on the essential points of speed of execution, prime quality and the lowest cost practicable within the accompanying circumstances of war time work.

Points of Mutual Appeal in Emergency Contract

Not the least illuminating feature of the emergency contract for camp work is the otherwise prosaic statement of the viewpoint of the government and contractor as they come to a focus in the preamble. In a few short paragraphs of the document the entire background of the momentous business is brought out into clear relief.[1] The rationale of the policy which is driving the man power and the economic resources of the nation forward in a given course is stated in such clear language as to merit full quotation of its essential paragraphs:

[1] War Department, Construction Division, 4th Edition of "Contract for Emergency Work," pp. 1–11. Reproduced also in War Expenditures Hearings, Ser. III, part 2, pp. 84–113.

WHEREAS, The Congress has declared by Joint Resolution approved April 6, 1917, that war exists between the United States of America and Germany, a national emergency exists and the United States urgently requires the immediate performance of the work hereinafter described, and it is necessary that said work shall be completed within the shortest possible time; and

WHEREAS, It is advisable, under the disturbed conditions which exist in the contracting industry throughout the country, for the United States to depart from the usual procedure in the matter of letting contracts, and adopt means that will insure the most expeditious results; and

WHEREAS, The contractor has had experience in the execution of similar work, has an organization for the performance of such work, and is ready to undertake the same upon the terms and conditions herein provided;

Now, Therefore, This Contract Witnesseth, That in consideration of the premises and of the payments to be made as hereinafter provided, the contractor hereby covenants and agrees to and with the contracting officer as follows:

The contractor shall in the shortest possible time, furnish the labor, material, tools, machinery, equipment, facilities, and supplies, and do all things necessary for the construction and completion of the following work:

Each of the four editions of the "Contract for Emergency Work," as the camp and cantonment contract was designated in the War Department, contained this identical statement of the common ground on which the two parties to the award consented to work out this urgent problem of military preparation. Then follow the several articles of specific agreement under Articles I to XV inclusive. These embody the main points around which many years of engineering and contracting experience had crystallized. They include such topics as the extent and cost of the work. The factor of cost was defined in eleven separate items, specifying the things to be included in or excluded from the category of chargeable costs. On these the contractor shall be entitled to calculate his percentage of compensation for the completed job. On no point were the public authorities more watchful, on no phase of the public accounting was there more care bestowed, than on this very one of cost determining. Other articles cover the subject of time and conditions of the payment of fees and reimbursement of contractual outlays authorized by the government's representative, the contracting officer; the required facilities for the inspection of records and the audit of accounts; special requirements as to the time of beginning and the prosecution of the work; the im-

portant consideration of the conditions on which the contracting officer may terminate the contract and put another in the contractor's place; the provisions for settlement in case the work is abandoned as no longer necessary for the emergency needs of the government, having in mind the possibility of the unanticipated end of the war or change of plans and policy in the department; and finally the vexatious problems of the hours and conditions of labor, the settlement of disputes and the control of subcontracting or subletting with approval or consent in writing on the part of the contracting officer of the department. The highest fee earnable was $250,000 on a contract of $10,000,000 or over.

Determination of the Contractor's Fee

The considerations which controlled in the construction program, involving over 300 different contracts, balanced public emergency against private opportunity. The measure of inducement was therefore of primary importance. The situation of the public interests was set forth in the foregoing analysis of contract as embodying three factors:

(a) That a national emergency existed, requiring the utmost urgency in the execution of the work;

(b) That in the disturbed economic conditions in the contracting industry the usual legal procedure of competitive contract letting had to be waived in this class of work in the interest of more expeditious performance; and

(c) That the contractor mentioned in the award had the requisite experience, organization and machinery in similar work and was willing and ready to undertake the job at once on terms specified in the contract.

This indicates the more general ground of appeal; the specific inducement was the agreed payments or fees, the main economic feature of which was that he should throw himself and his organization into the emergency with the agreement that he should be guaranteed against losses; that he would forego extraordinary gains, and that the government would by means of a covering fee enable him to come out even if

not somewhat better in the form of a percentage of profit or an equivalent thereof, on the gross cost of the project.

The fees were of two kinds in the construction contracts. Either a specified percentage was paid or a fixed sum. The sum was, however, calculated on a percentage of the cost, in the following way:

SCHEDULE OF COST PLUS FEES FOR EMERGENCY BUILDING CONTRACTS

If the Cost of Work is	The Fee of Cost is
$100,000	7 per cent
Over $100,000 and under $125,000	$7,000
Over $125,000 and under $450,000	6½ per cent
Over $450,000 and under $500,000	$29,250
Over $500,000 and under $1,000,000	6 per cent
Over $1,000,000 and under $1,100,000	$60,000
Over $1,100,000 and under $1,500,000	5½ per cent
Over $1,500,000 and under $1,650,000	$82,500
Over $1,650,000 and under $2,200,000	5 per cent
Over $2,200,000 and under $2,450,000	$110,000
Over $2,450,000 and under $2,850,000	4½ per cent
Over $2,850,000 and under $3,250,000	$128,250
Over $3,250,000 and under $4,000,000	4 per cent
Over $4,000,000 and under $4,250,000	$160,000
Over $4,250,000 and under $4,775,000	3¾ per cent
Over $4,775,000 and under $5,175,000	$179,062.50
Over $5,175,000 and under $5,725,000	3½ per cent
Over $5,725,000 and under $6,225,000	$200,375
Over $6,225,000 and under $6,825,000	3¼ per cent
Over $6,825,000 and under $7,400,000	$221,812.50
Over $7,400,000 and under $7,750,000	3 per cent
Over $7,750,000 and under $8,350,000	$235,500
Over $8,350,000 and under $8,800,000	2¾ per cent
Over $8,800,000 and under $9,650,000	$242,000
Over $9,650,000 and under $10,000,000	2½ per cent
Over $10,000,000	$250,000

CHAPTER IV

Selection of Contractors under the Fee System

In the spring of 1917, in the prewar stage of preparation, the Quartermaster's Corps had proposed designs for a standardized cantonment. These had in fact been worked out to meet the requirements of the National Defense Act of 1916. When the war in Europe had gone far enough to require revision these plans were reconstructed in the light of that experience. One of the changes was that of adapting the plan to meet the conditions of enlisted troops, as compared with regular army troops, for which the original plan had provided. The purpose then still was to build thirty-two cantonments for enlisted troops. But the alarming rise in costs, the presence in this country of foreign missions to advise our authorities, and the increasing influence of civilian advisory bodies as represented in the Council of National Defense resulted in a revision at the eleventh hour before letting any considerable number of contracts. The number of cantonments was thus reduced from thirty-two to sixteen,[1] and the size increased. The two great changes were this concentration into fewer training centers and the adoption of an engineering method of contract awarding. On these sixteen centers, consisting of 1,000 to 1,200 buildings each,[2] a total outlay of $128,000,000 was to be made within a single season. The middle of June had slipped by before the localities had all been selected. By the end of September these buildings were to be in such a state of completion as to be used by the incoming enlisted men. Under date of June 16 the government issued the first official information regarding the fee system of the cantonment contracts. The entire army building program included 250 contracts, involving about $300,000,000 worth of construction.

[1] Report of the Secretary of War, 1917, p. 19.
[2] *Ibid.*, p. 23.

Methods of Mobilizing Building Concerns

This system, it was stated, had been elaborated by the department in cooperation with the Emergency Construction Committee of the General Munitions Board and other civilian advisors. The latter were especially responsible for the mobilizing of the contracting firms in the rush plan of building operations. From some three thousand questionnaires sent out an available list of contractors had been built up, representing most of the best in the nation. The Council of National Defense, in its reference to this in its first annual report, thus describes this phase of work in the selection of contractors:

> From every available source this list has been expanded and information built up until the committee has in hand probably the most complete survey of the contracting field that has ever been made. From these lists, as the various cantonment sites were selected, recommendations of contractors were made by the committee at the request of the Quartermaster's Department, and upon their being approved by the General Munitions Board the awards of contracts were made.

The army policy in pursuing its building program involved about $300,000,000 of outlay in construction under about 250 contracts. The Construction Division, in giving execution to the policy of the department followed three fundamental lines, which determined the kind of contractor called for. These lines were in large part the result of advisory cooperation, and included the following features:

(1) A strong administrative and supervisory organization.

(2) An elastic form of contract which, while suitably compensating the contractor, should not attempt to unload upon him the risks incident to the indecision and haste of the government's predicament; in other words, that the government should carry its own risk.

(3) The employment of contractors of suitable integrity, experience and going organization.

It was recognized from the start that so stupendous a program demanded the awarding of contract to concerns accustomed to handle the largest kinds of undertakings. The type of contractor needed was of those who had the resources

and the organizations to put through $3,000,000 to $5,000,000 worth of work in a few months. The Quartermaster's Office availed itself of the services of an advisory board of contracting engineers, and that afforded a fairly good sort of insurance against jobs falling into the hands of concerns for which the projects were beyond their capacity, resources or equipment. In short, these were jobs for giants accustomed to operate on a titanic scale, in which quick action and effective quality of work could be practically guaranteed. Naturally those who had done things great in the past could be counted on most likely to meet the greater emergency in the present. This directness of action, this straightforward judgment, this shutting out of politics, was, however, the very type of procedure which would call forth criticism, as soon as it was seen that the old beaten paths were forsaken for the immediate meeting of national needs. This inevitable criticism came in the natural but sensational outcry in the name of economy which found voice mainly in the investigations of the Senate Committee on Military Affairs and other exposés late in 1917 and during most of the year following, into this and other fields of government contracting.

Criticisms of the Cost-Plus Contracts

Criticisms were aimed at this contract for various reasons. Of most frequent occurrence was that of the fees allowed being too low. To this Colonel Littell, in his official announcement of the plan and details, had reference, when he said:

> This carefully graded scheme (of fees ranging from 2½ to 7 per cent on costs) will, of course, not be satisfactory to some contractors, and we have naturally received many protests against the low fees. It is a satisfaction to know, however, that the great majority of the reputable firms have assented loyally and patriotically to the government's determination to take radical precautions against excessive profits. The criticisms of the few are perhaps the best evidence we could have of the care the government is taking for the cantonments.[1]

The judgment of the engineering profession was favorable to the system thus developed out of an official situation

[1] Official Bulletin, June 10, 1918, gives report of the Talbot Commission March 15, 1918, explaining and approving the use of the cost-plus contract.

marked by inaction and confusion. There was probably no better statement of the government's position in point of business sense than the following from one of the leading technical journals:

> Of course this method of procedure will have its critics. There will be cries of favoritism and excessive costs. As to the former we must depend for a square deal upon the Quartermaster Department officials and their civilian advisers. In the matter of cost we must realize at the outset that emergencies such as the present one are not times for bargain hunting. We want work on a vast scale done in an incredibly short time, and we will have to pay for it. With the labor and material market in its present condition, and tending no one knows whither, it is safe to say that only the most reckless type of contractor would gamble on the camp jobs with the usual hard and fast kind of agreement. And it is the reckless contractor, who will take a chance on going broke who should be kept off this rush camp construction. The government doesn't want work started, suspended, and finished way behind schedule by the bondsmen of a broken contractor. It is work for picked men, men whose ability on large scale undertakings has been demonstrated by past performances. There is a plentiful supply of contractors qualified to handle the camp construction and finish it on time, provided useless cogs are eliminated from the administrative machinery.[1]

Much of the protest and criticism of these methods and awards had no other basis than the idea that the government represented in the Emergency Construction Committee was driving a hard bargain with the contractor in the interest of speed and economy. Sympathy on behalf of the "poor" contractor is obviously wasted. A general complaint of the committee's discriminating against local contractors is confuted by the fact that one of its cardinal principles of operation was to select contractors familiar with local conditions and resources, provided there were firms of the requisite caliber within the district.

The criticism that excessive rates of wages were paid had more foundation in fact. But ample justification was found in the demoralized condition in which two years of European war contracting had left the labor market. By turning collective bargaining on the part of labor over to a virtual monopoly of labor leaders in the American Federation of Labor a stabilizing factor was introduced, although adjustments of wage levels were always made upward. The draft

[1] Editorial in *Engineering News-Record*, Vol. 78, No. 10, June 7, 1917, p. 514.

law was now in full operation, drawing workers away to these very cantonments as soldiers. Arsenals, shipyards, munition factories, mines and railways, lumbering camps and mills and civil and military occupations were all in the market for labor. In scouring the country the different agencies of the government rivaled each other, so that shipyards and munition plants bid against each other, especially in the Philadelphia district and on the Pacific Coast. Nothing short of the lamp-post kept some of the agitators from fomenting discord among workers whose conditions of housing gave fertile ground for discontent. Profiteering by landlords was one of the most flagrant of transgressions against public interest. Nevertheless the construction program triumphed.

Professional versus Traditional Methods of Selection

From the very start the War Department felt that an explanation was due the public for departing from its traditional methods of awarding contracts for the sixteen cantonments. The older method consisted of presenting a full set of specifications with advertising for bids, to be opened at a more or less distant date at a specified place, all of which was followed by a thorough comparison of bids and finally a selection of the successful competitor to do the work for a lump sum amount. He was presumably the lowest bidder, whatever else he might be. Part of the delay in getting these projects started was due to the determination of the Quartermaster Department to make these camps the healthiest possible places, and to do so it was not deemed best to bind the hands of the government by any fixed sum contract, thus abridging their freedom to make changes. The advisory committee of town planners, water specialists and sanitary engineers, both for speedy building's sake and for efficiency of results, is credited with inducing the war authorities to change from the lump sum to the cost-plus plan of payment, and of selecting the contractors on the basis of integrity, reputation for finishing work on time, equipment, aptitude for controlling men, etc.

Of course, it took time to establish beforehand all the precautions and checks required to make this newer method work with as little friction as possible. First of all was the problem of how to pick out the desired kind of contracting firms, now that the open field competitive method had been rejected as the means of selection for that of selective competition. For that purpose the Quartermaster, acting with his advisory committees, sent a questionnaire to all of the leading contractors of the country for information about their activities in the past three years, what sized projects they had handled, how large a force of men they could maintain on a job, along with a summary history of the firm's achievements. In addition thereto, leading engineers and architects were asked to state confidentially what their experience had been with each contractor under consideration. On this material one of the ablest and best judges of contractors in the country was asked to pass judgment. His specialty had been to judge of contractors for the leading security and guaranty companies of the country. Every contract awarded had the advantage of the judgment of such superior technical talent as to the advisability of accepting or of rejecting the offer of the contractors. These advisers worked without pay.[1]

[1] Official Bulletin, June 9, 1917, p. 16.

CHAPTER V

Did the Emergency Construction Contracts Make Good?

It is hardly necessary to raise the question whether these emergency contracts really made good. Yet, as a vital part of the preparation for war, it deserves straightforward answer. The responsibility for this program the Council of National Defense, of which the Secretary of War was the chairman, placed upon the Committee on Emergency Construction and Contracts almost instantly after war was declared. That was organized April 28, 1917, and soon thereafter Major W. A. Starrett, of the United States Reserves, formerly a construction engineer, was placed at its head. This small committee of five, which cooperated with the Army Construction Division, represented as high an order of large scale building talent as one could wish, including an army representative from the United States Engineer Corps. It was made their duty—

> To suggest forms of day-work contracts applicable to the construction of cantonments and similar enterprises where rapidity in construction is essential; to formulate plans and methods of expediting the construction of housing facilities in connection with engineering and construction work and activities essential thereto.[1]

Official Estimate of Contractual Results

In reviewing the situation at this critical juncture of the war plans, the Council of Defense officially states that it became apparent at once that the ordinary method of advertising for bids and awarding the contract to the lowest bidder could not be followed, because of the necessity of getting the work under way at once prior to the development of completed plans and specifications which could be used as a basis for competitive estimates. Construction and designing had to

[1] First Annual Report, Council of National Defense, 1917, p. 24.

go on concurrently, and since no existing form of government contract met this situation a new form fitting the conditions had to be drawn.[1] Thus the cost-plus type of agreement came into general use. Under it the sixteen national army camps (cantonments) were built at an average estimated cost of about $8,000,000, and sixteen National Guard camps at the average cost of about $1,900,000. The buildings of the former covered an area of 2,000 acres and the rifle ranges, drill grounds, etc., as large an area in addition. In the housing of the 40,000 men for each cantonment the regimental units each called for fifty-nine buildings, consisting of twenty-two infantry barracks, six officers' quarters, two storehouses, twenty-eight lavatories and one infirmary building. Besides these there were divisional headquarters at each camp, also quartermaster depots, distributing station and base hospitals, having 1,000 beds each. There were twenty-five miles of road to build, sewer facilities to install, water supplies to construct—in short, to build housing accommodations, stores for supplies, public utilities and administrative buildings for sixteen cities of the size of Taunton, Massachusetts, Wheeling, West Virginia, or Quincy, Illinois. And all of this in not over four full months of time! Besides these, the sixteen National Guard camps, where the men were quartered under tents, the buildings, though less numerous, called for extensive construction of modern storehouses, mess shelters, lavatories and baths, heating and lighting systems, in addition to two embarkation and one quartermaster training camps. Speaking of the result, the Secretary of War thus summarizes:

> In the main, the work has been thoroughly successful. When its magnitude is appreciated, the draft it made upon the labor market of the country, the speed with which it was accomplished, and the necessity of assembling not only materials but men from practically all over the country, it seems not too much to say that the work is out of all proportion larger than any similar work ever undertaken in the country, and that its completion substantially on time, is an evidence of efficiency both on the part of those officers of the government charged with responsibility for the task and the contractors and men of the trades and crafts employed to carry on the work.[2]

[1] First Annual Report, Council of National Defense, 1917, p. 24.
[2] Annual Report of the Secretary of War, 1917, p. 28.

Cooperative Morale a Dominating Factor

To the cooperative character of the camp construction organization one has to look for the main cause of the success attending its program. First, the Construction Division of the army and the Emergency Construction Committee, the official and the advisory agencies in direct charge, worked together with remarkable accord. Second, the government's representative and the contractors understood each other and jointly put their best efforts into the job. An engineering observer, speaking of this phase of the cooperative method of work, writes:

> No more gratifying experience is vouchsafed to the interested observer on a large construction project than to see an experienced constructing quartermaster working with a good contracting organization. They came to the job with a similarity of point of view. The technical points they both understand and, therefore, they talk a common language. They understand the orderly process of organization and relative responsibility; the sense of stewardship on the part of the government officer is met by one of strict accountability; each has his duties and both work to a common end, the rapid and economical completion of the work.[1]

To those who could catch the vision of the end, without being led astray by the offending but incidental abuses incident to big but urgent works, there was evident in this whole group of projects something of the fighting spirit that inspired the officers and soldiers for whose service these cities for training were being built. Nor was it simply among the officers and contracting officials that this equivalent of the fighting spirit under civilian garb manifested the cooperative principle of effort. Among the rank and file of men in overalls there was the same quiet undertow of unity of aim. And of these too, as well as of the engineers, it may equally be said:

> It was, therefore, only natural that in going over the work we heard so much discussion of the economies and saw the fighting everywhere to keep the costs down. And these are of the type that went forward to our first battle, a battle against the elements. A battle to erect, almost over night, the great construction projects that were needed all over the country that our army could be called, that our munitions could be made, that our aviators could be trained, and that our supplies could be handled.
>
> That there was waste is admitted, but that this waste would occur was most clearly seen. . . . They saw the problem and met it squarely, not in the fatu-

[1] "The Construction Division of the United States Army," by W. A. Starrett, *Scientific American*, September 28, 1918, p. 252.

ous hope that they would in all cases produce 100 per cent efficiency, but rather with the practical realization that they would give their best in stemming to the utmost the waste that was inevitable. Beyond that, they went in with high resolve that they would deliver to the government, in time and adequately, the vast building program on which our very existence depended. They are willing to abide by the result.[1]

Theory of the Graduated Percentage Fee Contract

The general theory of governmental war contracts, it has been pointed out, makes military necessity the paramount consideration within the limits of law. In the effort to work out a form of construction contract adapted to meet war conditions the problem was that of commanding the most competent agencies available to perform a most urgent undertaking within the shortest period of time. Certainty of result was essential. To that end risks had to be concentrated on the side of administrative control, and withdrawn from the side of executive performance. Whatever might handicap the speed or quality of performance must be localized on the administrative side of the contractual equation. Transpositions of the contractual factors had then altogether to be adjusted to the standards of laws and regulations, by consultation with the legal, the auditing, the financial and the judicial criteria of valid contracting. As a result of these conditions the cost plus percentage fee contract became the standard in most general though not exclusive use for the army's building program. In substance, the resulting agreement was a sort of "honorable partnership" between the employer and contractor; an arrangement in which the employer carried his own risks and secured thereby the services of the contractor and his organization. Engineering experience in the contracting field had found that the interests of equity and execution had become so well balanced by this plan as to make one of the most acceptable forms of contract.[2] The cost-plus contract was not, therefore, an experiment; its value had been demonstrated in the wider field of commercial experience.

[1] *Scribner's Magazine*, "Building for Victory," November, 1918, pp. 546–547.

[2] See testimony of Dwight P. Robinson, President American International Shipbuilding Corporation, on the agency type of the Cost-plus Contract, Senate Committee on Commerce Hearings, 65th Cong., 2d Sess., on Sen. Res. 170, vol. 2, pp. 2013–2016.

CHAPTER VI

Army Ordnance Contracts

In the support of the military establishment of the country the expenditures for the Ordnance Department stand second in importance only to the outlays for the Quartermaster Corps. This department, from April 6, 1917, to June 1, 1919, had at its disposal credits to the amount of $4,142,483,822.16. That made nearly 28.5 per cent of the entire amount expended by the War Department during the period of hostilities. The Quartermaster Corps expended in the same time almost exactly twice as much. All except 9 per cent of the ordnance outlays were made in the United States, the amount being $3,783,345,386.02, as against $359,134,436.14 for the American Expeditionary Forces.[1]

Distribution of contract items of $100,000,000 or over, each, among the several features of expenditure, shows that ordnance stores, mainly ammunition, led with $720,740,000 in round numbers. Automatic rifles required $534,320,000; ordnance stores and supplies $354,440,585; small arms target practice, $188,276,000; the manufacture of arms, $161,041,100; armored motor cars, $117,300,000, leaving the next to the largest item of $600,000,000 to settle contract obligations outstanding when the armistice, on November 11, 1918, was signed. That event suddenly halted the industrial operations and automatically canceled many thousands of contract undertakings. These apportionments are from the fiscal years' summary of total appropriations of 1917, 1918 and 1919.[2]

The making of munitions and of their supplementary requirements is primarily an industrial task. The credit of

[1] War Expenditures Hearings, Ser. I, part 1, p. 40.
[2] *Ibid.*, pp. 10–11.

furnishing these direct implements of fighting belongs to the manufacturing forces of the nation. Nor is the achievement simply a matter of machinery; it was the spirit rather of the men and women back of the machines that, under the colossal contractual relations with the government, drove home the end of the war to the final stage of victory. The manufacturing industries of the country were placed at the country's service from the earliest prospect of war. Typical of the entire morale which dominated the American contracting forces at home were the words of Samuel M. Vauclain of Philadelphia. In conference with the Ordnance Department authorities, weeks before Congress had voted funds for ammunition and arms on the big scale required, he met the difficulty of anticipating appropriations by the pledge: "We'll make the rifles—you make the contracts."

There are several other aspects from which the subject of ordnance contracting should be considered. It is necessary to understand the main features at least of the position of the Ordnance Office as a contracting authority when the war broke out, with special regard to its capacity to meet its legally defined duties, to determine its own problem and to meet the demands of the military situation as it developed both at home and abroad in the light of the International Ordnance Agreement of December, 1917.[1]

Again, what were the character and scope of the contractual system, relations and organization as developed in the working out of this problem by means of the department's own arsenals and the industrial organizations, commercial agencies and financial institutions of the country?

Finally, what policy peculiar to the Ordnance Department was pursued in the liquidation of war era assets in the post-armistice period, involving cancelation of contracts, salvaging of supplies and settlement of accounts with the contracting public, while the demobilization was going on in the transition to conditions of peace?

[1] *America's Munitions*: Report of Benedict Crowell, Director of Munitions, 1917–1918, pp. 14–15. Washington, 1919.

Situation of Ordnance Office at Outbreak of War

The position of the Army Ordnance Department at the outbreak of hostilities with Germany is a sad commentary on the popular conceit of self-sufficiency of our military establishment even on a peace basis. The disease was the usual failure of the department to develop apace with the progress of national needs and worldwide changes. Meanwhile, the Chief of Ordnance had for fifteen years been pleading with his superiors in authority to enable him to increase his personnel and assistants, to have in readiness a reserve of the basic tools and of technically equipped officers in sufficient numbers to place government arsenals and private contracting industries on a war time scale of production of munitions at very short notice. As has been pointed out elsewhere, its designing force was pitiably insufficient to keep up with the rapidly developing experience of the nations in fighting matériel, Owing largely to the failure to meet the expressed need of additional officers, the equally important work of manufacturing, inspection and other engineering lines of work fared likewise. The plea of the Ordnance Office that the increments of officers authorized by Congress in the act of June 3, 1916, over a five-year period, be expedited by taking advantage of the emergency provision in the act giving the President authority to make such increase at once, was met by an obstructive and sophistical opinion of the law authorities of the department handed down months later, on December 26, 1916. That opinion ran as follows:

> However great may be the need of an increased personnel in the Ordnance Department to meet the existing situation, it is not such an emergency as the statute contemplates. . . . That the report of the Chief of Ordnance does not state a condition that can be regarded as an emergency authorizing the President to organize an increase of the Ordnance Department under the first proviso of section 24 of the national defense act; and that, unless there is an emergency not disclosed in these papers, a remedy can be afforded only in legislative action.

Under this ruling the Chief of Ordnance waited until the day after the break of diplomatic relations with Germany on February 3 to renew his plea for recognition of an emergency situation, only to result in more legal hairsplitting in the

Judge Advocate General's letter of February 9, to which the Secretary of War—another lawyer—subscribed in the following official language:

> Opinion approved: As Congress is in session and is considering this question no present use of the discretion of the President will be sought.
>
> BAKER.

In the face of this enforced attitude of ignoring actualities the Ordnance Office had undertaken a survey of manufacturing establishments which would most likely be able to produce the supplies wanted without any great changes in their machine equipment. A series of conferences and consultations was conducted between the department and industrial concerns during most of the entire year before war was declared. General Crozier, then Chief of Ordnance, testified, in the inquiry of 1919, that from the autumn of 1916 contracts had been entered into with private concerns for the various kinds of munitions. These included artillery, artillery ammunition, small arm ammunition, powder and equipments, including cartridge belts, etc. But of greater importance than any other single implement of war, even than the machine gun, he considered the infantryman's rifle. For the making of these, three establishments which had been manufacturing rifles for European governments were found to be practically in readiness. Prior contracts had been awarded for the supply of manufacturers' tools and gauges although to an insufficient extent. These were under the appropriations of 1916 and of 1917, the last of which was made available in the act of July 1, 1916. Between August 29, 1916, and April 6, 1917, orders and contracts of $100,376,973 net allotment were let, and 4,000 placed within the next eight months.[1]

The first task after getting the more urgent contracts under way appeared to be the long deferred increase in personnel by which to carry on the enlarging work of the office. Within a year the Ordnance list of officers increased from 96 to 4,000, and in a year more to 5,000.[2] A force of five officers and

[1] See General Crozier's Testimony, Investigation of War Department, December 12–31, 1917, Part I, pp. 225–242 for list of contracts.

[2] War Expenditures Hearings, Ser. I, part 5, p. 459.

twenty clerks was required to work day and night making out commissions and examining applications. Most of these were set directly to making out contracts, at the rate of twenty a day for the first eight months of the war. By far the greater proportion came from civil life. They included engineers, business men, financiers, bank presidents, college and university professors, chemists and metallurgists, and lawyers, who were of special service in contract drawing. These newly appointed officers served as assistants to the regular officers in charge of the several purchase and supply divisions of the Ordnance Department. For that reason there was no such a situation as that which arose in the office of the Quartermaster General whereby the contracting virtually was taken over by advisory committees and the responsible contracting officer made subordinate to the extra-departmental advisers.

Contract Procedure in the Army Ordnance Office

On the question, as to what part the supply officers taken from civil life had in the purchasing and price fixing for the several divisions having to do with supplies, it appears that the assistants made the first negotiations but that no price was finally agreed upon without the approval of the regular officer. These divisional officers headed the contracting units for ordnance supplies, just as similar officers in the other departments or corps or bureaus of the War Department operated as independent, uncoordinated units of purchase and supply. Hence the two competed in the same market for such supplies as blankets, harness, saddles and halters. But, as a rule, the great bulk of the supplies of the Ordnance Department were noncommercial in character, excepting, of course, raw materials. Among the purchasing divisions there was as yet no such coordination within that department as came later. That came after the problem of contract handling had been met by the ordnance bureaus to a sufficient extent to get production well under way.

Now as to the department's external relations with the manufacturers. For the Ordnance Department coordination

with the industrial systems of the country became a crying necessity early in the war. Prior to 1914 there were only six government arsenals and two private works which could make heavy weapons. So long as it had a practically unlimited market from which to buy, it was master enough of the situation not to need more outside help than the two or three private plants afforded. But now that both the army and the navy were pressing their needs upon a market that had become entirely inadequate there was urgent need for some medium by which the contracting divisions of the service might be guided in the placement of contracts with the assurance of not overburdening some of the manufacturing plants and leaving others undersupplied with orders. For this service the General Munitions Board came into existence, and began to function in cooperation with the Ordnance Office within a month or so after the war began.[1]

This particular service was called the allocation of orders and contracts. It served to keep the departments and their separate contracting divisions from competing for the same industrial plants.[2] A second service rendered by the General Munitions Board, which later became the War Industries Board, was that of initiating unutilized firms and the manufacturing capacity of kindred industries. This was effected in two ways—by the creation of new industrial concerns or the enlargement of existing ones. That was a problem of distributing the load over the actual and potential manufacturing capacity of the country. Local advisory committees rendered valued assistance in this capacity. The third service arose with the disappearance of the competitive system of awarding contracts. With competitive bidding a thing of the past, how was the government to know whether it was getting a square deal as to prices agreed upon? With the trained price specialists of the War Industries Board, or its predecessor, passing

[1] War Expenditures Hearings, Gen. Wm. Crozier's Testimony, Ser. I, part 5, pp. 464, 474.

[2] Hearings on Army Appropriations Bill of 1919, Vol. I, p. 47: Testimony of Col. Jay E. Hoffer on ordnance orders allocation to prevent competition between Army and Navy Ordnance bureaus for forgings at beginning of the war.

upon the industrial and commercial aspects of ordnance contracts, the Ordnance authorities felt a sense of safeguarding presence—a precaution and an effective preventive of price boosting which had outraged the common sense of the country earlier in the war era.

The actual procedure in the relations of the War Industries Board, which represented the extra-departmental Council of National Defense, to the Ordnance Department may be shown best by a specific instance from official testimony. From the Hearings of the House Committee on War Expenditures, the following is taken:

THE CHAIRMAN: Suppose you wanted to buy a certain kind of shells of a certain calibre, steel products—was that all handled by the officers of your department?

GENERAL CROZIER: Mostly.

THE CHAIRMAN: What part of it did anyone else do?

GENERAL CROZIER: When the officers of my own department had from their own knowledge, or with the help of suggestions from the War Industries Board, entered into negotiations with certain manufacturers for the use of their plants—and, generally speaking for the enlargement of their plants which was usually done at government expense—and for the supply of shells, we will say, at an agreed price, and had agreed upon specifications which we had theretofore explained, and time of delivery and rate of delivery, all of which was done before the order was finally given, it was submitted to the War Industries Board for them to clear it. That is to say, for them to approve the use of a particular manufacturing establishment in doing such work, and in order that the War Industries Board might indicate their opinion that it did not unduly interfere with the work that that manufacturing establishment had for some other department, and also to approve prices. And when that was done the order was formally given and the contract was entered into by the Ordnance Department.[1]

STRATEGIC IMPORTANCE OF AMERICA'S ORDNANCE PROBLEM

The placing of orders and contracts for ordnance was vitally affected by our European Alliance. Late in 1917 the division of labor in the prosecution of the World War was formally outlined as between Europe and the United States, in the international ordnance agreement. With that defined, the strategic importance of the problem only gradually dawned upon the national consciousness. At first, indeed, it seemed

[1] War Expenditures Hearings, Ser. I, part 5, pp. 466–467.

as if our Allies had really lightened our burden. But it soon became clear that our problem, stripped of all that disguised its naked realities, was infinitely more than a mere American problem. As the elements of illusion lifted, its expansion disclosed a scope even greater than interallied limits—it stood out as a world problem of the widest possible extent and complexity. In its essential character it consisted in the assumption of the obligation to pour into the World War situation three streams of resources—millions of tons of subsistence, millions of units of man power and billions of dollars worth of supplies and munitions. From this time forward the key to the great military drama as it was developed back of the lines of battle centered more and more in the industrial, the commercial and the financial potentialities and achievements of the United States.

America's armament program on this scale of production of munitions was handicapped by an extremely limited knowledge of how to work it out. There was also the difficulty of utilizing foreign experience as yet largely unorganized. The problem of contract engagements was still further complicated by the rapidly expanding ratio of requirement which each increase in the strength of the army entailed, from a quota first of 500,000 men and up to 5,000,000; and, finally, by the trend toward the widening uses and larger emphasis on newly developing mechanical devices. Along with these came the gradual awakening to the fact of the rapid exhaustion of the world's resources in both raw materials and skilled labor. "The cumulative effect of these factors," wrote an official in the inner councils of the Ordnance Department, "produced a task of such inherent difficulty and such immeasurable vastness as to transcend the most imaginative conception of the human mind." The estimated cost of the ordnance required to equip our first 5,000,000 men was between $12,000,000,000 and $13,000,000,000.

The main burden of this two-year program rested upon the shoulders of American industry. Several government arsenals and as many private concerns comprised about all that

could be regarded as specially equipped for ordnance manufacture, as late as April, 1917. How rapid was the transformation in the mechanical equipment of the country may be inferred from the fact that when the armistice occurred there were nearly 8,000 manufacturing plants, employing over 4,000,000 persons, engaged in the production of ordnance in the United States. In addition to that, it was estimated by Ernest T. Trigg, speaking for the War Industries Board, that two weeks before the armistice was signed there were urgent appeals for approximately 1,200,000 more war workers than could be supplied without placing further embargoes on nonwar industries. The pressure for production was outrunning the industrial man power.

Ordnance Office Reorganization as Affecting Contracts

There was much criticism current as to Ordnance Office methods and results from the very beginning of the war. Congress felt that it had not been prompt enough in providing machine guns.[1] The increase of new official personnel by four hundredfold by the end of the year 1917 was one source of confusion. This was inevitable, especially as the regular army officers who could have trained the new personnel were drawn away from Washington into the factory, the camp and the field of operations in France. This lack of a training remnant soon told on the morale of the whole force. It found expression in a degree of confusion that might well have made less devoted officers sick at heart. Yet it was exactly what was to have been expected from years of the policy of repression, of warnings and appeals to get ready for emergencies. In nothing did this attitude of high official ease in Zion appear to come to judgment more evidently than in the handling of contracts.

The Ordnance Department itself, as organized on the peace time basis, could not at first be expected to prove equal to

[1] Investigation of the War Department, Part I, p. 179. Statements of Chief of Ordnance, December 12–31, 1917 (confidential).

the overwhelming amount of war time work in the custody of the new personnel. Many new varieties of talent from professional, technical and business circles were added; but that very factor rather intensified than helped to overcome the lack of coordination among the several contracting units. Thus both internal conditions and external relations with the business organization disclosed some of the more serious handicaps under which the ordnance office was endeavoring to transact a volume of work too big for it in the condition in which the war had caught it. Yet, in spite of all the criticism, this office had by the end of 1917 awarded contracts amounting to $1,750,000,000 since the beginning of hostilities on April 6. Senate investigations (Committee on Military Affairs) had their effect in prompting the Secretary of War to approve a plan of reorganization, whereby the Ordnance Office work was placed on a functional basis. This plan separated the technical duties from the business functions and consolidated the operations into nine divisions, principally of procurement (placing orders and contracts), production (industrial), inspection and supply. By this arrangement the work of designing of all kinds, the work of contract letting and ordering, the work of keeping track of the progress of manufacturing and delivery of each one of the thousands of contracts and the work of inspecting products and purchases—these were differentiated into their respective divisions. The Chief of Ordnance was given an extensive staff of administrative and scientific assistants, more in keeping with the enormously expanded program of ordnance equipment to which the past couple of years of warfare had added thousands of novel and essential items. At the same time the more centralized control of munitions production was put under the supervision of a Director of Munitions, serving as Assistant Secretary of War. In the supply field the Director of Purchase, Storage and Traffic had effected a similar centralization; so that by the beginning of 1918 the two great contracting divisions of the War Department were reorganized and entering on the large scale program planned

by the military authorities in cooperation with the Allied leaders of Europe.[1]

The International Ordnance Agreement

Our war contracting program by the time the Interallied policy of united action had been worked out by Interallied conferences, involved two further developments in the scope of supply and matériel production. One of these was that outlined in the international ordnance agreement based on a searching survey of the military situation. The essential features of this arrangement were:

That Great Britain and France had developed their scale of production of heavy artillery to such an extent as to be able to supply all American divisions as they arrived in France during the year 1918.

That the British and French ammunition supply and reserves were sufficient to meet the needs of the American army up to June, 1918, if the existing 6-inch shell plants in the United States and Canada maintained full activity, and if 6-inch howitzer carriages were manufactured here.

That the most immediate need of France was, and to a lesser extent Great Britain, a large supply of propellants and high explosives of specified varieties, including 6-inch, 8-inch and 9.2-inch shells, and that large additional manufacturing capacity for these shells be at once laid down in the United States.

This program had a profound effect on our entire war contract regime. It brought out clearly the two concurrent efforts of the war, that the United States had to maintain the fighting forces of the Allied Powers by shipping food, making and delivering in Europe war matériel during the year 1918, and at the same time tranship our man power and build up our war industries to equip them with munitions and supplies in readiness for the final drive on the Central Powers in the year 1919. The year 1918 was to be almost incidental—a period of gathering strength for a supreme effort in the year or two beyond. One prominent effect of the plan of preparation was to bring the production of small arms to the front as a feature of our munitions contracting, because of the early discovery that "America can organize, train and transport troops of a superior sort at a rate which leaves far behind any program for the manufacture of munitions."[2]

[1] Report of Secretary of War, 1918, pp. 55–60.

[2] *America's Munitions*, by Benedict Crowell, Director of Munitions, p. 17. Washington, 1919.

CHAPTER VII

Analysis of Standard Ordnance Contracts

One of the most interesting features of war contract forms is the evolution of successive standards and clauses as the business developed from one form to another. When the armistice came there were executed in the Procurement Division of the Ordnance Office, which had ordnance contracting in hand, not less than 20,000 orders and contracts. The so-called informal contracts, for which supplementary legislation was at once sought and later obtained, fell largely under this class of procurement orders, for which the Ordnance Office had entered into agreements without conforming fully to the lawful standards of army and navy contracts. The form used in the lawfully drawn contracts and orders was known as Ordnance Office, Form No. 8, the twenty-four articles of which represent the main part of the war's experience in the perfection of contract provisions. These were generally, although by no means exclusively, of the cost-plus type.

Complexity of Contracts Necessitates Analysis

Whoever takes pains to make analysis of a series of contract forms, such as these from No. 1 to No. 8, inclusive, can not but be impressed with the tendency toward increasing complexity. It is this tendency toward complexity that makes analysis necessary in the exposition of the contractual relations. This is evident in the increased number of questions covered, in the enlargement of clauses into paragraphs and in the disposition to expand definitions and terms so as to cover all actual and possible angles and elements of doubt that may have arisen as a matter of experience or of precaution. The purport of these contract forms becomes clear if one keeps in mind that the cost basis is fundamental in defin-

ing the duties and specifying conditions. Time is the keystone to the cost-plus agreement.

OUTLINE OF PRINCIPAL FEATURES OF CONTRACT

A. Article contracted for, with description, and reference to drawings and specifications, quantity and quality, etc.
B. Delivery, including quantities and dates.
   (1) Instructions for packing, boxing, storing and shipping.
   (2) Inspection, to be prompt upon notice by contractor.
   (3) Progress to be anticipated and delays penalized.
C. Price, Cost and Price adjustment.
   (1) Fixed price, or fixed or per cent profit.
   (2) Adjustment as to costs of materials, labor and changes in specifications.
   (3) Liquidated damages deducted for delays in delivery.
   (4) Purchase price based on estimated cost to be adjusted to actual cost of materials, labor, etc.
D. Special Provisions.
   (1) Right to increase order within given period, at the same price.
   (2) Right to terminate order if war ends or Ordnance Chief deems that public interest so requires.
   (3) Settlement of disputes, employment conditions, etc.
   (4) Property rights reserved, patents, subcontract assignable to the United States only.

These are the skeleton features of the most generally used war contract forms by the Ordnance Office of the army. Each of these has been the subject of negotiation at some time or other, on one or more articles of purchase and contract. In the standardized forms of this series the itemized articles are as follows:

Article I. In this form the first article describes the commodity to be furnished, the prices and the time and quantity involved in deliveries. The nation is at war. Hence the preamble, which gives the reason for agreeing upon prices and delivery dates, recites that "whereas a state of war exists

between the United States and certain foreign countries constituting a national emergency," and that "the usual requirements of advertisement for proposals are dispensed with," therefore contracting agreement is not any longer on the competitive basis, but on mutual agreement that the "workmanship and quality of the articles shall, in the absence of other provisions, be the best of their respective classes and free from latent defects." Here is a distinct concession to accept goods by the standards of commercial work rather than by technical inspection emphasizing incidentals.

Article II. Specifications.—The contract and the specifications are related as genus and species. So that if there be any conflict between the two the contract governs. If the specifications be changed, as the government reserves the right to do, the contract price is changed accordingly; the price is advanced if the change involves added expense and reduced if it entails less expense. The procedure for adjustment of claims is provided for in Section XVII, under "adjustment of claims and disputes."

Methods of Controlling Materials and Delivery

Article III. Component Parts and Materials Furnished by the United States.—So eager was the government to get its munitions made that it practically agreed to deliver all "the component parts and materials" at the premises of its manufacturing contractors in scheduled quantities "at such times and in such quantities as in the opinion of the contracting officer will enable the contractor to perform this contract in accordance with its terms." In case of failure to supply these component materials the United States shall reimburse the contractor for any outlay made on that account. In many contracts, such as copper furnished to the munition makers or leather to the equipment makers, the government had control of the surplus supply in the country. Such was also the case with wool. Component materials had to come from the government, unless additional supplies came to light.

Article IV. Manufacturers were given latitude on quantity deliveries by the provision that a contract was to be considered as completed for purposes of settlement, if 2 per cent more or less than the exact amount called for had been delivered and accepted. The rate of compensation was proportioned to the quantity delivered.

Article V. Packing and Delivery.—Ordnance articles require careful packing as a rule. The contractor is generally required to provide packing boxes and markings for domestic shipment at no extra expense. Shipping to any part of the United States is to be at the government's expense. Sometimes packing, if specially expensive, forms a separate contract, and often a subcontract.

Payments, Priorities and Inspection

Article VI. Payment.—Payment as delivered is dependent on inspection as a rule. Accepted deliveries are paid through the District Ordnance Office, but funds can not be made available until the contract has been executed by the contractor and returned to the Ordnance Department. In the legal sense, delivery of contract completes the agreement.

Article VII. Time.—This article is important enough to quote in full:

> *Time.*—Time is the essence of this contract. The contractor shall give the performance hereof preference and priority over any other work except work heretofore given preference or priority by the United States.

Next in importance to the speedy execution of contracts is the subject of inspection of products. That has always been one of the most critical stages in contractual relations with the government. Its object is to insure quality of product, which is a prime requisite of dependable war munitions. In such matters there can be no taking of chances; consequently every reasonable doubt must be construed against an article which discloses any actual or potential defects. Such is the theory, at least; but the practice has at times of emergency to be modified by the exigencies of the army, especially when in need of supplies and munitions.

Article VIII, on inspection, contains the following requirement:

> The articles or work are subject to observation, inspection, and tests by the United States at any and all times during manufacture or performance in order to determine their compliance with the requirements of this contract, and are subject to acceptance or rejection by the United States at the place of delivery hereinbefore specified. For this purpose the United States may maintain an inspector or inspectors at the plants or places where and during the time this contract is being performed. Such inspectors may reject any and all articles or work, or components thereof, and materials found not to be in compliance with the requirements of this contract.

The entire process of manufacture is thus at all times subject to the inspection and supervision of the Chief of Ordnance and his official representatives. This includes all materials, machinery, equipment and plant used in performance of the contract. He may require of the contractor to replace all rejected materials or parts not furnished by the United States, and may withhold payment until compliance. Upon notice of completion, final inspection shall be made promptly.

Inspection Standards and Emergency Production

On the subject of inspection standards there have always been two more or less conflicting attitudes—the commercial and the military. The experience of the small arms manufacturers with the foreign governments is recalled, as having come very near defeating the hope of American helpfulness to the Allied cause prior to our entrance into the war. That was a clear case of failure to appreciate each other's point of view on the question of essential quality in the effort to reach quantity production in the shortest practicable time. In due time the official criteria had to yield to the commercial standard of effective tests, in order that the larger object might not fail of achievement.

It was the same, both in the problem of quantity production and in its solution, when we came to manufacture for our own ordnance needs. If the government wanted articles of warfare in exceptionally short time, it had to abandon emphasis on incidentals, put less stress on appearances and accept products on the one single basis of service. Would they

function effectively, within a reasonably allowable margin of certainty, under the emergent conditions for which they were designed? As standardization was developed, as talent rose to the higher level of skill, these two attitudes came to focus in the record output in such articles as service arms and ammunition. Between April 6, 1917, and November 30, 1918, seven ammunition industries made the enviable record of producing over 2,600,000,000 rounds of ammunition.[1] In commenting on this result in its relation to inspection standards, the Director of Munitions, War Department, disclosed just such a concession in the official attitude to the requirements of the war. Contracts by numerous American concerns had educated thousands of mechanics and shop executives to the production of ammunition for foreign governments, just as in the making of small arms. It was upon these private concerns, rather than on the government arsenals, that reliance was now placed. Their record is in no wise discounted by the official apology:

> This production record to some extent was made possible by a leniency on the part of the Ordnance Department which we had not displayed before the war. When we could take plenty of time in ammunition manufacture our specifications for cartridges were extremely rigid. It soon became apparent that if we adhered to our earlier specifications we would limit the output of cartridges. It was found in a joint meeting of ordnance officers and ammunition manufacturers that certain increased tolerances could be permitted in our specifications without affecting the serviceability of the ammunition. Consequently new specifications for our war ammunition were drawn, enabling the plants to get into quantity production much more quickly than would have been possible if we had not relaxed our prewar attitude.[2]

In peace it was the practice to meet inspection needs in private plants by sending inspectors out from the nearest arsenal, under some official command. War time work called into being a separate inspecting division in the Ordnance Corps. This meant decentralization. At first only artillery ammunition and trench warfare material were given divisional inspection, the larger plants, where rifles, machine guns and others were made, being inspected by separate organizations.

[1] *America's Munitions*, 1917–1918, p. 193.
[2] *Ibid.*, pp. 193–194.

The work of contractors and the government's interest were both served by the volunteering of hundreds of civilian experts for this service. Of these the Chief of Ordnance wrote in his annual report for 1918:

> Some idea of the magnitude and importance of inspection work is imparted by the fact that even when limited to the inspection of artillery ammunition and trench warfare material manufactured at private plants, the inspection division will require the services of at least 200 commissioned officers and about 2,000 civilian employes. Only two experienced officers can be spared to recruit, organize and train this personnel. That satisfactory progress is being made is due, in great measure, to the patriotism which has prompted many prominent and successful manufacturers and mechanical engineers to surrender their business positions and serve the government as officers in the Ordnance Reserve Corps:[1]

Cancelation of Ordnance Contracts

Cancelation articles are a standard feature of practically all war contracts. This is one way which the government takes to protect itself against the contingency of the contractor's inability to complete his agreement. In war time, when speed of performance is primary, the failure to make good in the schedule of deliveries in the absence of good reasons affords the occasion for canceling the contract and putting the job into the hands of another, in case the government should not want to take up the task for itself. After the middle of 1918, however, the insertion of cancelation clauses terminating the contract in case of the end of the war began to appear in the formal awards. Even earlier than that was the edition of Form 600—D, War Department, Chief of Ordnance Office, dated May 13, 1918 (War—Ord. O. O. Pl. Form No. 7). In that the cancelation provision ran as follows:

> This contract being necessitated by a state of war now existing, it is desirable and expedient that provision be made for its cancelation upon fair and equitable terms in the event of the termination or limitation of the war, or if in anticipation thereof or because of changes in the methods of warfare the Chief of Ordnance shall be of the opinion that the completion of this contract shall become unnecessary. It is therefore provided that at any time, and from time to time, during the currency of this contract, the Chief of Ordnance may for any of the causes above stated notify the contractor that any part or parts of the articles then remaining undelivered shall not be manufactured or delivered.

[1] Report of the Chief of Ordnance, 1918, p. 20, on "Inspection Division."

The foregoing part of the cancelation article (Article XIV. Termination) served to protect the interests of the government in the premises, by practically suspending operations, putting the entire productive program in the hands of the Chief of Ordnance. For the protection of the contractor, on the other hand, specific provisions were made to secure him against possible losses from obligations extending into the future. It was stipulated that in the event of such complete or partial termination the United States shall inspect all completed articles then on hand and completed within thirty days after notice, and shall pay the contractor the price fixed for all articles completed and accepted. The government further agrees to cover the cost of materials and component parts purchased by the contractor on account of this contract, also all costs necessarily incurred and remaining unpaid, and "shall also protect the contractor on all obligations incurred necessarily and solely for the performance of this contract of which the contractor can not be otherwise relieved. To the above may be added such sums as the Chief of Ordnance may deem necessary to fairly and justly compensate the contractor for work, labor and services rendered under this contract."

Here was foreshadowed the main outlines of the contract cancelation policy, six months before it actually came into effect by the armistice. In the next edition of the ordnance contract, dated October 1, 1918, the scope of the article (XII) on cancelation and termination before completion had a much wider application; but the mention of the contingency of the end of the war had disappeared entirely from the considerations. Evidently it was not deemed prudent even to entertain that specific condition, because of its possibly deterrent effect on the rate of delivery of munitions. This later form (Form 8), on the other hand, gave two specific conditions on which termination might become effective, and defined the procedure for settlement in each of these cases:

1. Cancelation for contractor's default in deliveries.

2. Termination in public interest, at the option of the Chief of Ordnance.

The latter included no doubt the contingency of the war's end, without really making mention of it as such. It must also have covered munitions which new inventions rendered useless. In either of these cases of termination it was provided, first, that all subcontracts should be assigned to the United States at the request of the Chief of Ordnance; and secondly, that possession should be given the United States so that the government may proceed to complete the manufacture, make additional articles or perform other work in pursuance of the original project.

One other cause for cancelation of contract is included in the failure of the contractor to afford adequate plant protection (Article XIII) against acts of alien enemies, or from failure to dismiss or keep out undesirables upon request of the Chief of Ordnance. For such plant protection extra allowances are to be made the contractor. In many cases contractors organized vigilance committees to guard against alien enemies.

Other Features of Procurement Contracts

One of the main difficulties in dealing with contractors is to keep them from involving the government by means of subcontracting, by creating encumbrances (Articles XV and XVI) and patent infringements (Article XVIII). In order to keep the contractor from making such entanglements and yet enable him to avail himself of speedier ways of executing his contract, all subcontracts must first have the approval of the government's contracting officer, all liens or other encumbrances must have bonds or security for their execution and release, in default of which the contracting officer may deduct any claims out of payments due the contractor. The contractor covenants against paying any contingent fees to any third person in obtaining his contract, and agrees to protect the United States from liability by use of any patented or unpatented invention, process or suggestion (Articles XVIII, XXIII).

CHAPTER VIII

Control of Costs in Ordnance Contracts

It has quite generally been assumed that in contracts in which the government pays the costs the contractor's cost statements were about the only basis on which the supervisory authorities had to go in protecting the public interest. That was not, however, the case; in fact, quite the contrary practice prevailed. The government, in much of its ordnance contracting, organized and operated a cost controlling system which would as a rule have done credit to any privately managed establishment. In some cases the contractor may have been left to make up his own schedule of expenses incurred. But it was by no means the rule. On the contrary, it was the notable exception, taking the war time practice of cost inspection as a whole.[1]

Definition and Principles of Contractual Costs

One signal proof of the early purpose to keep mastery of the expenses of contract work is found in the preparation of standard rules and principles for the guidance of contractors in the settlement and payment of accounts. This was to get a common ground of definition and classification of items of expense. On that basis the two parties to the ordnance contracts kept two concurrent sets of cost accounting. The contractor had his own bookkeeping outfit, and the government had on the same premises, on the same project, its own cost accounting unit. The latter reported regularly either to the district ordnance board or to the central control at Washington, or to both. For each project there was a schedule of progress of work, making each one of these awards comparable with each and every other one of a similar character. As these returns took form they served as indexes of the pro-

[1] Hearings on War Expenditures, Ser. I, part 5, p. 502.

portion of pay falling due. But they especially provided against disputes as to what was and what was not to be included in cost itemizing. It also laid the basis for a prompter settlement in case of the termination of contract. In what is known as Ordnance Office Form No. 8, the express provision is inserted, that "any determination of costs in the event of termination (of contract) shall be in accordance with the pamphlet entitled *Definition of Costs Pertaining to Contracts*, issued by the office of the Chief of Ordnance, War Department, dated June 27, 1917, and made a part of the contracts."

This particular "Definition of Costs" was elaborated as a joint product of cost accounting talent, including some of the most eminent representatives of the profession, in cooperation with the Ordnance Office of the War Department. It came into general use in cost-plus contracting within the first few months ofter the advent of war. Under the competitive methods of peace time awards there was no particular need of the government's concerning itself about the costs; it had to put its efforts on inspection and supervision so as to insure quality of results. But when the conditions had changed so as to make the government assume costs, it became necessary to add an elaborate statement of what costs pertaining to contracts made on this basis comprised. This was done in a statement first of general conditions, and secondly of the elements of cost, as outlined in this "Definition of Costs," Form 2941.

In the adjustment of the government's cost control to contracting practice the general conditions were fully taken into account. These may be summarized as follows:

1. To state the general principles involved in accounting for the cost of the articles contracted for with the United States and to furnish suggestions for the guidance of the contractor in accounting matters relating to such contracts.

2. To accept as adequate for the purposes of the government the form or forms of accounting when the contractor has established accounts, books and records that conform to good accounting practice and can furnish therefrom the

necessary data required to compute the cost of manufacturing as defined therein.

3. That, in so far as it is practicable and possible to do so, it was desired of the contractor that he shall "maintain separate from all other records pertaining to his business, the records and accounts pertaining to contracts with the United States." This meant a separate ledger, a separate bank account, also separate payrolls, store records, vouchers, summaries, bank checks, for the convenience of both parties.

4. On forms to be supplied by the contracting officer of the government, the contractor was to supply such details and statistics as to the cost of production as might be required from time to time, the cost being calculated from the date on which the contractor or manufacturer shall commence work, of which date the contracting officer of the Ordnance was to be notified.

Four Essential Factors in Cost-Plus Contracts

On these general rules of procedure, the following definitions of cost in contracts were laid down, consisting of four elements:

(1) The cost of all direct labor paid for by the contractor.

(2) The cost of all direct materials contained in or forming part of the articles contracted for.

(3) Prorata share of factory overhead expenses applicable to and necessary in connection with the manufacture of the articles contracted for.

(4) Prorata share of administrative and general expenses applicable to and necessary in connection with the manufacture of the articles contracted for.

Direct labor in the sense here required applies only to productive labor on the work under contract. The contractor shall maintain a daily time report in connection with each workman engaged on direct labor, setting forth the description of work, the parts of the article worked on and number of hours chargeable to said article, the quantity of pieces completed, hourly rate of piecework price, the amount of over-

time allowed and the total amount earned. The contractor was required to maintain these daily time reports and the information classified thereon so as to readily determine the cost of all direct labor applicable to any operation. It provided, finally, that "the rate of wages paid shall not exceed the rate of wages being paid for the various classes of labor involved in the locality in which the work is done. In general, salaries and wages will conform to the necessities of the situation."

In the control of material cost the role of the inspector has a larger part. Consequently the provisions as to what is included and what not, are far more elaborate in detail. Three features embody the major regulations, however, including (a) the preparation of a complete bill of materials setting forth the kind, quality, cost per article or unit of product, at discount prices, or net prices; (b) that materials and supplies shall be kept in separate storage as purchased for contract account, and (c) that the inspectors and auditors representing the contracting officer shall at all times have access to those places where materials in connection with the articles contracted for are received, stored, used, processed and shipped, and all the records maintained in connection therewith. Receipts, consumption in production, stocks on hand, etc., must always balance according to the records.

In the item of overhead expenses, the elements of salaries of foremen, shop superintendents, clerical work and indirect (unproductive) labor, also the material equipment, such as machinery, tools, taxes and insurance in proportion, and the like, are included. The principal accounts under this head are divided into thirteen divisions to cover factory departments. There are six other items under maintenance of buildings, and five covering factory management and general plant expense. The cost of building, maintenance, factory management and of all nonproducing departments is thus distributed over the producing departments to the extent of its entering into the cost of the product made.

Finally, the administrative and general expenses are ac-

cepted as the fourth element of costs, in so far as the administration and general office activities contribute to the fulfilment of the contracts with the United States. Under this head there are eight separate accounts suggested, including salaries, taxes, stationery, postage, travel and incidentals. Where the entire product of the factory is devoted to the contract work for the United States, the entire administrative and general expenses become a charge on the contract cost.

These cost schedules represent the best judgment of technical accounting. Its application in control of contracts is then only a question of getting inspection and auditing talent to do the work.

CHAPTER IX

A Typical Ordnance Contract—Service Rifles

Among the nine separate divisions into which the Ordnance Office of the War Department divided its work during the fiscal year 1918, that of Procurement alone had to do with the preparation and execution of contracts. All the department's contracting is done through some one of its fourteen sections to which the negotiation of contracts is assigned, according to the character of the material contracted for. The Procurement Division is thus charged with the purchase of all the fighting matériel of the army, such as artillery, ammunition, tanks, tractors, small arms and small arm ammunition, machine guns, etc. The volume of operations of this contracting division in the year under consideration may be measured by the fact that nearly 16,000 contracts were placed, having a money value of $5,000,000,000 approximately, including an outlay of $325,000,000 in the work of increasing the manufacturing facilities of the country in the effort to meet promptly and effectively the ordnance needs of the army.[1]

Closely associated are the two other divisions that have to do with contract operations, namely, Production and Inspection. The Production Division expedites production of ordnance matériel by placing at the service of arsenals and manufacturers every known means to stimulate operating functions. It placed in excess of 11,000 orders in 1918, with over 4,000 contractors, erected 59 factories and enlarged 171, thus assisting 230 manufacturers, expending funds in the development of manufacturing facilities amounting to $420,000,000.[2] Inspection of contracts cost $13,000,000.

Of the total expenditures of $5,443,000,000 in the great munition producing year of the war, the manufacture of small arms did not much exceed 8 per cent of the aggregate.

[1] Report of the Chief of Ordnance, War Department, 1918, pp. 11–13.
[2] *Ibid.*, under "Production Division," etc.

Thus the very weapon which some of the best military authorities still regard as "the most important weapon, notwithstanding the prominence given to artillery and to machine guns, and notwithstanding the new implements of war, such as the airplane and things of that type," had cost the country an insignificant amount compared with the wasted outlay on airplanes that never arrived.[1] In fact, according to the official report of the commanding general in France, about the only weapon that did arrive of American make in effective quantities, to enable our men to take a share in the battles of the war, was the modified Enfield rifle of the model of 1917.

Factors Affecting the Cost-Plus Rifle Contracts

At the outbreak of the war our army had rifles enough to supply a force of a million men.[2] These were mostly of the Springfield model of 1903, then the army standard rifle. There were difficulties in the way of manufacturing this type in sufficient quantities, although our first divisions of troops sent to France were armed with the Springfields, then demonstrated as probably the best implement of its kind in the world. The manufacturing of parts continued and the two arsenals, then producing at the rate of 700 a day, maintained the supply.[3] This was made all the more difficult by the policy of the government prior to 1917 to cut down the appropriations for small arms and ammunition. The only two arsenals—Rock Island and Springfield—that had manufactured these rifles of 1903 model were reduced to 450 per eight hour day. When, therefore, in the early part of 1917, it was desirable to expand the rifle capacity of our government plants, its skilled employes had been scattered into other pursuits and the few that could be recovered only served to emphasize the shortsightedness of Congress and of others responsible for virtual abandonment of this fundamental implement of national defense.

[1] War Expenditures Hearings, Ser. I, part 5, p. 463. Testimony of General Crozier.
[2] *Ibid.*, p. 463.
[3] Annual Report of the Secretary of War, 1918, p. 42.

This was the situation when the question arose as to what model of service rifle could best be produced in quantities to equip our increasing army. Why not the Springfield of 1903? It was the standard. It was the best of its kind. Why not expand producing capacity at government arsenals and armories as well as in private plants?

The answer is simple when the situation is known on the manufacturing side of the problem. It takes ordinarily about a year or more of preliminary work to make the machinery and tools, such as gauges, jigs, dies, etc. These have to be put at the service of manufacturing contractors in order to make a start at rifle production, to say nothing about special machinery and training or assembling skilled employes of superior technical talent. This is what the Ordnance Office had asked for as an emergency consideration months before war occurred, only to be refused on what to the laical mind now seem specious excuses. Our Ordnance was not able to make a respectable impression on the problem of governmental supply of its own standard army rifle, and it had been denied the often urged provision of having in readiness the necessary manufacturing implements so that private plants could quickly be enlisted for equipping troops. As it was, thousands of our troops saw almost nothing of rifles before embarking for France.

Why the Modified Enfield Rifle Was Adopted

Thanks to governmental shortsightedness, the choice of the best American model of service rifles was out of the question as a manufacturing proposition for 1,500,000, 3,000,000 or 5,000,000 troops. How true that is may be inferred from the fact that by November 8, 1918, only 312,878 Springfield rifles had been made at the two government arsenals.[1] The situation was saved by the presence of several rifle manufacturing concerns in the United States which had for the better part of two years, 1915 and 1916, worked on large contracts for British, French and Russian rifles. By the beginning or

[1] *America's Munitions*, 1917–1918, p. 183.

middle of 1917 these engagements had been practically worked out. The foreign governments, especially Great Britain, had supplied and owned the machinery. It was ascertained that this could be purchased by the United States Government. Later we paid about half its cost for the rifle making machinery.[1] This machinery had produced the British Enfield rifle, model of 1914. Could that implement be made acceptable to arm American infantrymen? If so, a short cut to the solution of the service rifle supply problem was in sight. Here were at least three large scale industries equipped with machinery, and with a working force of skilled labor ready to enter on quantity production as soon as final specifications and drawings came from the ordnance authorities. The Enfield model was near enough to the Sprinfield model in important characteristics to admit of adaptation to American needs. If so, then it was either a question of building up plants for making American Springfields, including tools and machinery; or of adopting outright the British rifle *in toto*, or of modifying the Enfield to fit our ammunition of the standard caliber of .30 as against the impossible British rimmed cartridge of .303. As in the airplane program we tried to build the plane about the engine, the Liberty motor; so in the rifle program we decided, in a sense, to construct the musket around the bullet.

In the execution of this program the three manufacturing plants brought a fund of valuable experience to the aid of the designers and procurement officials in repeated consultation. Thanks to this cooperation, the requirements were soon met sufficiently to proceed with manufacturing. But the official attitude kept on modifying the design. This modification became a source of delay and was often discouraging because of the disposition to keep making alterations on the part of the ordnance authorities. After the responsible officer had approved a model and one if not two of the three manufacturers had started to manufacture, a successor in the kaleidoscope of official shifts in Washington submitted a list of 51 changes of parts, thereby holding up the whole production

[1] Investigation of the War Department, Part 2, pp. 431–432.

program for final specifications duly signed by the contracting officer.[1] Although one of the earliest conferences on this subject occurred with responsible war and congressional officials in February or March before war was declared, it was not until August 24 that this overparticular process of making changes came to an end, so that manufacturing could be begun on the basis of final drawings.[2] The entire program was held back by insisting on interchangeability of parts beyond reasonable limits and on such nonessentials as a uniformity to a two-thousandths of an inch on the bayonet blade.[3]

Rifle Contractors Insist on Cost-Plus Contract

There were three factors entering into the production of rifles by the three contracting concerns for the United States rifle model of 1917. Each of the three concerns—the Winchester Repeating Arms Co. of New Haven, the Remington Arms Co. of Ilion, New York, and the Remington Arms Co. of Eddystone, Pennsylvania—had been threatened with financial failure by the extremely high ratio of rejections in the early stages of the production of rifles for the British, French and Russian Governments. That was their upper millstone; the lower was the rapidly rising costs. Between the two they saw their doom. Seeing the threatening result of the continuance of such a policy of rejection of commercially acceptable products, the contracting concerns went to the bankers through whom the orders had come, laying the situation before them and warning them that unless the attitude of the official inspection was changed so as to base acceptance on essentials, every one of the manufacturers of rifles would be obliged to abandon his contract. This meant not only failure of rifle supplies for the European Allies, but also the general refusal among American industries to take foreign contracts

[1] Testimony of J. E. Otterson, Investigation of War Department, Part 2, pp. 409–411.
[2] *America's Munitions*, 1917–1918, p. 182.
[3] Also testimony of Fred H. Calvin, Editor, *American Machinist*, Part 2, pp. 435–436, Investigation of War Department.

at any but the most speculative prices. The standard of American Government ordnance inspections was an equally extra-hazardous risk, against which the contractors could not appeal to bankers as negotiators of contracts. That element of cost was, as the contractors reasoned, a government risk and could not be assumed by the other party to the bargain.[1]

A second factor in the manufacturers' viewpoint was that the rifle finally adopted had practically been made over into a new and different model from the British Enfield of 1914. That opened the whole question of whether after all these changes in plans and parts, in design and technique, the machinery and tools with which the British rifles were made would not have to be radically altered if not scrapped to produce the American model of 1917. This view proved in general to be groundless. The Ordnance agreement as usual reserved the right of the contracting officer or his superiors in office to inject any desired changes in plans and specifications at any stage of the manufacturing process. Of course, this would be at government cost, but that must be figured into the cost of delays in the schedule of the factory, in completing one job or contract to make way for the next one already signed up for other parties. Already five months of the most precious time had been used in planning and designing a rifle that could just as well have been done before war broke out, if those at the head of the military establishment had not as a matter of persistent policy held up on some pretext the most basic work of ordnance designing. Now that the type had been developed, the criteria of standardization fixed, and the principle of interchangeability embodied, so that a screw-thread measuring a thirty-second of an inch made at Eddystone must fit into the corresponding thread-hole as made at Ilion and New Haven, who should in fairness and justice assume the industrial, the mechanical and the financial risks of turning out a noncommercial instrument of precision? Certainly no open eyed investor could be asked to assume

[1] War Expenditures Hearings, Testimony of General Crozier, Ser. I, part 5, p. 490.

such a responsibility for the government. These plants could beat the world in making products to the commercial standards; as for the government's standards—well, one never knows exactly what they might be until the actual product had passed the inspection. In short, that made the rifle in question, as it did of many other products under contract for the government, a distinctly speculative product. And it is a principle of economic life that the experimenter has to assume the risk. Hence the cost-plus contract in the rifle orders.

The third factor in determining the form or type of rifle contract was the economic situation generally. The earlier contracts for munitions for the European governments were taken at prices so apparently lucrative as to set the stock market going into an orgy of speculative debauch over the profits anticipated. But these proved, under later cost conditions, to be only dead sea apples, as wage schedules rose on the strength of striking employes, and materials sought new price levels from week to week. Instead of phenomenal profits, many manufacturers pocketed losses, and not a few were bankrupted on these contracts. A contractor figuring on steel billets, for instance, at $19, July, 1914, could not have expected to pay $42 in July, 1916, and $100 in July, 1917. Yet that was the situation through which many munition makers had come, the wiser for their experience, during this prewar period.

Ordnance Corps Meets Changed Conditions

These statements reflect essential factors in the contractors' point of view. On the government's attitude it may be best to quote the exact language of the Chief of Ordnance who represented the army in the bargaining procedure:[1]

> One of the earliest contracts of magnitude that was made after we got into the war was the contract for the manufacture of rifles. . . . We made contracts with three manufacturing establishments. . . . That was a contract in which the consideration was the cost of manufacture plus a percentage of the cost for profit. It was entered into after a consultation between myself and some of my assistant officers and the president of the General Munitions Board, as it

[1] War Expenditures Hearings, Ser. I, part 5, pp. 489–490.

was then called, and the manufacturers. We discussed this point of which we are at present speaking, namely, the relative advantage of the percentage system of profit and the fixed sum system of profits. . . .

GENERAL CROZIER: As between us, I favored the method of a fixed sum per rifle and not a percentage, but I yielded to the strong aversion of the manufacturers toward that method, and their inclination toward the percentage method of compensation. I say I yielded—Mr. Scott, the chairman of the General Munitions Board, and I yielded on that.

* * * * *

I think that, perhaps, I may remind you that these rifle manufacturers had had a disastrous experience in manufacturing rifles for foreign countries. The particular three, with whom we were dealing, had been manufacturing for the British Government. They absolutely declined to make any proposition of a price that they would make the rifles for so much apiece. They said they did not know, they could not know, and they were afraid to agree to manufacture them for any given price. They were so uncertain as to the amount of work, trouble, effort, labor and cost that would be involved in producing the degree of excellence that we might require that they did not want either to commit themselves to the fixed profit per unit.

Criticism of the contractor's attitude, in wanting the government to take all of the risks, was voiced by some of the investigating committees of Congress. But, as the Ordnance Office explained, the government was quite willing to take the chances, provided the work could be done at something about what the product ought to cost.

What, then, should the rifles cost and who was to determine that? It was a new thing for the Ordnance Office to have to put a staff of cost accountants into the factory where they were having war materials made, so as to ascertain for the government just what the product in question actually cost the manufacturer. An entirely new division in the ordnance work was thus organized under the control and direction of a cost accountant of national reputation.[1] In every factory and plant where any of the 16,000 orders and contracts were being worked out on the cost-plus basis there were cost accountants, accountant clerks and assistants at hand to record just what of labor costs, of material costs, of overhead and general expense items entered into the count of outlay. Hitherto the Ordnance Office had always fixed the price, so that what an article

[1] War Expenditures Hearings, Ser. I, part 5, pp. 483–484.

cost the manufacturer per unit was not a matter of concern. Now the cost-plus plan was a condition that had to be met, and to which the larger contracts of this department were obliged, as its chief considered, to conform until conditions might enable them to change. That change came within a year; for not a few of the cost-plus contractors, after finding themselves master of the conditions, materials and process, were willing to change to a fixed price basis for their own advantage.

CHAPTER X

Some Notable Features of the Rifle Contracts

One of the outstanding features of the modified Enfield rifle, as produced under the cost plus percentage contract, was the marked reduction in cost per rifle. The testimony of Mr. Charles H. Schlacks, General Manager of the Eddystone plant, is to the fact that on November 30, 1917, after the delivery of the first 100,000 rifles on the contract for 475,000 rifles, the average cost per rifle at that plant had been brought down to $25. The cost to the British Government, for the rifles made by the same firm, the Enfield of 1914, an equally difficult model to produce, was $42. As General Crozier told the Congressional committee, had a fixed price contract been made with the rifle makers, they would have cost not less than they cost the British. As it turned out, the government paid about $26 apiece. Thus, at a time when wage costs and material prices were still rising, there was a reduction of 38 per cent per rifle on the cost-plus plan. On the 2,202,426 rifles made by the Eddystone plant that must have been a saving under this form of contract of $37,441,293.[1] That result is a credit to manufacturers and government alike, instead of being a cause for complaint as to the form of contract or the profits to the industry. It is no less a credit to the cost accounting systems which were in force by contractor and Ordnance Office in the effort to control costs.

The rifle record of the government during the war was one of its best achievements. It reveals the noteworthy fact that in a total production of these implements to November 8, 1918, three days before the armistice, of 2,506,307 rifles, the three factories at Eddystone, Ilion and New Haven turned out 2,193,330 and the government arsenals at Rock Island and Springfield only 312,977, showing that seven-eighths of the

[1] *America's Munitions*, 1917–1918, p. 184.

output of infantrymen's service rifles were made under this cost-plus type of award by private concerns.

Comparative Output under Cost-Plus Contracts

That the government was getting the better of the bargain by reason of progressive reduction in costs per rifle is proved by the fact that it refused, sometime during 1918, to accept a proposal from the manufacturers to substitute a fixed compensation per unit in the place of the percentage on cost. This occurred after the making had been gotten well in hand so that under the new conditions the elements of expense could be reasonably anticipated. The government found that it was getting its rifles at a lower cost under cost plus 10 per cent than it could under a cost plus a fixed sum per rifle.

A comparative statistical summary of rifle production is herewith reproduced, from the official report of Benedict Crowell, Director of Munitions, showing output by months during most of the war era[1] by the three private contracting firms and the two arsenals engaged on small arms:

COMPARATIVE STATEMENT OF RIFLE PRODUCTION AUGUST, 1917, TO NOVEMBER 8, 1918

Months	Eddystone	Winchester	Ilion	Springfield	Rock Island	Total
1917						
Before August 1	.....	.....	.....	14,986	1,680	16,666
August 1 to December 31	174,160	102,363	20,364	89,479	22,330	414,696
1918						
January	81,846	39,200	32,453	29,890	7,680	185,069
February	98,345	32,660	39,852	6,910	2,460	180,227
March	68,404	42,200	49,538	120	420	160,682
April	87,508	43,600	36,377	2,631	.....	170,116
May	84,929	41,628	54,477	3,420	550	185,004
June	104,110	34,249	52,995	6,140	619	198,113
July	135,080	35,700	60,413	14,841	2,038	248,072
August	106,595	20,030	65,144	27,020	1,597	220,386
September	101,058	31,550	58,027	29,770	3,813	233,218
October	100,214	33,700	53,563	35,920	3,256	226,653
November	30,659	9,100	16,338	10,500	808	67,405
Total	1,181,908	465,980	545,541	265,627	47,251	2,506,307

The Springfield and Rock Island output were entirely of the Springfield model of 1903, while the private plants at the other three places of manufacture were engaged wholly on the Enfield model. Both of these models were based on the use of the standard .30 caliber ammunition.

[1] *America's Munitions*, 1917–1919, p. 186.

Record of the Eddystone Rifle Plant

Probably no other part of America's munitions production came so near meeting the existing requirements of our Expeditionary Forces as did the manufacture of service rifles. Among all of the humiliating failures this achievement stands out boldly as an exception to the rule of shortcoming in actual hostilities. Not only were the rifles developed and designed in large part by the manufacturers' cooperation with the ordnance specialists of the government; they were delivered ahead of the contract schedule, so that every soldier when he stepped on to the transport to sail for France was handed a musket as his own. In the earlier supplies the arsenals furnished Springfields; the contracting firms did not begin to deliver until midsummer and autumn of 1917. Their contracts with Great Britain ran out in June–July, and their first deliveries of Enfields to our government were as follows: From the Winchester, which had begun on an incompletely developed model, August 18, or 51 days after completing the British contract; from Ilion, October 28, or 99 days after ending the British award; and from Eddystone, September 10, or 102 days from the time the British contract was finished on June 1. By February 2, 1918, these three plants were turning out 7,805 military rifles a day, and for the week ending with that date these plants with the two arsenals produced 50,873 guns. By the middle of June we had reached the million and a half mark, including a quarter of a million contracted for the Russians but not delivered for obvious reasons. Eighty-seven per cent of these were contract rifles, and of all produced in arsenals and private plants combined the Eddystone rifle plant of the Midvale Steel and Ordnance Company had the honor of contributing 47 per cent, or nearly half of all produced, and more than half of the output of the three contracting companies.

The achievements of the Eddystone plant and its working staff deserve more than passing attention. It is something to the credit of its management and directors, its officers and employes, and the government's staff working with them, to

have gone through the war time debauch of strike infested industries and professional wage boosting with practically no labor disturbances and with a payroll of as many as 15,409 employes whose average wage for the war era was not over $25 a week. Of these 3,000 were women. Their presence was made necessary by the inroads of the selective draft which took many of the most skilled men, in spite of efforts to have them exempted. In fact, the chief difficulty was the securing and retaining of employes throughout the entire contract. The shipyards in the vicinity on the Delaware competed mercilessly, offering labor certain housing facilities, absolute exemption from military service, lower passenger fares, higher pay and widely advertised encomiums on the patriotic superiority of shipbuilding over rifle making. In plain English, the Hog Island concern ruled the labor market. By April, 1918, the difficulty of obtaining adequate help was so great that women inspectors and women machine operators had to be employed for the first time in the manufacturing departments. Four months later not even enough women could be secured; the supply of skilled or even semi-skilled machine operators was apparently exhausted. This undersupply of man power when skilled labor was absolutely essential no doubt lowered the production capacity of the entire plant. Even this difficulty could have been overcome but for the accelerated turnover to which the government's ever advancing wage awards were tempting the rank and file of floating labor supply. Only part of the inability of individual concerns to take in unskilled workers and hold them long enough to school them intensively for the performance of skilled jobs was inherent in the conditions; part of the difficulty, and probably the major part, was due to the pernicious policy of bribing misled labor not to strike by progressively increasing their wages to double the ordinary rates while the military arm of government was leading millions to the battle front at a compensation of food and clothing and $30 a month. The self-restraint of the Eddystone staff of workers, drawn mainly as is known from plain American homes in town and country

into what they regarded as a national service, makes one of the most enviable chapters of industrial loyalty in the history of the war era.[1]

Putting National Conscience into Plant Control

Not the least proof of this quality of citizenship was exhibited in the manner in which this plant protected its operations against the presence of enemy alien sympathizers. Its trusted leaders and mechanics were organized into a Vigilance Corps sworn individually to safeguard the work of the company and government. This agency was especially alert against all disaffection tending to defeat the purpose of maintaining a morale devoted to the service of the nation by equipping the men at the front with the best possible rifle in the shortest possible time.

The Eddystone management was among the first to call the attention of Congress and the military authorities to the existence in this country of highly developed facilities for rifle production. Its attitude is shown in the fact that it agreed to deliver in quantities in six months time, leaving the question of the definite terms of the contract to the War Department to settle later. Verbal authority to proceed was given April 20, for instance, the appropriation authorized June 15, the contract signed July 12, and the first lot of rifles delivered September 17. That bettered the contract considerably which called for them on November 12, just 56 days later. In fact, this company, knowing the absolute necessity of gaining time as an industrial factor in military preparation, went ahead to the extent of spending $750,000 of its own funds on government account before it was formally and finally awarded a contract on which it could draw a dollar from the public Treasury. Every one of the approximately 1,400,000 rifles made by the Eddystone plant was produced under the cost plus percentage type of contract. But the government was always represented by one of the country's best equipped small arms specialists and the manufacturers and their workers put a national conscience into the control of costs.

[1] On November 30, 1917, 80 per cent of the 12,000 employes were native born Americans, 11 per cent naturalized citizens and 9 per cent foreigners.

CHAPTER XI

War Contracts Within the Navy

Without inviting invidious comparison between methods and results of contracting in war time between the army and the navy, it is fair to say that the latter arm of service was in much the closer touch with the economic organization of the country at the outbreak of war. It was in its purchase and supply work far better organized to meet the conditions than was the War Department as a whole. Its Bureau of Supplies and Accounts stands out as a clear demonstration of effective contract relations with the business world. Nor is that the only one of the several bureaus whose contracting during the war proved its capacity to produce results without culpable wastefulness.

One might compare the aircraft production in the two respective departments. This division, in the Bureau of Construction and Repairs, not only combined the official experience in aircraft engineering and design with that in the aeronautical and allied industries already established, but utilized the established airplane construction plants far more persistently. Compare this program with the Deeds-Coffin procedure, of estranging recognized aircraft capacity, in the army's airplane fiasco. This is the naval policy:

> The bureau has felt that in the rapid development of aviation all possible methods of improvement should be utilized, and for this reason, in addition to its own development work, private firms have been encouraged to develop designs of their own conception wherever there appeared promise of success. In some cases the types thus built have proved of little or no military value; others have shown great promise. In all of this work there has been close cooperation between the bureau and the private firms.[1]

In its contractual operations the navy's work is chiefly that of ship construction, ordnance production, mechanical engineering and building operations. In all of these it adhered far

[1] Annual Report, Chief of Bureau of Construction and Repairs, 1918, p. 13.

more closely to peace time standards of cost control and forms of contract than had been believed practicable. Of course, its scale of contract commitments had been a good deal smaller than those of the army. Its total appropriations for the fiscal year 1918 were $2,226,000,000 compared with $5,730,883,000 for the War Department. The better record in the control of its contracts was no doubt due in a large measure to its being ready with a cost keeping organization of its own. Of this the Secretary of the Navy, in his annual report of 1918, says:

> The navy's cost accounting system has been enlarged from time to time to handle the increased volume of business.
>
> The protection of the government from wasteful expenditure under the obvious disadvantages of cost-plus has been brought about through the preparation of a standard manufacturing cost-plus contract devised to eliminate improper charges and through a close supervision of the expenditures as made. Cost-plus contracts in some cases were unavoidable because of pressing emergency, but were resorted to only when absolutely necessary and in as few cases as possible. Competition even in the stress of war conditions has been the rule. Cost-plus contracts were emergency exceptions and never resorted to when open competition could be secured.
>
> Eleven million dollars has been saved during the year by establishing control over cost-plus contracts and by examination of costs in connection with fixed price contracts.[1]

In the chapters following herewith some analysis is made of several of the more notable applications of this principle of contractual relation between one of the great departments of government and the business world in time of war.

[1] Annual Report of the Secretary of the Navy, 1918, p. 98.

CHAPTER XII

Navy's Earlier Uses of Cost-Plus Contracts

It is not generally known that the earlier use of the cost-plus type of contract in governmental dealings had been developed in the navy. That was the case some years before the war. It was found that any department, whether in war or peace, which is charged with a vital part of the public defense must be constantly experimenting to incorporate the latest effective elements of progress. But it may be quite out of the question for any department or bureau to specify in advance an exact bill of costs to competing bidders when it comes to experimentation, for instance, in naval gunnery. When experimental problems are the feature of the production required, it has been proved that the cost-plus method of contracting often serves the best interests both of the government and of the manufacturer. This is especially the case with reputable concerns having a well developed cost accounting system.

In its original form, according to those familiar with its initial use, this plan of agreement coincided in a general way with the adoption of scientific cost accounting in manufacturing industries; so that, instead of being the instrument of a wasteful and unduly expensive method of public contracting, this policy of placing awards was the accompaniment of the introduction of more scientific methods of contracting.

A Fiduciary Undertaking in Experimental Fields

It is true that a certain degree of business integrity is assumed in this method of contracting. As between the sheep and the goats of the business world, the selection of honorable firms for the privilege of cooperating with the government in developing a military idea is considered good business in times of peace; then why should it be discouraged in times of war? In the practice of the navy the cost-plus

contract, serving as a pioneering form of agreement, limited the outlay to what was fair and reasonable on the part of the cooperating contractor. It was the navy's duty to safeguard the public interest by seeing that the expenditure was made as the law intended. But to select a contracting firm to whom the experimental results were of far greater interest than the amount of compensation, put the agreement on the basis of a fiduciary undertaking bent upon getting the utmost scientific or technical value out of the experiment. Owing largely to such considerations as these the navy really never abandoned its policy of using this form of contract where the nature of the project called preferably for its use.

In other than experimental fields of manufacturing for the navy the fixed price contract did not always, under war conditons, function satisfactorily. This is clearly instanced in the annual report of the Paymaster General of the navy for 1918. In that admirable exposition of the department's policy, as shown in the methods of purchase by the Bureau of Supplies and Accounts, the preference and practice is shown prevailingly to be in favor of fixed price purchases. But even with the bureau's excellent facilities for price determining, and the prior inquiries of the War Industries Board or the Federal Trade Commission, this agency which bought about 95 per cent of the navy's supplies, still found it advisable, under war time conditions, to resort to the cost-plus method of contracting. It was a necessity of the manufacturing situation, as the following quotation plainly shows:

> The situation as regards wages, costs of materials and financing additional plant capacity, has, of course, been such as to make it necessary for many manufacturers to ask for cost-plus contracts; on the other hand the navy, in order to avoid the necessity of allowing manufacturers a wide margin of contingencies, has found in many cases that its interests required either a cost-plus contract with a continuous and careful inspection of costs thereunder, or special investigations of bids and estimates whereby a fair fixed price contract could be entered into or a fair and final price awarded under navy commandeering orders for manufacture.[1]

Of course, the question of time was vital in all such decisions. These cost-plus awards saved most if not all of that

[1] Annual Report, Paymaster General of the Navy, 1918, p. 91.

loss of time consumed by investigation prior to the signing of the contract. Under its provisions the investigation could be carried on as a procedure parallel to the assemblage of materials, the working up of raw stuffs and its conversion into the product needed for warfare. Checking estimates went on side by side with the manufacturing process. Nor could there be any unfairness to either party to the arrangement, so long as both the contractor and the government had competent cost accounting representatives on the premises. But there was substantial gain in the public interest by the earlier delivery of products needed to wage war.

Pioneering Risks in Novel Production

This war was, furthermore, unique in that it blazed many new trails in its requirements of materials, machinery and munitions. No records were available as to the costs of the very rapidly developing airplanes. Designs, from which large numbers of these craft were made, had become so obsolete within four months that no responsible government would consent to their being used even in ordinary practice. It is always so in a rapidly evolving art or industry—the risks must be borne not by that factor in the industry whose total capital invested and organization would be wiped out by a single experimental failure; but rather by the party to the contract whose resources are adequate to bear the losses of pioneering experimentation. Otherwise the industry would be self-exterminating and progress arrested. Only on this economic basis was it practicable to evolve many of the machine guns. Even so common a product as the service rifle had to be made under the cost-plus contract. The naval viewpoint is fairly presented on this phase of the subject in the Paymaster's Report of 1918, under the head of Cost-Plus Contracts. Rear Admiral McGowan there says:

> When the contractor has no past experience on which to base a price, where the material is complicated and subject to changing plans and specifications or wide fluctuations in raw material cost, a cost-plus contract has been employed. Contracts for novel production, particularly along the lines of airplanes, large calibre guns, and shells for same, steel or wooden ships, and optical glass work, have been

so handled. It has also been found necessary to place such contracts in cases in which the contractor, though deserving of confidence, lacked sufficient capital and plant equipment and in certain engineering or building cases in which a cost-plus contract had been standard since its authorization by section 120 of the act of 3 June, 1916.[1]

Cost-Plus Contract a Wartime Expedient

It has become clear, however, to most men who have had practical experience with public contracting that there are serious handicaps to the public interest in this method of bargaining, under certain conditions. It is, as has been pointed out, an expedient of an emergency character. This applies when it is difficult to get work undertaken on the competitive basis; but when the government is in no position to determine costs or check contractor's estimates it may be easily victimized.

The government had the alternative of doing the work itself at its own expense and control; but in that event it fails to take advantage of the ready made organization of the manufacturer. Urgency of demand is the determinant in war; but the contractor is not sufficiently in control of the elements of production to be held responsible for results. The navy's conclusions are timely and in the main conclusive, because of its cost determining outfit, when it reports as follows on the use of the cost-plus contract:

> So far as the supplies and materials are concerned, such a contract has practically outlived its usefulness. Undoubtedly the chief benefit which has resulted from its use has been to bring the manufacturing public to an appreciation of the government's attitude that the price of the manufactured product should be based upon its cost of production plus no more than a reasonable profit thereover. Fortunately the defects in the cost-plus contract were realized before harm had been done and, as a result, no purchase plan would now be considered which permitted the manufacturer to lose interest in keeping his cost of production as low as possible.[2]

How this principle, of giving the contractor an interest in keeping down the costs, was applied on a large part of the vessels constructed during the war, is shown in the next section.

[1] Annual Report, Paymaster General of the Navy, 1918, pp. 24–25.
[2] *Ibid.*

Cost Plus Fixed Profit in Destroyer Building

Naval construction during most of the war period was restricted rather closely to lighter vessels, including submarine chasers, destroyers, mine sweepers and others. The larger or capital ships were a minor feature of the program in the Bureau of Construction and Repairs. For the fiscal year ending June 30, 1918, a total of 355 submarine chasers was built and commissioned, and repeat orders given for 100 more. Each of the five largest private shipyards in the country was awarded large orders for destroyers,[1] in which the form of contract was the cost plus fixed profit of a definite sum.

An instance of this kind was the contract for twenty destroyers placed with the Newport News Shipbuilding and Dry Dock Company, dated December 29, 1917, as Department No. 899. The cost in this case, which was representative of the other yards as well, was arrived at as follows: The compensation shall be "the actual cost plus a definite sum for profit, based upon the estimated actual cost to the contractor, at its wage schedule in force on October 11, 1917, of $1,500,000." Here was a definite basis of labor value on which to place estimates and bids on a piece of work which was not awarded until 80 days after the basic wage date. Possibly in view of this interval, and also because of the tendency of wage demands to become more excessive as the war progressed, the torpedo boat destroyer contracts, in this and other cases, provided for a wage adjusting on the October 11 basis. If the wage schedule were increased, the stipulation ran, then it was to be added accordingly to the cost. So too, if the estimated cost, which was provisionally basic also, was increased or decreased by changes introduced after the terms of the contract had been settled, then the adjustment was to be measured by the "net cost of any changes in the plans and specifications."

Obviously, the wisdom, under the circumstances, of this system of contracting lay in putting the premium on the de-

[1] Annual Report, Navy Department, Bureau of Construction and Repairs, 1918, p. 11.

crease rather than on the increase in the net cost. This was accomplished by placing the highest total fixed profit derivable at a definite sum, so that there could be no advantage accruing to the contracting shipbuilder from any swelling of costs beyond the estimate. On the other hand, some mode of adjustment had to be devised whereby the contractor could reap some pecuniary advantage from any economy in costs which would bring the outlay below the estimated limit. On these vessels it was provided that if the net cost exceeded the original total of $1,500,000 by the methods prescribed, then the contractor should be paid $135,000 as a fixed sum for profit, and no more. That figured out exactly 9 per cent, on the estimated cost of the destroyer. This rate may be compared with a corresponding compensation of 5 per cent for an expenditure of an equal amount, in the building construction contracts on the cost-plus basis of the Quartermaster General's Office, War Department, of which there had been so much criticism. While it is true that these two jobs are so different as to be otherwise hardly comparable, yet it can not well escape notice that under the terms of the building construction contracts, as developed under similar war time conditions, the fixed profit going to the cantonment or warehouse contractor would be but $82,500 for a total cost ranging from $1,500,000 to $1,650,000; whereas, for a destroyer of that amount of cost the fixed profit was $135,000 or better.

To gain a larger compensation the builders of these destroyers had to attack costs in the other direction. Should the actual costs be found to be less than the estimated amount it was provided that "the contractor shall be allowed as profit in addition to $135,000 on each vessel *one-half* the amount by which such actual cost on each vessel falls short of the estimated cost revised as aforesaid." Similar premiums on reducing costs by as wide a margin as practicable below the estimated amount did not always accrue to the contractor by so large a proportion as one-half. In the same company's contract for building eight oil tank steamers awarded over a year later (October, 1918, or a month before the armistice) a

fixed profit of $220,000 was placed on each vessel estimated as costing $2,200,000, making a 10 per cent profit. The contractor's additional winnings by bringing down the cost were limited to *one-third* of "the amount by which such actual cost of each vessel falls short of the estimated cost revised." In that case the fixed profit on the highest cost basis of 10 per cent of the estimate, plus a premium of one-third of the economies effected, measured the possible profits. The corresponding percentage of the estimated cost in the emergency contract work of the War Department's Building Construction Division, was only 5 per cent, or just half that allowed on the construction cost of the oil tank steamers as awarded by the Bureau of Construction and Repairs of the navy.

CHAPTER XIII

Standard Manufacturing Cost-Plus Contract in the Navy

Both army and navy authorities, we have seen, found it advisable to resort to the use of the cost-plus contract, in meeting extraordinary conditions, in the course of the war. The navy was fortunate in its more highly developed cost determining facilities. Owing to its much more restricted range of building and manufacturing operations it was also in much better position to exercise accounting supervision over contracting operations. By means of its well equipped commodity sections it had in hand most that was needed to keep in touch with market changes, price levels and commercial conditions generally. The navy's experience as a purchasing and contracting party is, therefore, a far better test of the advisability or inadvisability of using this particular form of contract than in the case of the army.

The navy's cardinal principle of cost control is expressed in a single sentence: "The accounting organization has been imbued with the idea that a way must always be found to prevent the waste of the government's money without interfering with the expeditious prosecution of the work."[1] This principle had its chief application in the administration of cost-plus contracts. Of these there were three specific forms in use, and each had a separate administration under the existing organization of the department; but the same general methods of cost control by the Bureau of Supply and Accounts prevailed. Operations under the three separate spheres of manufacturing, of shipbuilding and of repairs were, in spite of the usual objections to this form, on the whole satisfactory.[2]

In the navy's experience in manufacturing during the fiscal year of 1918 the outlay for such products as guns, air-

[1] Paymaster General's Report, 1918, p. 92.
[2] *Ibid.*, pp. 92–93.

planes, forgings and special supplies under this type of contract amounted to $124,000,000; its shipbuilding awards under the same type and supervision of costs were $168,000,000, and its repair contracts $25,000,000. All of this expenditure of $317,000,000 in the three different fields of industry under a uniform system of cost and compensation involved an extensive adjustment of accounting methods to contracting practice so as not to interfere more than necessary with speed of execution.

Preventive and Stimulative Effects on Manufacturers

What the naval authorities did was to adopt the standard manufacturing cost-plus contract and adapt it to their needs. They did this by developing and strengthening its provisions on lines that avoided much of the unfavorable results criticised in practice under other auspices. To begin with, few contracts were made with the percentage profit to the contractor. The lump sum profit was resorted to whereever practicable. This, however, involved no change in fundamentals, because even the lump sum had to be calculated on a percentage of the estimated cost of production. Had the plan stopped there it would have brought little advantage to the government over the straight percentage method of payment. The gain came in supplementing the provision that the contractor should be entitled to receive, in addition to the fixed fee, a certain proportion of the sum by which he succeeded in bringing the actual cost under the estimated cost. That proportion varied from 10 per cent to 50 per cent. It had the effect, as a rule, of infusing into the manufacturer's attitude toward the job an effective interest in keeping down the costs.

Success in the application of this method depended further on two other factors, factors in which the camp construction contracts were not equally equipped. First of all, in the fidelity and intelligence with which the manufacturing concern and its staff cooperated in observing the standards

agreed upon of cost and compensation. The other factor is the extent to which the government itself is equipped to exercise control over costs and inspect the work so as to facilitate the manufacturing process and thus insure prompt payments. The first of these provisions is preventive of waste. The second is stimulative of effectiveness on the part of the manufacturer. To take advantage of the first, more latitude in the selection of the contracting concerns is desirable than can be usually gotten under the competitive method. In the cantonment contracts and in the officers' training camp contracts this advantage was gained to a large degree, possibly larger than in any other phase of the government's work in the war. Business honor, patriotic interest and other motives enter into this first factor. Where the navy's mastery of the inspection and accounting proved to be such as to relieve the contractor from installing and maintaining an excessively expensive accounting organization, the effect was mutually advantageous. Experience has shown that most manufacturers, under this plan of the government's cost-and-profit compensation program, found it "less exacting than that of the systems maintained by the average successful business concern."[1] Many concerns learned much to their advantage by cooperating with the standard navy schedule of cost control.

Cost and Compensation Provisions in Standard Contract

A summary of the main provisions of the standard manufacturing cost-plus agreement will serve to bring out the essential features as it applied to the major part of naval contracting under war conditions. The defining paragraph (first below) is quoted in full, as follows:

> The department will pay the contractors a profit of (percentage of cost of product or stated amount per unit) completed and accepted hereunder and also actual cost of production, defined in subparagraphs (a) to (e) below. No profit will be allowed on costs under subparagraph (e). On such manufacturing work covered by this contract as the contractors may by specific authority of the de-

[1] "Contractors' Criticism of Cost-Plus," Paymaster General's Report, 1918, p. 94.

partment procure on subcontracts, the profit allowed to the contractors will be one-half of the above stated profit if the above stated profit is a percentage on cost; if the above stated profit is a lump sum, the profit allowed to the contractors will be reduced by an amount equal to — per cent of the invoice cost of such subcontract work. Cost shall include:

(a) Cost of all direct labor definitely ascertainable as necessary for and employed exclusively in the manufacture of the articles contracted for hereunder.

(b) Cost of all direct material definitely ascertainable as necessary for and devoted exclusively to the articles contracted for hereunder; but no material shall be charged direct if material for similar purposes is charged as overhead expense to work other than that covered by this contract. The cost of direct material shall be the net cost to the contractor, *i.e.*, invoice cost less cash, trade and quantity discounts, plus duty, etc.

(c) A proper proportion of overhead expenses. By the term "overhead expenses" is meant the indirect labor and other manufacturing expenses and the general and administrative expense of the contractors. It does not include interest, advertising, etc.

(d) The foregoing items of cost shall apply as above specified to all labor, direct or indirect, and material involved, whether the same be actually applied to product accepted or not accepted, provided in the department's judgment the contractor takes due precaution to prevent carelessness and unnecessary damage to material.

(e) Cost of machinery and equipment, patterns and drawings and temporary structures needed for the utilization and protection thereof acquired for and devoted exclusively to navy work; subject to approval in advance. Title shall vest in the department.[1]

There are certain common provisions to all such contract agreements, of which mention should be made in defining the relations and obligations, as well as the compensation. For example, as in the standard agreement, it is specified that—

The contractor will use every endeavor to perform obligations contracted to the satisfaction of the department, shall obtain materials at the lowest possible prices, and never pay higher than for similar materials for use otherwise at the same plant. Nor shall higher rates of pay for labor be allowed, subject to piece work contracting.

Payments shall be made subject to the inspection and acceptance of materials, equipment, etc., on the basis of actual expenditures, and in monthly instalments ten days after submittal of bills to cover the approved cost for the previous month. Special disbursements may be made not oftener than weekly.

So far as practicable, the contractors shall maintain a complete separate system of accounts for government work, and all books and records pertaining to the contract shall be preserved for two years after final settlement. All orders, prices and awards are subject to the approval of the bureau concerned and the Paymaster General, so that purchase orders upon examination may be held subject to a test of the market by competitive or other modes of revision.

[1] Annual Report, Paymaster General of the Navy, 1918, pp. 94–96.

Cost-Plus Contracts in Shipbuilding and Ship Repairs

Leaving manufacturing contracts, for the time being, what was the procedure of the navy in the two other important fields of public contracting? These included shipbuilding, and ship repairs.

In the earlier part of the war the navy was able to make lump sum contracts for many of the craft required for its purposes. But the unsettled condition of the market for labor and materials so radically affected the finances of some of the contracting firms as to make an adjustment necessary in favor of the contractor. Probably the experience of the Lake Torpedo Boat Company was typical. That company had contracts on a fixed basis. "These contracts," says the company's annual report for 1918, "were taken before the war conditions had caused the abnormal increases in labor and material costs which were entirely unexpected and which could not have been foreseen. Appropriations made by Congress for submarine boats were limited as to price and as a consequence this company suffered under the abnormal conditions as did all shipbuilding companies that had fixed price contracts with the government, which directly and indirectly caused increases in the wage scale. On some of these contracts, the government has already made partial adjustments (February 6, 1919) and the company has filed claims covering the various contracts involved."[1]

When the fixed price contracts were completed and deliveries made, it was impossible to induce the shipbuilding firms to enter into that type of contract again. The Lake Company consequently contracted for the next four boats on the cost plus percentage basis and the next lot of eight boats followed on the cost plus a fixed sum basis; but both lots were awarded on the contingent cost and profit plan of compensation. This individual company's experience is representative of the government's policy of beginning with the peace time plan of compensation, being forced to shift sooner or later to the cost plus percentage plan and finally to settle on the

[1] President's Annual Report to Stockholders, Meeting February 6, 1919.

plan of cost plus a fixed profit per ship. The builder is also allowed, under the latter form, a percentage of the sum saved in reducing the actual below the estimated cost, of from 25 to 50 per cent of the differential. Furthermore, in some of the earlier contracts, a 10 per cent profit was adjudged fair. But this soon proving ultra-profitable, was in later contracts reduced to 9 per cent and in some of the latest to as low as 7½ per cent. The policy was not, however, the product of circumstances, but was settled upon after the Compensation Board, composed of representatives of the four main bureaus of the navy, had made a costs inquiry at the beginning of the war.[1]

[1] Paymaster General's Report, 1918, pp. 102–103.

CHAPTER XIV

Navy's Procedure to Forestall Profiteering

How to get away from market conditions made abnormal by war demands was the problem with which all departments of the government struggled, but especially so the army and the navy. The two main factors in the contract situation were (1) the preponderance of quantities demanded as compared with the available supplies. This applied to commodities in general, but particularly to staples in which military needs had to face the factor of speculative control of large quantities. (2) The failure of the ordinary methods of competitive bidding to insure limitations on the tendencies to advance prices to profiteering levels. Where these conditions prevailed they forestalled in many cases the reasonable hope of arriving at a fair and just price by the ordinary methods of governmental bargaining.

The four methods by which the naval authorities, especially the Bureau of Supplies and Accounts, obtained the most of their supplies on contract account, were (a) by competitive bidding, (b) by allocation, (c) by cost-plus contracts, and (d) by commandeering.

The usual competitive procedure was adhered to wherever it could be counted upon to conform to the standard of fair and reasonable prices. Under war conditions this method had its limitations, as was patent in the efforts to obtain raw materials for naval uses.

When competition did not achieve its purpose [says the official account] one of two situations usually obtained: The supply of the material was not sufficient for the nation's demands, or the manufacturers controlling the supply were unwilling to furnish the material at prices which the navy ought to pay. . . . When material had to be obtained under these conditions, it was necessary to resort to plans ranging all the way from mandatory orders to patriotic appeal. For illustration, it was frequently unavoidable that the market on the raw material entering into a finished product would be inflated if competitive bids on the finished product were to be asked in due course. The wider the

competition secured, the greater the demand would appear to be for the raw material. Every concern bidding upon the finished product, in case it did not have control of its raw material at the time, would seek to cover itself upon the raw stock. If the finished product asked for by the navy required 10,000 pounds of raw material and there were twenty bidders, then the apparent demand for the raw material would total 200,000 pounds. In such cases, the volume of the purchase being sufficiently large to inflate the raw material market, it was necessary to meet the situation either by price fixing upon the raw material, or through a purchase by the navy of the raw material.[1]

Price Policy in Naval Contracting

Federal law having defined the duty of competitive contracting in other than emergency times, the navy had systematically followed that method for a series of prewar years. As a consequence it had not only developed a comprehensive body of experience with commercial methods but had also acquired an indispensable acquaintance with the qualities, classes and locations of material through its well organized material sections. On this basis there was little adjustment needed to adapt its contracting machinery to the extraordinary requirements of war. There were, in fact, no essential changes in principle. An almost automatic expansion in personnel of the purchasing staff resulted, of course. Within a year's time it had amplified its needs in this respect fourteenfold to a total of 402 persons. The prewar staff all told included fewer than a score of officers, clerks, stenographers and civilian experts. These had attended to the purchasing of prewar requisites to the annual value of $27,000,000. From that the volume of purchases rose to a maximum of more than $30,000,000 a single day in war time. Of munitions alone the Bureau of Supplies and Accounts purchased more than a half billion dollars worth in the fiscal year ending June 30, 1918.

The price policy of doing so large a volume of business on public account in so creditable a manner is well worth examining. The navy's peace time purchasing policy of open opportunity, established standards of quality and complete publicity to protect large and small alike, had naturally

[1] Annual Report, Paymaster General of the Navy, 1918, p. 20–21.

begotten the confidence of the commercial community. The main reason, therefore, was that it was based on sound and defensible grounds. In adjusting itself to changes in industry under war conditions, it had no occasion to depart from the position of insisting on the principle of paying "a price based on cost and a reasonable profit added thereto."[1] In comparatively few cases, however, it was found necessary to resort to the war time power of compelling performance at a price which the navy had determined to be fair and just.[2] This involved the recognized responsibility of price fixing when those quoted were not deemed just and fair. In this respect the policy ran counter, and wisely so, to that of the Council of National Defense. In the War Department contracts, under the council's guidance, trade organization committees and subcommittees passed upon the prices of the very commodities which they controlled commercially and which they at the same time recommended as fair and just to the contracting officers of the government. In due time, however, the navy's policy, which was rooted in commercially sound prewar practice, won out in the reorganization of the War Department's methods. The method of depending in the hour of emergency on outside aid lost caste. The war establishment had failed in peace times to develop its several bureaus in too many cases, with the exception of the Engineer Corps, among others, on the side of their commercial relations. Consequently, in the contracting crisis which followed the outbreak of war, the army authorities took refuge in methods admitting of profiteering in contrast with the navy, following in the main the policy of competitive bargaining in the open market. In due time this fact came to be recognized in official circles in the army as well. This was the purport of the War Industries Board's acknowledgment, the board which ultimately had most to do with army contracting, that "manufacturers waste their time to attempt to extort unfair prices from the navy, as it seems to keep itself exceptionally

[1] Paymaster General's Report, 1918, p. 3.
[2] *Ibid.*, p. 32.

well informed, and uses, as it should, its mandatory orders and commandeering privileges to secure fair prices."[1]

Within some commercial circles, on the other hand, there was rather less readiness to accept this principle of cost as the prime factor in price determination for governmental contracting. Some essential industries had apparently assumed the attitude that cost accounting was a game at which they alone were entitled to play, instead of an administrative principle of which the government above all others should be master in war times as well as in peace. It seems to have been assumed that when a nation passed into the war status the ordinary principles of both economics and commercial morals were shelved, making of the government an easy mark of the freebooting contractor while pickings were good. Fortunately, this was not long in being overcome by the strong patriotic attitude of commercial circles in the main. A saner and more far sighted attitude was not slow in getting sway throughout the ranks of industrial and mercantile concerns. This was instanced in the response of the Ford Company of Detroit in undertaking to construct the submarine patrol boats known as "Eagles."[2] It should be noted, however, that "in the purchasing of manufactured goods there appeared to be a far greater willingness to base their prices upon cost of production plus a reasonable profit," than among the producers of raw materials. To quote Admiral McGowan's analysis of the bureau's experience:

> The producers of raw materials apparently believed that they were entitled to the market price regardless of the relation of that market price to the cost of production in even the high cost or inefficient concern. They were frequently ready to capitalize the war demands to their benefit. They were often unwilling to consider that there might be a true or normal market value having a relation to the cost of production.[3]

[1] Annual Report, Paymaster General of the Navy, 1918, p. 32.
[2] Navy Department, Report of the Chief of Construction and Repairs, 1918, p. 11.
[3] Paymaster General's Report, 1918, p. 21.

Supply Bureau's Methods of Perpetuating Competition

That many war contracts were the source of enormous profits in mining, manufacturing and merchandising was apparent at every stage of the war. That occurred in spite of efforts at price control through special methods. Probably the traditional viewpoint of the majority of those who adhered to the principle of public exploitation was to get all that the market would stand. Especially when the market was as large as the public treasury, the disposition was too generally to follow the economically short sighted impulse to go to the limit in marking up prices. With such a class of contractors, to assume that patriotism, unenforced by some workable standard of fairness, could be relied upon to temper ordinary greed and avarice to any considerable extent, was to lean on a broken reed. Consequently, to keep prices on a rational basis and safeguard the public interest from unbridled profiteering, special effort was made to keep alive competitive purchasing as long as possible. This had also the effect of restricting the more unusual of contract arrangements to a comparatively limited class and scope of cases and commodities.

Ordinarily, the method of newspaper advertising and circulation of printed schedules was relied upon by the Bureau of Supplies and Accounts to secure wide and open rivalry among bidders. But under changed conditions that plan had to be modified. Two adjustments followed. By one the work of purchasing was divided into local and central, so that the navy yards might buy locally for more immediate supply of commodities which did not enter into the large scale supply program. Thereby the central service at Washington was left free to develop its own organization to meet the special problems of effective bargaining. It did this by adapting its staff to the expanding demands of the volume and variety of the paymaster's purchases.

In emergency bargaining, time is of prime importance. How to expedite bidding thus became a practical problem. To accelerate responses the central purchasing unit at head-

quarters adopted two methods. To get forms into the hands of prospective bidders in the shortest practicable time they were mimeographed on the day on which the bureau received the requisitions. By means of stenciled mailing lists previously prepared this was done with remarkable expeditiousness. The special section created for this work, consisting of stencil cutters, mimeographers, proofreaders, assemblers and six other trained classes of workers, on a single day turned out 74,000 sheets of mimeographed matter. To these rush schedules replies by mail had to be in hand within a comparatively short limit of time. That method reduced the peace time margin between announcement and signing of contracts to a fraction of former lapses. The other method was still more expeditious. By it the more urgent needs were transmitted by telegraph or telephone and acceptances received at headquarters. Thus much of the emergency supplies were contracted for quite as quickly at Washington as if they had been placed locally. And the plan had the added advantage of central information as to market conditions, prices and contracting practicabilities. Competitive control was thereby projected into situations where less persistence might have surrendered the contracting functions of the government to less vigilant bargaining agencies, if not to the tender mercies of the harpies of private avarice.

How well equipped the Paymaster's Office was for this most responsible of business functions, and how closely it cooperated with other price safeguarding facilities of the government are apparent from the following official description of actual procedure in the handling of bids:

When the bids received in the regular openings were first analyzed, the written recommendation of the commodity specialist was made as to whether or not the prices quoted were just. If these prices were not considered just, then the bids were rejected, a navy order issued and the work of determining a just price ensued. All possible means of securing authoritative cost data have been employed. The contractor was requested to submit his own cost figures sworn to and certified; the opinions of the material bureau concerned and of the commodity section of the War Industries Board were noted; a navy accounting officer was ordered to the plant to report on the cost of manufacture; frequently the Federal Trade Commission was requested to investigate and furnish cost data applying to the

industry as a whole. The data regarding cost determination was so arranged as to be available for use as the need recurred and the gathering of cost data was so systematized as to avoid duplication of effort through separate cost investigations by different branches of the government service.[1]

Even where competitive procedure had reached its limits the Paymaster's Office was by no means disposed to allow the government with tied hands to fall victim to the contracting practice of setting "what the traffic would bear." The foregoing description of methods disclosed the fact that there were other methods of preventing the public interest from exploitation under the guise of alleged "prevailing prices." The insistent adherence to the cost-plus-fair-profit standard, supported by well informed cost accounting inquiries put the manufacturing and mercantile concerns in the position of having to make out their own cases and justify their claims of inability to meet the governmental standard. That often had the effect of exposing their inefficiency and ignorance of the costs of their own processes or of bringing into light the wide margin of profits on which they were operating for commercial account. Even the fear of the war excess profits tax was not wholly lost on the contracting mind in this dilemma.

Transition to Allocation of Contracts

Allocation of contracts was at times resorted to when competitive placing of contracts or orders failed to meet the navy's supply demands at reasonable prices. It involved governmental dealings with the trade regarded as a unit of productive capacity. Knowing exactly what the capacity of a given class of mills collectively and individually was for the product in question, and also being informed as to the state of orders both governmental and commercial on hand, the authorities could not easily be misled as to the ability of the manufacturers to handle the governmental requirements. This issue came to a head in the case of the heavy demands for canvas and duck in the fall of 1917. Prices in the market were then

[1] Paymaster General's Report, 1918, pp. 32–33.

at abnormal levels. Manufacturers, busy at orders for commercial account, took the usually offish attitude of being unwilling to bid. Whereupon the navy requested the War Industries Board, then still an adjunct of the council, to supply it with a list of mills from which an adequate quantity of these staples could be expected within a reasonably short time. Then, without hesitation, mandatory orders were issued at "a provisional price at the figure which appeared just on the basis of all available data in the hands of the navy."[1] Not a few of the concerns entrusted with these orders took the position in their replies that the quantity of work demanded could not be done. To check up the allegations of this sort the naval authorities promptly referred these claims to the War Industries Board in whose files the information as to capacity of every factory was a matter of record. That resolved the situation into one of settling the price without delaying production, which price the manufacturers claimed was unreasonably low. Then the navy, calling for a show of hands, requested facts and cost figures, at the same time assuring the mills of a fair profit over manufacturing costs. At this challenge the opposition collapsed and the price was adjusted, not at 40 cents a yard, which the manufacturers wanted, but at 34 cents based on a cost-plus-profit rate of compensation. Later these mills requested that the mandatory order, to which some sense of stigma was thought to belong, be displaced for a voluntary contract at the price imposed by the navy.

Comparative Extent of Allocation and Competition

Allocation of war orders or contracts arises also when an unexpected shortage of supplies becomes imminent at a time when industries concerned are booked too far ahead to meet the emergency in the quantity and at prices offered. To dissolve this apparent deadlock the industry as a whole is taken into council. Its membership is organized into a functioning unit "for a more coordinate handling of war

[1] Paymaster General's Report, 1918, p. 33.

demands." On a better mutual acquaintance with conditions the government's pressing requirements are thus allocated among them on the basis of actual or potential capacity. Such references have numerous advantages besides the main effect of promptly assigning the work to be done. One such "by-product" is the better understanding of the viewpoints by contractor and government. A second is the appreciation of the general welfare as a basic asset in economic opportunity. A third is the discovery of the as yet latent resources of an industry in which individual action in isolated fashion gives place to collective enterprise in the public interest in a national crisis. Allocation has, in not a few cases, if not always, unfolded the secret of something in industry more precious than pecuniary profits.

Purchases under allocation as contrasted with competition have included a smaller number of different commodities. Out of an aggregate of fifty-seven different kinds of commodities bought by the paymaster of the navy in 1918, twenty-two of them were secured by allocation and thirty-five by competitive bidding. These included food products alone. A typical case of allocating a contract occurred in the purchase of canned foods. The Food Purchasing Board, composed of representatives of the navy, the army, the Food Administration and the Federal Trade Commission, in November, 1917, at once found demands in excess of supply and prices abnormally high in the midst of a strong speculative situation. Although the orders distributed among the canning organization were not at competitive prices, they were not based on abnormal market conditions, but on the cost of production, in the finding of which figure the Federal Trade Commission rendered inestimable services to both the navy and the army alike.

CHAPTER XV

Standard Contracts Adjusted to Changed Conditions

In all other bureaus of the navy, especially those of Ordnance, Construction and Repairs, and Yards and Docks, the standard forms of contracts found quite general use during the war. That meant that the fixed price types of peace were adjusted to changed conditions, instead of resorting to the cost-plus form of award. This did not apply to ship construction after the earlier stages of the war. Owing largely to the unsettled conditions of the wage schedules and price levels, the lump sum plan of compensation was found unworkable. We recall that the Lake Torpedo Boat Company, which took contracts at first on the fixed price basis, when these boats were completed found it necessary to change to the cost plus percentage rate for the next four boats and to the cost plus a fixed sum for the next eight. One of the Delaware River companies which took a prewar contract for a battleship, but had not finished until some months after the European War began, lost some millions of dollars on its contract. On the other hand, the Navy Bureau of Yards and Docks, whose contracting was most extensive, had no serious difficulty in getting much of its construction work done on the lump sum basis, under one of its standard peace time contracts adapted to war conditions.

Features of Standard Yards and Docks Contract

How a war time contract is adapted may best be shown by some analysis of the features of the agreement which naval experience has developed in its dealings with the contracting world. Take, for instance, the award for the construction of the submarine base, power house and machine shop at New London. The project had nothing about it out of the ordinary, at least nothing that required departure from the standard

form of agreement with adjustments for labor and other variable elements of expense. In this respect it was favored by the situation among contracting trades. Building of public utility projects, in municipal and maritime engineering and similar lines, happened to be at a standstill. It was easy enough under these circumstances to adhere to the competitive form of award. There were plenty of good concerns glad to get such a job on terms that would enable them to keep their organization intact and come out financially even on government work. This particular navy yard contract at New London is a good example of the standard peace time form on a lump sum basis adapted to war conditions. It illustrates the two elements of retaining the established framework while introducing factors of elasticity to meet changed conditions.

The essential features of this contract as evolved by experience are three in number. The entire documentary mass may be brought into clearer relief by grouping its provisions under the following heads:

(1) The Covenant and Agreement.

(2) Plans and Specifications, including drawings and blueprints, and the General Provisions comprising thirty-one conditions.

(3) Adjustments and Changes, owing to unusual conditions.

The Covenant and Agreement is really a summary of the results of the negotiations as the successful bidder and the government have agreed upon and have put them in writing. Without this written record the contract, as we have already seen, is not valid. This part of the document, under which the precuniary commitments are outlined, specifies the parties to the contract, describes the project in general terms and refers to the specifications and other provisions and conditions by name, number and section or otherwise. It also indicates the schedule or period of delivery within which the work is to be done (150 days); states that the lump sum of $171,000 is the price of the work, that the contract is not transferable and that no member of Congress or officer of the

navy has any beneficial interest in the contract. Finally—and this is where the adjustment of the standard form to war conditions begins—the two special clauses relating to price fluctuation and to the adjustment of wages are embodied as necessary to protect both parties to the agreement against the exigencies of the labor and the material markets. Effective only during the war was another typical provision, namely, that of providing by the contractor at government expense additional watchmen for the protection of the plant and property "against espionage, acts of war and of alien enemies." This was necessitated by the enemy's policy of carrying the war, by sabotage, dynamiting and otherwise, into the workshop of its antagonists. This recurs in practically every war time contract after the earlier stages of the war.

Government Continues to Carry the War Hazards

Both in protecting the building or manufacturing processes against enemy dangers, and in the insurance of the contracting party against losses by fluctuations in prices and wages, the government finds it necessary to assume the risks. The theory, as some have expressed it, is that as war conditions are responsible for the liability to changes in the supply of and command over man power and materials, therefore, it is but fair and just that the war making power, the government, should bear the hazards of the economic undertakings necessary to its military and naval operations. Transportation was one main source of uncertainty in industry, owing to war priorities. As the military establishment expanded from an army of 500,000 to one of 5,000,000 in the course of little more than a year, the demands for materials and means of transport, for manufacturing and administrative talent, expanded concurrently. The increases in wages in part at least had to be assumed by the government. As the government assumed control of raw materials, it could put them at the service of contracting manufacturers at a lower price than the contractor could get them in the open market.

These two conditions affecting war time costs gave rise to two special clauses in the contract under discussion. They ran as follows:

Price Adjustment Clause.—It is agreed and understood that the party of the second part reserves the right to modify the compensation to be paid under this contract in such manner as to obtain a credit, based on the difference between the quotations on construction materials obtained by the party of the first part at the time of the preparation of the proposal for work covered by this contract, and the quotations that may be obtained on such materials by the party of the second part.[1]

Adjustment of Wages Clause.—If, after the date of the contract, there shall be any increase in the rates of wages prevailing in the vicinity of the place where work contemplated by the contract is done that shall necessitate payment by the contractor, on account of labor employed exclusively on such work, of rates of wages in excess of those prevailing in such vicinity at the date of the contract, he shall receive additional compensation in the sum equal to one-half the amount of the increase in the rates of wages so required to be paid by him over the rates prevailing at the date of the contract.[2]

In both of these provisions the government protects itself against the contractor running up excessive increments of cost. In the price adjustment the government may be the source of supply of materials and a controlling factor in the market on which the contractor has to depend. If there be any advantage in this, the government is by these terms entitled to it, in the form of a credit against the lump sum of $171,000. In the wage adjustment the government, again, protects itself by assuming to reimburse the contractor by only half of any advance he may have made, and the contractor has to make his case good to the employing Bureau of Yards and Docks, which is the final arbiter. There is also some advantage to the government in the practice of deferring all such adjustment of wages until the completion of the contract.

Specifications and Provisions in Standard Contracts

War contracts as a field of enterprise and investment have, as a second feature, highly important technical and adminis-

[1] Contract for constructing submarine base at New London, Specification No. 2626, fifth paragraph, under Appropriation No. 287, from copy of contract in Returns Office, Interior Department, Washington. Department No. 1143.

[2] Addendum No. 1, to the General Provisions, Bureau of Yards and Docks, Navy Department, November 3, 1917.

trative aspects. One finds these embodied in the specifications and provisions, both general and special. A study of the navy contract provisions, in yard and dock building, for instance, impresses one with the wide range of market command, of business relations which enter into this branch of business, and with the complexity of duties involved in contract undertakings. These are in a topical way illustrated by the following list of the New London Submarine Base Specifications, Provisions and Instructions forming integral parts of the contract:

1. Specifications No. 2626, including drawings, blueprints, etc.

2. General Provisions, of 31 paragraphs, for public works, March 20, 1917.

3. Special Provisions, paragraphs 2 to 184 inclusive, dated October 3, 1917.

4. Addendum No. 1 to General Provisions, on wage adjustment, etc.

5. Instructions relative to factory inspection of machinery and materials.

6. Standard specifications as mentioned in paragraph 16 of No. 1.

These several contractual documents together comprise several hundred paragraphs, each one of which covers some economic relation of sufficient significance to require special statement. To get the government's viewpoint one must examine the 214 topics given in the General and the Special Provisions which this bureau issues to bidders. In the main these also define the rights and duties of the contractor. It is not within the limits of this inquiry to even enumerate these topics defining the arrangements between government and contractor. But a few may be singled out to give specific content to the discussion. Such, for instance, are the following:

Control of Work.—The government, by its officer in charge, shall at all times exercise full supervision and general direction of all work under the contract so far as it affects the interests of the government, and all questions, disputes or differences as to any part or detail thereof shall be decided by such officer in

charge, subject to appeal, provided that it shall be distinctly understood that the supervision and general direction of all work under the contract by the officer in charge shall not relieve the contractor of responsibility for the full protection of and responsibility for his work, both as regards sufficiency and time of execution.

In most contracts bidders are required to specify in their bids the number of days deemed necessary with their organization to complete the work. Within these limits of time the schedule of progress of work is to be made up "showing approximately the dates on which each part of the work is expected to be begun and finished" (General Provisions, section 15). Closely connected with this program of progress is the vital matter of the cancelation of contract for failure to advance rapidly enough or for other causes. The government holds this contingency in its own hands in all of its dealings with private interests. The theory of the paramountcy of the public interest is well exemplified in the following Provision No. 16, under—

Annulment of Contract.—If at any time the progress of the work shall have been such as to show that the work can not be completed within the time allowed, or should any provision of the contract be violated by the contractor, the Chief of the Bureau of Yards and Docks, may, if in his opinion the interests of the government demand it, declare the contract null and void without prejudice to the right of the government to recover for the default therein or violations thereof. Should the contract be declared null and void, the contractor agrees that the government may hold all material delivered and work done under the contract and all machinery, tools, appliances and accessories upon the site of the work or used in connection therewith pending the completion of the work covered by the contract unless allowed or directed to remove them in whole or in part.

Closely connected with this feature of the contract is the matter of liquidated damages for delay. This takes the form of a deduction from the contract price of a definite sum for each and every calendar day of failure to deliver on schedule time. These damages are taken as the measure of injury to the interests of the government from such delays and of course the liability acts as a deterring influence against tolerating any of the conditions that might retard the progress on the work.

It is evident that in dealing with the navy, as well as with most other divisions of the government, the contractor's

responsibility is of no ordinary character. The provisions of the time limit, of damages for delay and of the possible ouster from the work are not mere verbal specifications. In the standard type of contract the contractor also assumes the risks of the operations of the work, although in the cost-plus plan of award the hazards of compensation are assumed by the government. In the Bureau of Yards and Docks the prevailing rule is thus stated:

> *Contractor's Responsibility.*—The contractor shall be responsible for the entire work contemplated by the contract and every part thereof and for all tools, appliances and property of every description used in connection therewith. All methods of work, tools, appliances and auxiliaries of all descriptions shall be safe and sufficient, and if found by the officer in charge not to be so, shall be made satisfactory by the contractor without delay. The contractor shall specifically and distinctly assume all risks connected with the work, and shall be held liable for all damage or injury to property used or persons employed on or in connection with the work and all damage or injury to any person or property, wherever located, resulting from any action or operation under the contract or in connection with the work.

This provision opens the way to consider the large subject of industrial compensation for injuries to employes—a subject with which the contractor has much to do in the hazardous undertakings peculiar to the field of dock building and shipyard work. This is, however, too large a theme to venture upon here. It is enough to point out that the policy of the government, as here illustrated, is still not to assume these hazards but to place them on the contractor's side of the bargain, to figure them into his items of expense in making his estimates as part of his lump sum bid. It is thus made clear whose business it is to provide for this element of costs.

Changes in Plans and Specifications and Delays

Probably no single feature of the government contract, whether in times of peace or of war, has done more to deter honorable firms from competing than that of the changes in plans and specifications after the award and in the course of the work. The government's attitude on this question is, in the view of many, the result of an exaggerated sense of precaution against getting an obsolete product. The insistence

on changes is certainly among the most vexatious of relations between the two parties to the contract. The real reasons for the practice have never been fully brought out; but whatever may be the explanation for this feature in government contracting as compared with commercial contracting, it is always expensive; probably it is rarely as necessary as is officially considered; and never is it to the liking of the contractor, except in cost plus percentage contracts, if at all. At any rate it is certain that the public loses millions thereby.

The form in which changes have usually been handled depends on the amount involved. They often necessitate the drawing up of a supplementary contract, especially if the amount of cost is above a certain minimum. This may in effect amount to rewriting the contract in the government's terms. In this navy yard contract the subject was covered by the following paragraph in the General Provisions forming part of Specifications No. 2626:

17. Changes.—The government reserves the right to make such changes in the contract, plans and specifications as may be deemed necessary or advisable, and the contractor agrees to proceed with such changes as directed in writing by the Chief of the Bureau of Yards and Docks. The cost of said changes shall be estimated by the officer in charge, and, if less than $500, shall be ascertained by him. If the cost of said changes is $500 or more, as estimated by the officer in charge, the same shall be ascertained by a board of not less than three officers or other representatives of the government. The cost of the changes as ascertained above, when approved by the Chief of the Bureau of Yards and Docks, shall be added to or deducted from the contract price, and the contractor agrees and consents that the contract price thus increased or decreased shall be accepted in full satisfaction for all work done under the contract: *Provided*, That the increased price shall be the estimated actual cost to the contractor at the time of such estimate and that the decreased cost shall be the actual or market value at the time the contract was made, both plus a profit of 10 per cent.

In this particular contract the changes at the New London yard were responsible for the addition of 45 days to the agreed 170 in which the contract was originally to be completed. In point of time consumed that was an extension of nearly one-third. Part of this was due to severe winter weather. In point of cost, the changes added $24,431 to the government's bill or over 14 per cent.

The subject of changes in plans and specifications is more

or less closely related to that of inspection. The rule is that if the removing or tearing out of work, upon inspection, is due to the fault of the contractor, the expense is to be borne by him; if otherwise, then it is the rule to allow the contractor the actual cost of the examination plus 10 per cent, with suitable extension of time. This inspection applies to material as well as to workmanship, and is the government's method of assuring the quality of the work required to meet its needs. It follows the lines of the prime contract back into the subcontracting factory, shop or field in all its ramifications. In time of war when increased numbers of competent inspectors are required for technical service, reliance has been found by the navy in the civilian assistance drawn from the technical professions and industrial life. It was from this reserve that the Ordnance Bureau of the navy drew to expand its inspecting force from 94 officers and civilians in March, 1917, to 1,193 in July, 1918. Of these 500 were enlisted men and 558 civilians. This was done without in any wise impairing the high degree of efficiency for which the navy's Ordnance Bureau has an established reputation.[1]

Naval methods of inspection have been criticized from the standpoint of their effects on the progress of the work. Delays in the contract are classed as avoidable and unavoidable. The avoidable delays are such as delays in securing materials, by rejection of materials on inspection, changes in market conditions or checking drawings, etc. Unavoidable delays are such as are caused by acts of the government, acts of Providence, inevitable accidents, conditions of weather or the tides, interfering strikes of labor, and other causes beyond the control of the contractor. Only for the latter will he be exempt from damages.

It is not always the case that allowances for unavoidable delays such as are caused by the government really cover the losses to the contractor. Inspection is not always so prompt as it should be. Even though the contractor does get 10

[1] Annual Report, Chief of Bureau of Ordnance, to Secretary of Navy, 1918, pp. 4–5.

per cent of the cost borne by the government for inspection delays, that compensation may be only a tithe of the loss from prolonging the government contract which preoccupies the plant and staff until it is out of sight. This is really often the case in ship construction. Delay in inspection means postponement of acceptance or rejection, or modification. It postpones the inauguration of other contracts, by occupying the shipways. Some of the wooden shipbuilders complained bitterly against this kind of treatment on the part of the Emergency Fleet Corporation. In naval work a common complaint is that changes in more or less unimportant matters of detail too often hold back the progress of work. Such a view was entertained no doubt in the following paragraph from the annual report of the Lake Torpedo Boat Company of Bridgeport:[1]

> Another source of delay has been the large number of changes in details of construction ordered from time to time by the Navy Department. These changes have resulted in many cases in tearing down work already completed and rebuilding in another way. The Navy Department has naturally watched developments in connection with war conditions and has desired to keep the submarines under construction up to date in all respects; but while it has paid for the actual work of making the changes, the extra work involved has retarded progress to an appreciable extent.

Thus the only shipyard in the country devoted exclusively to the construction of submarine boats had its productivity materially reduced by delays due to changes in course of construction. Not even the exigencies of war time emergency, when demands for speed were at their highest, was sufficient to exorcise the evil spirit of delays due to changes in plans.

[1] Annual Report to Stockholders, February 6, 1919, Augusta, Maine.

CHAPTER XVI

War Contracts of the United States Shipping Board

Among the major fields of war contracting, the operations of the United States Shipping Board, primarily through its Emergency Fleet Corporation, occupy a position next in importance to the War Department in point of outlay. Appropriations for the military establishment alone of the War Department for the fiscal year ending June 30, 1918, were a total of $5,666,729,650.89.[1] The corresponding appropriation for the navy was $1,684,560,754.60.[2] Compared with these vast amounts is the net available authorization for the building program of the United States Shipping Board's Emergency Fleet Corporation, as of December 31, 1918, a sum of $3,284,337,500.[3] This figure includes not only the amount of $2,769,337,500 authorized for ship construction under these auspices, but also the amount of $515,000,000 to pay for the requisitioned shipping tonnage commandeered by the United States in the private shipbuilding yards of the country. Thus it appears that the Shipping Board's fleet construction contracting called for an outlay of more than twice the size of the entire appropriation for the navy, with which the Shipping Board was more or less closely associated in the prosecution of the war.

Wide Extent of the Board's Contracting Powers

A brief résumé of the statutory position of the Shipping Board will suffice to indicate the wide scope of its contracting authority. The Shipping Act of 1916 established the United

[1] Annual Report, Secretary of War, 1918, p. 115.
[2] Annual Report, Secretary of the Navy, 1918, p. 364.
[3] Sundry Civil Bill, 1920: Hearings, House Committee on Appropriations, 65th Cong., 3d Sess., Part III, United States Shipping Board. Testimony of Charles Piez, Vice President, Emergency Fleet Corporation, on status of building program as of February 4, 1919, compared with that of December 31, 1918, pp. 4, 25. Washington, Government Printing Office.

States Shipping Board for the two main objects of (a) encouraging, developing and creating a naval auxiliary and naval reserve and a merchant marine to meet the requirements of the commerce of the United States with its territories and possessions and with foreign countries; and (b) to regulate carriers by water engaged in the foreign and interstate commerce of the country. This act, approved September 7, 1916,[1] was, therefore, a declaration of plans and policy of the United States in the position of a neutral entering upon the third year of the World War. During that belligerent period it had come to be clear that the United States had virtually been made the shipyard for the warring powers, so far as the Allied nations were concerned.

This situation gradually drew into the service of the Entente nations practically all the available shipping tonnage. That left the United States with a totally inadequate supply of ships with which to serve the markets of neutral peoples now dependent upon this country for import and export service. For want of ships cotton in the earlier part of the war had been sold as low as five cents a pound. The whole nation was besought to come to the relief of the situation in which its most splendid opportunity in foreign trade had been made of little avail for the mere want of merchant ships. Under these conditions the old opposition of the private shipping interests, against the government going into the business of private enterprise, receded to the background. Now, less than ever, it was argued, would private capital go into the task of building a merchant marine. More convincing was the plea that an effective navy might in a crisis even fail of its defensive service if inadequate shipping tonnage under the national flag in the merchant marine were not available as a naval auxiliary. It is, therefore, rather from this point of departure, of the necessity of a naval auxiliary in the present state of the world's dependence on maritime facilities for trade, that the newer policy of the government going into the

[1] 39 U. S. Statutes at Large, 728, 729. Also First Annual Report of Shipping Board, 1917, p. 6.

business of shipbuilding and operating appealed to the popular imagination as well as to the private shipowning purse. We must not, it was argued by growers of agriculture surpluses as by the exporter and importer alike, and by the manufacturer, suffer ourselves to remain in the position of dependence on the tonnage of other nationalities to sell our surpluses, be they agricultural, mineral or industrial. For the first time the growers of grain and cotton saw sea power in a new and significant light.

The manufacturing and mercantile opinion, after two full years of enormous profits in sales to England, France and Russia in the form of lucrative war contracts, was easily convinced that it mattered little whether private or public funds made ships; only so that they were made and put at the service of foreign trade in which fortunes were being made in a single chartering every day in the year. Meanwhile the most unforeseen changes had taken place among the commercial powers of the world. Chief of these changes was that of the United States passing from a debtor to a creditor nation among the financial powers. The opportunity was irresistible. Let the government build ships for immediate needs and leave the matter of maritime policy to be settled later by special commission or by Congress.

The actual purpose of the original Shipping Act was to turn over to a special commission the problem of threshing out the question of policy and to decide on a plan for the "national emergency arising from the insufficiency of maritime tonnage to carry the products of the farms, forests, mines and manufacturing industries of the United States to their consumers abroad and within."[1] During the next six eventful months the members of the Shipping Board had elaborated a program which took the form of the Emergency Fleet Corporation, to which the President delegated his war time powers of the act of June 15, 1917.[2] That act embodied the contractual program of the board. It constituted one

[1] Proclamation by the President, February 5, 1917.
[2] First Annual Report, U. S. Shipping Board, p. 7.

of the most comprehensive schemes of governmental shipbuilding ever undertaken by any nation. So large was it that at its widest expansion its officers had committed the country to construction contracts of 3,116 ships of deadweight tonnage of 16,913,047 tons.[1] That was not far from one-third of the entire tonnage of the maritime nations of the world, according to Lloyd's Register, for the shipping year immediately preceding the war.

Scope of the Emergency Fleet Corporation's Contracting

The connection, as a matter of statutory authority, between the Shipping Act creating the board and the Emergency Shipping Act empowering the President to order ships, is made clear by sections 5 and 11 of the former act. These provisions are as follows:

> That the board, with the approval of the President, is authorized to have constructed and equipped in American shipyards and navy yards or elsewhere, giving preference, other things being equal, to domestic yards, or to purchase, lease, or charter, vessels suitable, as far as the commercial requirements of the marine trade of the United States may permit, for use as naval auxiliaries or army transports, or for other naval or military purposes, and to make necessary repairs on and alterations of such vessels.[2]
>
> *Section II.* That the board, if in its judgment such action is necessary to carry out the purposes of this act, may form under the laws of the District of Columbia one or more corporations for the purchase, construction, equipment, lease, charter, maintenance, and operation of merchant vessels in the commerce of the United States. The total capital stock thereof shall not exceed $50,000,000.

Authority to construct ships under these two sections was broad and general, but it laid the basis for the contractual operations contemplated in the Emergency Shipping Act. That enactment, which became law sixty days after our declaration of war with the German Empire, centered extraordinary powers even for war time in the President. Probably no other board or commission ever had so broad a power of contracting control over any industry as is embodied in the following provisions,[3] authorizing the chief executive—

[1] Second Annual Report, U. S. Shipping Board, 1918, pp. 100–101.
[2] U. S. Shipping Act, sec. 5.
[3] Emergency Shipping Fund Provision in Urgency Deficiencies Appropriations Act, June 15, 1917. (Public, No. 233, 65th Cong.)

Section 1.—(a) To place an order with any person for such ships or material as the necessities of the government to be determined by the President, may require during the period of the war.

(b) To modify, suspend, cancel or requisition any existing or future contracts for the building, production or purchase of ships or material.

(c) To require the owner or occupier of any plant in which ships or materials are built or produced to place at the disposal of the United States the whole or any part of the output of such plant, to deliver such output or part thereof in such quantities and at such times as may be specified in the order.

(d) To acquire, construct, establish or extend any plant, and in pursuance thereof, to purchase, requisition, or otherwise acquire title to or use of land improved or unimproved or interest therein.

(e) To purchase, requisition or take over the titles to or the possession of, for use or operation by the United States, any ship now constructed or in the process of construction.

(f) To take possession of, lease or assume control of, or to extend, improve or increase, or cause to be extended, improved or increased any street railroad, interurban railroad . . . necessary for the transfer and transportation of employes of shipyards or plants engaged in the construction of ships or equipment therefor.

(g) In pursuance of the foregoing powers, or any of them, to make advance payments or loans of such amounts and upon such terms as the President may deem necessary and proper.

Section 2.—Compliance with all orders issued hereunder shall be obligatory on any person to whom such order is given and such order shall take precedence over all other orders and contracts.

Section 3.—Whenever the United States shall cancel, modify, suspend or requisition any contract, make use of, assume, occupy, requisition, acquire or take over any plant or part thereof, or any ship, charter or material, in accordance with the provisions hereof, it shall make just compensation therefor, to be determined by the President; and in case of dissent at the award, to pay 75 per cent of the amount thus provisionally determined, the remainder to be ascertained by judicial procedure.

Section 4.—The President may exercise the power and authority hereby vested in him, and expend the money herein and hereafter appropriated through such agency or agencies as he shall determine from time to time. . . . All ships constructed, purchased or requisitioned under authority herein or heretofore or hereafter acquired by the United States, shall be managed, operated and disposed of as the President may direct.

One step further and the government's shipping program became a full fledged going concern in the field of its specialty. That step was the transfer by the President, as section 4 had empowered him, of his enormous authority to any agency he might designate. By Executive Order of July 11, 1917, he designated the Shipping Board and the Emergency Fleet Corporation to exercise these powers and to put the program

into effect. The same act appropriated (June 15, 1917) not to exceed $250,000,000 for the purchase and requisitioning of "ships now constructed or in the course of construction," acquiring plants, materials, charters, etc.; $150,000,000 for ships turned over to the army and navy; obligating the expenditure of $250,000,000 for new construction, and limiting the authorized construction program to $500,000,000.[1] This was no ordinary contractual program.

Construction Problems of the Fleet Corporation

In the execution of this vast grant of powers the transition from the peace to the war status had a radical effect on the speed in building operations of the Shipping Board. In peace its duties were to promote a merchant marine and regulate shipping. For that purpose it was provided that a separate corporation should be organized both for construction and operation of shipping. This had the advantage of "placing on a comparative equality with private shipping vessels operated under government appropriations," both in commercial practice and with respect to the position of this shipping under international law. The power under the Emergency Fleet Corporation Act to operate ships was thus greatly restricted, but the power to construct ships was "limited only by the measure of the appropriations."[2] The results in construction were such that between the date of organization of the board, January 30, and October 31, 1917, in a period of nine months, during six of which the corporation was in operation, the latter was supervising in 116 shipyards the building of 1,118 vessels and disbursing in this contractual program in excess of a billion dollars a year. Our entering the war had given an emergency character to the need of meeting shipping problems; but it had done more—it had transferred the shipbuilding and operating project from an ordinary administrative machinery of the government into an instrument of newly delegated powers in the hands of the commander-in-

[1] Emergency Shipping Act, secs. 11–12. Approved June 15, 1917.
[2] First Annual Report, U. S. Shipping Board, pp. 6–7.

chief of the war, to whom the Shipping Board and its Emergency Corporation were alone responsible, as the agent of the President.

An analysis of the situation in the American shipping industry at this time discloses the conditions by which the board and the corporation had to be guided. In that period of time between the outbreak of the European War and the entrance of the United States, an interval of two years and seven months, the shipping nations of Europe and Asia had come to this country with urgent orders for tonnage. Ocean freight rates rose to fortune making heights within the first year of the war.[1] Every way in our shipyards was thus not only occupied with valuable orders for the time being, but increased facilities were being installed as fast as possible. Even with this the American shipyards were committed to construction contracts, mainly to British and Norwegian owners, as well as to domestic and Japanese companies, for a period in some cases of two years ahead. As the emergency became more acute and the chance of our becoming involved in war with Germany more probable, the attitude of the government toward private construction for foreign account became more restrictive. For example, tentative negotiations for an order for 100 vessels at an average cost of $1,000,000 each, pending during the time of the Balfour Mission to the United States and practically concluded subject to the approval of the State Department, were disapproved with a rebuke in view of the threatening outlook.

These and other conditions gave to the Fleet Corporation's contracting problem a fourfold character. These lines included:

(1) The building of entirely new yards where more ships might be built.

(2) The construction of wooden ships under contract conditions which would not interfere with the main burden of the program for the production of steel ships. This part of

[1] First Annual Report, U. S. Shipping Board, p. 13.

the problem was supplementary to the steel ship program and not in any sense antagonistic.[1]

(3) To unify and speed up pending contracts in private yards by requisitioning all steel construction of over 2,500 ton deadweight capacity.

(4) To standardize designs and place direct contracts for steel construction as the major part of the corporation's efforts to solve the problem of the national and international shipping emergency.

Of these four concurrent tasks the first and the fourth were of course the more vital. It was estimated that from 6,000,000 to 10,000,000 deadweight tons would be needed to carry troops and supplies to Europe and to make good the drain of the submarine ravages, with any sort of a safe margin. But our best shipbuilding year had yielded only 300,000 tons, in 1916, under the highest possible inducements in the earning power of shipping. Wooden ship construction, by which much more might have been accomplished, if the construction had been confined to localities and firms accustomed to such work, proved disappointing. That was due to divided council, cancelations and a wavering policy generally. Nor could the domestic facilities be relied on for any vast expansion of tonnage, because out of the 142 ways in the steel shipyards when we entered the war, 70 per cent were building craft for the navy. That narrowed down the Fleet Corporation's task to the building of additional ways at existing plants and creating new yards for production on a large enough scale to meet the menace threatening the world.

Tonnage Contracted for to October 31, 1918

Progress made in the awards of contracts for the different types of vessels and the corresponding tonnage at different dates of the war period is shown in the subjoined table compiled from official sources:

[1] Testimony of William Denman, Senate Committee on Commerce, Hearings on Shipping Board, 65th Cong., 2d Sess., Vol. I, pp. 1095–1097.

NUMBER AND TONNAGE OF CONTRACTS PLACED FOR VESSELS OF DIFFERENT TYPES AT DIFFERENT DATES[1]

	August 1, 1917		*October 31, 1917*		*October 31, 1918*	
Types of Vessels	Vessels	Tonnage	Vessels	Tonnage	Vessels	Tonnage
Wood	235	840,900	375	1,330,900	840	2,602,000[a]
Steel	70	587,000	305	2,283,000	493	3,374,616
Composite	58	207,000	58	207,000	32	116,000
Total	363	1,634,900	738	3,820,900	1,365	6,092,616
Requisitioned	...	.....	413	2,937,808	121	1,013,661
Grand total	363	1,634,900	1,151	6,758,708	1,491	7,106,277

[a] As of August 31, 1918.

These totals indicate that within less than four months after declaring war the Fleet Corporation had 363 vessels under contract, whose tonnage was 1,634,900 tons deadweight. The better record of the next three months, of 1,151 vessels under contract with a total of 6,758,908 tons, included 413 vessels requisitioned in private yards, of 2,987,808 tons. That was not far from half of the entire tonnage under contract, at the date of almost seven months from the outbreak of war. A year later, on October 31, 1918, when the construction program was at its highest, there were 1,491 vessels building for the corporation, of 7,106,277 tons. Of these, assuming that requisitioned ships were all of steel, the steel tonnage comprised 60 per cent of the total.

The achievements of the steel shipbuilding task have to be judged by the results up to this latter date of October 31, 1918—eleven days before the armistice which suspended hostilities. A summary of activities in this particular form of construction, grouped by the ten contracting districts, shows the number of vessels delivered, under construction and undelivered at that date. It will serve to give a sort of bird's-eye view of the steel ship situation shortly before the policy of cancelation of contracts was inaugurated by the suspension of hostilities. Such a summary follows herewith, illustrating the wide geographical and industrial scope of the Fleet Corporation's operations in the most expanded stage of its development:

[1] U. S. Shipping Board, First Annual Report, p. 8; Second Annual Report, pp. 137, 141.

CONSTRUCTION ACTIVITIES AND DELIVERIES BY DISTRICTS AS OF OCTOBER 31, 1918[1]

Location of Office	No. of Yards	No. of Ways	Deliveries Under Contract No.	Tonnage	No.	Tonnage	Undelivered No.	Tonnage
Boston, Mass.	4	18	10	112,250	18	137,100	41	369,600
New York City	9	47	13	78,200	85	592,925	270	1,354,580
Baltimore....	5	26	20	164,885	25	216,275	94	733,305
Jacksonville..	3	17	..	.....	11	75,500	50	397,700
New Orleans..	7	36	..	.....	6	46,000	56	355,800
San Francisco.	11	57	42	396,000	61	554,030	179	1,707,300
Seattle.....	9	50	89	736,394	57	481,100	194	1,680,200
Cleveland....	17	97	159	539,470	95	368,300	279	1,116,550
Philadelphia..	8	42	44	325,602	51	417,711	81	700,706
Total.....	73	390	377	2,352,801	409	2,888,460	1,244	8,415,741.

The relative importance of ship contracting in the scope of the Emergency Fleet's expenditures and commitments is apparent from the financial statement of operations as of October 15, 1918. According to this recapitulation the total authorizations made to that date were $3,671,000,000. The corporation, in its plans of expansion of building facilities, its requisitioning of ships and its work of housing and transporting its working forces to and from the yards, had committed itself to the extent of $3,446,679,414, of which $2,681,963,071 was for contract ships. How large a part of this total commitment was in process of production is revealed by the figure of actual expenditures of $1,041,806,923. In other words, the outstanding obligations, compared with the completed work turned over to the corporation, were twice or more in value of the undelivered work contracted for within less than a month of the signing of the armistice.

The purposes for which these items were authorized and obligated and expenditures actually made are summarized in the accompanying table from the second annual report of the Shipping Board:[2]

Purposes	Authorizations	Commitments	Expenditures
Requisitioned ships.....	$515,000,000	$479,487,827	$309,783,686
Contract ships.....	2,804,000,000	2,681,963,071	614,132,638
Plant and property.....	177,000,000	148,495,000	100,258,840
Housing.....	75,000,000	68,006,475	16,353,274
Transportation.....	20,000,000	10,700,791	.....
Dry docks and marine railways	25,000,000	7,202,500	1,278,483
Foreign shipyards.....	55,000,000	50,823,750	.....
Total.....	$3,671,000,000	$2,625,451,000	$1,041,806,923

[1] Second Annual Report, U. S. Shipping Board, p. 138.
[2] Pages 98–99.

Shipping Board Policy Under War Time Conditions

To understand the ship contracting situation in the United States as part of the war program one must take some account of the general military and maritime conditions as they existed during the major part of the calendar year 1917. When that year opened Russia had as good as collapsed, so complete had the imperial debacle become as to practically eliminate the eastern front from the war map of the world. That released a million of Germany's troops to launch against the Allies in the west, whose offensive had failed owing largely to jealousies among those in high command.[1]

March 21, 1918, the German offensive broke with surprising effectiveness, crippling the British man power to such an extent as to impair seriously her capacity as a shipbuilding power at a crisis when seagoing tonnage was as vital as munitions. Less than a year before that the Shipping Board's Emergency Fleet Corporation signed its first contract. Its plan of construction and control were influenced by the course of events and developed with remarkable swiftness. It found, when it began its official existence, January 19, 1917, that by far the greater part of the country's ship constructing capacity in private yards was committed to naval work. The government already had control of facilities under priority contracts for repairs as well as construction. Costs were so rapidly advancing that some of the contracts even then were on the cost plus percentage basis. All the while, during the past two years, the Teutonic submarines had been pursuing their piratical work of destroying merchant shipping at a much faster rate than the Allied and neutral shipyards were able to replace it. This had earlier led foreign shipping interests to place orders with American yards, in which there were over 1,000,000 tons of steel shipping contracts for alien account. These, with the naval program, committed the steel shipyards to a full year's work at the very threshold of the war shipbuilding program.

[1] See London Correspondence in *New York Times*.

Summarizing the situation, with special regard to the submarine menace, the Shipping Board, in its memorandum of May 5, 1917, to the Senate Committee on Commerce, said:

> The rate of destructivity of the submarine has mounted steadily even beyond our calculations. A careful study of all the available sources of information which have come to your board, and which we think exhausts all that is to be known in the United States, clearly indicates that the Germans are destroying shipping in the North Atlantic and Mediterranean at the rate of not less than 13,000,000 tons per annum. The reproductive capacity of the steel yards of all the world under their present rate of reproduction plus all the wooden ships that can be built inside of a year will give us not over 4,500,000 tons of new vessels. . . . Unless the Central Powers be conquered on land, it is apparent from the above facts that Germany may be victorious within the year, provided the above ratio of destruction over reproduction is not changed.
>
> The only resource left to the Shipping Board is the stimulation of production of steel tonnage, and the only method by which this can be brought about is by drastic concentration upon shipbuilding of all the steel producing and constructing agencies within the nation. The first step necessary is the abolition of the slow time commercial ship contracts, and the rushed completion of the vessels now started by double shift employment of the yard labor.[1]

This, in brief, gives the Shipping Board's summary of forecast and policy—that on the ocean the Allies were playing a losing game, and that the hope of the cause which the United States had so lately as a month ago espoused lay in building steel tonnage.

It was part of the board's policy to avoid as far as possible direct entrance into the construction of ships by its own organization. On the other hand, it needed the free play of a corporate agency. Its plan of construction, under the act creating it, centered in a subsidiary corporation, for the general management of which it had, after some delay, secured the services of Gen. George W. Goethals. It was conceived that as shipbuilding involved just such contract negotiations and assemblage of men and materials as had been seen in the Panama Canal project, therefore, the builder of that marvel of engineering accomplishment could equally put through the program of overmatching the German menace. The Allied delegates to the United States had urged the vital necessity

[1] Hearings before the Senate Committee on Commerce, 65th Cong., 2d Sess., Senate Resolution 170: Vol. I, pp. 1110–1111. Shipping Board Emergency Fleet Corporation investigation, 1917–1918.

of concentrating the ship operating under a single governmental agency. For this purpose the Shipping Board asked and obtained commandeering power over all existing shipyard contracts, including not only shipbuilding but also over all industries producing ship machinery and appliances. This extent of control over industries and engagements involved priorities in steel production and all other nonmaritime industries capable of contributing to ship construction. Although the Shipping Board did not go so far as to commandeer contracts of vessels under construction, thereby complicating the building process unduly, it obtained power by executive order of June 7 to requisition all ships under the American flag and on July 11 instructed the Emergency Fleet Corporation to requisition all American vessels under construction. By August 3 this was put into effect, thereby completing the policy of concentration of control over existing contract work under private auspices.[1]

THE FLEET CORPORATION'S MAJOR LINES OF CONTRACT

On November 1, 1918, the Fleet Corporation had ships under contract in 198 yards. These yards had 1,083 ways, of which 939 were for Fleet Corporation work and 144 for the navy. The government's merchant shipbuilding during 1917 and 1918 falls into four separate divisions of operation. All of these came under the activities of the Emergency Fleet Corporation. They are officially designated as follows:

1. The fabricated yards, of which there were four steel and five concrete yards, in addition to the three big fabricated government projects.[2]

2. The investment plants, whose property and construction plant were almost wholly paid for by the government. They were a minor feature.

3. Contract yards, to which the major part of the yards belong.

4. The requisitioned yards, private contracts involving compensation awards.[3]

[1] Shipping Facts, U. S. Shipping Board, p. 2.
[2] Second Annual Report, U. S. Shipping Board, 1918, p. 132.
[3] *Ibid.*, pp. 120–122.

Although this classification is official, it has only provisional value, because the main questions of interest center around the so-called "fabricated" yards and the contract plants. The requisition yards afford a problem of their own, as related to contract policy. As one of the four features of the government's plan to expedite ship construction it should, therefore, receive its share of consideration. From the investment standpoint the government, during this period, found it necessary, in placing contracts for ships, to accompany its awards with allotments of working capital or fixed investment in yard equipment. With regard to the latter portion of its capital it had always to protect itself by some form of agreement as to the ultimate disposition of the immovable improvement. In a total of forty-one different shipbuilding yards it had such investments. Its largest commitment was, of course, in the fabricated plants, and of these Hog Island took the lion's share of invested funds.

CHAPTER XVII

Kinds of Contracts by the Fleet Corporation

Classifications of contractual arrangements by the Emergency Fleet Corporation vary somewhat according to the circumstances. While the policy of the Shipping Board was to steer clear of the criticisable cost plus percentage form as much as possible, if not entirely, it did by no means get far away from the cost basis in its formulation of agreements. It is simply playing with words to say, as was officially stated in the testimony before the Senate Commerce Committee, December 21, 1917, that "we have not made any cost-plus contracts."[1] It was about this time that the term "cost-plus" became as a red rag to a bull in the eyes of Congress and a sensation vending press. Nevertheless, the entire war making organization of the government was at that very moment operating probably three-fourths of its entire contractual commitments on some form of cost-plus contract—a form of contract in which some recognized type of cost determining was made the basis of production of war materials and in which in addition to costs the contractors were being compensated by a percentage of the cost or fixed profit. What it was proper and politic to disclaim was the fact that the initially unavoidable looseness of the emergency work contract of the earliest camp construction period had not been followed by the board in any case. It had acted wisely in avoiding these abuses, temporary though they were, but its biggest commitments, such as that at Hog Island, for 180 ships, at Newark for 150 ships, and at Bristol for 60 more—all fabricating yards under agency contract—were in the form not of percentages but fixed fees based on estimated costs.[2] Let words not mislead us, however. For it does not take any genius to see that in a case in which the government

[1] Hearings on Senate Resolution No. 170, 65th Cong., 2d Sess., Vol. I, p. 21.
[2] *Ibid.*, pp. 267, 757, and 771.

pays all the bills on a vessel whose estimated cost is $1,100,000 and the contractor's fee is $38,500, the compensation is 3.5 per cent on cost, just as much as if it had been a cantonment contract, on a dyed-in-the-wool, cost plus percentage basis. The difference between the two contracts was mainly in the safeguards thrown around the elements of expense mostly by fixing a maximum fee earnable on each ship and in the form of premiums put on holding down expenses without unduly retarding the work.

Four Types in Fleet Corporation Awards

There were four different kinds of contracts under which the unparalleled achievements of the Fleet Corporation did its work of shipbuilding and repairing. These may be classified as follows:

1. Contracts covering the work on requisitioned vessels and the commandeered ships, which had varied forms of compensation for the owners, under conditions existing in private yards.

2. The flat price contract, such as the government usually employed in prewar work and which Gen. George W. Goethals insisted on as the better kind even for war time awards in the shipbuilding field.

3. The cost plus a percentage or a fixed fee on cost. This was usually a graduated fee, of a lump sum amounting to a smaller percentage on the cost as the total costs increased. It contained, as one of its features, a provision that no matter how high the costs might go, the contractor could not get above a fixed maximum out of a given contract, but that if he brought the cost within the estimated cost basis he was entitled to share prorata the winnings with the government and labor.

4. The agency form of contract. This was the form under which the Emergency Fleet Corporation carried out its work of creating the shipyards and constructing ships by the agency service of the three great fabricating yards—the American International Shipbuilding Corporation, at Hog Island, the

Merchant Shipbuilding Corporation, at Bristol, Pennsylvania, and the Submarine Boat Corporation, at Newark, New Jersey. At these government agency plants, ships, says the Shipping Board's report of 1918, "are contracted for at a certain figure estimated to cover the cost of the vessels, and the contractor receives a fee from 3 to 7½ per cent of the estimated cost, with a bonus in case the vessels are built at a cost less than the estimated figure, or in case of delivery before the scheduled date."[1]

General Policy of Ship Contract Compensation

A good statement of the policy followed and the principles adhered to by the Shipping Board, which governed the Fleet Corporation in its contracting arrangements, is given by its chairman in his testimony in the Senate Hearings in December, 1917. There Mr. Edward N. Hurley describes the kinds of contracts in use, as follows:[2]

> We do not have any cost-plus contracts. That is, you build a ship for $1,000,000 and you get 10 per cent on that. We have a provision in that contract—we reduce the percentage. The navy is building some of its ships on a cost-plus basis. Our contracts vary. Mr. Goethals placed a number of contracts at a flat price and some on a percentage basis. Admiral Capps made a number of contracts at a flat price and others on a definite fee basis. . . .
>
> In the early days of the corporation a few contracts were let on the basis of the contractor's receiving the actual cost of the vessel plus a profit of 10 per cent. The next step was to let contracts on a cost plus a fee basis, the contractor to be paid the actual cost of the vessel plus a fixed fee for his services.

Two illustrations may here serve to give concreteness to the otherwise formal statements of fees paid. They show how the corporation, in its contracting provisions, sought to give the contractor an appreciation of the government's policy of profiting by experience. For twelve wood cargo-carrying steamers, which the Grant-Smith-Porter-Guthrie Company of Oregon contracted to deliver, the government's corporation as owner agreed to pay a lump sum fee of $19,000 each. In order that the contracting party should not run over the estimated cost of $285,000 for each vessel, the agreement

[1] Second Annual Report, U. S. Shipping Board, p. 121.
[2] Hearings on Senate Resolution 170, 65th Cong., 2d Sess., Vol. I, p. 29.

was that the Fleet Corporation may withhold from this purchase price for the completed hull "any amount over the actual cost of the work plus $19,000, so that the contractor's profit on each hull shall be limited to $19,000."[1] In the other case, that of the Hog Island contract, it was agreed that the contracting agent's fee on each of the first 50 ships built should average not less than $41,000 for each vessel completed and accepted; but that the agent's fee for the first 150 vessels or less of the same size and type should not be less on the average than $38,500.[2] These arrangements fixed in the contracts the maximum and the minimum fees.

Principle of Payment in Agency Contracts

The principle running through the agency form of contract is set forth officially in the subjoined quotation:

> The contractor to construct the vessels at a plant owned by the owner on a cost plus a sliding fee basis, the fee stated being approximately 5 per cent of the estimated cost of the vessels, with a provision, however, providing for the reduction of the fee in case the cost of the vessel exceeded the estimated cost, the minimum fee being approximately 4 per cent of the estimated cost. The contract also provided for an increased fee in case the actual cost of the vessel was less than the estimated cost. In this connection it is noted that in each case the saving effected was divided in three parts, one part was to go to the corporation, one part to the contractor, and the remainder to be distributed among the workmen.
>
> For some time past the corporation has favored a straight lump sum basis form of contract, in some cases with certain protections against increased material and labor costs. Where the probable cost of work is not known, however, and can not be agreed upon the corporation has entered into a few contracts with reliable yards under a cost plus fixed fee basis, the fee named being about 10 per cent of the estimated cost.[3]

The principle is here recognized that in what has been known as pioneering work in fields of an experimental nature and in production, in which probable costs can not be arrived at, it is safe to contract with reliable firms to get the government's work done by cost plus percentage contracts. As a rule this is the one justifiable field in which this latter type of contract must be resorted to, or the government do

[1] Hearings on Senate Resolution 170, 65th Cong., 2d Sess., Vol. I, p. 704.
[2] *Ibid.*, p. 270.
[3] *Ibid.*, pp. 29–30.

the experimenting on its own account. If, however, the government has no adequate organization or outfit to do similar work, it is manifestly the part of wisdom to find some concern which has, and if the firm is one of honorable standards of dealing with the public interest, it will not only be stricter with itself on public account than it would be on private contract, but would consider it an honor and patriotic privilege to assist the authorities in elaborating their plans of pioneering achievement.

General terms of payment for work in the fabricated yards differed materially from those in lump sum arrangements. The few cost-plus contracts of the two types, comprising only 15 vessels out of 149, may be disregarded for the present. The agency contract payments, for the American International Corporation, which functioned at Hog Island as the responsible contractor, called for a fee of $55,000 for each cargo vessel, and $82,500 for each troop ship, costing respectively $1,100,000 and $1,650,000 on preliminary estimate. This estimate was part of the contract, and was the basis of comparison for the actual cost. Besides the 5 per cent on estimated cost, the fee was increased by a part of the difference between the actual and estimated cost. If the actual cost fell below, the agent got one-third of the saving, the Fleet Corporation another third, and the workmen the remaining third. How well this excellent provision worked out is not as yet made known; but in principle it met with high approval. The fee thus specified might be further enhanced or decreased per vessel, by the premiums or penalties of delivery ahead of or behind the scheduled dates. As much as $14,000 could thus be earned and $17,500 for the troop ships. On the other hand the contractor was liable to be penalized for delays in delivery, from whatever cause. The maximum damages for belated vessel delivery were $14,000 and $17,500 per troop ship. Even with these reductions, which occurred if the actual cost exceeded the estimated cost per ship, the contractor's fee per ship could not go below $41,000 and $65,000, respectively. At these rates

of payment, its earnings as agent were approximately $6,000,000 on the construction of the first 120 ships.

Lump Sum Contracts in 80 Per Cent of Awards

The relative numerical importance of these several classes of contracts as of December 1, 1917, under the grouping followed by the Emergency Fleet Corporation, is made clear by the following summary:[1]

CLASSES OF CONTRACTS

Lump sum contracts made	130	Lump sum contracts	130
Cost-plus contracts	15	Wood hulls and 1 steel barge	45
(a) Fee guaranteed, 9		Complete wood steamers	6
(b) Sliding scale fee, 6		Steamers, wood and steel	4
Agency contracts	4	Complete steel steamers	66
		Other than lump sum contracts	19
Total	149		149

From this summary it is apparent that the lump sum contract is the type in most general use. This form prevails mostly in contracting for steel steamers and for wood hull contracts. In the majority of cases, under this form, the contractor furnishes his own plant. In a comparatively minor proportion of lump sum contracts the contractor receives some advanced payments to assist him in completing his plant. On the whole, the Fleet Corporation's practice has been to adhere to the commercial basis of awards, as 80 per cent of the total awards were lump sum agreements. Of the cost-plus variety the guaranteed fee type includes only nine, consisting of five wood hull contracts and four complete wood vessels; so that these are of comparatively small importance in the larger total of awards. These, according to the testimony of Admiral Bowles, were all early contracts, the date of the latest being July 21, 1917. Of even earlier date are the six sliding scale fee type of contracts, all of which were wooden hulls. Of agency contracts there were only four of prime importance. They were of the colossal scope embraced in the fabricated shipyards from which 390 vessels of 5,000 to 9,000 tons were to be launched, all steel construction.

[1] Hearings on Senate Resolution 170, 65th Cong., 2d Sess., Vol. I, pp. 232–240.

CHAPTER XVIII

Salient Features of Shipbuilding Contracts

Analysis of some of the more salient features of the several different kinds of shipbuilding contracts will help to show how the interests of owner and contractor stand under these several types of agreement.[1] This is done from the following four viewpoints:

(1) Payments, or form of compensation, including terms generally.

(2) Plant, including the ownership, financing, advance payments for extensions, title to real estate, etc.

(3) Subcontracts and control over producing process.

(4) Premiums, damages and other efficiency provisions.

Payments

(a) Lump sum contracts call for a flat price subject to changes due (1) to alterations in plans and specifications; (2) to increase or decrease in cost by variation from basic labor and material costs; (3) to premiums or penalties on delivery schedule or savings on estimated cost basis; (4) insurance.

(b) Guaranteed fee type pays the owner the actual cost and a fixed fee, including cost of plant and extensions, definite costs as in Munitions Manufacturers' Tax Act.[2] Example is a fee of $20,000 on wood hull ships and $40,000 on completed ships. As fee is guaranteed, labor and material costs are not protected.[3]

(c) Sliding scale fee contracts award the owner the actual costs (munitions manufacturers' tax standard)[2] plus a fee varying in size with the difference between the estimated base

[1] Hearings on Senate Resolution 170, Vol. I, pp. 236–240.
[2] Revenue Laws, Public, No. 271, 64th Cong., in Act approved September 8, 1916: Title III, sec. 302.
[3] Hearings on Senate Resolution 170, Vol. I, p. 237.

cost and the actual cost. If the actual cost is less, the fee is enhanced by half the saving; if the actual is more, the fee is cut down by the excess up to the amount of the normal fee, thus wiping out the normal fee entirely, and the owner bearing the excess of actual over estimated cost.

(d) Owners' pay, in agency contracts, (1) cost of vessel; (2) agent's fee, and (3) costs of extensions, housing, etc. Estimated basis cost is subject to (1) wage changes from schedule, also on materials; (2) alteration expenses; (3) changes due to labor conditions and owners' orders, and (4) lower insurance. Cost of vessel includes rent of real estate, but not the salaries of the executives. Estimated base cost does not include cost of plant.

The fee earned by agent is an agreed normal fee, contingent (a) on actual cost equalling estimated cost, and may be increased by one-third of any amount by which actual cost is brought under estimated cost; or be decreased by one-half of excess of actual over estimated cost, by losses arising from agent's neglect, by liquidated damages for delay in delivery of $300 to $500 per day (Contract 83), without reducing average fee below agreed minimum, of $38,500, in Contract 86; (b) by premium of $300 to $500 for advanced delivery, but not to exceed a specified maximum per vessel.

Earlier Advances and Later Precautions

As to the times and frequency of payments, also conditions on which payments on account are made, the Emergency Fleet Corporation naturally followed different methods with different contracts. On the whole, however, the urgency of the work called for some concessions to shipbuilders whose working capital was limited or whose yards had to make extensions to begin the contract. As a rule the payments fell into three classes: (a) first payments, usually as advance payments; (b) progress payments, and (c) final payments. The procedure in lump sum contract work was to make the first of these payments thirty days after the execution of the contract, of about 10 per cent of the total price of all hulls or vessels

awarded. Earlier experience observed few if any restrictions; but later it became advisable to impose conditions on the part of the contractor, of which the following are typical:

(1) The contractor must have made commitments in labor and material costs equal in amount to the first payment.

(2) It was then specified that, as a rule, the first instalment should go into the building of hulls, not into plant construction.

(3) Contracts executed after July 15 frequently contain the requirement that a specified number of ways must be done before first payment is made.

(4) First payments, after July, 1917, were further conditioned on the contractor's ability to show that cash had been paid out for labor and (or) materials used or on hand for use in hulls. And this condition had thereafter to be insured by placing first payments in the hands of trustees transferable to contractors by the corporation's representatives attesting that funds were used only for hull construction, or the contractor had to give surety bond or mortgage on his plant to guarantee proper application of moneys in first payments.

In spite of precautions to guard against financially undependable contracting concerns, there were not a few aspiring organizations which, by hook or crook, succeeded in getting awards for ships. For these, rather than the generally reliable shipbuilding contractors, stringent restrictions on payments were needed. Ambitious localities in some few cases really improvised an organization, with hopeful local backing and maybe political encouragement, "to get some of the big money that Uncle Sam was paying out for ships." A typical abuse of first payments came in the case of some contractors who got some of the earliest contracts. The Fleet Corporation made its first contract on April 27, 1917.[1] Between that date and June 23 there were awarded thirteen contracts for 114 vessels and hulls, mostly to Pacific coast builders. In the terms of payment there was no provision insuring that the contractor had committed himself for labor and materials to the extent

[1] Hearing on Senate Resolution 170, Vol. I, pp. 1314–1316.

of the payments advanced. Lapse of time seemed to be the only condition (thirty or sixty days after signing the contract), plus the provision of submitting a sworn statement of equal "obligations incurred," to abstract hundreds of thousands from the Fleet Corporation treasury on its earliest contracts.

Both Parties at Fault in Sloan Shipyards Case

Possibly the most notable instance of a shipyard's obtaining advances of funds on what seemed inadequate grounds occurred in the dealings of the government with the Sloan Shipyards Corporation of Seattle and Olympia, Washington. Its Contract No. 6 was for the construction of sixteen wooden steamers at $490,000 apiece, and was dated May 18. Thirty days later, on that lump sum contract of $7,840,000, a first payment of 11 per cent or $872,000 was advanced on the say-so of the company's vice president. He had not only submitted the required sworn statement, but was supported by the corporation's auditors, who, after checking up the statements of labor and material obligations, were none the less reluctant to approve the payment on the showing at the yard. But the disposition to yield to the rather loosely drawn terms of the contract prevailed. On no better showing, this contractor got an equal amount on second payment—a "progress" payment; although it was known by the corporation's representatives that the ways of the shipyards were cumbered with unfinished motor boats for private account instead of being cleared for the laying of Fleet Corporation keels. Meanwhile the enterprising abstractor of public funds, with honest enough purpose, alarmed by the profiteering proclivities of would-be subcontractors, was busy organizing subsidiaries to produce the needed materials and machinery, thus neglecting the management of the construction end of the work. It was not until September, three or four months after the contract was signed, and the contractor had drawn out $1,744,000, or 22 per cent of his award, that complaints reached the offices of the Fleet Corporation's law department "that the plant was being badly managed; that Mr. Sloan was a very bad executive

. . . and was handling the situation like a promoter instead of like a shipbuilder." In other words—

> Mr. Sloan was going around promoting small concerns in order to make a saving on the lumber, and some of the other materials, and he was doing that with this money that had been advanced.[1]

> As a result, we had them agree to this provision, that the yard was to be run by people who were appointed by the Sloan Company and approved by us; that all the employes of the Sloan Shipyard Company . . . were to be subject to our approval, and that the scope of their duties was likewise to be subject to our approval; but that Mr. Sloan was to resign from the active management and was to be retained only for such duties as we might ask him to undertake.[2]

This first or advanced payment became notorious from the reproduction of the check in the newspapers of the locality.[3] As late as January 29, 1918, not one of these sixteen ships was in course of construction.[4] The government, without exercising its right to take over contracts if the progress was not satisfactory, did assume supervision. That was deemed the better course under the conditions. In the form of supplementary contract it was provided that all moneys coming to the Sloan Shipyards Company went into a controlled account; that all moneys coming in on unfinished contract work still on the ways (four motor boats) in the same yard be likewise controlled; that the Fleet Corporation supervise overhead expenses, veto unacceptable appointments and define duties of employes, and also secure repayment of moneys advanced for construction of ships, but which had gone into other purposes, by mortgages on the company's three plants, lumber company, etc.[5]

This was one of the Fleet Corporation's earliest experiences in handling advanced payments on a lump sum contract. Not all abuses came from cost-plus contracts. The lawyers of the council's office had cautioned the board against too free advances. Of course, the extenuating circumstances were

[1] Hearing on Senate Resolution 170, Vol. II, p. 1318.
[2] *Ibid.*, p. 1323.
[3] *Ibid.*, p. 1315.
[4] *Ibid.*, p. 1317.
[5] *Ibid.*, pp. 1324–1325.

the rush to get contracts under way. Better bargains might have been made had more time been available. As it was, people in official charge had to act on their best judgment, with all the risks of sacrificing quality of work for quantitative results. The government, in advancing capital, had to have faith in ultimate results rather than emphasize too heavily initial methods or conditions.

Capital advances on the part of the government (owner) to the contractor or agent in the form of plant, machinery, and the like may be more or less arbitrarily classed as fixed; while the advances for the purchase of materials, payrolls and other requisites might be regarded as working capital. In the advances to subcontractors this distinction tends to disappear. How these outlays were arranged under the different kinds of contracts is summarized herewith:

Plant, Financing Extensions and Real Estate

(a) In the earlier lump sum contracts, advanced payments might be used for plant extension or construction of vessels. The contractor had the right of plant repurchase, at end of contract. As arrangements became more standardized, the government allowed only part of advances to go into ways, in some cases requiring an equal amount from the contractor. To secure the government this money is put into a trustee account to be drawn out by countersignature of owner, or a surety bond is required on the contractor's plant. In Contract No. 99, the contractor's fee could be withheld until accruals covered total advances due.[1]

(b) In the guaranteed fee type of cost-plus contract, the advanced payments for plant additions were treated differently: they were spread over the cost of the vessel and so accrued to the owner (government), who imposed a limit for extension outlay and gave the contractor an option for added plant repurchase.

(c) In the sliding scale type, the plant extension costs are likewise absorbed into the cost of the hulls and are borne by

[1] Hearings on Senate Resolution 170, p. 239.

the owner, if the expense is made by him. Extensions made by the contractor belong to him. The owner may give him an option for repurchase, as is usually done.

(d) In agency contracts the land was owned by the contractor, except in Contract No. 86 (Newark), where the city had title. In all of the three big agency contracts the government was the builder of the plant, with special provisions as to options to purchase where ownership in land and plant are different.[1]

Subcontracts and Control in Construction, etc.

In lump sum contracts the approval of government is generally required for subcontracting for materials, machinery and other outside work. In both types of cost-plus contracts the government exercises complete control over all orders, commitments and supplies for ships and plant. Some earlier munitions contracts were subcontracted, however, without regard to the government's regulations, making the prime contractor liable under the common law to the subcontractor. In the agency contract complete control is assumed of agency commitments, with agent's obligation to protect owner's interest.

Premiums and Damages

These two items were discussed under "Payments."

Corporation's Policy Toward Contract Shipyards

The Fleet Corporation had contracts with many private yards. In spite of the favorable attitude of the Fleet Corporation toward these yards with which it had done direct contracting, it is doubtful whether their real value was duly estimated in the national emergency for ocean tonnage. The effectiveness of these contract yards in carrying out the government's plans to expedite construction may be gauged by the fact that in the single year ending August 31, 1918, they had put into service 287 ships of 1,800,000 tons, laid 566 keels and launched 358 ships.[2] The completed ships delivered

[1] Hearings on Senate Resolution 170, p. 240.
[2] Second Annual Report, U. S. Shipping Board, 1918, p. 133.

yielded to the government practically twice the tonnage contracted for under the mammoth Hog Island plant's operations. And the Fleet Corporation in these smaller contract shipyards had under contract on the same date 9,113,880 deadweight tons more. That was almost ten times the quantity of tonnage contracted for to the 50-way Goliath on the lower Delaware. There was more rationality, more business horse-sense in this part of the Shipping Board's policies than in all others put together. The simple reason lay in giving to a special industry contracts for work in which they had simply to repeat achieved results on existing standards—a plain process of repeating orders or duplicating units. It was a case of voluntary duplication of experience by cooperation with the government, without purporting to sell at a high percentage on cost an intangible something called the "know how"; or of dragooning private shipbuilders into service by the gentle art of commandeering, both of which, if not ill advised in policy, were certainly more uneconomic in execution. The board's policy with contract yards is thus stated:

> Our policy has been to assist the builders to construct duplicate ships of those they had built, after selecting the most useful types in all yards building exclusively for the Emergency Fleet Corporation. This has practically resulted in one class of ship being built in each yard, a condition which is obviously conducive to maximum production. New yards have likewise concentrated upon a single type so that upon completion of the first ship a substantial saving is effected in the following ships.[1]

Much of the Shipping Board's most successful work in stimulating steel construction was done through this plan of contracting for work with existing shipyards. They comprised the majority of yards with which the Fleet Corporation had contracts. The actual arrangements between the government and the yards varied, as far as the form or type of contract was concerned. The policy was to meet the yards more than half way, by adapting contracts to their conditions. The board's second annual report thus describes it:

> Contracts have been let to these yards on the lump sum basis, the cost plus fee basis, the cost plus fee and partial saving basis and the per deadweight ton

[1] Second Annual Report, U. S. Shipping Board, 1918, p. 133.

basis. In a number of cases, advanced payments on account of vessels have been made to assist in plant expansion. Repayment as a rule is secured by a bond and mortgage and the Emergency Fleet Corporation is further given the right to retain the amount advanced out of the amount due the contractor on the purchase price of the vessels. Contributions have also been made by the Emergency Fleet Corporation to increase the plant facilities of the contractor in some cases, on condition that the contractor expend a certain stated amount of his own funds for the same purpose.[1]

The policy of the board, to be liberal to the smaller yards, was no doubt justified on emergency grounds. But it led probably to an exaggerated notion in the popular mind as to the profits which shipbuilders were making out of the government. The prices for lump sum contract ships were about $160 on the east coast steel ships and about $168 to $170 on the west coast, according to the testimony of the Fleet Corporation's manager of the contract division.[2] That was in December, 1917, after which the whole contractual price level was disturbed by the heavy excess profits and war taxes, as a sequal to which prices immediately went higher. These and other uncertain conditions in the labor market caused the abandonment of the lump sum contracts in favor of cost-plus forms, in steel ships but not for wooden ships.[3]

[1] Second Annual Report, U. S. Shipping Board, 1918, p. 121.
[2] Hearings on Senate Resolution 170, Vol. I, p. 437.
[3] *Ibid.*, p. 438.

CHAPTER XIX

Compensation in Requisitioned Ship Program

Requisitioned ship settlements stand on a different basis. There the contractual relations between the yards and the owners were not disturbed, but the government took charge in a general way at least of construction and acquired control of the output as completed. The conditions and the nature of the problem as they relate to the contractual position of the government are the first to be considered.

Requisitioning of ships falls under two different heads, of those completed vessels taken over for operating purposes by the Shipping Board and of those which the Emergency Fleet Corporation found in process of construction in American yards and assumed control of for the purpose of expediting their completion.

This situation as of September 1, 1918, stood as follows:

Requisitioned by—	No. of Vessels	D.w. Tons
Shipping Board for operation[1]	408	2,622,550
Emergency Fleet Corporation	219	1,344,232
Total requisitions	627	3,966,782
Total as of December 1	450[2]	2,910,361

The seeming discrepancy between the two totals thus given as official is to be explained by the fact that of the entire tonnage caught in the requisition net, nearly a million tons were of such sizes and kinds as to justify their release back to their owners under the requisitioning order of October 11, 1917. That left a little short of 3,000,000 tons subject to this status of control for construction and operating purposes.

Maritime Policy the Controlling Factor

While it is questionable as to whether the Shipping Board authorities had good and sound reasons for commandeering

[1] Second Annual Report, U. S. Shipping Board, 1918, p. 23.
[2] *Ibid.*, p. 100, B (2), including 35 ships released, canceled and transferred.

the shipping in process of construction, there is little reason to question their wisdom in taking over the operating tonnage of all classes for use on government account. The one all-sufficient reason was the abnormal freight rate situation, making it impossible to operate shipping under the conditions existing on the double basis, of both competitive and official freight charges. Profiteering had had the field for two years or more, with the result of vast disaster to the efforts of exporters to reach their markets. Shipping lines abandoned the less lucrative routes for the more profitable ones. Europe was thus served while sailings were practically suspended between the eastern ports of our own country and the west coast. South and Central America were as good as cut off from our markets, including the regular movements of coffee and wool from Brazil and Argentina. After a careful survey of the factors, including freight soaring ever higher, suspended service and the necessity of keeping value and costs of services in some sort of reasonable relation, a scheme of general requisition was worked out. The purpose was to restore this vital element in national efficiency to a more normal basis, to secure fairer distribution of commercial facilities, and to prevent private profiteering from defeating the war aims of the government. The plan did not contemplate disturbing the operative organizations under private auspices but insured governmental control in disposition of tonnage on public account at compensation to be determined.

The authority for this requisitioning was given under several statutory provisions. In the main, however, the emergency shipping fund section, in the Urgency Deficiency Act of June 15, 1917, conveyed the needed power to the President.[1] On July 11, by executive order, this was delegated to the Shipping Board, which obtained control of operating tonnage and construction tonnage under different requisition orders. For the former, considerable time was consumed in working out the principles that should govern the relations involved in the emergency severance of ownership and control. So

[1] First Annual Report, U. S. Shipping Board, 1917, p. 13.

that it was not until the middle of October that the general order issued three days before went into effect, covering all steel, power-driven cargo vessels of 2,500 deadweight tons and over, and all American passengers ships of like size, that were suitable for ocean service.[1]

Contractual Arrangements for Requisitioned Ships

In this discussion interest centers in the working agreement by which the owners and the government, in the person of the Shipping Board, came to terms. This was drawn along lines of established shipping practice and was submitted to owners, whom it obligated to operate the vessels for the United States; also a requisition charter was sent, in which were defined the duties of government and shipowners, and it fixed the requisition rate to be paid to owners by the government. The Shipping Board reserved the right to cancel the requisitioned agreement at five days' notice. These rates of compensation as fixed gave to the owners a definite and certain amount per deadweight ton per month for cargo vessels and per gross register for passenger ships. The rates varied according to speed for passenger boats and with the form of charter under which a ship operated.[2]

Not all of these questions of compensation could be settled in advance of assuming control. The measure of response to the plan was ample evidence of confidence and cooperation on the part of the American shipowners. By June, 1917, many of the leading companies had already turned over their documents and charters. Various governmental agencies assisted in arriving at an equitable war time agreement. The policy of the board was to charge, in operation of shipping, the requisition rate, which was a sort of tentative or base rate, when that rate was deemed to be advisable for the interests of the government, the Allied governments or the consuming public. Otherwise it "charged higher rates when necessary to prevent excessive profit by private interests."

[1] First Annual Report, U. S. Shipping Board, 1917, p. 14.
[2] Second Annual Report, U. S. Shipping Board, 1918, pp. 34–35.

In operation, two difficulties arose which are specially worthy of note as relating to the agreement with vessel owners. One was the absence of inducement to maintain efficiency in employment of tonnage under an assured return to owners—a difficulty which was in a large part overcome by the Shipping Control Committee of the Shipping Board. That kept closer watch for delays and had the allocation of tonnage. The other difficulty, that of adjusting all the finer questions of compensation on as just a basis as practicable, led to the appointment of the Ocean Advisory Committee on Just Compensation. This committee was an excellent example of the method of enlisting the services of expert judgment at small cost in settlement of disputed questions of contractual awards. Its membership of four included an ex-judge of the Supreme Court of New York, an insurance expert in marine matters and two marine surveyors and engineers. Their duties—to recommend the amount of compensation deemed to be just on vessels to which title had been taken, and likewise to adjust claims on requisitioned vessels lost under risks assumed by government—were discharged in holding hearings and making awards for fifty-nine vessels, involving a sum of $26,152,675, between April 1 and October 17, 1918.[1]

Control of Chartering Nonrequisitioned Ships

A third difficulty should be mentioned, as affecting the compensation for requisitioned ships. Of the original shipping taken under control about a million tons, as has been noted, were released and returned to the owners. Among these there were 475 vessels requisitioned of 968,551 tons, some of a size below the minimum tonnage limit of 2,500 deadweight tons, also including vessels released for operation by owners as not in the requisitioned class.[2] This outside tonnage proved to be an undermining influence when it came to maintaining or controlling charges on freight and travel. That gave owners of government controlled ships, whose

[1] Second Annual Report, U. S. Shipping Board, 1918, p. 89.
[2] *Ibid.*, p. 23, Table I.

returns were limited, an occasion for complaint on grounds of discrimination. To meet this condition, the Shipping Board created the Chartering Committee, with control of all charters of nonrequisitioned ships and of neutral tonnage.[1] Besides having the effect of placing all American controlled shipping on an equal footing as to rates, this obliged neutral shipping to assume its part in the less desirable service lines. The effect on war time charter rates is thus described as of December 1, 1918:

> Prior to the formation of the Chartering Committee, time-charter rates for trading between the United States and South America reached the unprecedented figure of $13.10 per deadweight ton per month. The South American market, so vital to us for its ores, nitrates, copper, etc., had been more or less neglected by the foreign owner for other trades that yielded still greater rewards, and the resultant scarcity of tonnage forced freight rates on merchandise moving between the United States and South America to extreme levels, bringing in its train speculation and manipulation in freight room. Through gradual reductions in charter rates and by employing means available to them, the Chartering Committee succeeded in bringing a readjustment. Today the time-charter rate for neutral vessels trading between the United States and South America is $8.33, a reduction from the former high level of more than 36 per cent.
>
> A sufficient amount of tonnage was diverted to this market, with the result that there has been a constant flow of importation of the much needed commodities from South America.[2]

Effects of Ocean Freight Control on Shipyard Conditions

Although the relation between the control of ocean shipping rates and the construction in private shipyards is not so self-evident, it nevertheless had a substantial bearing on the contract situation. For one thing, it took away that abnormal inducement to the builders to drive work on the ways for the premiums offered by profiteering owners of tonnage. It was this sense on the part of labor in shipyards—that they were being exploited for the advantage of the owners and operators who were wholly uncontrolled—that lay at the bottom of the strike epidemics current in all American shipbuilding districts. The lack of control in freights had put an abnormal inflation of values into the whole construction situa-

[1] Second Annual Report, U. S. Shipping Board, 1918, pp. 68–69.
[2] *Ibid.*, p. 70.

tion, so that nobody who could build ships wanted to do anything for the government where, especially in the case of the navy, a fair and just price was always insisted on after a careful determination of cost conditions.[1] That was also the Goethals policy in the army supply contracts. When this element of riotous boosting of freights was once removed from the sea as a field of investment and enterprise, it imparted a far more manageable set of conditions to the entire shipyard situation. It served also as a forewarning to the shipbuilders that they must reckon with the more drastic handling of the construction resources on the part of the government, as soon as the military and naval necessities in the maritime outlook might call for the total subordination of private to public interests. After the requisitioning of construction under way in the order of August 3, 1917,[2] the order of October 15, taking control of shipping, gave much needed balance to the construction program.[3]

Was Requisitioning of Incomplete Ships Advisable?

The other part of the Shipping Board's requisitioning program, of taking over the tonnage under construction in private yards, is to be considered on a separate basis. The procedure was not by the board direct, but by the Emergency Fleet Corporation, which had charge of all construction under the board's control. By the corporation's order of August 3, 1917, 444 ships were covered by the commandeering, excluding canceled and released ships, of 2,895,848 tons. Of this total, 255 ships of 1,596,831 tons were completed by October 1, 1918, averaging 145,000 a month.[4] The government's object was to expedite construction and to secure unity of control. It has been officially claimed that this was achieved, but the evidence is not wholly convincing. The increased output cited as due to the requisitioning could, as in the case of the New York Shipbuilding Corporation's

[1] Report of Paymaster General of the Navy, 1918, p. 32.
[2] Annual Report of Shipping Board, 1918, p. 116.
[3] *Ibid.*, p. 34.
[4] *Ibid.*, p. 117.

record, quite as well have resulted from other causes. And there is evidence to the contrary, that requisitioning ships in private yards under the conditions tended to hamper rather than to help the tonnage output. The testimony of President Ferguson of Newport News was to the effect that "the work has not been expedited as a result of their taking them over; as a matter of fact, we would have finished the ships quicker had they never touched them."[1]

There is considerable force to this view of the matter when it is recalled that the commandeering was followed by sending out designers to simplify construction and readapt the types to the shipping needs of the war time situation. This could not but upset the working program of yards having requisitioned ships in process of building. It likewise reopened the question of contractual relations.

On this phase of the subject there is much evidence that the Emergency Fleet Corporation in some respects unsettled rather than unified the situation. In a given yard, one of the largest on the Delaware, there were, for instance, on their ways say twelve ships, most of which had been contracted for at prices prevailing prior to the advances of wages and prices and freight rates to war record levels. If, for instance, the greater portion of these vessels were contracted for at $60 a ton, and those later contracted for at $160 a ton, the profits on the later lot had to be made to offset the losses on the earlier contracts. When the government came in with its commandeering order, it delayed or postponed settlement as long as six months in some cases, leaving the builders in a state of uncertainty as to what the terms of compensation were to be.

On the other hand, the corporation's control over supplies of materials, over labor conditions and over the foreign owned tonnage[2] made for better results under a unified program of ship construction. Public interests and private efforts to seize the harvest of great profits had in some way

[1] Hearings on Senate Resolution 170, Vol. I, p. 592.
[2] Annual Report of Shipping Board, 1918, p. 116.

to be brought under a single policy. In the case above cited, the newer yards, which began with high priced contracts, say at $300 a ton in some cases, simply robbed the yards in which contracts were being filled at $60, by paying fantastic advances in wages. Out of this chaos commandeering brought some sort of order by allocating labor, material and equipment.

It can not be said that a commandeering order was necessary for the control of that part of foreign contracts on American shipways placed by British shipping interests. This comprised nearly a million tons and its transfer to the Fleet Corporation for completing was obtained by negotiation between Chairman Denman of the Shipping Board and Mr. Balfour, May, 1917. His offer to return the tonnage to the American flag, to assent to its being taken over by our government at the contracted prices, was accepted.[1] On the part of the Norwegian ships in process of building here there was less willingness. The ocean freight situation was far too enticing to owners of prospective tonnage to be easily bereft of their boats in which, by carrying coal to Italy, for instance, they could get (July, 1917) $40 to $70 a ton, compared with a prewar rate of $6 a ton. It was probably these very conditions, of bleeding the European purchasers of munitions, materials and food supplies, by profiteering prices and freight rates that at bottom justified this commandeering policy.

The requisition of the operating tonnage really required the commandeering of the construction tonnage as a logical sequence in the policy to control the ocean freight situation. That had become wholly demoralizing in its effects prior to the advent of the Shipping Board into that field. As a matter of expediting construction, the prices for finished vessels were so abnormally high as to cause builders to finish their ships at the earliest practicable moment, had they been able to get steel, labor and equipment without government aid. Ships were then worth three or four times what they were

[1] Hearings on Senate Resolution 170, Vol. I, p. 1073.

before the war and charter rates had risen to a thousand per cent over what they were in the earlier half of 1914. The fact was, also, that some of the private shipbuilding concerns were loath to work on government account, because of the higher prices obtainable on commercial account. Midsummer of 1917 saw the turn of the tide when the requisitioning of the ships in shipyards took effect. Of the tonnage there, over 90 per cent consisted of cargo and oil tankers, so largely had the supplying of Europe with materials and manufactures become dependent on this country as to practically preempt American yards.[1]

Reverting to the original order for commandeering the hulls and materials of steel shipping in process of construction, the restatement of the corporation's policy will show how broad a basis was being laid for the command over constructional resources. The report of 1918 thus formulates the comprehensive plan of action, in the execution of which it stopped far short of its great opportunity to organize a broad-gauged shipbuilding policy on the basis of the existing facilities. The commandeering policy, although somewhat objectionable in method and too limited in extent, was sound in principle, as stated herewith:

> The purposes of this commandeering order were to secure to the United States a tonnage which otherwise would have gone very largely into foreign ownership; to expedite construction by simplifying the designs of many of these ships; to prevent interference by these ships with others which the corporation purposed to construct; to acquire control over the American shipbuilding industry, which could not be acquired except by having direct relations with the shipbuilders; and to be in a position at all times to allocate material and equipment between these ships and others. At the time of the commandeering order practically all of the available shipbuilding capacity of the country was taken up either in the building of ships for the navy or in building these commandeered ships. These ships were in various stages of incompleteness, and in some cases only a few materials had been acquired by the builder.[2]

Commandeering as an Emergency Shipyard Policy

Here is where the Shipping Board and its corporation missed one main chance, in not planning for a larger expansion of

[1] Annual Report of Shipping Board, 1918, p. 100
[2] *Ibid.*, p. 116.

capacity in the requisitioned yards. Some of the private yards were practically clear for acceptance of fresh orders. Probably more of them had ships nearing the later stages of completion. There were vast possibilities of doubling or trebling the number of ways in the existing shipbuilding plants, as the situation presented itself in the midsummer of 1917. The government, it would seem, could have thrown its organizing talent, its vast financial resources and its absolute control over facilities, materials and manufacturing industries of all related classes in this direction, of supplementing private yards, with vastly more hope of success in speedy production of tonnage than it obtained by the pursuit of the fabricating shipbuilding program.

Not only, then, was the commandeering of shipbuilding advisable as a matter of self-protection to the government's purposes; it was indeed the open door, the only open door to a constructive program based on the common sense conception, that if you want anything done and done right and quickly, do not go to outside people who bring you a new trick, but go to those who have done work in that line before. In other words, those who have built ships all their lives were the "know-hows" to which logically recourse should have been had. Instead of that, these possibilities of cooperation with government were only partly utilized; the shipbuilding industry in existence was placed almost in a status of arrest, and treated niggardly in the later distribution of orders from the government. The tardiness with which accounts were settled in compensation claims hindered generally the operations of commandeered vessel building.

One of the misconceptions regarding the private shipbuilding situation, between the beginning of the war and the date of commandeering, is the current statement that these plants were indisposed to cooperate with the government on any such a policy as would involve putting their facilities at the service of the government. This is probably in direct opposition to the fact. Shipbuilders were quite as ready to serve their government as any other craft. The government

never seemed to realize that the American ship constructing capacity was a quickly expansible instrument, if properly approached and handled. The unresponsiveness of the government is probably represented in the well known incident of the offer to the government at the outbreak of war of the full facilities of a shipbuilding concern then constructing 40 per cent of the tonnage building in this country. Not so much as an acknowledgement of the offer was received for weeks after, at the hands of the officials of the department to which the tender was made.

Under these circumstances the government approached the tonnage problem with totally inadequate appreciation of the possibilities of the industry as the war found it. The Navy Department was in control of the field to the extent of utilizing 70 per cent of the shipyard capacity. Had the Navy Department, the Shipping Board and the Fleet Corporation joined with the existing shipyards of the country, they could have had little if any possible need of going after newly contrived expedients based on large scale experiments in the quantity production of standardized steel tramp ships. Aside from the moral effect of these vast undertakings, the fabricated yards, by their priorities over materials and labor which the established shipyards might have used, were a hindrance rather than a help in winning the war.

CHAPTER XX

Contractors' Fees in Fabricated Shipbuilding

Of the twelve so-called fabricated shipyards, all were in the east. These were government agency plants erected at public expense to construct and equip standardized types of large steel ships. The materials, machinery and equipments were manufactured elsewhere on orders distributed among as many as 3,500 outside plants in various parts of the country. From these many places of manufacture the requisites of shipbuilding were shipped in to the fabricated yards, where the assembling, erecting and equipping were done under the direction of the Emergency Fleet Corporation, the owner, and the second party to the contract. The other party was the contracting agent, who agreed to construct and operate the fabricating yards at a certain fee, amounting to a given percentage of the cost of ship production. The government was to pay the cost, including labor and materials and overhead.[1] The contractor was selected, supposedly, for his capacity to handle large scale undertakings. The fee awarded was, within definite limits, conditional on the agent's ability to execute the operations within scheduled time, varying with his success in controlling costs and expediting work. His work included the negotiation of contracts with outside firms, the preparation of plans and specifications to be approved by the Fleet Corporation. The agent was to insure the delivery of materials, machinery, etc., to erect shipyard facilities and to construct and fit out vessels to the extent of several hundred, varying in size from 5,000 to 9,000 deadweight tons. The Hog Island contract, for instance, called for delivery of 25 cargo ships within 13½ months after signing

[1] Hearings on Senate Resolution 170, Vol. I, pp. 276–278: Abstract of Hog Island Contract.

of the contract on September 13, 1917; 25 more within 18½ months; 25 of the type known as the troop vessels within 15 months, 25 within 20 months, and 20 within 22 months, making 120 vessels in all.[1] Referring to this contract, the contractor, in the president's report to the stockholders, April 3, 1918, says of the compensation:

> The contract does not provide that the agent shall receive remuneration for the work of designing and constructing the yard. It is to receive a fixed fee for its services in constructing each ship, one-half payable when such ship is half built, the remainder when the ship is completed and accepted by the United States Government. No remuneration whatever except this fixed fee per ship is to be paid to the American International Corporation or to its associates, Messrs. Stone & Webster and the New York Shipbuilding Corporation. For the purpose of carrying out this contract, the American International Corporation formed as its operating unit the American International Shipbuilding Corporation. It engaged the expert services of the New York Shipbuilding Corporation and of Messrs. Stone & Webster and has agreed to pay for those services out of the fee which it expects to receive. The men entirely engaged upon the job, whether taken from the organization of Stone & Webster, or any other organization, enter the government employ at salaries approved by the government officials and become regular employes of the Emergency Fleet Corporation.
>
> The essence of the contract is time. Speed is to be the controlling factor in the work. Practically everything is to be subordinated to this and the contract signed by the government so states.
>
> The importance of speed in construction, which was from the first present in the minds of all concerned, may be seen from the fact that it was represented to us that the commercial value alone of the use of the ships under order, based on the present government chartering rates, amounted to $9,000,000 per month, so that if two months' time could be gained in the construction of the yard and in the building of the ships, this would in itself mean a direct financial saving of $18,000,000 to the government.

This contract has been criticised from two main points of view. On the one hand it has been alleged, without good reason, that the fee method of paying the operating agent corporation, although ostensibly only 5 per cent on the estimated cost of the vessel, was by means of rentals, depreciation, premiums, etc., actually twice that rate, or over 10 per cent plus cost—a rate of compensation which had been condemned as excessive in the case of cantonment construction for the War Department.

[1] May 7, 1918, this contract was extended to include 60 more vessels, making 180 in all. See Second Annual Report of Shipping Board, 1918, p. 131.

Criticism of Agency Compensation System

A simple calculation will show the force of this criticism. The cargo ships in question bore an estimated cost of $1,100,000,[1] 5 per cent of which would give the agent a fee of $55,000 per vessel. On that same vessel, if he brought the actual cost as much as $150,000 under the estimated base cost of $1,100,000 the agent received one-third of this saving; and again if he expedited the delivery so as to complete the vessel ahead of schedule, he earned $300 for each day gained, up to $14,000 as the utmost premium on early delivery. Adding these sums together we get, instead of the simple 5 per cent fee on $1,100,000, or $55,000 on each vessel, $119,000, or 10.8 per cent on the estimated cost. Similar results are derivable on the troop vessels, in which seventy vessels the premiums for early delivery and damages for delay were limited to $17,500 per vessel—a limit not found in the first fifty ships.

It is obviously true that this system of compensation doubled the winnings of the contracting agent, as compared with the normal fee. On the other hand it has to be judged from the viewpoint of its bearing on the government's side of the account. The object of making the fee conditional on the contracting agent's capacity to speed the deliveries made for the advantage of the owner. That, indeed, was the essence of the contract—that all else should be subordinated to speed, and the government was perfectly willing to pay for it. No fault could be found with the premiums on early deliveries or penalties for failure, if proper limits were drawn. The other great weakness of all contract arrangements, other than the lump sum contract, was the tendency to excessive costs. How to make it to the interest of the contractor to keep costs down without losing in speed of construction progress, was really the crux of the whole contract problem. Besides the positive inducement of premiums and participation in savings, to the extent of one-third of the reduction below the esti-

[1] For List of Contracts for Ships, including costs, etc., see Investigation of U. S. Shipping Board Emergency Fleet Corporation, by U. S. Senate Committee on Commerce, 65th Cong., 2d Sess., on Senate Resolution 170, Vol. I, pp. 114–121.

mated basis, there was a negative prevention. This consisted in the penalty of cutting down the normal fee by whatever amount or proportion thereof the actual exceeded the estimated cost, by charging against the agent's fee losses due to the agent's neglect or mismanagement, and by a possible deduction of $14,000 a vessel delayed beyond the date of delivery, at the rate of $300 to $500 a day of delay. These deductions from the normal fee can not go beyond the limit of $41,000 as the fee to be counted on for each of the fifty cargo boats and $65,000 for the troop vessels. The agent's compensation may be greater or less as he reduces or enhances the total cost and as he expedites or delays delivery. If, for example, the agent runs the cost of the cargo ship up to $1,110,000, he loses one-half of $10,000 from his normal fee of $55,000; and if he is ten days late in delivery he loses $3,000 more, bringing his fee for that ship down to $42,000. The limit of such deductions and penalties is $41,000, so that on this supposition he is near his limit. At the limit of $41,000 his rate of fee would be only 3.7 per cent.[1]

Compared with cantonment and camp contracts this ship contract is not far out of the line. Some of the smaller cantonment jobs worked out on the cost plus 10 per cent; but they were the exception, especially after things got started. Some of the larger ones, on the other hand, yielded the cost-plus contractor as low as 2.2 per cent.[2] In this case the unit of comparison is the camp job with the individual vessel, of course. As a matter of fact, the fabricated yard contracts, in the case of Hog Island work, yielded the agents between 3 and 7½ per cent on cost.[3]

Selling Government Its Own Achievements

This rate of fee is considerably lower than that mentioned by the representatives of the American International Shipbuilding Corporation when it first took up the matter with the

[1] See Agent's Fees, Article XX of the Contract.
[2] War Expenditures Hearings, Ser. II, part 2, p. 115. Testimony of Gen. R. C. Marshall.
[3] Second Annual Report, U. S. Shipping Board, December 1, 1918, p. 12.

Fleet Corporation's general manager, General Goethals. Harris G. H. Connick, vice president of the would-be contracting corporation, said, in testimony on this matter later:

We talked this contract over. We discussed the fee—10 per cent—a contract on a 10 per cent basis.

SENATOR NELSON: It did not contemplate that your company was to invest a penny of its own, did it?

MR. CONNICK: Not a cent; we were going to invest our reputation. He (Goethals) was to finance it; he was to provide the money to build that yard; and we were to bring together the organization and develop the scheme and put this thing over.

SENATOR NELSON: But you had the organization already, had you not?

MR. CONNICK: Yes; but that organization was engaged on other work. We had to take it from that other work; we were all working and busy.

SENATOR NELSON: Well, what became of the other job then, when you took all the men away from that?

MR. CONNICK: We did not take all the men away from that. . . . We discussed this contract, and settled upon these points. He (Goethals) said he wanted 200 ships, and he wanted them in eighteen months, and he wanted 7,500-ton ships. . . . We got in touch with Mr. Ferris, who had been cooperating with us; and he prepared the general design of the ship, showing just what it would be like.[1]

It is to be noted that Mr. Ferris referred to here was then the naval architect and consulting engineer drawing a salary under appointment of General Goethals, in the employ of the Emergency Fleet Corporation. His services for the Fleet Corporation, which the would-be contracting agent had also called in, included the passing upon and approval of plans and specifications for approximately 1,000 ships of a total value of nearly $1,000,000,000. So far as naval architecture, in the designing and supervision of construction plans for shipbuilding was concerned, the Fleet Corporation had no need of going to an organization which was in the market to sell its "reputation on a 10 per cent basis." The government had already developed what the Fleet Corporation was preparing to produce; and the would-be contracting concern, instead of bringing, it is alleged, anything worth purchasing to the government, was gathering from the government the very ideas and plans which it sought to sell at 10 per cent on the job's cost.

[1] Hearings on Senate Resolution 170, Vol. II, p. 1960.

Every essential feature which Mr. Connick and his organization represented as desirable for the Fleet Corporation to buy, had either been worked out in the Goethals contracts for the two other fabricating shipyards or was already developed in more or less available form in the Emergency Fleet Corporation's plans if not in the naval auxiliary ship designs of the Navy Department. At the two yards referred to, the Submarine Boat Corporation at Newark had begun on the fabrication of the 5,000-ton type of ships, and the Merchant Shipbuilding Corporation at Bristol had agreed to begin on or had already arranged with General Manager Goethals to build a large number of the 9,000-ton type of ship[1] for which complete plans were in existence. After consultation with these shipbuilding concerns, and drawing on the resources of the Emergency Fleet Corporation for the essential ideas, this contract seeking organization with a "reputation" to sell, appeared to have developed in conference with General Goethals a tentative agreement to supervise the construction of fabricated parts of standardized ships costing $200,000,000, at a fee amounting to between $12,000,000 and $15,000,000.[2]

Hog Island "Know-How"—Square Deal or Gold Brick?

When this provisional agreement between the Fleet Corporation's general manager and the American International Corporation was submitted to the Shipping Board for review and ratification, about the middle of July, the fee seemed to some, especially the president of the board, Mr. Denman, to be unduly large in view of the fact that fully half of the work to be done must be contracted for in plants and places wholly apart from the fabricating plants and finished ready for assembling in the fabricating yards. It was held, therefore, that this outside work for which subcontractors received a fee of 5 per cent on cost, was not at all under the supervising services of the contracting organization. On this point the testimony of Mr. Denman is explicit:

[1] Hearings on Senate Resolution 170, Vol. II, p. 1959.
[2] *Ibid.*, p. 2429.

What made my associates and myself in the Shipping Board hesitate and ask for further figures was this: We could not see, as we talked with Mr. Connick, that we were to get out of this group of corporations anything more than the "know-how," and that phrase was used at that time—of, perhaps half a dozen men; that this enterprise was a completely new creation, in which the government furnished the basic idea of fabrication, all of the capital, paid all the salaries, except for these few supermen that were to be put into a new organization—and furthermore, it was to furnish it commandeering power, so that what even the greatest organizations of capital themselves could not do, this group of five men would be able to do; they could stop the flow of steel to other places and divert it to this place; they could use the government pressure on labor and they were to have every assistance that the government, with all of its war powers, could give them. And that was to be part of the bond that we were to give the Vanderlip group, through Mr. Connick's agency; $12,000,000 for supervising an estimated $125,000,000 worth of work, where the plant is owned by the contractor, and the scheme is furnished by the contractor, and the running capital is furnished by the contractor, is one thing; but that figure, for the job in this case, seemed to us open to question.

Out of this position of the Shipping Board, the unfortunate controversy between the president of that body and the general manager of the Fleet Corporation soon came to a head—over the question of the propriety of the Hog Island contract fee—as to the award for 50 of the steel ships with the option of making it 120 later. It seemed, in the judgment above quoted, that this proposal amounted simply to a scheme to sell to the government its own ideas, plans and specifications, such as it had already planned to embody in two shipbuilding plants under operation. It was so unusual a procedure in its terms and assumptions as to entitle it to be questioned before giving it to the country as a consummation of the government's foresight or insight or bargaining capacity. The attitude of the president of the Shipping Board was thus expressed:

They were to supervise the building of the plant. But as to that you will find —and I will later insert in the record a letter that I have from General Goethals— that entire plan had been worked out before the contract had been entered into. We had already designed the ships ourselves, through our own employes.

The letter above referred to was dated July 13, 1917, just two months before the Hog Island contract was signed between the Fleet Corporation and the American International Corporation. In it General Goethals had stated that within the next three days he would award two fabricated steel shipbuilding contracts (Bristol and Newark) for 400 ships with an

aggregate tonnage of 2,500,000 tons, to be completed within eighteen to twenty-four months, the contracting companies to get 6 per cent of the total cost of the work. The plants were to be government owned, the government was to have the benefit of fixed commodity prices at the government schedule and the designs of the ships, the plans of the yards and the distribution of the work of furnishing materials and the fabricated parts had been arranged by the various contracting agencies at the service of the Emergency Fleet Corporation—without Mr. Connick's aggregation of "know-hows."

Speed was the dominating consideration, controlling every relation. The next in order was the avoidance of unnecessary wastefulness. The contractor, in the Hog Island project, gave ample proof in the course of this herculean task of his purpose to subordinate his own profits in order to make the project a success. Of course, having been assured of a minimum fee as compensation, he was in position to concentrate his efforts on executing the program on schedule time. On the first fifty ships contracted for, it may be doubted if he came out even. The last of them was delivered on October 6, 1919, although due March 28, 1919. He, however, soon exercised his option (October 23, 1917) of contracting for 70 more, and later (May 7, 1918) added 60 additional, making 180 ships to be built at Hog Island by this one contract.[1] His fees were agreed upon as follows:

SHIPS, COSTS AND FEES PAID HOG ISLAND CONTRACTORS AS REPORTED BY MR. PIEZ, DECEMBER 19, 1918[2]

Number and Class of Ships	Total Estimated Cost to Government	Normal Fee to Contractor	Minimum Fee to Contractor
50 ships—class A.....	$65,000,000	$2,750,000	$2,050,000
70 ships—class B	115,500,000	5,775,000	4,550,000
Total.....	$170,500,000	$8,525,000	$6,600,000
60 additional ships[3].....	85,000,000	3,150,000	2,310,000
Grand total.....	$256,000,000	$11,675,000	$8,910,000

[1] The cancelation of the 70 ships contracted for October 23, 1917, all troop and cargo ships combined, was announced in November, 1919.

[2] Hearings on Senate Resolution 170, December 19, 1918, Vol. IV, pp. 21–22: Testimony of Charles Piez.

[3] Dates of contracts: 50 ships, September 13, 1917; 70 ships, October 23, 1917; 60 ships, May 7, 1918.

Although these fees range between 3.5 and 4.5 per cent, in the aggregate, they created the impression in popular thought of being gained under conditions that did not give the government a square deal. This probably came from the few instances of inordinate salaries paid to people commercially known to be incapable of earning any such money. Correspondence of Congressmen with constituents indicated widespread belief in padding of salary and cost sheet rolls. Wastefulness and overloaded payrolls, prior to Rear Admiral Bowles's report, no doubt helped to swell fees as well as costs.

Comparative Fees at Three Fabricating Yards

Failure on the part of the largest of the fabricating agencies to command the confidence of the country, whether in its methods, its good faith in negotiating and interpreting its contract or in its results, does not necessarily call into question the fabricating principle as carried out elsewhere. At the other large fabricating plants—the Submarine Boat Corporation at Newark or the Merchant Shipbuilding Corporation at Bristol—there was at least the nucleus of a shipbuilding organization. That was not the case at Hog Island. At the Newark plant an established yard had been building submarine chasers with substantial success before entering into the contract for the addition of a completed yard of twenty-eight ways at an outlay of $17,000,000, with a fee of about 6 per cent on the ship's costs, not including any fee on the yard. There was a staff of shipbuilders with which the government was dealing. They were masters, not amateurs, in their art. They sold to the government a demonstrated service, not a theory or an experiment. They laid their first keel ninety-three days after the date of the contract. At the Merchant Company's yard there was a designing and engineering staff identified with the plant, which was also in position to assume a contract as a going shipbuilding company out of its organization. It was really the first of the three to bring completed fabricated ship plans to the Fleet Corporation. It organized its own shop capacity to fabricate about 15 per cent of the material within the yard. It had

the established connections for handling within the trade, as if by an annex to its own Chester Shipbuilding Company, the work of the forty 9,000-ton ships on the twelve ways which, with yards and shops, were to cost $12,000,000. Both of these shipbuilding concerns took their contracts as an extension of an existing organization within the trade. Consequently they did the work without overpaid publicity agents misleading the public or attempting to convince the public that it would ultimately get good money out of a construction engineering adventure into the shipbuilding trade and industry. It must be admitted that later achievements helped to confirm this view.

These three principal fabricating plants received substantially the same fee for their work. They each had a different job—a different ship to build of the same type, known in the contracts as the standard type complete vessel: cost-profit sharing. Their fees compare as follows for the first lot in each case of the given tonnage:

COMPARISON OF FEES FOR THREE BIG FABRICATING PLANTS AT HOG ISLAND, BRISTOL AND NEWARK YARDS[1]

	Hog Island	Bristol	Newark
Number of ships and tonnage	50—7,500	40—9,000	50—5,000
Basic cost per ship	$1,050,000	$1,305,408	$750,000
Normal fee per ship	$52,500	$64,000	$37,500
Minimum fee per ship	$38,500	$50,000	$26,000
Limit of premium or damage per ship	$14,000	$14,000	$11,500
Per cent on normal cost	5	4.90	5
Per cent fee of minimum cost	3.66	3.85	3.47

These earlier contracts for 140 vessels were all made before the middle of September, 1917. All of the companies had options to increase the number of ships at the same or reduced prices. At Hog Island 130 more were contracted for, making the full quota 180; at Bristol, 50 more, making their quota 90; and at Newark 100 more, making their total 150. Usually, a revised basic cost was made the basis for the fee for the additional vessels taken beyond the original contract, thus presumably lowering the fee as the builders became more familiar with the work.

[1] Copies of these three contracts are reprinted in Hearings on Senate Resolution 170, Vol. I, pp. 260–279; 747–777, with other contracts.

CHAPTER XXI

Extent of Subcontracting in Fabricated Ships

At the fabricating yards the principle inaugurated was to have nothing done there which could be done outside. That division of labor required the main part of the preparation of parts to be arranged for elsewhere than at the yards. To what extent this was done is shown by the statements of Assistant General Manager F. T. Bowles regarding the distribution of subcontracts or outside purchases. This covers the cost of ship construction at Hog Island up to January 1, 1919, giving the total costs and the percentage of the total which had been subcontracted or bought from outside sources. The items of cost are also given, to exhibit the several sources of expenditure in the general plan of itemized costs:

SUMMARY OF COST AND SUBCONTRACTS—180 SHIPS[1]

Items of Cost	Total Amount	Percentage Subcontracts
Fabricated steel	$72,592,000	20.2
Miscellaneous steel fittings	4,850,000	1.4
Boilers	19,305,000	5.4
Turbines	27,568,000	7.7
Auxiliary machinery	17,212,000	4.8
General equipment	39,302,000	10.9
Stores	10,168,000	2.8
Total	$190,997,000	53.2

It thus appears that slightly more than the half (53.2 per cent) of the entire cost of building the fabricated ships at this plant was expended in subcontracts and other outside outlays. It follows that almost half of the total cost was taken up with the assembling of the constitutent parts at the fabricating yards, the installation of the machinery, fixtures and finishing involved in the completion of these 180 ships. Roughly apportioned, the inside cost of work was virtually as large as that contracted on the outside. In fact, for the

[1] Hearings on Senate Resolution 170, Vol. V, p. 87, Exhibit C (January 2, 1919).

fifty A-ships, the first lot contracted for to the American International Corporation, the total cost of $41,000,000 had only 49.4 per cent incurred on the outside, the yard outlay exceeding the external expense. This was probably due to the fact, among other causes, that in the building of this initial lot the contracting agent found the construction of ways interfering somewhat with the assemblage and erection of the ships. At any rate on the next sixty A-ships of the same type the subcontracting outside ran up to 54.8 per cent of the total cost, or over 5 per cent higher, with the yard costs correspondingly lowered. These latter ships cost $54,000,000. The only other ships planned to be built at Hog Island on the contract in question were the seventy B-ships, known as troop vessels. Their total estimated cost was $96,000,000, of which 54.2 per cent was contracted for on the outside.[1] This contract was canceled in part later.

Subcontracting on Plant Construction

The proportion of half and half does not hold, however, when one gets to the part of subcontractors in the plant construction. Here the ways cost $65,000,000 or more, according as different dates are given. Much more work had, of course, to be done on the spot than in vessel construction. The sixty-seven subcontractors who worked on plant construction did work which cost the Fleet Corporation $12,685,983; so that less than 20 per cent of this yard work was sublet.[2] For that they received a total fee of $408,344 and were paid in rentals for equipment, machinery and tools used $176,914, a fee rate of 3.2 per cent.

The president of the American International Shipbuilding Company, which actually did the work at Hog Island for the agent-contractor, testified thus:

> We made up in consultation with the contractors, an estimate of the cost of the work that they were going to do, and also a list of the equipment that would be required, and that they would bring onto the job. Then the contract was made on an agency basis with them, and they were paid a fixed amount of money as

[1] Hearings on Senate Resolution 170, Vol. V, p. 87.
[2] *Ibid.*, p. 88, Exhibit E.

rental for the equipment and as compensation to them for doing the work, whether that work as actually performed exceeds the estimate or comes under the estimate; they have an incentive to get the work done quickly and promptly—and speed was what we were trying to get all along the line—from the fact that they got no more money from the use of their equipment for six months than they would get for the use of it for two months.[1]

Much of this yard work was among the most difficult to forecast in the effort to estimate costs, and was consequently sublet on the fee basis. By far the larger part of the sublet outlay on yard work was paid for in fees. The actual amount of fee subcontracts was estimated at $7,836,466 out of total subletting of $12,685,983, or 61.7 per cent of the work done on the fee compensation. Practically half of the total number of contractors worked on this basis. The other less general methods of compensation were, in the order of frequency, by rentals, by unit cost or by a combination of these three varieties.[2] All of these fees were based on estimated cost.

Agent Fails to Keep Cost Records

Some mention should be made of the general principle of subcontracting practice, as it was applied to yard building at Hog Island. It is the practice to subcontract a varying proportion of almost all large scale engineering work to concerns which do special work in particular parts of the required undertaking. The Shipbuilding Corporation was authorized and agreed to do this, and subcontracted, among other parts of the yard construction, that of pile driving. On this the agent got no fee, and the fee of 5 per cent to the subcontractor was the only one paid.[3] Any responsible agent would, however, have regarded the interests of the owner more scrupulously than the Shipbuilding Corporation did those of the Fleet Corporation, in the ordinary duty of keeping track of costs. Possibly because the agent got no fee for the outlay of yard work it took the unwarranted position on this matter

[1] Testimony of D. P. Robinson, before Senate Committee on Commerce, March 8, 1918. Hog Island Investigation, Hearings on Senate Resolution 170, Vol. II, p. 2013.

[2] Testimony of Charles Piez, Vice President and General Manager, *Ibid.*, Vol. V, p. 112.

[3] Testimony of George O. Muhlfeld, *Ibid.*, Vol. II, p. 2297.

to which the Attorney General of the United States refers in his report on Hog Island conditions as to cost control. This report says:

> Another fact of strong significance is that while the contract provided in express terms that the agent should keep a detailed plant cost account and contained very careful provisions defining cost, yet the agent at an early date took the position that since the government paid for everything that went into Hog Island it was unnecessary to comply with this provision. Hence, at no stage of the work since last December could it be determined what any unit of plant construction cost. Thus, it was never possible for the agent, and the agent never attempted to supervise either its own work or the work of its subcontractors, from the point of view of what the work was costing.[1]

The fact is that, especially as to the yard construction at Hog Island, costs as estimated were so soon distanced by the excessive actual outlay as to make the estimates the merest guesses. The original guess for the yard construction cost of $21,191,096, to which sum the Fleet Corporation limited the cost, was later not only doubled but trebled and more. But part of this was due to changes in plans from the original, for which the owner rather than the agent was responsible. Under the circumstances it is not to be wondered at that the contractual responsibility played at loose ends with costs and control of subcontracting outlay. The attitude of the men on the job seemed to be that, as the government paid the bills, costs were not a factor in the effort to get results.

[1] Hearings on Senate Resolution 170, Vol. V, p. 114.

CHAPTER XXII

Profiteering versus Patriotism in Hog Island Project

The Hog Island project, in its contractual aspects, started out with a heavy load of prejudice against it. It gave to the public, whether rightly or wrongly, the impression that it was conceived in the purpose of the profiteer and developed in a riot of wastefulness. The Denman-Goethals dispute, a perfectly natural issue between a lawyer and an engineer accustomed to have complete control, helped to concentrate interest and inquiry almost exclusively upon this one of the twelve fabricating plants. There is something heroic in the fortitude of the responsible contractors in facing all the resulting criticism, investigation and popular reproach, biding the time until they could make good. To a large extent, however, the interests representing the contractor's side of the bargain were responsible for all that befell them. However public spirited they may have been as individuals, their official attitude spelled profiteering purpose to the public, which had long since made up its mind that the thing that the government paid for to this contracting interest was not worth the price.

Public Distrust of Big Business Methods

In the first place, the negotiations with the government were not open and frank. Mr. Connick, of the agent corporation, in his persistent failure to submit to the Shipping Board the essential basis of the contract—the estimated cost of the ships for which he had been negotiating with General Goethals —utterly forfeited the confidence of the Shipping Board of which the Emergency Fleet Corporation was the subsidiary.[1] This vital datum of cost was retained in the hands of the contractors to be, without a copy either in the possession of the Fleet Corporation's office or of the Shipping Board, at the

[1] Hearings on Senate Resolution 170, Vol. I, p. 1113.

time when the Hog Island contract first came before the board for approval. Indeed no amount of request by wire or by telephone succeeded in getting out of the hands of the one party to the contract the accepted schedule of costs on which the fees were to be calculated. Under these circumstances it is not at all surprising that the contractors, with whom General Goethals had negotiated tentatively the Hog Island contract, failed to command the confidence of the Shipping Board. As a result, the shipbuilding program lost practically two months of the most valuable time, in the midst of the gloomiest outlook during our participation in the war, in the inauguration of its fabricated projects at the three main yards. By the resignations of the head of the Fleet Corporation and the president of the Shipping Board, these contracts were thrown forward into September for final signature. By that time, however, the Shipping Board and the head of the Fleet Corporation, Admiral Capps, had taken time to examine the terms, and a much fairer contract had resulted, especially as to terms of compensation.[1]

The view that big business had overreached itself, not for the first time in war contracting, was probably best voiced in the attitude of the Shipping Board's former president, whose duty it was to sign contracts representing the United States. In his testimony before the Senate Committee on Commerce, April 5, 1918, his position is thus defined and emphasized:

> The question of profiteering at Hog Island was the only one between General Goethals and myself when we handed in our resignations. I felt that, in a great transaction like this work, where the government itself, and its power, was the main reliance for the success of the enterprise, anything that looked like a profiteering payment to the great people on top who could well have given us for nothing the services of these five or six men, would be simply an invitation to every laboring man, from the lowest unskilled laborer up, to demand a wage on a similar basis; and that instead of getting us more ships and faster ships, this kind of overloading of profit at the top would impede the progress of the work, by starting strikes and labor disputes up and down the scale of labor organization. . . .
>
> It is greatly to the credit of the gentlemen who have succeeded us that a very much lower and fairer figure was fixed on for the acquisition of this skill that these men had to give.[2]

[1] Hearings on Senate Resolution 170, Vol. II, p. 2021.
[2] *Ibid.*, p. 2432.

Navy's Fair Price Policy a Bargaining Factor

The real credit for this reduction in contract fees, from one of 10 per cent of costs to one of 5 per cent or less, was partly due to the current criticism as reflected in Congress. There was much current discussion adverse to cost-plus contracts, especially of the percentage type. But it was also due to the infusion of the navy's fair price policy into ship awards, by the advent of Admiral Capps as General Goethals' successor in the Fleet Corporation. In the negotiations which were later resumed, the president of the American International Shipbuilding Corporation, the agent, and the operative company at Hog Island, says:

> We had this contract pretty well worked out when the difficulties arose in the Shipping Board, and things were laid aside until we got into it again with Admiral Capps. . . . We told him about where we had reached. He gave us his ideas about the contract; what he thought the duties of people in our position were to the government, with which we agreed. We told him that we would like to have his ideas of what he thought compensation ought to be here. He gave them to us and we accepted them, provided we could work out the proper form of contract, which we did, and I consider that it was very well worked out from the standpoint of the government's interest.[1]

The Hog Island contract was finally signed September 13, 1917. Nothing was done prior to that date, except plan out the designs and specifications provisionally for the yards, on which later the contractors did $65,000,000 worth of work without getting any fee whatever. They sublet the fifty ways to five different subcontractors, in groups of ten each. The operating concern, the American International Shipbuilding Corporation, had the business of subcontracting largely in its own hands, even though the Fleet Corporation maintained an official there whose more or less formal approval was necessary to make the subcontracts effective. Not a single contract of this kind submitted to the Fleet Corporation's official for approval was ever rejected, although a number of them were returned with objections stated and explanations asked. The practice was for the shipbuilding contractor

[1] Hearings on Senate Resolution 170, Vol. II, p. 2021. Testimony of Dwight P. Robinson.

to ask for bids from subcontractors, at least three in each case, thus preserving competitive conditions in selection of subcontractors.[1] These subcontracting firms were paid a fee of 5 per cent on the costs estimated. The task was one of enormous proportions and responsibility. Practically all of these contracts had to be made by the agent contractor under the Fleet Corporation's nominal supervision but without any close checking of prices and terms.

[1] Hearings on Senate Resolution 170, Vol. II, pp. 1572–1573.

CHAPTER XXIII

Policy and Practice in Wooden Shipbuilding Contracts

From the viewpoint of the Shipping Board, wooden shipbuilding was from the very beginning of the program regarded as a desirable supplementary source of tonnage. On that matter there was little if any doubt after the United States got into the conflict. Within about three weeks after it was organized the board, finding that the steel shipbuilding yards were in no condition to construct for government account anything but an inconsiderable tonnage for some months to come, on existing facilities at their disposal, came to this conclusion regarding wood tonnage:

> Apparently the only available resource of the country for the further construcion of tonnage was wood, and as many wooden ships driven by steam power and constructed from unseasoned timber were in successful use on the Pacific coast, it concluded to engage in an enterprise of stimulating the construction of wooden cargo carriers as a supplement to the output of the steel yards.[1]

The investigations on which this decision was based were made by F. A. Eustis and F. Huntington Clark, who went thoroughly into the questions of the availability of equipment and engines and its bearing on the problem of similar supplies for steel shipping. The board's proposals were then formulated, the wooden shipbuilders of all coasts canvassed, and the conclusions submitted to the President. They were in turn referred to the Council of National Defense, from both of which in due time official approval was received.

Some of the earliest contracts let were for wooden ships, mainly of the Ferris type of construction. In fact, the board inaugurated wooden construction at first more largely than steel tonnage, for the reason already indicated. Within the first 22 contracts awarded 36 ships were of wood, 32 of both wood and steel (composite) and 28 of steel, making 96 in all,

[1] Letter of Shipping Board to Senate Committee on Commerce, May 5, 1917.

within the first two months of contracting. By the beginning of 1918 over 400 wooden ships had been awarded, with 60 more pending. The standard was that of 3,500 to 4,000 tons, Ferris type, although as many as ten different types figured in the board's awards on any considerable scale. These were mainly lump sum contracts. The contract prices for the Ferris type wooden steamers ranged, during most of this period, from $140 to $160 per deadweight ton.[1] In point of geographical distribution of contracts this branch of the industry was the most widely extended branch of the shipbuilding program. It included a large number of ports on every coast, including the Lakes. Up to December 1, 1918, contracts had been let for 1,034 ships of 3,024,000 tons involving commitments of $503,129,582, including 34 concrete ships.

Elements of Reaction and Delay on Contracts

From this apparently normal policy toward wooden shipbuilding, as a part of the means of meeting the maritime emergency, there resulted some reaction about the time of the Goethals-Denman resignations. These two officials had apparently been in entire accord on the advisability of pushing wooden construction wherever it could be done without prejudice to the major interest of reliance on steel tonnage. Although the wooden ship plan was generally attributed to President Denman, who knew the capabilities of the Pacific coast on this matter, General Goethals had actually brought to the point of executed contracts or ready for signing as much as 1,218,000 tons of such ships prior to the date of his resignation.[2] Possibly the report of those who made the survey as to the engine supply for the wooden ships, that they could furnish within the next eighteen months enough engines for a wooden ship production of between 2,500,000 and 3,000,000 tons, awoke jealousies.[3]

[1] Hearings on Senate Resolution 170, Vol. I, p. 1837.
[2] *Ibid.*, p. 1100.
[3] *Ibid.*, p. 1098.

Between the end of July and the beginning of January following, adverse attitudes on the part of the Fleet Corporation toward wooden shipbuilding became rumored. Airplane spruce production on the west coast asserted a prior claim on the industry. The effect was a suspension of activities already under way and of a most promising character for tonnage production. The report that the Anacortes yard on the Puget Sound might be closed down, with several ships well advanced toward completion, had a damaging effect all along the west coast. The reason for the temporary suspension of letting these contracts, in January, 1918, was alleged to be the difficulty in getting out the timber needed for beginning construction. That applied to the yards unequally. Some of the eastern yards had taken contracts without being sure of their supply; some southern yards found the lumber contractors of that section unable to get out timbers as fast as was anticipated; and others whose experience was nil should never have been awarded any ship contracts of any kind. The time to take account of the situation had arrived, and contracting was thus and then suspended after pending negotiations were cleared. But this was only temporary.

Policy of Conservative Control Prevails

The lack of progress in cases where contracts were actually awarded may have led to a suggestion of cancelation; but these were only incidental to the fundamental difficulty of reenlisting wooden shipbuilders, lumbermen and others in the Emergency Fleet Corporation's program if it once allowed the suspension of work where builders and accessory industries had made commitments on its promises. The Fleet Corporation, having heard from the commercial interests of the country on this subject, thought enough of the exigency to issue a statement of policy regarding wooden shipbuilding. It feared that the concentration of the country's demands on the Pacific coast for lumber might interfere with the other war contract industries depending on lumber, if more wooden ship contracts were awarded. Hence an embargo on ship-

ments from that area of production. But it was held that this restrictive policy was based on misinformation—information that was brought to the Shipping Board by agents sent by the board to ascertain the Pacific coast situation without knowing beforehand anything about the resources and methods of that territory. This sort of policy could but be demoralizing, if not actually causing doubt as to the sincerity of purpose of the board toward wooden ship construction. This suspicion was, however, largely dissipated, though much too late in being issued, by the following announcement by the board on January 21, 1918:[1]

> The policy of the Shipping Board and the Emergency Fleet Corporation is to build the ships that can be built and to build them as fast as human labor can turn them out. This applies to the wooden ships as well as to the steel ships. Our policy is to give as much support as possible to those who already have contracts rather than withdraw that support in order to extend the number of yards and ships that might exist on paper. New contracts are balanced against the available labor supply and the available supply of materials. . . . The contracts already issued for wooden ships call for more lumber than the amount that is being supplied at the present time. As soon as there is assurance of getting more lumber it will be safe to issue more contracts for wooden ships.

[1] Hearings on Senate Resolution 170, Vol. I, p. 1000.

CHAPTER XXIV

Aircraft Production Contracts

No other sphere of governmental war contracting, not even excepting shipbuilding, was anywhere so disappointing in results within the war period as that of aircraft production. The national weakness of boasting about bigness was here at its best, especially among some of the official misleaders of popular expectation. When the midsummer program of 1917, promising 25,000 planes, turned into the apparently fruitless situation of the autumn of 1918, the country was simply heartsick with dismay. It was a real relief to get Justice Charles E. Hughes's report to the Attorney General, made public October 25, 1918.[1] Something less than a month later, on November 20, 1918, following the armistice of November 11, General Pershing made his report on the organization and operation of the American Expeditionary Forces, from May 26, 1917, to the signing of the armistice. In that he said of the army's equipment for modern war, that among our most important deficiencies in material were artillery, aviation and tanks. And of aircraft he specifically stated:

> In aviation we were in the same situation, and here again the French Government came to our aid until our own aviation program should be under way. We obtained from the French the necessary planes for training our personnel, and they have provided us with a total of 2,676 pursuit, observation and bombing planes. The first airplanes received from home arrived in May, and altogether we had received 1,379. The first American squadron completely equipped by American production, including airplanes, crossed the German lines on August 7, 1918.[2]

It should be said in advance that the military authorities never succeeded in developing the prewar air service to anything like an adequate position. In March, 1916, the Sec-

[1] Report of Charles E. Hughes on Aircraft Production Investigation, October 25, 1918, Congressional Record, December 30, 1918, Appendix A, pp. 883–914.
[2] Report of General Pershing to the Secretary of War, November 20, 1918, Congressional Record, December 30, 1918, Appendix B, p. 915.

retary of War first took up the question of letting aircraft contracts. One of the first things to vex his official soul after assuming office was a bitter feud out of which charges of insubordination arose between the Chief Signal Officer, then in command of aviation matters, and a subordinate officer of greater talent and zeal than patience in promoting the aviation section.[1] These sources of friction were eliminated by reorganization. Under the newly awakened interest in the possible needs of the army, which had almost neglected this arm of service hitherto, the Secretary got into communication with the three or four leading manufacturers of aircraft in this country, only to find that, with their commitments to European powers on lucrative contract work, early deliveries to the United States could not be expected. The official attitude is thus illustrated by two incidents. In the aircraft section of the Signal Corps the Secretary found, as he told the Select Committee on War Expenditures, "a very serious condition of disorganization."[1] Army officers, in some known cases at least, had allowed petty jealousies and temperamental attitudes toward one another to overshadow the devotion to duties they owed to the nation. The net result was that the progress of this important branch of service was to some extent sacrificed to personal animosities. The other incident, illustrating the low estimate in which aircraft was then held even by those in high command, is shown in the rejection by General Funston of the offer by the Secretary of War of airplanes for the memorable pursuit of the Mexican raider, Villa, in the American Army's incursion into that country with General Pershing's cavalry column in April, 1916. Prior to August 29, 1916, there had apparently been no special appropriation made for developing aircraft.

War Authorities Isolated from Aircraft Industry

Not only was there lack of development within the military organization. That short sighted attitude of the military

[1] Testimony of the Secretary of War, Hearings on War Expenditures, Ser. II, Vol. I, pp. 3–7.

establishment, of keeping itself out of touch with the branches of the country's industrial organization on which it must rely most directly in case of an emergency, now demonstrated its folly. This part of the contractual situation has been aptly described in a somewhat critical summary of conditions after the country had been at war a full year and had become awakened to a comprehensive aircraft program. Speaking of governmental neglect to take interest in aircraft development, this survey says:

> When we entered this war a year or more ago our War Department had a few airplanes which proved themselves worthless when tested in Mexico. We had a number of aircraft inventors and experts. We had men of capital who believed in the future of the airplane both for purposes of war and of peace. The Dayton-Wright Company was making planes and other accessories, but was not manufacturing motors. The Curtiss interests were making planes and engines. The Wright-Martin Aircraft Corporation was making the Hispano-Suiza motors for the French Government. Other concerns were making parts of the Rolls-Royce for the British Government. There were a score or more of companies hard at work on various types of engines and completed planes.
>
> We had laid a firm foundation of the aircraft industry. This industry thought it had the right to expect the support and patronage of our government. No such support was extended when Germany invaded Belgium and plunged Europe into war in 1914, but our inventors and manufacturers of aircraft devices renewed their efforts so as to be better prepared in the event we were dragged into the conflict.

The War Department prejudiced the contractual situation, in both policy and in practice, by drawing into its council men who knew little or nothing of this specialized craft. Its practice was that of relying on men who had not hitherto wrestled with the problems of the industry. Would any other nation's military authorities in such a crisis have failed to call to its service, for instance, the leaders in this pioneering work who gave to the world the epoch making secret of power over the air?

This policy had its logical effect in widening the gap between the skilled and expert specialists on the one hand and the war authorities on the other. It put into the contracting work men who had hardly the standing of amateurs in the industry. There was not a single member of the advisory or official boards on aircraft production which guided the government

who could speak for and to his fellow aircraftsmen for the purpose of bringing the resources of the craft into harmony of action on the government's behalf.[1] On the contrary—

> Not a man closely familiar with the science or practice of aviation or of aircraft production was appointed to either of these boards, and up to the present date (May 17, 1918) not a man recognized as an aviation expert has been called by the War Department to duty in either of these official bodies or given any authority in directing its policy and in expediting the speedy production of aircraft fit to meet the up-to-date and highly efficient German air fleet.[2]

Another case of shutting its eyes to the facts of airplane producing facilities is given in the experience of the Wittemann-Lewis Aircraft Company. Although not a large concern, no one could truthfully deny that its staff was well versed in the science and art of designing and constructing airplanes. It had been in the business for twelve years, in which time it had made approximately 300 airplanes for many of the best known aviators. These had been flown all over the United States and in foreign countries. They had a capacity to deliver 600 machines inside of twelve months, and 100 machines monthly thereafter. They were thus among the oldest aircraft manufacturers in the country, but were never allowed, though once promised, to have an opportunity to participate in supplying these much needed craft.[3] During two years of continuous and steadfast demonstration of their ability to serve the aircraft authorities, they met a parallel proof of the government's policy of promise with nonperformance. That insistently confused conglomeration of incompetence and irresponsibility embodied in the Coffin-Deeds-Potter aggregation at Washington, in order to save the automobile industry and the piano manufacturers for airplane making, baffled the efforts of dozens of competent engineers and manufacturers of aircraft to assist the government.[4] To

[1] Investigation of the War Department, Part 3, p. 1603.
[2] See Thomas Committee Report, Senate Report, No. 555, 65th Cong., 2d Sess., p. 3.
[3] Hearings before Subcommittee of Senate Committee on Military Affairs, 65th Cong., 2d Sess., Vol. II, p. 920.
[4] Read reported statement of Victor E. Clarke, of Aircraft Production Board, plant facilities division, *Ibid.*, p. 895 (second paragraph); also p. 921 (paragraphs 2 and 3) in letter of July 30, 1918, to Senator A. S. Thomas; and p. 896.

quote the experience of an aeronautical engineer with the unbelievably bad conditions at Washington:

> It has been shown by experience that in the mess of the aircraft operation at Washington it usually takes one a few days to find out whom he is to see regarding a particular question; when he finally discovers his place it takes a few days more to get an interview, only to meet a youngster perhaps who has been given the responsibility to place large orders and decree the fate of many anxious airplane men. If an attempt is made to reach the men presumed to be atop, it is again found that they are many, and if any is reached, it may not take long to face the "youngster" again with the same result.[1]

Extent of Production to Date of Armistice

The two main lines of contracting in aircraft production were for planes and engines. The policy—an utterly mistaken one as events proved—of attempting to stake the aircraft program on the creation of an entirely new type of engine out of automobile experience for airplane propulsion, resulted in the main contracts for engines being placed with Detroit and other automobile concerns, numbering about a half dozen in all. This was setting aside a larger number of engine building companies expressly for aircraft, of both domestic and foreign patents, who had built for our allies before we entered the war. The special industry of demonstrated capacity was thus only allowed to contribute incidentally in what was their peculiar field. The capture by the automobile industry of the contracts for many thousands of engines, say 25,000 or more, has generally been attributed to the personnel of the Aircraft Production Board at Washington, in whose decision rested to a controlling extent the question of types and kinds of engines and planes that were to be adopted for the air service of the army. The results, up to the date of the armistice, of airplanes and engines produced, April 7, 1917, to November 11, 1918, were as follows:[2]

[1] Letter of Mois H. Avram to *New York Times*, dated May 2, 1918.

[2] Senator Shafroth: "Unjust Criticism of War Department," Congressional Record, February 21, 1918, p. 4183. Senator Reed, of the Aircraft Production Inquiry Subcommittee, Committee on Military Affairs, characterized these figures as "deliberately misleading," although given out by the War Department as representing the situation as of November 11, 1918.

	Number Produced	Shipped Overseas
Types of Planes:		
DH4 combat	3,227	1,885
Handley-Page combat	101	100
Elementary training	5,346	....
Advanced training	2,474	....
Total	11,148	1,985
Engines:		
Combat Liberty	13,574	4,383
Combat Hispano (180)	469	245
Elementary training	10,568	....
Advanced training	5,221	200
Total	29,832	4,828

In addition 2,676 combat planes were sent to the Allied Powers.

Why the "Smashing" Coffin-Deeds Program Failed

To the question, why this "smashing" program empowered with a billion of dollars failed, there seems but one answer: It fell into the wrong hands. The special branch of the War Department whose work it was to be alert in its particular field lacked the elements of leadership in the critical hour; and in that emergency there was injected an entirely extraneous policy based on the theory of mass production of an experimental motor to which all else was subordinated. The whole vast program was thus staked on the one idea, which had yet to be proved workable in this special field. That is substantially the conclusion of the Thomas committee of the United States Senate after its investigation for the Senate Committee on Military Affairs.[1] This committee found that there was no sort of hope for the once announced fleet of 25,000 airplanes to be in readiness by or before the time when the army could be put into Europe. Three appropriations had been made between March 12 and July 24, 1917, the latest of $640,000,000, "a substantial part of which had been wasted, and a further sum of $884,304,758 had been found necessary.[2]

[1] Senate Report No. 555, 65th Cong., 2d Sess., p. 3.

[2] To get the official statement of the policy one should read the brief Report of the Chief Signal Officer, War Department, for the year ending June 30, 1918, on "Aviation," pp. 1–7. Also the Report of the Bureau of Aircraft Production, John D. Ryan, Director, May 24 to June 30, 1918. The latter report covers the first period under reorganization.

These disappointing results were, in its judgment, due to three causes:

I. That the airplane program was largely placed in the control of great automobile and other manufacturers, who were ignorant of aeronautical problems.

II. These manufacturers undertook the impossible task of creating a motor which could be adapted to all classes of flying craft. It is not too much to say that our airplane program has been largely subordinated to the Liberty motor.

III. We failed at the beginning of the war to adopt the common sense course of reproducing the most approved types of European machines in as great numbers as possible. This should have been carried on coincident with the production of the Liberty motor. This sound policy has very recently, but after a lamentable lapse of time, been adopted.

In these airplane contracts the government furnished liberal advances of working capital while bearing all the costs of production. The Wright-Dayton Airplane Company borrowed $2,500,000 within a period of about seven months, and the Fisher Body Corporation of Detroit, which had orders for the same number of planes, received $2,000,000 as a loan from the War Credits Board.[1] Here as in other cases, the government paid all bills, assumed all risks and supplied most of the funds for the prosecution of its work. The contractor gave his organization and his officers, in some cases as the Wright-Dayton Company, at excessively inflated salaries, over and above what they received commercially when the government did not pay the bills. In general, the government reimbursed, in these airplane awards, the contractor for all costs of labor, material, use of plant and machinery, overhead expenses as apportioned, depreciation on plant and equipment, a fixed profit on aggregate costs and a premium for any reduction of actual below the provisional bogey cost per unit of product.

Cost-Plus Contracts for Liberty Engines

During the summer of 1917 orders for Liberty motors were awarded to six different companies to the extent of 22,000 engines. The distribution of these among the several automobile companies indicates how far that industry had been

[1] Hughes Report, *loc. cit.*, p. 884.

chosen to manufacture this specialized engine which hitherto had been the more or less exclusive work of the aeroplane industry. Deliveries as well as awards are shown in the table following, of 9,689 motors of the US-12s, out of the 22,000 contracted for in 1917:[1]

AWARDS AND MONTHLY SCHEDULE OF DELIVERIES OF LIBERTY ENGINES

Months 1917–1918	Lincoln Motor Co.	Packard Motor Car	Nordyke & Marmon Co.	Ford Motor Co.	General Motors Co.	Total
November, 1917 ..	5	50	...	....	...	55
December.....	80	200	...	....	...	280
January, 1918	160	500	25	....	...	685
February.....	275	800	125	....	...	1,200
March.....	700	1,000	550	....	...	2,250
April.....	1,400	1,200	700	200	...	3,500
May.....	1,900	1,200	800	800	25	4,725
June.....	1,480	1,050	800	1,000	125	4,455
July.....	....	....	...	1,000	250	1,250
August.....	....	....	...	1,000	300	1,300
September.....	....	....	...	1,000	400	1,400
October.....	....	....	...	....	500	500
November	....	....	...	....	400	400
Total orders....	6,000	6,000	3,000	5,000	2,000	22,000
Actual deliveries..[a]	2,787	3,864	157	1,868	1,013	9,689
Deliveries to the army.....						6,895
Deliveries to the navy.....						2,794

[a] To October 11, 1918.

The navy, which began at once to utilize an American designed flying boat for its coast patrol service, with English and British engines, made marked progress by adapting engines and planes to American manufacturing conditions.[2] Its policy differed from that of the army in utilizing foreign experience while developing American engine types, rather than hazarding almost everything on the ability to evolve a single type of motor as the army automobile-aviation authorities attempted to do in the Liberty motor.

By far the larger proportion of the motors for army aircraft use were thus let to the several automobile concerns, some of which were recently and expressly organized to make aeronautical engines for the first time. Of course the government paid the cost for the time and waste incident to an industry

[1] Hughes Report, *loc. cit.* p. 902.
[2] Report of Navy Bureau of Construction and Repairs, 1918, pp. 11–14.

learning a new branch of manufacture. As the cost-plus figure was based on the bogey or provisional cost, it had to be high enough to bring into the operation these novices in making aeronautical engines, even though the aircraft engine building concerns remained idle. The first cost unit arrived at was $6,087, to which the Secretary of War had the approval of two specialists in the motor field. On that the agreed profit, at 15 per cent on cost, was to be $903.05 per engine. Aeronautical engine specialists were apparently not consulted generally. Another specialist of large experience, however, arrived at a bogey cost of only $2,400, not counting overhead, but including labor and materials. It appears that the Aircraft Board, in the person of Col. E. A. Deeds, was made aware of this marked difference, but no action resulting in a reduction of bogey costs was taken until December, after most of the Liberty motor awards were made and in process of manufacture on the higher basic figure. In December, however, after the press and Congress became awake to the inordinately high figure the government was paying the five amateurs that had controlled these fat contracts, the basic cost of the Liberty engines was reduced from $6,087 to $5,000, the per cent of profit on cost reduced to 12½ per cent and the resulting sum of profit per engine to $625. The consideration in view of which the contract was modified was that these concerns were to have special allowance for depreciation and have advances of funds by the government. The real cause for the revision was, more probably, the fear of the government's commandeering these shops as a whole on the very evident ground of manufacturers' profiteering.

Analysis of Liberty Engine Builders' Profits

Let us see how these engine builders fared even on the lower basis of 12½ per cent of the reduced bogey. On this feature the Hughes report goes into considerable detail covering a full year under the cost-plus contract. According to his analysis, the Packard Company, on a delivery of 3,100 engines, or slightly more than half of its award of 6,000, had

a profit of $1,937,500. That was its fixed profit alone on normal cost, counting nothing for the winnings from bringing the actual under the estimated cost, in which of course the government would also be the gainer. On the entire order of 6,000 engines, which it was then (September, 1918) figured would be in delivery within eleven months from the date of letting the contract, the Packard guaranteed profit would be $3,750,000. An added profit is to be reckoned from the 25 per cent of the cost differential. As the end of the contracting period approached, it became as good as proved that these engines would really average a cost, not of $7,087 as originally contracted for; nor even at $5,000, as was agreed on in December, but "somewhat under $3,200 per engine." On the low actual cost the Packard people were thus entitled to a further profit of $2,700,000, as Justice Hughes figured it, making with $3,750,000 a grand total of $6,450,000 earned on the 6,000 motors.[1]

The Packard case is more or less typical—typical of the overestimate of the provisional cost, of the excessive differential and of the profiteering proclivities of the Liberty motor group of airplane-automobile contractors. The Ford Motor Company, on the same general bases, was estimated as gathering in profits of $5,375,000 on its order of 5,000 engines. That matched pretty closely the Packard average profits of $1,075 an engine whose cost was really little if any over $3,200. The Lincoln Motor Company checked up its first 600 motors made, out of its order of 6,000, finding that the average cost even at that early date in its delivery, was only $3,583 per engine. Its actual average cost for the full delivery was probably not less than $3,000; but at the higher basis of $3,200 its yield of profit would run up to $6,450,000. If we add the further profits of spare parts of $1,500,000 the grand total was $8,000,000. This takes no account of the 40 per cent depreciation which the government was generous enough to allow the company for the use of its plant for the term of the contract, of say a year and a half. On an actual invest-

[1] Hughes Report, *loc. cit.*, p. 906.

ment of $850,000 this was golden winnings. To the same company the government advanced $10,800,000.[1] The two other companies, the Nordyke & Marmon Company and the General Motors Company, including the Buick and the Cadillac, on their orders of 3,000 and 2,000 engines, respectively, could have made little if any lower average profits per engine.

Liberty Motor Profits on a $4,000 Fixed-Price Basis

It became clear quite late in the Liberty motor production that the government was getting the bad end of the bargain, as compared with the contractors on the cost-plus basis. On this account the Lincoln Motor Company's contract was revised the third time. It began on the high level of $6,087, later relapsed to $5,000. By the contract of July 31, 1918, after all of its 6,000 engines were to be delivered as of the original schedule of dates, it accepted a fixed price contract of $4,000 an engine. It probably made $1,000 per engine. Under this substitute contract at $4,000 per engine and the corresponding spare parts, it is figured that the Lincoln Company would have reaped profits of $11,250,000 on the 9,000 motors by completing deliveries by April 1, 1919. The Nordyke & Marmon Company switched from its 3,000-engine contract on a cost-plus basis to one of 5,000 on a fixed price basis, at $4,000 an engine. It contained also wage-and-price-adjustment clauses in common with those in the Lincoln and Packard contracts. On the newer Packard contract, an estimated profit of $15,000,000 was regarded as a conservative estimate.

What did the government gain by this belated shift to the fixed price plan of compensation? It relieved itself of the almost impossible task of keeping track of costs by such cost checking means as it had at command. It took away from the contractors the positive inducement of a demoralizing arrangement to shoulder the entire burden of efficient control over costs on the tax payer. It cut out the abnormal allowances for depreciation to the builders. It must have

[1] Hughes Report, *loc. cit.*, p. 907.

greatly relieved the industrial plants in question of divided responsibility for results. On the pecuniary aspects of the change the Hughes report says:

> Under the original cost-plus contracts for the Liberty engines—that is, with a bogey cost of $5,000, a fixed profit of 12½ per cent thereon, and an additional profit of 25 per cent of the savings under the bogey cost—the total profit per engine would amount to $1,075 on the basis of an actual average cost of $3,200 per engine, or to $1,125 on the basis of an actual average cost of $3,000 an engine. It will thus be seen that the change from the cost-plus contracts to the fixed price contracts saves the government from about $75 to $125 (or possibly a little more) per engine on the fixed profit allowance, and also whatever expense may be saved by the reduced requirements of cost supervision and accounting and in connection with material. Upon the new fixed price contracts the contractors' profits though reduced, still remain very liberal.[1]

[1] Hughes Report, *loc. cit.*, p. 908.

CHAPTER XXV

Contractual Maladjustment in Aircraft Relations

In general, it may be said that the terms of aircraft awards, as the urgency for producing results increased, tended to take the form of cost-plus contracts. That was so not only in prime contract work, but also in the apportioning of specific operations to subcontractors. It was the case in awards as far apart in their nature as those for hundreds of millions of feet of spruce lumber for propeller blades and wings were from the metallic parts of the airplane framework. It was in the conditions of the times that justification was found for the resort to this kind of contract. But at bottom lay the fact that for a large part of the war contracting authorities the problem had gotten so far out of governmental mastery as to practically concede to the contractor his own terms. Within limits there was some general price checking of a too general character to be effective in many lines. The "bogey" estimate of probable cost was a sort of a tentative meeting of minds in the form of a forecast. But reliance, outside of the navy, was mainly on the cost fixing agencies of the War Industries Board, especially for munitions contracts; and the Federal Trade Commission served as a cost ascertaining agency for such raw products as cement for cantonment contracts and for copper, etc. These served to put some limits to the tendency to inflate costs in the cost-plus awards. How this kind of award worked in aircraft work is shown in the Hughes report, as follows:

> The justification for cost-plus contracts was found in the fact that the undertakings were novel and that the manufacturers did not have accurate data upon which to make a satisfactory estimate of the cost of production. This was conspicuously true in the case of airplanes of types with which manufacturers in this country had been unacquainted previously. For production in large quantities either new plants or greatly enlarged facilities at existing plants, as well as special tools, would be required to meet an exigency of uncertain duration, and it would also be necessary to procure the requisite labor and materials for the new under-

takings in a rising market and to provide working capital for long periods; and, while motors had been manufactured here upon a large scale, the newly designed engines for the service airplanes required such a reduced weight per horsepower and such delicacy of construction that it was felt that the enterprise had many elements of uncertainty. In these circumstances it was not an unreasonable conclusion that if contracts for the new types of airplanes and for the new engine were offered solely on a fixed price basis, either manufacturers would not undertake the work or would insist upon high prices as a safeguard against the chances of ultimate loss. It was deemed inexpedient for the government to undertake the manufacture directly, and it was decided to adopt the alternative of an assumption by the government of the cost of manufacture through contracts on a cost-plus basis. This practice, however, could not properly outlast the reasons which may have justified it at the outset. Contracts of this sort lead to waste, foster abuses, and impose an almost intolerable burden of cost accounting, in itself a hindrance to rapid production. Early in this inquiry it was abundantly shown that it was highly important to establish reasonable fixed prices whenever experience afforded a fair basis for estimates.[1]

Unfair Profits on Bogey Cost Basis

How the contractors fared under these awards for motors is well known. On the planes it was little different. As a rule the profits turned out to be exorbitant. The contractors figured out the bogey or estimated cost so high as to make themselves safe within a wide margin and thus provide for a premium measured by the agreed percentage of the difference between the fictitiously high bogey and the actual cost. On the DH4's the Dayton-Wright Airplane Company was to have 12½ per cent profit, on the bogey basis of $7,000 per machine, or a profit of $875 per plane. Even under the less favorable conditions of early stages of production, these planes cost only $4,400. On that actual cost basis, the contractor's profit would have been $550 per plane, instead of $875. If, in addition to the agreed profit of 12½ per cent of estimated cost, the contractor got 25 per cent of the difference between estimated and actual costs, his added winnings would in this instance be $650 more, making with the $875 a total of $1,525 per plane as net profit.[2]

Why the unwarranted practice of counting profits on the estimated cost, before cost specialists had checked them up,

[1] Hughes Report, *loc. cit.*, p. 906.
[2] *Ibid.*, pp. 888, 906.

is not clear. The case of the Dayton-Wright Airplane Company's estimate was only formally less egregiously liberal to itself. This was a new plant with only $1,000,000 invested whose sole occupation was on government planes for which it had orders for 4,000 DeHaviland 4's and 400 Standard-J planes. Its profits on these two lots, allowing for no premiums of the smaller lot, figure out $6,548,000, not counting profits on experimental work or spare parts. This was for an estimated period of a year and a half, from date of award to completion. There was, however, a saving consideration which allowed the government to revise these excessively profitable contracts, if the bogey cost proved to be unduly high. On that basis the government placed that cost at $5,000 instead of the original $7,000, making the Dayton-Wright Airplane Company's profit about $775 per plane and the total of $3,300.000 on the 4,000 planes.

A Fair Basic Price by Arbitration

In at least some of the awards the fixed price contract was the original one. The Wright-Martin Company in its first contract with the Signal Corps for 500 of 150 h.p. Hispano-Suiza motors took the order on the fixed price basis. The next 500 order was originally on the same basis, but later was canceled and included with a larger order on the cost plus fixed profit basis. Out of the combined orders for 7,500 motors of this kind, for which the Wright-Martin Aircraft Corporation had the American rights, only 500 were made on the fixed price basis.

One of the features of the price determining with this company was the more rational way of arriving at the bogey or provisional cost. This was done by a board of arbitration determining independently what would be a fair and just estimated cost. For the first 1,000 motors it was placed at $3,600; for the second 1,000 at $3,200, on account of the added experience. On the third 1,000 it was reduced to $3,000, plus any added expense of a then pending wage adjustment on the Shipping Board level. These wage rates were

raised to avert a strike, and were reflected in the bogey price by a price of $3,300 for the fourth 1,000. On the first 1,000 of the 300 horse-power motors the estimated cost was fixed at $5,000.

Profits in this case were much less than in the Dayton-Detroit contracts for the Liberty motors. At 15 per cent of the bogey price the profit of $540 resulted. That was on the first 1,000, compared with a profit of $480 on the second, and of $450 on the third, plus any additional that might arise from 15 per cent of the wage cost increment. On the fourth 1,000 the profit was 12½ per cent of the cost.

Treatment of Aircraft Industry Contractors

Treatment of contractors within the airplane industry was a source of much dissatisfaction. Part of this was due, no doubt, to the fundamental ignorance of the people in aircraft control for the government of the details and the conditions existing throughout this industry. It was partly a failure to appreciate the fact that much capital had gone into flying and mechanical production without any hope of profits, but with the desire to participate in this pioneering industry in a public spirited way. When the war came there was a splendid opportunity to turn this attitude to account for the aeronautical service. Instead of doing so, it was frittered away or steadily disregarded.

Even among the most important contracting concerns doing government work the chaotic and contradictory methods of administration left much to be desired. The bane of the whole system was the tendency to change specifications or cancel orders. Several hundred changes were made in the DeHavilands at the Dayton-Wright Company's plant after beginning manufacture. At the Curtiss Aeroplane & Motor Corporation an order for 500 Capronis, a heavy bombing machine, was received September 15, 1917, for which no plans and specifications had arrived as late as June 3, 1918. In spite of requests for blueprints and specifications, none were forthcoming; and so the matter stood till the war ended

it all. The producing capacity of this immense place with six separate plants working was not kept in full employment. Its first order for 600 machines on June 30 was not followed up with another order until September 15. Delay in production, increasing the expense unnecessarily, was the inevitable outcome of such treatment. More of the same inefficient administration was evident in the Order No. 20,401, for 700 JN4D machines which was canceled after the company had begun work on them. In fact, the contractor had fabricated practically all the parts ready to assemble them. In place of this order they substituted the Model JN4H for the same number of machines on different specifications. The material and parts for the 700 JN4D were scrapped. On this the Curtiss people had worked from December 29 to the following April 29—exactly four months for worse than nothing. The difference in the two was that the Curtiss engine was to give place to the Hispano-Suiza engine, and although there were some changes necessary to fit the new motor into the plane, it required new parts throughout. On these very Hispano-Suiza engines the contractors had not received all the information necessary to proceed at the expiration of three months after getting the order from the government. An order for 1,200 of the JN4H's at a later date specified four different types or models into which the lot was divided, as to which there was the same delay in getting from the Signal Corps the needed information to proceed. Multiplying models was another weakness of the aircraft authorities, as if some new reason for delays had to be devised. But these were not minor changes. In an order of 2,000 Bristol fliers, given January 10, 1918, there were spare or extra parts included to the value of $2,746,185, on which the Curtiss firm was to get 12½ per cent profit. March 30 that spare part order was canceled. On a bigger scale of official blundering was the cancelation of the order for 3,000 Spad machines given September 15, 1917,[1] deliverable between January 1

[1] Aircraft Production Hearings, Senate Committee on Military Affairs, Vol. I, pp. 74–86.

and July 1; that was canceled November 7,[1] some of which were so far advanced as to be deliverable in December.

This cancelation of a $30,000,000 contract included 500 Capronis and came very near embarrassing the company. The given reason was the inability of the Signal Corps authorities to make the Liberty motor of the 12-cylinder type fit into the Spad. The 8-cylinder Liberty motor had already (October 1, 1917) been declared obsolete.[1] The claim of Howard Coffin that the Spad was obsolete, made so by a two-seated Hun at Verdun, was unwarranted because officers from the front testified to the contrary as to the value of the canceled type. With perfect justice the naval officer stationed at the Curtiss plant characterized the Aircraft Division's action as "the crime of the century."[2]

The effect of the government's methods of handling its contracts was far from favorable to progress in production.[3] For instance, after giving an order for 2,000 Bristol planes to the Curtiss people, on specified lines, the go-ahead order, as the final release for production is called, was given first for only 25, then for 375, and again for 400, so that the plant was kept at half capacity production by this piecemeal method of ordering. During this time repeated additions and changes were being introduced so as to still further handicap the production process. This policy of hampering all efforts at speed and at quantity production in one of the country's best and most capable airplane plants, due mainly to the incapacity of the Washington authorities to grasp the production problem, was probably one of the main causes of the tragic failure in our aircraft program. Not until well into the summer of 1918 (May 20), when this official debacle under the Coffin-Deeds regime of automobile-airplane fiasco came to an end, did the authorities ask the Curtiss Company to produce for it a plane of its own design. This was probably because of the policy of forcing the Liberty motor into every machine regardlessly.

[1] Aircraft Production Hearings, Vol. I, p. 88.
[2] *Ibid.*, p. 91.
[3] *Ibid.*, p. 107.

From a somewhat different angle the Wright-Martin Company's experience is typical. That company manufactured motors in its eastern plant, while its plane production was done in its Los Angeles factory. Its experience in dealing with the Aircraft Production authorities illustrates the difficulties of getting enough commitments to go ahead in quantity production. It never obtained any engineering or design specification from the Signal Corps, but performed all of its own engineering functions and submitted them to the government for approval. To the urgent proposal that the Aircraft Board, in the spring of 1917, give engine orders for larger production to occupy this plant with $2,000,000 invested in engine building of demonstrated type and service, nothing came except a first order for 500, awarded July 30, 1917. On July 25 the general manager stated to the Signal Corps office that if it could even then place orders in sufficient quantity to make developments worth while, deliveries could be guaranteed by the Wright-Martin Company of 7,540 motors, beginning with sixty engines, in August, 1917, and building up to 1,250 a month in the following May with completed deliveries by July 30, 1918. All that was asked was a year's orders and freedom to go ahead.

In the plane production of this company, the initial order of fifty planes brought out an element of expense for which the Aircraft authorities were notorious. That was "the miserable condition of the drawings and specifications furnished." The Los Angeles factory manager stated that over 4,000 changes had to be made in the drawings at a cost to the company of $60,000 over and above the estimated cost, or more than $1,000 per plane, due to slipshod specifications. In April, 1917, this plant had a capacity of about two planes a week.

How completely out of line the United States Army authorities were on the aircraft matter may be shown by other facts of an official character. For instance the Chief Signal Officer of the War Department, as late as September 28, 1918, as if apologizing for deliriquencies, states in his annual report

that the outbreak of the war found the United States with a handful of flyers and very few training machines; that "there was practically no aviation industry in this country"; that the number of professional men trained as aeronautical engineers and designers was so small as to be practically negligible," and that "outside of a few men there was no one in the United States with experience in the design or building of even training planes."[1] This statement seems to overlook the fact that for the period 1915–1917 the Aero Club of America, at an expense of $500,000 to $1,000,000 a year, trained 300 civilians as aviators as a reserve who were later taken over by the army and the navy and comprised the first 300 aviators sent to France. Henry Woodhouse, president of the Aero Club of America, mentioned at least a dozen firms which manufactured airplanes or parts thereof in this country at the outbreak of the war. Some of these had been in business for at least ten years, producing flying machines for exhibition purposes. Certainly the government had not discovered our aeronautical resources. Whatever failure to develop there was in this line was promoted by the fact that, in its prewar dealings with the craft, "the army and navy required aircraft manufacturers to spend $100,000 in drawings and working out specifications to get an order for $10,000, and all the manufacturers lost money doing business with the government."[2]

Causes of Aircraft Failure—Contractual Maladjustment

Most of what has been proffered as explaining the breakdown of our aircraft program has been found in general causes, such as the armistice and the delays in production. To cite the armistice is little short of pleading "the baby act." It was the business of the strategists of the advisory Aircraft Board to take into account the very evident contingency of peace. This was all the more so in view of the outreachings

[1] Report of the Chief Signal Officer to the Secretary of War, 1918, pp. 3–4.
[2] Aircraft Production Hearings, Vol. I, pp. 651–652; also pp. 664 ff. on "Important Aspects of the Aeronautic Situation," by Henry Woodhouse.

of the Central Powers for some line of escape from their inevitable dilemma. Yet here we have the aircraft contracting authorities proceeding on a policy of commitment to a two years' program on a strictly experimental basis. In the cocksure conceit of that policy not only was the possibility ignored of our earlier troops being inadequately protected on the western front, as they were for most of the war, against a superior aircraft force,[1] but the contingency was inherent of our entire preparation fizzling out into nothing more than scrap iron. Yet that apparently never entered into the vision which inspired the aircraft program. If it had, there would never have been that abysmally untoward blunder of making so little of the experience of Europe in furnishing our armies with the quickest available aircraft equipment, and of failing to utilize the aircraft industry to any but an incidental extent.

The causes of aircraft failure may be classified as fundamental and administrative. Among the first, one thing stands out in clear relief at the very start. And that is almost inextricably linked up with another equally basic in its effect on contract efficiency in getting results. If the judgment of the aircraft industry and its authorized exponents stands for anything it is that our war program came to grief primarily because it was in conception, design and theory, as well as in execution, based on false and often obsolete lines of development. That fact assumed, its practical outworkings must end in breakdown of its own weight, as it actually did. Parallel with this unscientific and extra-hazardous policy ran the other fundamental cause of failure—the official impotence to adhere to common sense principles in selecting specialists, executives and advisers in the planning and performance for this most highly technical and exceedingly intricate program.

[1] Comparatively speaking our troops were almost unprotected, so far as our airplane relief went, until the last ninety days of the war. The Chief of Air Service in France, Maj. Mason M. Patrick, states: "On August 2d was the first time that any American-built plane crossed the front line," when 18 DH4's went over. Of the 667 American planes sent to the front up to November 11, all DH4's, only 213 were in operation then. Only in balloon service, which the Aircraft Board did not control, were we in any sense protecting our ranks by adequate observation. War Expenditures Hearings, Ser. H, part 4, pp. 170–171.

Among the administrative causes of failure the most patent to one who reads the records is the extremely low measure of official capacity to utilize the organized industry of aircraft production and to marshal the related industries and individual talent into the public service. On the contrary, the whole sickening story is instinct with the ill-fated art of estranging hundreds of zealous, patriotic and experienced aircraftsmen with millions of money and thousands of skilled workmen ready to enlist without quibble as to compensation. The alternative path chosen was to turn over the program to be exploited by cost-plus contractors in an industry alien to aircraftsmanship in both principle and policy.

Appropriations and Commitments for Aviation

Out of our vast outlay what did we spend and what has been recovered? How far liquidation of the aircraft program has gone since the armistice is shown by a financial statement submitted to the Subcommittee of the Select Committee appointed to investigate the War Expenditures for the House of Representatives. Gen. Charles T. Monoher, Director of Air Service, gives the following as of June 30, 1919:

Total amount appropriated, including Signal Corps	$1,219,566,424
Obligations to June 30, 1917	35,436,055
Obligations to June 30, 1918	778,385,655
Obligations to November 11, 1918	1,215,369,031
Obligations to June 30, 1919	1,055,652,147
Reduction since armistice, 230 days	159,716,884
Per cent liquidated since armistice	13.1

Liquidation of personnel was, of course, much more rapid than that of materials and supplies. The Air Service had 20,000 officers at its height and about 149,000 enlisted men. Within less than the next half year or more, practically all of the enlisted men had been discharged and all of the officers except about 4,000, including regulars. Much of the failure to take proper care of aircraft property, wherever that may have occurred, has no doubt been due to the mere inadequacy of men to put ordinary shelter over the property in the custody of the service. This was not the fault of the army.

CHAPTER XXVI

Essential Aspects of Airplane Spruce Contracts

Contracting operations in supplying the airplane spruce lumber, which enters so largely into the construction of propeller blades, extended into two or three main areas. The navy found its chief source in New England and northern New York.[1] But by far the major portion came from the principal habitat of this species in the two States of Washington and Oregon. That area supplied the army program, which comprised the major feature of our aircraft production. Our Southern lumber districts furnished some spruce at a time when a failure of the Northwestern supplies seemed inevitable for various reasons. Of that the chief destination was the British requirement, for which its buyers along with other foreign purchasers were active in American areas long before we entered the war. The main source, for Allied as well as for domestic airplane consumption, was our own Northwest and British Columbia. Besides spruce, fir, though heavier, proved to be an available substitute from the same general region of supply.

Conditions Surrounding Northwestern Spruce-Fir Contracts

A determining feature in the contracting situation was the fact that spruce especially grows not in a continuous stand but in scattered clumps or patches among the prevailing timbers of other species. Until the airplane industry created a demand for this kind of timber, it was relatively more or less neglected. It was at best a by-product in the larger lumbering and logging operations of that grandly forested region of other varieties. As soon, however, as the aircraft program of the Allied Powers and that of the United States combined

[1] Annual Report, Chief of the Bureau of Construction and Repairs, Navy Department, 1918, p. 15.

began to disclose its enormous proportions early in 1917, the field of spruce contracting became one of the foremost considerations in the logging and lumbering industry. Prior to that by only a few months the shipbuilding program for the construction of wooden ships, under the auspices of the Emergency Fleet Corporation of the United States Shipping Board, had centered national interest on this same Northwest as the essential source of unlimited quantities of shipbuilding timber.[1] That called for Douglas fir in wooden shipbuilding. It was with this part of the war winning program that the loggers and lumbermen of the Northwest, indeed on the whole Pacific coast, were patriotically preoccupied, when the demand for Oregon and Washington airplane spruce became of supreme import in the world's war policy. In due time, in fact, these two claims on the Northwestern lumber industry came to the point of getting in each other's way. So much so was this the case that early in January, 1917, the letting of further wooden ship contracts was for the time being suspended, especially on the Pacific coast. Transportation priorities for shipbuilding lumber and airplane spruce began to compete in their claims for cars.[2] Again in September, 1918, the spokesman of the spruce production office of the Aircraft Board at Portland, Major Hitchcock, informed the lumbermen, whether so authorized or not, that it was the intention to discontinue the shipbuilding program as a means of insuring the spruce lumber supply for airplane purposes. This came as a thunder clap to the industry, already thoroughly ill-disposed toward the official methods.[3]

A striking feature in the contractual arrangements for the production of spruce was found in the organization of the lumbering and logging industry of this region. Possibly the two outstanding features were the large scale owners and operators and the merchant loggers. The latter unit of pro-

[1] Testimony of J. H. Bloedel, Hearings on Senate Resolution 170, Vol. II, p. 2115.
[2] *Ibid.*, Vol. I, p. 972.
[3] Testimony of Wm. C. Butler, War Expenditures Hearings, Ser. II, Vol. II, p. 1029.

duction consisted of hundreds of local small scale concerns, employing from twenty to fifty men each, owning their own equipment and carrying on their own operations in getting out logs. The two divisions of labor are as distinct as the two sides of a shield and just as essential for each other. They are almost as complemental in their respective functions as the two blades of a pair of scissors. Between them and the colossal timber owning interests of the Northwest there are numerous contracting organizations, including those operating mills on a more or less extensive scale, with which the logging agencies are a fundamental factor in handling lumber contracts of any considerable proportions. The customary contract for getting out timber is for delivery at railway siding or waterside at definite terms for compensation by fixed price rates and advances of funds; this work is done during other than the winter months in the lowlands especially, admitting of logging for about eight months.

As soon as the Coffin-Deeds airplane program had committed the country to the much exploited scheme of creating on our own hook a 25,000-airplane fleet, there began to be anxiety about lumber for propellers. Appeal was made to the various lumbermen's organizations of the Northwest, and a practically universal commitment obtained for wholehearted support of the government in its airplane stuff requirements.

When it came to the actual work of getting out from 6,000,000[1] to 30,000,000[2] feet of spruce and fir per month, the crux of the situation became apparent. The timber owning interests, recognizing that in 100 per cent of standing timber in a spruce tract, only 15 per cent was spruce, but that the other 85 per cent might as well be cut to avoid damaging the rest of the stand, saw in the demand for spruce on so large a scale a serious cause for the depression of lumber prices of other varieties. To get out the spruce with the fir would throw on the market a great many times more lumber of other kinds. Douglas fir was at or about this time selling to ship-

[1] Estimate of Col. Chas. H. Sligh, Hearings on War Expenditures (Aviation), Ser. II, Vol. I, pp. 580–581.

[2] Testimony of Howard H. Holland, *ibid.*, Ser. II, Vol. II, pp. 1968–1969.

builders for from $35 to $40 a thousand, and airplane spruce at $105. With general building operations suspended outside of war time needs, with shipping for export not at all available, and with railway priorities in force, what possible market could there be for their surplus lumber which would come now as a by-product of spruce logging and cutting?

Although this attitude was not paraded in the foreground of the Northwestern situation, it was none the less there in the form of a deterring undercurrent of decisive strength. In the view of some, it was the most potent factor in preventing the government's Spruce Production Division from achieving its object without having to resort, as it did in stress of desperation, to the special cost-plus contracts.

First Stage of Airplane Spruce Production

Airplane spruce contracting falls into two periods in the government's dealings with the Pacific coast area. The first, under Major Charles R. Sligh, involved organization of the conditions in a field where up to the middle of June, 1917, practically nothing had been attempted. There were two ways of dealing with a distant situation on the part of our war authorities at Washington. One was to utilize advisory committees of the trades concerned at Washington, and operate along lines approved by these interests. But that put the work into the position wherein advisers occupied the two-faced relation of both selling to and buying for the government. Later that policy resulted in a wholesale resignation of volunteer advisers who, while desirous of serving the authorities, were unwilling to stand in illegal relations in contract negotiating. The other plan, of deputizing some one to go and organize the field, was followed. The main fault of this plan was that the government usually sent men who knew nothing of the situation at first hand. As ex-Governor West of Oregon put it, as late as February 1, 1918, referring to the Aircraft Board heads: "While I find them—Colonel Montgomery, Colonel Deeds and others—earnestly endeavoring to get results, the seriousness of the situation out there forces

me to say that the people here don't know anything about the situation out there on the coast, and thus the trouble. They are trying to carry on lumbering operations from Washington."[1] The agents sent out had not that adequate measure of authority that made them free to plan out a policy and put a program through to get results. Consequently, Major Sligh's work of somewhat more than four months of organizing contracts did little more than develop the problem and indicate its difficulties. In summing up the cause of this delay in the spruce and fir lumber supply for the factories, Major Sligh concludes thus in his testimony on the subject:

> The procrastination and the indecision and the vacillation of the Aircraft Board that has been indicated in ignoring the recommendations that I made, and which policy has been largely carried out in other works, is responsible to a very large degree for the condition in which they find themselves today. If I had been authorized to have this stock cut to dimension in June, if I had been authorized to buy the 6,000,000 feet I asked for in June, instead of having to wait until August; if we had been authorized to give protection to the 80 per cent of men that wanted to work, you would not be wondering today where you were going to get your spruce.[2]

Second Stage—Big Firms Get Cost-Plus Contracts

Such is the testimony of the conditions that surrounded the attempt to deliver the monthly quotas of spruce and fir for airplane needs out of the Northwestern woods. The lumber committee of the Council of National Defense had failed to organize the contracting plans, after some months of swivel-chair activities at Washington, in which the big lumbering interests and their secretaries floundered about. The efforts of the Aircraft Board to install an organizing head on the spot were wrecked by withholding authority in critical junctures, owing probably as much to conflicting councils as to ignorance and lack of confidence in their own agencies on the coast. Under Major Sligh, as well as under his successor, Major Leadbetter, the compensation in contracts was that of a fixed price. The spruce lumber was paid for at $105 per M. and the fir at $55. This plan of payment continued until

[1] Hearings on War Expenditures Ser. II, Vol. II, p. 1791.
[2] Investigation of the War Department, Part 7, pp. 2315–2316.

Colonel Disque came, who succeeded in November to the task now become one of the most urgent. At that date, according to Major Leadbetter's memorandum of November 29, 1917, there was a shortage of 15,000 laborers in the lumbering and logging industries of these two States, and the recruiting efforts of the Engineer Corps were competing for the logging and lumbering labor still remaining, until the confidence of the public in the sincerity of the War Department was being impaired by such rivalry.

To make matters worse, the attitude of the lumbering and logging forces was prejudiced by the treatment accorded them. One of the causes of delay in the spruce-fir production was the failure to enlist adequately these numerous logging men. Captain Thomas A. Sweeney, of Portland, Oregon, a general construction contractor, familiar with the spruce timber industry of the Northwest, thus describes the conditions:

> In November, 1917, there was an arrangement made by the government to pay from $120 to $160 a thousand for rived spruce. The No. 1 spruce at $160 was supposed to be straight grained without spirals and without pitch knots and other specifications to make it first-class timber for wing-beam stock. The No. 2 was priced at $120. They were asking for farmers and small loggers to get this out, and the publicity department of the spruce corporation was very anxious to get the farmers to get the spruce out; but when the farmers applied for an interview with the powers that were then, they were unable to see them, and were unable to get into touch with the financial arrangements that the government would be willing to make. Therefore, the letting out of spruce under contract by the thousand was a practical failure.[1]

Whatever may be said of the wisdom or unwisdom of abandoning the fixed price contract for the cost-plus contract, this midwinter effort involved a substantial reversal of policy.

The cost-plus contractors now made, through the government's Spruce Production office, Colonel Disque, an offer to the loggers to come in under this arrangement. Their attitude is best expressed in their own resolutions, as follows:

> At a meeting held in the fall of 1917, of the Lumbermen's Protective League, of which the undersigned is a member, the services of themselves, their organization, and their equipment, were unanimously tendered to the United States for the

[1] Hearings on War Expenditures (Aviation), Ser. II, Vol. II, p. 1349.

winning of the war and in the filling of its requirements on lumber, and more particularly in its plans to increase the production of spruce and other airplane material.

We, the Loggers' Information Association of Puget Sound, having a joint input of 1,000,000,000 feet per year, in meeting assembled, again tender to the United States Government direct our services, organizations and equipment, without profit, in the logging and opening up of the spruce tract of Clallam County on the Olympic Peninsula.

We consider as unnecessary and detrimental to a large and important industry, the continuation of the operation of the so-called Siems-Carey Company, and ask that it, in the public interest, be canceled.[1]

The newer program, without really intending to disrupt the small scale operations in logging, centered in the awarding of contracts with a small number of large logging outfits. These were of such size as to cover a given district of the several into which the spruce territory was apportioned, so that there would be no overlapping. One of these, easily the most criticized in the discussion of the government's contracting policy for spruce lumber, was the agreement dated as late as May 12, 1918, between the Siems-Carey-H. S. Kerbaugh Corporation of Maine and the director of the Aircraft Production, through the Signal Corps as contracting officer for the army.

Features of the Siems-Carey-Kerbaugh Contract

Among the most notable spruce contracts the so-called Foster agreement, the Warren contract and the Porter Brothers contract were well known arrangements for spruce production with the Production Division. But none of these reached the level of importance of the Siems-Carey contract. This latter included not only the production of not less than 250,000,000 feet board measure, but also the construction of a railroad of some fifty-two miles in length into the Pleasant Lake district of Washington. These two projects were tied together as mutually dependent, so that without the one the other could not become effective. It was the expediency of the railroad project that aroused misgiving. Yet it was deemed basic to the possibility of the need of getting from this particular territory a maximum of 500,000,000 feet of spruce

[1] Testimony of William C. Butler, before Subcommittee No. 1 (Aviation), War Expenditures Hearings, Ser. II, Vol. II, pp. 1028–1030.

through the agency of this particular logging outfit. Up to June 30, 1918, only 90,000,000 feet of airplane spruce and fir had been shipped.[1]

Such was the scale of operations contemplated in this one of half a dozen similar districts. What would the company be able to deliver per month? The agreement was signed in May and deliveries were to begin with December, 1918, at 10,000,000 feet. That left the best of the summer months for work on the railroad, where as many as 5,000 soldiers were working under army orders bossed by civilian overseers under working conditions in some camps that were anything but fair and reasonable. No such a scale of output had hitherto been kept up during the winter by any one company of loggers. Yet the agreement called for 10,000,000 feet in January, rising to 15,000,000 in February, reaching 18,000,000 in March, 19,000,000 in April and 21,000,000 feet in May. After June, in which the agreed delivery was to be 24,000,000 feet, the monthly total from the Siems-Carey outfit was to be regularly 26,000,000 feet.

The price to loggers at which the spruce flitches were to be delivered on board cars at given points for inspection was $100 for No. 1 grade and $60 for No. 2, to be paid for ten days after the presentation of the contractor's invoices with piece tally manifests, showing delivery free on board cars at mill of production and certificates of inspection by authorized government inspectors certifying to measurements and compliance with specifications. Under Colonel Sligh, who had charge of the Spruce Production Division for the first several months of its activity in 1917, the initial price was $105. That was criticized as unduly low. But it held, and brought out much spruce under adverse conditions, when cantonments, shipbuilding and other demands made spruce lumbering a sideplay. Later Colonel Disque raised the price to as high as $140 to $160, presumably for special grades. This contract was terminable by the end of the war, as the second draft shows clearly. In this case the percentage profit was to be a mini-

[1] Report of the Bureau of Aircraft Production, John D. Ryan, Director (May 24 to June 30, 1918), p. 7.

mum of 7 per cent, but might go as high as 15 per cent. The profits beyond the maximum of 15 per cent were to be returned, and the adjustment was to be part of the plan of liquidation and settlement at the completion of the contract. (Article XVII.) At the minimum rate of 7 per cent, if the value or cost of production was as estimated, $23,000,000, the sum of the contractor's profits would have been on completion, $1,610,000. At the maximum percentage allowed in the agreement it would have been $3,450,000, making it, next to the Hog Island contract of the American International Corporation, one of the largest and no doubt most lucrative among governmental war awards, excepting only the Liberty Motor Engine contracts.

This contract was peculiar in another respect; it had not the usual section or paragraph or reference to standard definition of what should be included in costs. On the contrary, a special memorandum on definition of net cost of production (Schedule A) was appended so as to clarify the terms in this peculiar field of enterprise. Although the provisions of this cost memorandum follow in general the lines of definition in use in other types of contracts, they were far more specific, owing to the different nature of the industry. A comparison of the Ordnance Office's schedule of this kind would show how widely the details must vary, in the case of a spruce lumber contract.

The Lake Pleasant Railroad Contract

This railroad of fifty-two miles, into virgin spruce and other timber territory, became the source of volumes of criticism, recrimination and some serious aspersion of corporate and individual integrity. Many who knew the situation accused, not without some show of reason, the contracting interests and the Milwaukee Railway representatives of collusive influence in causing the government to build a line of unnecessary length for its spruce producing purposes. It was to cost $2,500,000, without rolling stock, the War Credits Board was to advance $50,000 on account, the government

was "to pay all sums which the contractor shall expend," including all interest on funds borrowed, all costs of subcontracting, labor, materials, equipment, engineering and everything else except "overhead chargeable to the contractor's New York office." The government shall have an engineer and an accounting officer on hand to facilitate payments and expedite decisions. The contract might be canceled at the government's will and an adjusted settlement effected. On all of the costs of construction and so forth the government was to pay the Siems-Carey-H. S. Kerbaugh Corporation 7 per cent profit as a minimum and not over 15 per cent as a maximum.

The employment of soldiers to the extent of nearly 18,000 in June, 1918,[1] for emergency work on this road and in the camps brought up the question of wages. The contracting lumbermen for logging, as well as for camp construction and road building, were supposed to have paid the soldiers the regular scale of civilian employes, less the usual rate of army pay. Although the arrangement was not without some friction and proved in practice to be far from ideal from the soldier's point of view, working under contractors' civilian bosses, the situation seemed to have gotten to that critical stage at which anything practicable was the best way out.[2] Nevertheless, under the cost-plus contracting system there was ground for the complaint that some of the contractors exploited the soldiery in the most outrageous manner. Their junior officers were, as a rule, afraid to make and press complaints; their senior officers were rarely heard from, if complaints ever crossed their desks. The American soldier toiled at his post in the spruce regions of the Northwest to win the war, as truly as the men on the firing line. There was no doubt that in some cases his services were taken advantage of for cost-plus profiteering, on the part of contractors and subcontractors, in airplane spruce production.

[1] Report of the Bureau of Aircraft Production, June 30, 1918, p. 7.

[2] Testimony of John D. Ryan, Director, Bureau of Aircraft Production, before Senate Subcommittee, Committee on Military Affairs, 65th Cong., 2d Sess., Vol. II, p. 1174.

CHAPTER XXVII

Government Contracts for Housing War Workers

Owing to the rapid concentration of workers in the centers of administration and industry the housing problem was not long in becoming acute in its demands on governmental attention. At Washington the influx of officials, war workers and clerical forces for all the civil, military and naval agencies focusing there, produced a result that obliged Congress to act for relief.[1] Even more urgent was the call for relief at the navy yards, arsenals, shipbuilding districts and localities where munitions were making or materials being extracted under emergency conditions. In fact, so critical had the conditions become that it was no longer a question of how workers should be housed, but whether or not the industries producing war supplies could continue to command workers at any price under the conditions productive of an inordinately high labor turnover.

Origin and Development of the Housing Program

Governmental methods of meeting a situation and solving an urgent problem are well illustrated in the steps by which the housing plan took shape. As early as October, 1917, the Council of National Defense foresaw the need of anticipating action. It showed its clear grasp of the task by calling Otto M. Eidlitz, a New York builder of remarkable executive ability and business balance, "to investigate the question whether there was a lack of industrial housing in the country." A committee of five of excellent selection was appointed to make a report to the Secretary of War. That was submitted on October 31, Mr. Eidlitz, chairman. Acting solely in an advisory capacity, under the same authority, a

[1] Act to authorize the President to provide housing for war needs, May 16, 1918 (Public, No. 149, 65th Cong.).

second inquiry was begun November 12, by Mr. Eidlitz, "to see whether, under existing appropriations or existing laws, funds could be found to take care of industrial housing for workers where it was needed." Congress was beginning to be critical of the use of war appropriations and legal limits were being respected with more than ordinary caution. Of this inquiry by Mr. Eidlitz, he testified before the House Committee on Public Buildings and Grounds:

I went through the throes of that investigation, and got the Emergency Fleet Corporation started on their housing, and unearthed the navy situation as to the opportunities which they had, where torpedo boats and torpedo boat destroyers were being fabricated, that they could provide those facilities. In February, then, of 1918, a bill was introduced and eventually in May that crystallized into the present bill. . . .

I saw the Emergency Fleet Corporation—their legal department. The question was taken up whether they had funds that could be used for doing this work, and council determined after a time that they could, and subsequently to be sure that there should be no misunderstanding of it, they had a special bill passed by the Legislature authorizing them to do it.[1]

The navy found authorization in the Emergency Deficiency Act of October 6, 1917, for the outlay of $50,000. But there were a dozen or more localities where work on navy contracts was retarded badly for the lack of housing near to the works. Take the case of the Bethlehem Shipbuilding Corporation at Sparrows Point, Maryland:

They had a contract with the government to produce a certain number of vessels in a certain time. They were perfectly able to do that, because they took no more contracts than they had the capacity to deliver. The situation we found was simply that one-half of an absolutely equipped shipbuilding plant was not operated because they could not keep the labor in that vicinity; they had housing in Baltimore, which meant a run of an hour and a half or more each day each way, with the result that, even though a man might like the wages and might like the work and all that, they could not hold the men. They had 11,000 men employed to get 400.[2]

At Wilmington, at Camden, at Chester and almost every other locality along the Delaware shipbuilding shore, the same deterrent condition prevailed—the labor locally available had been absorbed, the increase in workers had to be drawn

[1] Hearings on Operations of the U. S. Housing Corporation, 65th Cong., 2d Sess., part 1, p. 15.

[2] Hearings on Senate Resolution 170, Vol. I, pp. 810–811; also Vol. II, p. 1391.

from more distant places, places too distant to go to and come from as a daily matter. Hence men came, tried out the work and found it impossible to stick. Navy work at Newport News was similarly handicapped, and much complaint arose, because the destroyers were likely to be finished behind schedule. Their urgent need for convoying the fleets taking troops and munitions to France was constantly in mind. In the city of Bridgeport, where ammunition contracts shared with torpedo-boat construction in producing the crowding, the situation was possibly at its worst when Congress was asked to pass the measure which became the act of May 16, 1918, for full authority enabling the President to provide housing for war needs.[1] By executive order of June 18, the Secretary of Labor was authorized to give effect to the housing provisions in this and in several other acts.[2] The several stages in legislative procedure were not, however, completed; and not until the act of June 4, 1918, was passed did the United States Housing Corporation come into legal being. It was not organized until July. On July 8 Congress raised the housing appropriation to $100,000,000.

It thus required from October to July to develop the machinery and delimit the scope of the emergency housing problem. By the first step the Fleet Corporation took up its own task and kept it separate.

Extent and Results of Shipyard Housing[3]

Housing for shipbuilding labor was largely under the Emergency Fleet Corporation. By the beginning of 1918, or nine months after war began, the number of workers in the shipbuilding industry had increased from less than 45,000 to more than 300,000 skilled workers. This entire body was practically under the government's control and in its employ.

[1] Hearings on Senate Resolution 170, Vol. I, pp. 820–821.
[2] Hearings on Senate Resolution 371, Part 1, pp. 17–19.
[3] For extended discussions and testimony see title of "Housing Problem" in Index to "Hearings before the Senate Committee on Commerce," U. S. Shipping Board Emergency Fleet Corporation, Vol. II, pp. 2490–2491, referring to the shipyards.

It had the obligation of providing suitable living conditions to get its work done. Besides the 300,000 in shipyards, another 250,000 men were manufacturing equipment and shipfitting machinery in various parts of the country. Housing projects were located at twenty-four different shipbuilding centers, at which 9,286 individual houses were built, accommodating 20,362 men; 1,108 apartments accommodating 3,355 men; twenty-four dormitories for 1,900 men and two hotels with 2,681 men. Total accommodations for 28,358 men in this industry were thus provided, making approximately 10 per cent of the total shipyard workers housed by governmental outlay. In this body of contracting the Fleet Corporation made commitments to the amount of $58,635,300 to twenty-four different yards, on thirty-two different projects up to November 14, 1918.[1] In connection with these operations fifteen different municipalities furnished school facilities and other advantages and eleven utility companies received loans for making connections for gas and electric current to the houses provided. On passenger transportation commitments a net outlay of $11,109,380 was made for carrying workers to and fro at various places.

In the contracts between the Fleet Corporation and the companies for housing projects for shipyard workers certain legal arrangements were standardized. There were three parties involved, including the Fleet Corporation, the shipbuilder and the realty company which acted as the subsidiary for the shipbuilder to hold the realty, to advance costs of development, to execute bond for all advances loaned at 5 per cent for ten years and covered by mortgage, and to operate the housing facilities according to the tripartite agreement between the shipbuilder, the realty company and the Emergency Fleet Corporation. In this agreement the Fleet Corporation controls the selection of architects, engineers and contractors; sales, renting and restrictions for six months after the end of the war, and limits the rates of dividends.

[1] Second Annual Report, U. S. Shipping Board, Appendix, Table XII (B), pp. 188–189.

The shipbuilder guarantees the realty company's obligations, and the winding up of the project is provided for, including a maximum write-off of 30 per cent in recognition of the high construction costs; and to encourage individual purchasers this same write-off is allowed to remain in the release value of the lots on bond and mortgage.

Here, as elsewhere, the policy of not putting the government into actual competition with private business was followed. In order that the Fleet Corporation might not be put to the necessity of becoming landlord, it provided the unique plan of lending to the shipbuilder who in turn becomes sponsor and guarantees the acts of the realty company. In this way the land was secured without cost to the government, either by purchase for the account of the shipbuilder, or by a fund subscribed by the citizens of the locality in need of housing. Advances made by the government to either or both, as well as to local utility companies, were well protected as a rule. How large these commitments were is evident still further by the fact that under the authorizing act of May 16, 1918, the Fleet Corporation's appropriation was for this purpose raised to $75,000,000. By October, 1918, it had obligated itself for $64,802,845 at twenty-five shipyards, housing nearly 30,000 shipyard workers and their families.[1]

One of the most pressing of these projects was at Hog Island, where about 20 per cent of the total employes had to be housed by special projects. Of these there were four undertaken, at an outlay of $10,031,000. More than half of the $57,000,000 of commitments was for housing contracts at or near the Delaware River shipbuilding localities. For the Hog Island needs, which exceeded in importance, 953 houses were erected in one locality. Begun in May, they had 75 per cent completed by December 1, and practically all occupied. Another locality for 600 houses more was to have been done by February, 1919. The combined cost of about 2,000 houses averaged $3,407 per house.[2] In addition, the corpora-

[1] Second Annual Report, U. S. Shipping Board, 1918, pp. 143–146.
[2] *Ibid.*

tion bought 436 houses in process of construction in Philadelphia at a cost of $855,405, averaging less than $2,000 a house. These 436 houses were requisitioned, to which the corporation took title, excepting 260 of them which by February 14, 1919, it had sold for cash, at a very slight loss. Others were sold shortly thereafter. On the operation of renting the net of 6 per cent was obtained, the selling prices fell 8 per cent under cost for houses sold, and on the entire Hog Island housing projects costing $6,800,000 an estimated loss of 10 per cent was allowed on the 1,990 workmen's houses.

Contractors' Fees in Housing Corporation Projects

Public criticism of cost-plus percentage contracts had been to a great extent spent when the Housing Corporation came to take up its work. The method of paying a percentage on cost was forbidden by the Urgency Deficiency Act of June 4, 1918.[1] Its legal authorities, in drafting the form of contract, had the advantage of past mistakes. They therefore planned much more deliberately and intelligently for the protection of the government. Not only in their formal draft of the terms, but also in figuring out the estimated or bogey cost, was there a keener insight into the problems of fair bargaining. This was primarily due to the fact that one of the most capable and yet public spirited contractors in the building industry was placed at the head of the Housing Corporation. His organization and prosecution of the work showed in nothing to more advantage than in the type and forms of contract utilized in this particular division of war time service.

A single quotation from the Senate Investigation into the Operations of the United States Housing Corporation will suffice to indicate this feature. That inquiry began shortly after the armistice, on the question of what the policy of this corporation was as to the completion, cancelation or abandonment of contracts pending. Many of those in process of construction were for emergency purposes strictly and had no permanent purpose. Some at Washington, in semi-comple-

[1] Public, No. 164, 65th Cong., "Housing for War Needs," Sec. 7 as amended.

tion or more, for dormitory purposes for war workers were regarded by the corporation as too far along to be abandoned, especially in the congested and profiteering conditions of tenancy in the Capital. The estimated cost was $1,834,500 in the award to the G. A. Fuller Company.

In answer to the inquiry as to the character of this contract, the president of the Housing Corporation explained the method of the sliding scale fixed fee contract:[1]

The character of their contract is this: They state what in their opinion is the value of the work. Our own estimating department has made the estimate on that job. I fix the fee, the maximum fee that that job carries; and if there is any addition in connection with that proposition without there being a definite change, simply an overrun through excessive labor costs or material cost, or what not, the fee does not vary.

SENATOR HARDWICK: What do you mean by the fee?—the profit that they got out of it?

MR. EIDLITZ: The profit that they get; their fixed fee. Their fee is fixed.

SENATOR HARDWICK: How did you fix that profit? What system, I mean, did you adopt?

MR. EIDLITZ: We have a sliding scale. It might be interesting for you to know this: On all of these jobs that we have placed, the fee for jobs over one million dollars is 2½ per cent. The fee for all the jobs less than $1,000,000 averages 3½ per cent.

SENATOR HARDWICK: That is on the gross amount spent—the gross cost?

MR. EIDLITZ: On the gross cost; yes.

SENATOR HARDWICK: Does not that have a tendency, though, to make your contractor swell the cost of the construction considerable?

MR. EIDLITZ: No; because we fix the fee.

SENATOR HARDWICK: I know, but you fix it at a certain percentage.

MR. EIDLITZ: We fix the fee on what we estimate the job is worth. I will give you a striking example in connection with that. We estimated the cost of those dormitories down in the navy yard at $244,000. The contractor estimated it at $210,000 or $200,000. We put it in at that price. We had fixed the fee. The fee remained the same—based on what we thought the job would cost. Now the job actually will cost about $250,000. His fee does not change.

One of the pitfalls of contracting experience in government jobs was found in the charges for plant rental.[2] Unless this feature of expense were guarded the contractor might swell rental charges for his facilities to an extent which would materially raise his profits. In order to head off this practice

[1] Hearings on Senate Resolution 371, Part 1, p. 35.
[2] *Ibid.*, Part 1, pp. 82–83.

the Housing Corporation contract proposal required a specific statement from each bidder as to what plant he would supply and at what rate of rental. The contractor's statement was then checked up by a plant specialist in the corporation office and it became part of the specifications. The fee was fixed for the job in the statement sent to the contracting bidders.[1] Of these, a selected list of six or eight had been picked out as representing the most experienced in the field, so as to get competitive bidding on the fixed fee compensation for the job. It was also arranged that if the cost ran up in excess of the estimate, it resulted in a deduction in fee, and if it ran below it added to his amount of fee as a sort of a penalty-premium system of compensation.

Method of Selecting Contractors

Although the Housing Corporation was operating, in its contract work, under emergency conditions, admitting of its awarding contracts without competitive bidding, it none the less did make it a matter of established policy to maintain competitive conditions in the selection of contractors.[2]

This method may be called the method of selective competition, because the actual rivalry was limited to a winnowed list of bidders. The procedure is well worth describing, because of its substantial soundness under the conditions. It is true that this method exposed it to the charge of favoring some at the expense of other bidders, or of would-be bidders; yet it was on the whole one of the best planned and most sensibly executed of the war time contracting. As soon as it became known that the corporation or its predecessor, the Bureau of Industrial Housing and Transportation of the Department of Labor, was in the field for contract work, large numbers of contracting firms applied and were listed; a questionnaire was filled out by each applicant; in many cases his record was looked into by an investigator as to his efficiency,

[1] Hearings on Senate Resolution 371, Part 1, pp. 36, 82–83.
[2] *Ibid.*, Part 1, pp. 37, 71–72, 90–91. See also Part 2, pp. 205–206, for legal opinion on this question of selective bidding.

his equipment, his capability for executing a job of the kind, the location of equipment and his organization with special regard to the location of the job. It was the practice in these awards to select bidders so that those of a given locality in which the work was located might have ample opportunity to compete for the contract, provided they measured up to the standard of ability and of competency. In spite of this much complaint came to the members of Congress, alleging that some of the stronger and more capable companies were getting an "undue share of the work." Owing to this the Housing Corporation followed the practice of spreading the contracts generally throughout the country.

After having selected a group of half a dozen or more of the applicants for opportunity to bid on a given project, invitations were sent to each one, describing the project, as based on specifications and drawings expressly designated by pages, numbers and other forms of reference. In this same invitation the essential requirements of the work were described, indicating what the contractor was expected to do to meet the government's conditions. On the Plaza housing project only four of the eight invited to bid actually replied with bids. The others fell out for various reasons, such as the job being too big for their organization, because the time limit did not synchronize with other projects still uncompleted or other reasons. Out of the four competitors the successful one was selected on the basis of his answers to the following questions in the invitation:

1. Your estimate of the total cost of the work, including your fee, overhead and all operating expenses, including $500 for office furniture and equipment for corporation's staff, electrical work and cost of preparing required estimates of cost to be submitted before award is made.

2. Detailed list of plant equipment required for proper handling of this work, to be furnished by contractor.

3. State the lump sum price you will ask as rental for said plant equipment for the duration of the work.

4. State the maximum rental price per diem, for teams of horses and wagons, for motor trucks, not including drivers or chauffeurs, specifying size, capacity, how equipped and number proposed to be used.

5. What service will you, as contractor, render which you consider to be adequate for the proper, efficient and speedy execution of the work?

6. State in detail the size and personnel of the field executive force you propose to employ and the salaries to be paid to each member.

7. Give the name of the member of your organization you propose to place in charge of the field work as resident manager and the position he now holds in your permanent organization.

8. Give outline of your experience and your ability to organize a construction force of the kind required for the work contemplated herein, together with any other facts that you may consider material.

9. State what branch of the work you propose to do with your own forces and what through subcontractors.

10. State the time which, according to your judgment, would be required to complete the work with the equipment and organization above described to be furnished by you.

11. State the fee asked by you for the full performance of service as general contractor not to exceed a maximum of $60,000.[1]

Subcontracting was an important element in any large contract. Government officers had to take account of this, lest by selection of untrustworthy, incompetent or fictitious subcontractors the job might get into all kinds of entanglements and its speedy completion be defeated. On the other hand, the prime contractor might undertake work for which his own organization was admittedly not fitted, in the hope of economizing in subletting fees or other costs. To get around that disposition on the prime contractor's part, the Housing Bureau, as a general policy, expressed the preference for subletting such work as was usually done by subcontractors unless the contractor "has had for three years a department that has done that particular trade in his organization." The object of this was, among other reasons, to distribute the work locally as much as was practicable, so as to avoid bringing into the locality from elsewhere labor and equipment that could be had locally on reasonable terms. The effect was to distribute the public disbursements more generally within the locality in which the work was being done. In times of labor scarcity, of difficulty in transporting materials and equipment and of limited employment of industrial capacity of the locality, this was a wise precaution for industrial as well as for political reasons.

[1] This award was made to the lowest bidder at the fixed fee of $58,000. See Hearings on Senate Resolution 371, p. 78. See form of proposal to contractors bidding, pp. 82–83.

Materials, Prices and Wages in Housing Contracts[1]

The contractor in the housing contracts was thus invited to bring his organization, if he got the award, and install his resident manager at his own expense, while all other expenses of the project would be paid for by the government. He paid the bills and was reimbursed. But what kind of check was imposed on his purchase of materials, labor and equipment, including salaries of others than the general manager?

The Housing authorities were well fortified against abuses in the purchase of materials. They utilized the Construction Division of the army, which in due time became one of the most extensive and the most capable of agencies in the vast operations of governmental building. It was this branch of service that organized the construction of the camps and cantonments, by the cooperation of the Committee on Emergency Construction and Contracts. It was originally a subcommittee of the Munitions Board, which later became the War Industries Board. This Construction Division took the Housing Bureau's lists of materials needed, conferred with the War Industries Board as to the allocation of the contracts for these materials so as not to interfere with existing emergency commitments, and on that basis of allocation proceeded to purchase the materials for the construction projects of the Housing Bureau. By this method of control both prices and quantities were kept in hand, because the Construction Division and the War Industries Board were by this time fairly if not exceptionally well equipped to protect the government against anything like rampant profiteering. For, next to the navy, the War Industries Board had become the most highly specialized price determining agency at the government's command in war contracting. In a much narrower, yet equally important field, the Federal Trade Commission served in ascertaining certain basic material prices.

In the matter of wages, the Housing Bureau (later, the Housing Corporation) was governed more largely by local

[1] Hearings on Senate Resolution 371, Part 1, pp. 74–77.

conditions. At navy yard projects it found a predetermined schedule of wages in vogue, and that had much to do with the prevailing wage level in the locality. The contractor was restricted to the going rates of wages, unless authorized by the bureau to depart from that basis. These varied with changes in the conditions affecting employment. But it must not be thought that the contractor was at all free to go out and bring in workers at any rate of wages that he might elect to pay, just to get them. That was not the case, because there was an Industrial Relations Committee that watched the wage question very carefully. Besides this supervision of the general wage level, so as to protect the government against fictitiously high wage costs, thus inflating the cost of the project, the Housing Bureau's own auditor, timekeepers and checkers were on the premises for the express purpose of seeing that the government was not overcharged. And beyond that the actual payroll of every project was forwarded to the bureau's head office for viséing every week. As an instance of the wages paid, the following schedule of rates on the Washington Plaza project may serve, overtime being at double or time and a half rate:[1]

Occupations	Time		1918	
	Regular	Over	Nov. 6	Dec. 4
Bricklayers	$0.87	$1.75	$9.62	$7.00
Bricklayers' helpers	.50	.75	5.22	4.00
Common labor	.40	.60	4.10	3.20
Common labor, December 2	.45	.....	.....	3.60
Carpenters	.75	1.12	7.78	6.00
Plumbers	.75	1.50	8.25	6.00
Plumbers' helpers	.35	.70	3.85	2.80
Painters	.75	1.50	8.25	6.00
Plasterers	.75	1.50	8.25	6.00
Sheet metal	.75	1.50	8.25	6.00
Steam fitters	.75	1.50	8.25	6.00
Steam fitters' helpers	.40	.80	4.40	3.20

This work was done on the eight-hour basic day, with the customary additional rate. The fall in wages between November 6 and December 4 shows the extent of reaction resulting after the armistice when housing policy radically changed.

[1] Hearings on Senate Resolution 371, Part 1, p. 140.

CHAPTER XXVIII

Cost Keeping Methods on Housing Projects

There were nearly a hundred different projects in the building program of the United States Housing Corporation when the armistice forced upon the management the change of policy. Between sixty and seventy of these had been awarded to contractors and were in varied stages of completion. These were located in the eastern States mainly, although not a few were at localities all the way across the continent with several on the Pacific coast. They included not only housing facilities for the war workers at munition making centers, but also transportation facilities and other public utilities, such as sewer connections, water supplies and similar utilities. The capitalization of the corporation at $100,000,000 with an available cash fund of $60,000,000 is further indication of the range of accounting operations required to keep in hand the work of such wide geographical scope and of such a complex and varied character.[1]

Control of Relations Between Corporation and Contractor

To understand the methods by which track of costs was kept in the course of these projects, one must keep in mind the organization under which the work was conducted. Around the central authority in control were gathered responsible contracting firms selected on a restricted competitive plan. These brought with them to their respective jobs their own individual methods and organization. One of the first problems was, therefore, to standardize these methods and adjust these organizations so as to get the most economical and yet expeditious and satisfactory teamwork out of the whole corporation program. On the side of economical execution

[1] Read Testimony of President Otto M. Eidlitz, Hearings on Senate Resolution 371, part 1, pp. 8–26.

within reasonable cost limits the method of keeping track of the expenses was most vital to the success of the undertakings. The policy followed was one in which, while it left the contractor free in a real sense to handle his project in his own way so far as control of men and handling materials were concerned, it none the less recognized the necessity of exercising an absolute supervision of the progress of the work and the costs of the contract at every stage of advance from beginning to end.

This policy resulted in the installation of a system of progress and cost reports on the part of the employer of the contracting firm. These were due every two weeks. More frequent returns might have interfered with the operations, and less frequent ones admitted of unfavorable developments getting too much of a start before checks could be applied for correction. By this plan, the Housing Corporation, with its headquarters at Washington, not only kept in contact with the manifold elements of expense in each project; it also put into the program a group of specialists fully equipped to cooperate with the contractor in the solution of his problems, while representing the government in the progress of work and in cost control. The type of men thus called to the joint service of contractor and government alike at headquarters included a works superintendent, inspectors, engineers, an auditor and a cost engineer. "While acting with the contractor, these men remained definitely a part of the government organization, assigned not only to assist the contractor but also to see that he performed his contract." These contracts were of the cost plus a fixed fee type.

The form of contract itself—cost plus a fixed fee graduated by the amount of outlay—made necessary that some standardized method of protecting the government be introduced. In these cases this was accomplished in part by the selection of contracting companies with reference to their trustworthiness or dependability. It was, furthermore, in part secured by the government insuring the operating contractor against losses which ordinarily went with a fixed price contract. On

his part the contractor agreed to put at the service of the government his organization, his plant, his equipment, his personal responsibility, his business connections and his command over the supply of labor and materials for the construction in the shortest possible time of the buildings contemplated in the contract. This method of selecting the contractor on the professional basis consists in picking out some for special consideration from a large list of contracting firms whose records have been compiled as to the ability, size and standing generally. From these records a tentative list of a half a dozen of the most desirable ones was selected, and these were invited each to submit a concrete proposal as to (a) estimated cost of the project, (b) fee desired for the service of management, (c) time required to complete the work, (d) the proposed organization to be placed at the work, and (e) the machinery to be supplied and its value. It has been well said that—

> From the viewpoint of the contractor nothing is now left which he may sell except his engineering skill and the use of his equipment. The government fixes the prices of material and labor, controls how much of each he may obtain and where he may obtain it. The government controls transportation, fixes rates and allots cars for the movement of materials. The government controls the money market and indirectly determines who may borrow money and at what rates. Therefore the contractor is not much attracted by advertisements for lump sum bids. . . .
>
> That the government has not been blind to the conditions is indicated by the fact that most of its work during the past year has been let on the fee or percentage basis.[1]

This practice of awarding contracts on a fee basis, in such a way that the fee which is predetermined is increased if the total cost of the work is reduced below the estimated or official cost, establishes an inducement to economize in expenses. It puts a premium on the exercise of skill in management which is what in short the contractor has sold to the government.

On the four large construction efforts of the government, the Construction Division of the War Department allowed a percentage of profit on costs ranging from 2 to 7 per cent of

[1] *The Independent*, New York, November 23, 1918, pp. 254 ff.: "Uncle Sam—General Contractor," by C. S. Rindsfoos.

total cost. The Shipping Board's Housing Committee allowed the contractor 4 per cent, while the Housing Corporation of the Labor Department paid him from 2 to 4 per cent, according to the size of the project. Of course, the larger the outlay the lower the rate of percentage of profit on costs, but the higher the sum total of the fee earned. Yet this applied only up to a maximum limit, beyond which no contractor could earn a larger fee, no matter how large the gross cost. This limit acted as a fixed price feature. The plea that economic conditions made some more elastic form of contracting necessary, under the circumstances, might have much more weight, had not the Bureau of Yards and Docks, Navy Department, constructed under much the same conditions 735 public works projects at an outlay of $84,700,000 during the fiscal year of 1918 (to June 30), all of which contracts were based, with few exceptions, on competitive bids after public advertisement.[1] In these cases the government bought the materials at standard prices and turned them over to the contractors. It was done without lowering standards of workmanship or inspection.

Work of the Cost Engineering Section

Within the lines of policy just described the actual functions of control over contractual costs were, of course, exercised by the cost engineer. As developed by the Housing Corporation this section had two definite functions. Its duties were to compile promptly and accurately comparable records of the progress and cost of the work performed; and, secondly, to utilize these progress and cost returns for the improvement of conditions, so that progress may be accelerated and costs reduced wherever possible. This work is quite distinct from the routine bookkeeping and auditing functions, although as a matter of course the two divisions of service cooperated in the distribution of costs to certain accounts, as the cost engineering section might require.

An excellent analysis of the work of the Housing Corpora-

[1] Annual Report, Bureau of Yards and Docks, Navy Department, 1918, p. 7.

tion in its cost keeping methods is given in the *Engineering News-Record* of August 7, 1919, describing the system generally as follows:

> The system adopted may be divided broadly into field and office methods. Because of many considerations, it was determined to make the field do all the work possible, leaving only the planning, systematizing, directing, coordinating and gleaning to be done at headquarters. The principal advantage of doing it this way, rather than by concentrating the work at Washington, was that it made the system so flexible that it could be applied to one building only or to a thousand towns with very little difference in the headquarters force. To do this, resident cost engineers had to be intensively trained in the Washington office, in order that they might be sent to the field thoroughly conversant with the duties required.

One of the most notable experiences in the entire range of war contracting was that of selecting the types of talent for meeting the emergency requirements in the office or field as the case might be. In many of these emergency situations it was not the technical so much as the general training that gave the would-be incumbent the entrée into the particular position of urgent usefulness. The grasp of general principles involved in these projects and the acquaintance with the general methods by which constructive results are measured were the determining factors in selection of men. To continue the statement of the cost controlling problem:

> The men themselves are the most important part of the system. If we could not have secured good men we could not have worked the system. As the system had to be flexible though standardized, it was necessary to employ men who were themselves flexible though standardized. Of all classes of men, those with an engineering training seemed to possess this quality of adjusting themselves to conditions as they find them, better than any other class. This is because they are taught to take what they find and create out of it what they want. Their training enables them to see broadly the purpose back of their routine work and thus to grasp the important and to disregard the irrelevant.[1]

The personnel of the central staff as it related to progress of work and cost control, apart from the few leading corporate officers, included the following:

[1] The title of the article from which this and the preceding quotation are taken is "Keeping the Cost of Building the Government Houses," by John C. Prior and Herbert P. Green, respectively chief cost engineer and assistant chief cost engineer for the U. S. Housing Corporation. *Engineering News-Record*, August 7, 1919, McGraw Hill Co., Inc., New York.

1. Manager of the Construction Division, whose assistant had as his duties the analysis of reports for information and work with contractors and the works superintendent to devise means whereby cost may be reduced and progress expedited.

2. Chief cost engineer, who formulated policies, organized developments and correlated activities, and with whom were directly associated—

(a) The assistant cost engineer, whose duties were to systematize and standardize operation and information and to enhance the general efficiency of the organization.

(b) The general field cost engineer, to coordinate field activities, obtain official estimates, educate assistants and act as field representative of the chief cost engineer.

These were the essential features of the system as located at Washington. They had, of course, their various office assistants and clerical forces. These together comprised the office personnel at headquarters.

The other part of this line-and-staff system of control is seen in the organization of the individual project. There the works superintendent was in direct charge with his field auditors, engineers and inspectors working out the specifications with the contractor. For purposes of cost keeping, however, the cost engineer on the spot is the most vital official. With his assistants and coworkers in the other recording functions he is enabled to prepare cost reports, to record progress of the project and to cover any special phase of the operations required by the central office. It is not easy to overestimate the value of this part of the control service. The project cost engineer, by the grasp of his functions, by the power of massing results and by his clarity of insight into relations performs the unique part of making facts inferentially valuable. Instead of being a mere collector of facts in the mass, he becomes the selector of the facts which prove or disprove hypotheses, bring out into bold relief concurrent relations and show what measure of cause and effect there may inhere between them. In the short period of the operation of the Hous-

ing Corporation these applications of the statistical methods of measurement of construction and financial results, in the hands of competent engineering direction, yielded most valuable checks on costs. In doing that they also made distinct contributions to the policy of employer and contractor working on a project on a common scientific basis.

Cost Control as Affecting the Contractor

Without going into the minute details of forms and schedules, it is sufficient here to point out that the basis of this working arrangement for both control of cost and for the contractor's guidance was the estimate of the probable cost of the work—a statement which comprised an integral part of his bid for the job. Even though the government paid the bills, it was of vast importance to know from the several available contractors at what expense they provisionally estimated the undertaking. The one chosen for the project then reviewed his estimate of probable cost. This consisted rather in rewriting the items into forms prepared by the Cost Engineering Section, in the light of full instructions as to classification and subdivision of items, than in any considerable change of data based on reconsideration. This official estimate is the documentary standard by which the entire project in every state is to be tested both as to time required and as to outlay thereon.

Although this official estimate is of more or less tentative character it serves the useful purpose of affording a common point of departure in the absence of a formal contract in urgent emergency work. In such emergency projects where detailed specifications and final drawings can not be prepared, some such preliminary estimate is necessary. One of the seeming disadvantages would of course lie in the temptation of the contractor to overestimate costs. But against that is the risk he runs of rival bidders being chosen because of their bids conforming more exactly to the state of the market costs, or of costs where the government controls the material prices. In the absence, however, of a rival, an overestimate would obviously work to the contractor's gain, especially where a

bonus say of 25 per cent is offered for all the amount by which he brings the actual below the estimated cost. But the government's own estimate is some insurance against that. The advantage of a higher estimate is also obvious for him if the contractor is to be penalized by making him pay 25 per cent of the excess cost over the preliminary or official estimate. The better method of safeguarding against these contingencies lies in the existence of a cost keeping staff whose check on the official estimate may be made of service from the start. Even in the selection of the contractor, whose figures on equipment, rentals, salaries, etc., enter into the provisional cost estimate, such checking is fundamental.

There are other aspects of the cost plus fixed fee contract that in the experience of the Housing Corporation might well be given consideration. In a previous chapter the subject was discussed under the Emergency Construction Committee's work on camps and cantonments. In that branch of government contracting the percentage profit on gross costs was much criticized and, shortly after the first set of contracts were let, abandoned or safeguarded by special provisions more protective of the public interest. But the principle survived, and rightly so, owing to better supervision. The Housing Corporation, with this criticism in mind, avoided most of these mistakes by resorting to the fixed fee compensation with bonus and penalty clauses attached, and by pinning down the contractor to the official estimate. Equitable provisions were made for delays and changes in plans for which the contractor could not properly be held responsible. But the greater protection to the government's interest in the premises was no doubt to be found in the presence of a working cost keeping organization. Thereby not only costs as they came in from the contractor's sheets were being checked effectively in the light of market values, but a system of price determining was at hand by which the government could step in as the supplier of materials. Where the market has come too much under the sway of speculative conditions affecting supply and demand a remedy could always be found in commandeering the needed materials or equipment.

Where time is, as it was here, the essence of the contract, control of progress and cost must prove to be of a low state of efficiency before costing more than it is worth. This was one of the criticisms of the Housing Corporation—that it was topheavy with overhead costs—when late in 1919, the House voted to abolish the Housing Bureau on the ground of extravagant expenditures. One of the most valuable results of this system was, in spite of later criticism, to disclose at what stages of completion the working force should be increased or decreased. These housing projects showed in a general way, according to the cost engineers, that "the working force should be built up from a nucleus of about 10 per cent of the whole at the beginning to nearly the maximum force when 25 per cent of the allowed time has expired, and that the maximum should occur during the period from 45 to 60 per cent, but nearly the maximum should be maintained until 80 per cent of the allowed time is gone. The force is then reduced rapidly to the size required for completing odds and ends and for cleaning up."[1] Out of such results as these it is easy to see that cost reports and progress records must, if promptly and accurately furnished, enable those responsible for the construction to locate unsound conditions of expense and to detect in what respects the schedule of progress needs attention. Then it is only a question of immediacy of application to correct the abnormal and to concentrate resources on the advance of the project along normal lines.

It is probably true that in the administration of the Housing Bureau, in the Department of Labor, there was an overloading of salaries. President Eidlitz served without salary throughout his term of incumbency. In the liquidation of the properties after the war, prices for houses realized were little below their cost. This indicates at least that they had not been extravagantly built. From 460 houses of four to six rooms, two-story, in Rock Island Arsenal territory, a price of $3,000 each was realized in October, 1919. Ninety-five per cent of the buyers were occupying workmen.[2]

[1] *Engineering News-Record*, August 7, 1919, p. 259.
[2] *New York Times*, October 26, 1919, in dispatch from Rock Island, Illinois.

CHAPTER XXIX

Housing Contract Policy as Affected by the Armistice

One of the most difficult questions to settle as a result of the suspension of hostilities was that of what was to be done about the uncompleted buildings. Instantly the Bureau of Industrial Housing began a policy of retrenchment.[1] On December 5, a Senate resolution was adopted by the Committee on Buildings and Grounds, reported out December 10 and passed December 12, making it a joint resolution of both houses of Congress and directing the United States Housing Corporation to suspend work upon all buildings where construction was not more than seventy-five per cent completed, and to cancel all contracts for furniture.[2]

This affected the entire program of providing housing, local transportation and other general community utilities at arsenals and other industries where industrial workers were engaged. The policy of these industries varied as to whether work was to be prosecuted, reduced or suspended entirely. The controlling consideration was the precaution not to dislodge labor in any considerable numbers that might work hardship to workers in adjusting themselves to peace conditions. Between completion of going jobs, contraction and cancelation, practically every contract had to be dealt with on its merits. That was in turn affected by the broader questions of military and naval policy. At the navy yards and at public arsenals and on all other outside projects which it was thought wise to keep going, the policy adopted was to eliminate all overtime and Sunday work. But this left undisposed of all such projects as to whose salvage value there was difference of judgment, where completion might more than correspondingly enhance the salvage value to possible purchasers, or for public use.

[1] Letter of Secretary of Labor Wilson to Director Otto M. Eidlitz, November 26, 1918, relating to policy and projects.
[2] Senate Joint Resolution, 65th Cong., 3d Sess., sec. 2.

The main facts as to the work of the Housing Corporation as of December 2, 1918, when the Senate inquiry into the policy of liquidation was being conducted, indicate that there were 98 projects under construction contracts. Of these 60, or almost three-fifths, were let. Plans were completed for 25, ready to be awarded. Of the remaining 13, construction was postponed on 5 projects, on 5 others plans were in preparation, and on 3 the investigations had been completed. Of the 60 projects awarded 23 had been canceled and the losses were being adjusted. So prompt was this part of the procedure following cancelation that within three or four weeks adjustment was effected with a comparatively small loss to the government. Of the remaining 37 contracts, 15 were curtailed, leaving only 22 projects to proceed as contracted for. Thus on December 2, three weeks after the armistice, there were 37 out of 98 projects still going on either as planned or as curtailed. This curtailing was effected, among other ways, by canceling or suspending orders for materials, supplies or other forms of outlay not yet actually involved in building operations.[1]

The Housing Bureau was organized in May, and took the form of the corporation in July. Its appropriation was then made $100,000,000. By December 2, 1918, or within six months it had contracts outstanding as follows, showing the extent of its liquidation in funds:

Classes of Projects	Amount of Contracts	Estimated Final Cost
Projects to proceed	$23,073,961	$23,073,961
Projects to be curtailed	17,330,957	11,297,471
Projects to be canceled	17,627,952	4,053,483
Projects canceled without loss	5,458,275	.....
Total	$63,491,146	$38,429,915

Housing Corporation Handles Own Cancelations

The policy of the Housing Corporation varied with the local conditions as the war came to an end. It had, for instance, commandeered between 400 and 500 houses, for rent-

[1] Testimony of Director Eidlitz, Hearings on Senate Resolution 371, part 1, p. 129.

ing only on terms mutually agreeable to owner and the Housing Bureau. These were at once turned back, so that by the end of two months two-thirds were in the hands of the owners.

On its building contracts the corporation had in hand, as has been stated, 98 projects in all. On November 11, 51 of these were abandoned, on 15 work was curtailed; and 22 were proceeded with as planned.

The kind of project proceeded with depended on its stage of completion, its service for housing locally as a marketable or needed improvement and on the nature of the project. At Havre de Grace, Maryland, 80 houses, 74.2 to 87 per cent completed, on owned land, and much in demand for civilian employes at the Artillery Proving Grounds, were completed. A nearby government activity of a permanent character, requiring added housing, of course, called for completing improvements. At Bridgeport, however, the question of adjacent war work only in part affected the question of completing the 338 houses and apartments of a more or less permanent type. These were 62 to 85 per cent completed, and the locality was in need of these 5 different projects for housing its own existing people. The Housing Corporation here, urged also by the business interests, were in favor of completing and selling, as against attempting to market "as is," by trying to sell a half finished project. The Housing Corporation had spent $3,462,428 and estimated that $613,894 would finish the 5 projects.

PART III—LIQUIDATION, CANCELATION AND ADJUSTMENT

CHAPTER I

Liquidation of Contractual Assets

Government war contracts have thus far been considered from the two aspects of the principles of procedure and the practices of administration under war operations. We now come to the point of summing up results—of liquidating the no longer needed resources, of pointing out the mistakes and the merits of operations in the realms of administrative and economic values, and finally of formulating such conclusions as may be warranted by a scientific study of the facts and factors under review.

Liquidation of military and economic resources following the end of war involves one of the most vital of processes affecting the welfare of the fighting nation. Regardless of whether victory fell to one belligerent or the other, liquidation may be so badly managed as to mar victory or intensify defeat. Much of the moral effect of triumph may be dissipated and turned to shame by the bungling and incapable manner in which the transition stage back to peace is handled. Success here depends primarily on the transfer of the nation's man power from the temporary pursuit of war to the permanent occupations of peace. If that be done constructively with the minimum of discontent it may be said to be well done. But the shift of man power depends for its success on the manner in which the economic resources are released and the man power and the material resources coupled up so as to make for the general and individual welfare. Transition to peace is always a critical era in public interest and national policy.

The Problem of Settling Unfinished Contracts

The outstanding problem for the government was that of closing the unfinished contracts as they stood on the morning after the armistice of November 11, 1918. According to the testimony of the Director of Finance of the War Department, there were on that date, as nearly as could be ascertained, 24,281 contracts and agreements in force in all bureaus. This covers all war activities of the government. The original amount of commitments embraced in these contracts and agreements was $6,056,000,000. On the obligations represented by that amount some delivery had been made. The problem of deciding what deliveries should be continued, what ones suspended and finally what ones canceled outright was no small part of the postwar tasks of the department. To put the whole matter into official language, the paragraph of Brigadier General H. M. Lord's testimony from the Select Committee's Hearings on War Expenditures may well be quoted in full:

> The total amount of incompleted portion of the contracts or agreements at that date—the amount of $6,056,000,000—is the amount involved in these contracts on which some delivery had been made. Now, the total amount of the undelivered portion of the contracts or agreements to that date—the amount we would still have to pay if they continued to deliver—was $3,600,000,000.[1]

How much would it take to effect a settlement for this total of undelivered obligation of $3,600,000,000? A necessarily hasty estimate by the several bureaus, which was checked up during the next six months and verified, placed the total required to clear the decks of unfinished contract work at the comparatively small total of $705,000,000. By June 24, 1919, out of these 24,281 contracts and agreements on the docket, 17,200 had been approved for settlement by the boards of review as received in the form of agreements for settlement through the various district claims boards. That was equal to 19.06 cents on the dollar. In point of number of contracts cleared, 70.8 per cent of the total had been settled within little more than seven months. The exact number thus

[1] Hearings on War Expenditures, Ser. VI, Vol. II, p. 2126.

agreed upon on the date of the hearings was 17,241 contracts, involving obligations in settlement of accounts of $179,280,000, of which there had been paid to claimants, under these agreements, $177,142,000, or little more than 99 per cent.

It was the judgment of the War Department that many of these unfinished contract commitments could be liquidated at not more than 10 to 15 per cent of the cost of the unfinished articles on hand. It might be considerably less, if in the discretion of the Secretary of War it were deemed fair and just as a reimbursement to hold the contractor harmless against expenses and obligations incurred pursuant to the requirements of the original contract. Later, in actual experience with the application of the Dent Act to the settlement of the so-called informal contracts, or procurement orders, it was found that in the disposal of some 6,600 out of probably 20,000 or more, the government settled for 12 or 13 per cent of the total contractual commitments on unfinished orders.[1] It was the purpose of the department in handling these unfinished contracts to substitute a supplementary agreement embodying the principle of not making any allowance for prospective profits on these unfinished products, but to cover all claims for a fair and just settlement by a 10 per cent allowance on the cost of the partly finished goods.[2] All finished products were paid for at contract rates.

It is well worth observing how the War Department handled this situation. No contracts were let after the armistice. The need for a prompt suspension and cancelation of all contracts, most of which were reaching the maximum production, was recognized by the offices of the Directors of Munitions and of the Division of Purchase and Storage. These two officials probably controlled 90 per cent of the contracts in the War Department. They immediately conferred with the Navy Department and the Shipping Board—the two leading employers on war work—by which the hours of labor were

[1] Hearings on War Expenditures, Ser. VI, part 38, p. 2126.

[2] Hearings on House Bill, No. 13,274: "Relative to Contracts," to provide relief, etc., p. 15, in Letter of Comptroller of the Treasury to the Secretary of War, November 25, 1918, on illegality of contracts.

reduced in cutting out all Sunday work and all overtime. The slowing down led many men who had left their old jobs for war work to go back at once. That quickly relieved the situation almost automatically. Production slowed up accordingly. Here let the Director of Munitions state the plan followed, beginning with the day after the armistice:

> A study was then immediately made of the requirements and the state of production in all these contracts. Complete immediate cancelation could not be had for many reasons, first, because in the case of a contract where material was in process a cancelation would mean we would lose all that material. A great deal of it was 75 or 80 per cent finished, and in a case of that kind we would prefer to pay the remaining 20 per cent and get the finished article rather than pay 80 per cent and have a complete loss.
>
> The case of a rifle is perhaps a good case in point. We are completing the rifles that were in process so that in all cases we get a complete rifle rather than an 80 per cent complete rifle. That principle was applied in most cases, and we then met with the Comptroller of the Treasury in regard to payments, because a prompt payment to these contractors, I believe, is imperative. Many of them, because of the greatly increased cost of doing business, have a large amount of money borrowed, and if they can promptly meet their difficulties and make this payment, that will allow them to immediately and easily turn back into their own business, and at the same time we can settle the claims of a large proportion of them.[1]

Here a long anticipated obstacle arose. In the pressure to get contractors at work on munitions, the contractor during the war would meet the official of the government and in a few minutes agree upon the main features of a contract. On the strength of this understanding the contract commitments would be entered into by the contractor, and the formal contract follow some days or may be weeks if not months after. Meanwhile the contracting officer named in the document may have gone to France. This resulted in informalities for which corrective legislation was asked of Congress in December, but not really supplied until March 2, the next year (1919) in the Dent Act.

Referring to these numerous informal contracts Gen. George W. Goethals, then Director of Purchases, makes a helpful summary in his testimony at the Hearings on House Bill No. 13,274 (to provide relief for informal contracts).

[1] Testimony of Benedict Crowell, Director of Munitions, in Hearings on House Bill No. 13,274, pp. 3–4.

To correct this disability to effect legally a prompt settlement with the contractor, he said:

There are three classes of cases. The first one is where a contract has been made and not signed by the proper officer, where the contractor has delivered his material, and where we have paid him for it, and by reason of the fact that the contract was not regularly signed the payments are illegal. The second case is where we have gotten part of the stuff, but where no contract has been signed. The third case is where we have given an order to a contractor to make preparations to go to work, where he has expended the money, but had delivered nothing under the contract at the time the armistice was signed.

MR. GREENE: The presumption is that the government does not undertake to insure these contractors against any speculative risk.

GENERAL GOETHALS: None at all; it is simply actual cost as far as we are able to determine it. The method of procedure is that we notify the contractor that his contract is suspended and no further production will be allowed. The contracting officer, together with his inspectors, determine how much has been expended on that contract and what is properly allowable. That goes before the bureau board of review, and they pass upon it, and, if in passing upon the claim, it receives the approval of the chief of the bureau, the claim is settled beyond question. The next case is where there is a disagreement. If that can not be settled by the bureau board of review, it comes to a part of my organization, which is called the board of contract adjustment, which passes upon it, and there decision is final.

So the machinery is set up for the closing of these contracts, and had there been no illegality in the signing of the contracts this legislation would never have come up and we would have settled the claims by the machinery which has been set up, and the Congress would not have been appealed to.[1]

It was much to the credit of the engineering talent in office in the War Department that it had ready at hand fully organized machinery to liquidate these thousands of contracts almost as soon as the war stopped. The fact is that the War Department, early in and during the year 1918, underwent a comprehensive reorganization of its business arrangements. Excepting in the hopelessly muddled Aircraft Production, where the correction began too late, and in some other minor divisions, these reorganizations showed excellent results. As a consequence, when the commercial organizations and the bankers came along with their schemes for the settlement of these outstanding war contracts, to stave off anticipated bankruptcy, they found that the War authorities, in both the

[1] Hearings on House Bill No. 13,274, p. 8.

Ordnance and the Purchase Division or Quartermaster General's Office, had anticipated their suggestions. In fact the War Department had made unnecessary the proposal to set up an entirely new set of liquidating machinery in which civilian representatives of these outside organizations were to share the duties of adjustment. The bureau-and-board system, although it utilized much civilian talent to advantage, as the War Department actually organized the work of settlement, was not wholly satisfactory. Some of the district boards were splendidly equipped with most competent men both of civil and military training, as the Ordnance Board of the Philadelphia District. Others were in far less competent hands, as in some of the Chicago district's ordnance settlements.

One of the basic factors in determining the policy to be pursued at the end of hostilities was that of the size of the army. During the war this had grown from a total of practically 100,000 regulars to an establishment whose supplies and munitions were being contracted for on the basis of an army of 5,000,000. In due time the requisite economic mechanism for the equipping of these millions of soldiers would turn out billions of supplies and means of combat. Some of the industrial undertakings had already reached the peak of the load when the armistice came. Others were rapidly approaching their maximum for the 5,000,000 army needs, while still others were expanding in view of the full measure of military effort during the expected campaign of 1919. The cumulative volume of economic effort on a nation-wide scale did not, probably, impress itself upon the authorities until the suspension of hostilities. Then for a very brief period the flow of military resources became so imminent as to require quick action. In some lines cancelation had actually preceded the armistice, but generally the inpouring of supplies and munitions needed only a day or two to threaten a condition of supercongestion throughout the traffic world unless initial shipping were arrested at once. The reversal of this immense machinery of production and transportation thus

became the most momentous problem before the War authorities. The situation was fraught with the most far reaching possibilities, owing not only to the numerous thousands of outstanding contracts of the government with its own citizens at home but also with other governments throughout the world of Allied and neutral relationship.

Supply Situation at Armistice and After

In war there is no safety in buying supplies on the hand-to-mouth basis. On the date of the armistice, Pershing's army had three months' supplies at hand, but the purchasing contract work was no less than eight months ahead of that date. General March, then Chief of Staff, explained to the War Expenditures Committee of the House (July, 1919), that—

> Eight months ahead of the armistice, on November 11, 1918, we were working on a program which contemplated laying down in March, 1919, an army of 80 divisions in France and 18 at home which was about a million more than we had on November 11, when we cut off and stopped it. But the buying going on in September, October and November was not at all for these months but for the months ahead, for the spring campaign; so on the day when the armistice was signed, and when I shut down everything in the United States, the storehouses all along the seacoast were filled with supplies, and trains were filled with supplies of foodstuffs making for the seacoast to go across the water, and food products in the course of delivery all the way along back. When the armistice was signed we stopped trains and held trains filled with food products a long time, until we could get storage for them, and we encouraged contractors to store stuff and hold it for us until we could dispose of it. We had a three months' supply on November 11, which was based not on the strength of the army of that date, but based on the spring drive of the next year. We were buying supplies and laying in supplies, not for an army of more than 3,000,000 men, but for an army of more than 5,000,000 men.[1]

This heaping up of supplies, under the impetus of the war program based on the spring drive of 1919, was going on while the army was being demobilized almost from the day of the armistice, until the reservoirs of commerce were overflowing with foodstuffs under military control. The first check came with the order of November 30, in which General March declared a surplus of foodstuffs. Nevertheless, actual sales did not really take place until May 5, 1919.

[1] Congressional Record, July 29, 1919, p. 3546.

The situation thus indicated was not simplified by the fact that there was much doubt as to the permanency of the armistice. Under the terms of the armistice a resumption of hostilities was quite possible at any time, and the possibilities of a resumption had to be kept in mind in formulating any program for demobilization of troops and consequent release of supplies. The War Department nevertheless discontinued forthwith the transporting of foods to Europe, stopped the mobilization of troops in this country and began a progressive demobilization of men. It also suspended existing contracts for the procurement of supplies and "took all possible steps to bring about a reduction of war expenditures. In the meantime, vast quantities of supplies already manufactured were in hand and a continued stream of deliveries from manufacturers and producers daily increased the stock of the department."

Thus wrote the Secretary of War under date of July 26, 1919, in describing the factors which had to be taken into account in liquidating war supplies. To quote his summary more fully:

> These supplies were of practically every nature; foodstuffs, clothing, implements, machinery, vehicles, thousands of items, some having little usefulness in civil life by reason of their special adaptation to army use, many of them being equally valuable for peace time and war time usefulness. The data in the hands of the department with reference to the speed with which demobilization could be effected were necessarily speculative. How large an army should be retained, and for how long, required to be carefully determined. The situation in Europe, the rapidity with which transportation home could be supplied, industrial conditions in the United States, were all elements to be considered. As a result it was not possible instantly to place upon the market for sale to the general public the supplies held in storage by the department. It was necessary first to make an accurate forecast of the army needs; second, by proper inventory and examination to determine quantities on hand; and, third, to devise methods of disposing of these commodities which would take into consideration the perishable nature of some of them and the effect of their sale upon producers of raw material and labor conditions in the country.[1]

Plausible as this statement of policy may appear at first thought, its merit has to be tested rather by the sequel than

[1] From Letter of Secretary of War, to Hon. H. D. Flood, Appendix to Minority Report, H. R. No. 171, dated July 26, 1919, p. 15.

by the sense of the statement. To those who have examined the situation from the viewpoint of liquidation upon prices and producing interests, the department seemed disposed to lean quite too far toward the side of the producers and the commercial distributors and to overlook the interests of the consuming public in the premises. So also was the regard for the wage earner who had gotten about all he asked for in the war. The price paying public in actual liquidating practice was thus again made to occupy the role of the "forgotten man." With prices at the top notch, there was far less danger to the public peace and to the general economic welfare of the great consuming public in putting on the market some of the vast accumulations of foodstuffs at once, than there was in the official fear of the Secretary of War, in "inconsiderately tendering its vast accumulations of supplies to the public consumption while it was demobilizing its industrial and military forces."[1] As matters turned out, the failure to do so enabled wholesalers, manufacturers and retailers to enter upon a post-armistice campaign of profiteering. That led to an epidemic of strikes for advanced wages in railway and steel circles, on the ground of advancing costs of living. In this the policy of not disposing at once of some of the surplus promptly reaped its own sowings. Had that been done prices must have been kept down in many of the staples of which there was no sort of doubt as to the army's ever needing even a fraction of the stocks piling up at every central storage point. Especially culpable, from the consumers' standpoint, was the agreement on the part of the Acting Quartermaster General by letter of December 6, a month after the armistice, assuring the canners' association that the 200,000,000 cans of vegetables held in the government's stock would not be marketed during the current season. Then, or soon thereafter, by January 1, 75 per cent of the pack of tomatoes had passed into the wholesale and retail trade for domestic consumption. It was these holdings that the order referred to was designed to protect

[1] From Letter of Secretary of War, to Hon. H. D. Flood, Appendix to Minority Report, H. R. No. 171, dated July 26, 1919, p. 15.

against any depression in prices that might occur if the army's canned food surplus had been marketed progressively, beginning at once after the armistice. There was no need of breaking the market; but there was some need, as the federal Department of Justice later came to realize, of keeping prices from rising by marketing some of the known surplus stock. Public agitation later compelled the abandonment of the policy of protecting the canners and the canned goods trade at the expense of the consuming public; although the Quartermaster General's order was not abrogated until May 23, 1919, when the sales of canned vegetables proceeded. That was six months after the armistice. Evidently the War Department had kept faith with the producers and the distributors.[1] In the case of meats the policy was practically the same—of official tenderheartedness toward the price controlling factors in the market.

Problem of Disposal of Quartermaster's Surplus

When the armistice went into effect, the Quartermaster Department had outstanding approximately 16,000 contracts, involving a total value of $1,800,000,000. These contracts may be divided into two main classes, including those which the armistice rendered no longer useful for the purposes of the army, and those covering articles needed. Of the former it was of course desirable in the public interest that all contracts which could be canceled should be stopped at once. Of those which could not be terminated immediately it was most desirable that they be tapered down gradually or at best be stopped at the earliest possible date consistent with the public interest.

It is a fair question whether or not, in the official judgment, it was not political considerations rather than the general public interest, that led the administration, unwittingly of course, to place so many of the contracts which no longer

[1] On this phase of the delay in disposing of surplus food products, see both the majority and the minority reports of the Select Committee on Expenditures in the War Department, Report No. 171, 66th Cong., 1st Sess., House of Representatives, W. J. Graham, chairman, July 28, 1919.

served the public interest in the category of those, "the immediate cancelation of which would have disrupted the industry, doing material damage to the contractor, to the farmer and to labor." The tapering-off policy was adopted in the case of some of the service rifle contracts for which, of course, there was no need now that the army was to be reduced to a peace footing as soon as practicable. In the General Staff's authorization of the declaration of a surplus of perishable food products, as of November 30, an army of 500,000 was made the basis of the estimates of the amounts to be withheld out of total stocks, in arriving at the quantities to be assigned to surplus.

The first step in working out the problem applied only to perishable foodstuffs and was practically the initial acknowledgment on the part of the military authorities as to its purpose in handling this biggest of all single economic questions arising out of the war. This came nineteen days after the armistice. On the following day the Secretary of War announced that in the disposal of the army surplus the following three principles would be followed:

1. The disposal of supplies, as far as possible, through other government agencies and relief commissions.
2. To take up with the original producer who furnished the articles to the government the question of repurchase, in order that materials might be distributed through their original and customary channels.
3. To offer the remaining surplus in the best market or to the public at large with full publicity.

When the War Department turned salesman it apparently felt some diffidence about sailing far from shore. Its policy of dickering with the producer, after having paid him a profit for his goods as purchaser, and before venturing to offer the surplus to the consuming public, was characteristic of its great tenderness for the interests with which it had fixed prices. The plea that these prices were fixed by the government and should therefore be "protected" in the formulation of any sales policy for the disposable surplus, is based on the false assumption that that fixed price did not take into account the risks of an end of the war. That canners of foodstuffs

did not get a fair price from the government as purchaser would indeed be hard to maintain before an average American jury. The government's holding canned goods out for five months after the armistice was therefore simply an additional premium put on these goods which the trade or packers held—a price booster in a scarcity market.

There is only one mitigating factor to offset this otherwise unsound economic policy of delay in liquidating surplus perishables more promptly but gradually. It lay in the conditions which made delay in taking a dependable inventory unavoidable. The vast mechanism that was turning out products of tens of thousands of different kinds could not be brought to a stop at once. Only gradually could a standstill be reached, in order that a start might be made in the upbuilding of a piece of machinery by which just the reverse of supply might be begun. Until that were done the policy of disposal might be declared, but the problem itself could hardly be attacked, of taking an inventory that was worth while. So long as streams of traffic, much of which had been congested or delayed along the railway lines, were pouring into the storage centers or arriving at the seaboard on the prearmistice schedules, little in the way of an accurate inventory could be arrived at. Consequently it was decided to disregard the usual inventory required by army regulations and prepare a special organization to take it as of December 31.

Quartermaster Corps' Inventory as of December 31, 1918

The inventory of December 31 was in its essential respects a remarkable piece of administrative work in government hands. It partook of that high regard for systematic record for which the Purchase, Storage and Traffic Division of the General Staff was coming to be known. Its director called, as early as December 1, a group of 178 officers to Washington for instruction on the methods of this inventory. After sixteen days of training, these were sent to the various

supply offices and camps, where an officer designated by each commanding officer of the post or station was assigned to this particular duty. These officers were in turn assembled in the supply office of each zone for specific instructions as sent from Washington. Colonel Norris Stayton of the Quartermaster Corps, Assistant Director of Storage, thus describes the scope and results of this inventory:

> On December 31 this inventory started throughout the United States. The physical count was completed in ten days at all posts, station and depots. These reports were then brought to Washington and consolidated. When it is considered that this vast quantity of purchase and storage supplies were scattered throughout the country in sixteen zone supply depots, three army reserve depots, four large port terminals and from two hundred to three hundred posts, it is obvious that the task of determining the amount and location of these supplies was a problem in itself. To illustrate, there were some 180,000 different items to be counted, reported and consolidated. To do this, it took approximately 10,000 people to complete this work. Inventory was completed on April 30 and a list prepared for the use of declaring surpluses.

Here we have at last the scientific basis for a definite plan or method of getting tangible results in surplus disposal. The division between retained stock and surplus, on the provisional basis of an army of 500,000, was by this time more easily arrived at, because both of the rapid demobilization and of the indisposition of Congress to favor more than 350,000 men for a peace time army. Consequently the half million basis was a safe criterion. On this matter the army authorities could, however, take no chances, as to the needs of the forces undergoing demobilization. That was likewise influenced by the precaution of not returning the soldiers too rapidly to civil life on account of the difficulty of finding occupations for them along with the adjustment of workers from war time to peace time work. It thus came about that out of an army of 3,700,000 men on November 11, 2,000,000 of which were in France and 1,700,000 in continental America, fully 800,000 men were discharged by January 11, 1919. By May 24, a total of 2,252,000 men were out of the service, and releases were being effected at the rate of 80,000 weekly. Probably half of the numerical total of the army at its largest shared in the order making canned vegetables part of the

soldier's rations after March 17, thereby reducing still further the total available for surplus disposal.

Dismantling of the war time military organization came in for its share in causing delay in surplus declarations on the inventoried basis. Although the fighting stopped November 11, and the declaring of a surplus was authorized November 30, and ascertained December 31–January 9, the first surpluses were made and sales effected on February 12, 1919; but that of meats was not made before March 26. Beginning with May numerous surpluses were declared and sales were being consummated on a large scale as early as June and July when (July 29) the Secretary of War by House resolution was requested to place surplus food products on the market without further delay, alleging that much deterioration and loss had resulted from official tardiness. This latter statement is not borne out by the information available, except as to a lot of hams awaiting overseas shipment at Norfolk. The intention of the authorities was to market much of the vegetable and meat canned goods in Europe or elsewhere abroad, as they had been packed in larger sized cans for transit abroad and were less salable here on that account. For the purpose of selling the surplus, the War Department, under its Division of Supply, Storage and Traffic, organized a sales division, in charge of which a director of sales was placed, in January, 1919.

Custody of Surplus Pending Disposal

The vast amount of munitions and supplies on hand at the end of the war imposed upon the army authorities one of its most difficult problems of property administration. The task was rendered all the more difficult because of the rapid demobilization and the lack of adequate storage, labor and supervision for much of the property located at different camps of concentration and other construction projects rendered unnecessary by the end of the war. Camp Holabird, near Baltimore and the town of Nitro, West Virginia, were notorious instances of inadequate protection if not grossly culpable neglect of property in the custody of the military establishment.

Under war department regulations these supplies remained in the custody of the commissioned officers, whose duty it is to assume and retain property accountability. The sum total of such property is in due time divisible into three parts:

(a) Supplies needed by the army.

(b) Reserve stocks or property transferable to the other government departments (auto trucks to Department of Agriculture).

(c) Surplus supplies to be sold and for that purpose turned over to the Sales Director of the Division of Purchase, Storage and Traffic, to negotiate sales.

Until such division into disposable and nondisposable property is made no steps can be taken looking to the liquidation of army assets; and until such sales are made the regular commissioned officers are responsible for the condition, protection and preservation of the public properties in their charge.

The volume of disposable surplus thus turned over to the Sales Director, actually or prospectively, made of that task one of the largest mercantile transactions ever engaged in by the army authorities. It was estimated by Senator James W. Wadsworth, chairman of the Senate Military Affairs Committee, that there were in the form of unsettled contracts, including such properties as machinery, raw materials, foodstuffs and manufactured products as of July 31, 1919, assets disposable to the value of $2,000,000,000, for the proper handling of which the greater part of 8,000 emergency officers was needed. Even those now or then in charge of these stores and stocks were not given anything like an adequate labor force by which to afford ordinary protection against exposure of property in their custody. At some camps of concentration hundreds of automobiles were left exposed for months in the open without any apparent effort to conserve these valuable vehicles. Individual requests for information as to how to proceed to purchase were lost somewhere in the morass of impotence with which the administrative arm of service seemed to be smitten in the reaction following the arrival of peace.

Among the explanations assigned for this indisposition to liquidate property no longer needed by the army but desired by the public, were the following:

1. Until peace was actually assured by the signing of the Treaty of Versailles by Germany, June 28, 1919, over seven months after war ceased, it was not deemed best to deplete the foodstuffs and other supplies.

2. Therefore, no division of supplies into needed reserves and surplus stocks could be made, by which to effect liquidation on a comprehensive scale.

3. Until the size of the permanent personnel of the military establishment was determined, provisionally at least, the quantity of the supplies to be held back was problematical.

4. The disposition of the War Department (a) to avoid any disposal of surplus stocks which might tend to demoralize market conditions at home, and (b) to dispose of such surplus as was originally packed and intended for export so far as practicable to foreign markets.

Although some of these reasons were specious, that was not true of all of them. Demobilization itself interfered with supply liquidations; so also did wholesale resignations, numbering up to 1,500 vacancies by the end of the fiscal year after the armistice. These losses had crippled the regular army officer personnel to such an extent that the adjustment board service and the vacancies combined took from the regular army official list about 19 per cent of the legalized personnel.

A still darker side of the liquidation appears in the wasteful abandonment of equipment and transport facilities. Probably the climax of military irresponsibility was reached in the hundreds of cases of neglect of public property in the period of a year or more following the armistice. It was as if a paralysis of the sense of custodial duty had fallen on the War Department. At many a camp and cantonment this impotence found illustration in various portions of the country. Yet, numerous as these instances were, they did not occur without some protest against their being allowed to persist as demoralizing examples of governmental negligence.

A few examples at home and abroad will suffice to prove the facts.

Some of the most flagrant cases of failure to take care of army property might be cited both in the United States and in France with the Expeditionary Forces. At Nitro, West Virginia, 52,000 bales of cotton, unloaded in August, 1918, were still rotting in exposure to rain and sun over a year later in September, 1919. At Camp Jesup, Atlanta, Georgia, several thousands of automobiles, trucks and motor cycles were left exposed as part of the many millions of public property wasting on this spot. In the meantime the various departments of the federal government had spent $175,000 for the same kinds of vehicles which had deteriorated to the point of junk in the camps in Georgia and elsewhere. Probably the most inexcusable case of abandonment of the official regard for custody of property was near Baltimore, Maryland. In September, 1919, 11,000 army cars were still stored there, many exposed without ever being even uncrated.[1] Of the latter there were over 3,000 pleasure cars and trucks. Nine months after the armistice, 1,000 cars had been added, and less than a hundred sold as wrecks and extra parts. There has never been any satisfactory explanation of this utter disregard of custodial responsibility, and nobody has been brought to account for its perpetuation. Inadequate labor at this locality does not excuse superiors in authority. The only excuse ever given was that somebody in control was under orders not to put these cars on the market at the time.

These instances suffice for conditions at home. Abroad there was ample evidence of destruction of valuable government property in the breaking up of the organization in France. Members of Company L, 23d Engineers, saw for a period of from two weeks to a month continuous burning of military equipment and supplies at a salvage dump, where the 79th Division was located, near Souilly, France. This included shoes, jerkins (wool lined jackets), rifle and pistol

[1] *New York Times*, September 4, 1919.

leather holsters, ammunition and ammunition boxes and large quantities of hay apparently in good condition. Others had seen the same destruction of public property, and four or five privates, outraged by the criminal waste, had reported to their superiors, whereupon the burning of new and used goods, which the salvage officer was apparently unwilling to assort, was brought to an end for the time being at least. There wagon loads in long line came and emptied their contents on a fire to consume blankets and clothing and what not, including good overcoats, for days and weeks during the late winter and spring of 1919.[1]

[1] War Expenditures Hearings, Ser. IV, part 1, pp. 3–18, including testimony of Sergt. C. B. Malcolm, and four privates of the 23d Engineers, Company L.

CHAPTER II

Cancelations of Orders and Contracts

War contracts usually, but not always, contain clauses providing for cancelation on given conditions. In some forms this appears as a right to terminate the contract for neglect, refusal or failure on the contractor's part to prosecute with promptness and diligence, for default in performance of agreement, or "if conditions arise which in the opinion of the contracting officer make it advisable or necessary to cease work." This gives two distinct grounds for cancelation: one is based on delinquency of the contractor, and the other on the right of the government to take such action as may protect its own interests under unforeseen contingencies. The cancelations arising from the ending of the war come under the latter class. Under the former class of causes for cancelation came all that group of contracts that required emergency speed, such as were made for the construction of the camps and cantonment buildings. In these cases the deposed contractor for delinquency was to be dispossessed at five days' notice and the contracting officer to be given possession of the premises for the purpose of completing the work.[1] In case of cancelation for the purpose of abandoning the work and terminating the contract,[2] the standard form provided that—

> The contracting officer shall assume and become liable for all such obligations, commitments and unliquidated claims as the contractor may have theretofore, in good faith, undertaken or incurred in connection with said work. . . . The contracting officer shall pay to the contractor such an amount of money on account of the unpaid balance of the cost of the work and of the fee as will result in the contractor receiving full reimbursement for the cost of the work up to the time of such abandonment, plus a fee to be computed in the following manner: To the cost of the work up to the time of such abandonment shall be added the amount of the

[1] Contract for Emergency Work, Q. M. G. O., 3rd ed., Art. VII: "Right to Terminate Contract."
[2] *Ibid.*, Art. VIII.

contractual obligations or commitments assumed by the contracting officer, and such total shall be treated as the cost of the work upon which the fee shall be computed.

Settlement for Cost-Plus Fixed Profit Contracts

This was the procedure in the cost plus percentage contracts, but it did not vary materially in method of settlement from the terms and procedure in other cases of termination in the public interest. An Ordnance Office contract with the Otis Elevator Company for 1,039 recuperators for 240 howitzers, entered into as early as December 22, 1917, and expiring November 15, 1918, apparently contemplated the contingency of the war's end or other eventualities. Article IX, of that agreement, covers elaborately just this contingency in the following terms:

Article IX. In the event that in the opinion of the Chief of Ordnance the public interests so require, this contract may be terminated by notice in writing to the contractor, without prejudice to any claim the United States may have against the contractor.

In the event of the termination of this contract as aforesaid the United States shall pay the contractor all costs and obligations of the contractor theretofore incurred and not previously paid, which may be allowed pursuant to Article V hereof [allowance of costs], together with the fixed profit herein provided upon all articles previously delivered and accepted.[1]

This was one of those numerous Ordnance contracts of a highly technical character in whose production many of the larger and most responsible manufacturing concerns of the country were engaged when the close of hostilities came. The contractual provisions under which the cancelation and settlement took place were of this general character authorizing the government to stop production. In this particular award the contractor was to receive a profit of $1,250 per unit delivered, making the total compensation $1,298,640 as a fixed profit on a cost-plus contract. That compensation was, of course, entirely apart from the costs or reimbursements for elements of expense entering into the production of these units. These allowances for costs were fully indicated in the

[1] War Expenditures Hearings, Ser. VI, part 37, p. 2066.

chapter on Analysis of Standard Ordnance Contracts, based largely on "definition of costs pertaining to contracts," as established in Ordnance Office practice.[1]

These quotations from actual contracts of representative character will serve to show by what authority and forms the government anticipated cancelations and provided for settlement of accounts. The particular procedure in such adjustments forms a part of the administrative work of the main supply service of the General Staff. That is probably best elaborated in the practice of the Purchase, Storage and Traffic Division of the War Department, as found in the official Supply Circular, No. 111, issued November 9, 1918, or two days before the armistice. This statement of procedure had so much to do with the extensive work of winding up war contracts under the War Department auspices as to make it advisable to reproduce its main features herewith.

Termination of Contracts and Orders in Public Interest

The position of the government in the termination of contract work is based on the assumption that the production of an article or the rendering of a service for which there is no further need justifies termination, with proper and fair compensation within the provisions of the contract. Where there is no such provision for stopping work by prior agreement, the discretion of the appropriate officer of the government is relied upon to exercise that authority in the public interest. This authority in that case is not exercised in the form of a notice of cancelation but of a request to suspend work in the public interest. That is, the government proceeds on the assumption not of having a right by contract agreement to stop work but requests the contractor to suspend as a matter of duty to the common weal. That is the ground of action, although the contractor does not always recognize his right to proceed, in the absence of an express terminating clause, in some cases for a period of fifteen days

[1] Definition of "Costs," Office of Chief of Ordnance, Form 2941.

as in the so-called tapering-off arrangements for suspension of war work. On the other hand, few contractors care to run the risk of continuing to incur costs of production after receiving a request to suspend owing to the ending of the war.

Supply Circular, No. 111, contains the following principal provisions governing this important phase of war contract liquidation, by which the various officers were to be guided on this subject:

1. Whenever the appropriate officers of the government determine that it is necessary in the public interest, to terminate, in whole or in part, a contract or a purchase or procurement order for materials or supplies, such termination shall be effected as herein directed.

2. Whenever such contract or order expressly provided that it may be terminated in the public interest, termination may be effected only in accordance with such provisions, unless it shall be in the public interest to terminate it in accordance with the provisions of this circular and the parties shall agree thereto.

3. Whenever such contract does not expressly provide that it may be terminated in the public interest, the contractor, if the public interest so requires, shall be requested to suspend work thereunder, in whole or in part and to supply promptly a report under oath, showing in detail the following information in so far as applicable:

(1) Raw materials on hand: Cost plus inward handling charges plus such portion of overhead as is directly applicable.

(2) Partly finished products on hand: Cost of raw material and labor, plus such portion of overhead as is directly applicable.

(3) Finished products on hand: Contract price, less freight charges if the contract or offer specifies delivery at point other than factory.

(4) Special facilities: Cost of facilities specially provided and paid for by the contractor for the performance of the contract, the necessity of which was contemplated at the time the bargain was made and the cost of which was included in the contractor's original estimate. From the cost of such facilities deduct their fair value at the time the contract or order is terminated and state such portion of the remainder as is represented by the ratio of the uncompleted portion to the whole contract or order.

(5) Commitments: The contractor's commitments to suppliers, subcontractors and others for contributing materials or work. If the contractor claims additional compensation by reason of any other item or items, he may add such item or items, together with a detailed statement of the facts on which his claim is based.

Supplemental Contracts for Settling Claims

In these extensive adjustments the contracts or orders terminable by prior agreement are readily thrown into the course of settlement. But those as to which no such recourse is open present a different problem—a problem in whose solution the

tact of the careful bargainer finds field for play of negotiating powers. To begin with, the noncancelable contracts are not terminated by any formal notice to that effect, for the good reason that such notice would bar the way to the making of the supplementary contract, which is what the War authorities are after. Hence, only a request to suspend is issued, not a notice of cancelation. Here is where the good will and public spirit of the contractor comes in with good effect. On such a basis it is found to be no difficult matter to arrive at an agreement as to what is a fair and reasonable compensation to be paid the contractor by reason of suspension or termination of contract. In the case of a voluntary agreement the result is then "embodied in a supplemental contract which shall set forth the agreed compensation and shall provide in specific terms that it constitutes full and final settlement of all questions and claims growing out of the original contract or order." This, in turn, can not become binding until approved by the Board of Contract Review of the particular supply bureau concerned.[1] For instances in which the contracting officer and the contractor fail to come to an agreement the Board of Contract Adjustment was created to determine all claims, doubts, and disputes which may arise under departmental contracts.[2]

Summary of Features in Contract Adjustment

Governmental relations with the business world underwent rapid changes following the armistice. There was pressure from such organizations as the United States Chamber of Commerce, the Illinois Manufacturers' Association and the New York Merchants' Association, for as prompt a release of business concerns as practicable. It was especially in the field of munitions production that large amounts of capital and labor were tied up—awaiting a definite policy of release from the government, provided always that settlement on fair terms could be accomplished on mutually satisfactory bases. Under

[1] For functions of these boards see Supply Circulars, Nos. 14 and 21, Purchase and Supply Branch, dated respectively July 30, 1918, and August 16, 1918.
[2] War Department, General Orders, No. 103, November 6, 1918.

the supervision of Gen. George W. Goethals, then Director of Purchase, Storage and Traffic, and of Director of Munitions Benedict Crowell of the War Department, and his able assistants, the following general steps of procedure were taken:

1. The first thing done after the armistice was to remove the priorities, so that manufacturers could be free to take civil orders with the least practicable loss of time in making the transition to commercial work.

2. Within a month after November 11 practically all of the 25,000 contractors had been notified of the suspension of their contracts and of the purpose of the government to expedite the settlement of accounts as rapidly as possible by paying provisionally at least 75 per cent of the tentatively agreed reimbursement, leaving the other quarter for subsequent determination after reexamination and review.

3. In order not to cause too sudden a transfer of labor from the munition plants and other industries, especially the textile and the metal industries, an abrupt dislocation of employment was to be guarded against everywhere by continuing operations of contracts. That was the case with the knit goods industries in Connecticut and with the service rifle manufactories, as well as in some other war supply establishments. The Eddystone Rifle Works tapered off until February.

4. For that large class of cases in which contractors are not bound by any express terms to accept cancelation in the public interest, it is proposed to negotiate a supplementary agreement to take the place of the original contract and at the same time embody the exact terms and conditions of settlement for unfinished products. This was subject to review of all such claims and adjustments by the Board of Contract Review, as negotiated by the district claims boards.

5. The discovery, by reason of the decision of the Comptroller of the Treasury, that thousands of the procurement orders, especially for munitions, were not in the form of contracts drawn according to the law, made advisable some further enabling legislation on the part of Congress. These

informal contracts, for rifles for instance, had been partly filled and deliveries accepted, to which extent the government was bound to pay on the *quantum meruit* principle. But for the unfinished work or that in process the Dent Act was passed (approved March 2, 1919), legalizing orders for which legal contracts had not been issued or were delayed.

6. The setting up of liquidating machinery for the presentation of contractors' claims in standard form, for their consideration by district claims boards of various bureaus, for their review by central boards at Washington and the final adjudication of contractual questions arising out of the war, so as to forestall as far as practicable appeals to the slower processes of the Court of Claims.

CHAPTER III

Postarmistice Methods of Adjusting Contracts

As soon as the cessation of hostilities releases the economic activities of a nation from the main business of military effort, a sort of universal let-down ensues. The relations of government to private interests undergo a fundamental change. In war time the spectre of commandeering power always overshadowed the business arrangements. Now that spell had been broken. The relation of contractor and government shifted to a legal-economic basis in which a larger measure of bargaining freedom existed. As soon as the armistice of November 11, 1918, became a fact, this newer status gave a different character to the war contract relationship. For this reason an entirely different kind of machinery had to be called into use. Out of an era in which speed of execution of contract commitments was the essential consideration, tens of thousands of business concerns suddenly found themselves in a realm of negotiation, of cost accounting and of claims, in which the government had almost over night set up a specially contrived mechanism of claims boards to facilitate liquidation of its obligations without resort to litigation.[1] Reconstruction was a word on everybody's tongue. Not only how but how soon might we expect to get back to the paths of free industry again? In this situation the question of the methods to be followed by which assets tied up in governmental contracts might be rendered quickly available for employment in commercial enterprise became the question of the hour.

The Civil War had left some unfavorable impressions as to contract relations with the government. Some cases were still trailing their almost endless lengths through the courts.

[1] Hearings before Senate Committee on Military Affairs, on Hitchcock Bill, Senate 5261, p. 31, January 7, 1919.

Only the older business men recalled this phase of experience in this field. To the great mass of contractors the situation was unique. Some proposed organizing semi-civic and semi-official boards, composed equally of members of local chambers of commerce and of governmental representatives. But these commercial interests were not as a rule enough in touch with the situation to be clear as to what ought to be done. The government alone had the grasp that could coordinate the essential elements of the problem. This view of the situation was typically expressed in a trade circular issued early in 1919, referring to the new problem created by the sudden termination of so many contracts:

> Commercial contracts are never breached in such sudden and wholesale fashion and there is little precedent to guide. The tedious processes of litigation must be avoided. Settlement must be made just as the contracts were made—by newly negotiated settlement agreements fair to the government and to the contractor. But this negotiation can not proceed with the freedom of private business. Much of the preliminary work in the field must be accomplished by subordinates without full responsibility and authority. Final action on each separate negotiation must be had in Washington by responsible officers with full authority. The field is so vast that the government has been forced to set up a complicated mechanism radiating from the capital.[1]

Administrative Facilities for Claims and Contracts

What appeared, when the contractual situation was looked at as a whole, to be one vast problem, really when viewed more closely fell into several distinct problems. Some contracts were only reduced, others suspended and still others canceled outright. Then there was an entirely different cleavage into formal and informal contracts. Another classification was that of procurement orders, compulsory or voluntary, and contract agreements. Informal contracts were those as to which relief was sought and obtained by the passage of the act of March 2, 1919. These applied to agreements with contractors for war purposes as to which no properly executed contract documents could be found or were never executed as intended. The hurry of war was made the scapegoat in this case. It thus came about that the War

[1] Federal Liquidating Association, Inc., Washington, D. C., p. 1.

Department, in which by far the larger part of these questions arose, developed both general and special administrative machinery for the purpose of facilitating settlement. Of these there were four:

1. *The Board of Contract Adjustment*

This board was constituted in the great supply agency of the War Department, the Purchase Division, composed of three commissioned officers of the United States Army, and charged with the duty "to hear and determine all claims, disputes or doubts, including all questions of performance or nonperformance, which may arise under any contract made by the War Department," and which had not been disposed of by mutual agreement. This was the most comprehensive board of contract adjustment and was essentially a court of appeal.[1]

2. *The War Department Claims Board*

This is the controlling division of the departmental machinery to determine what procedure shall be followed, what division of duties shall prevail and how claims shall be divided among the different bureau claims boards or other special tribunal. For example, the claims board outlined the procedure for that large class of contracts and agreements seeking relief under the Dent Act of March 2, 1919, relating to the so-called invalid contracts.

3. *Bureau Claims Boards*

Each of the so-called bureaus or corps (mistakenly called departments) into which the work of the War Department is divided has a board before which such claims come as may arise out of the agreements which said bureau has made. There is thus the Ordnance Claims Board, the Signal Service Claims Board, the Engineers Corps, the Construction Division, the Chemical Warfare, etc.

[1] Hearings on Hitchcock Bill, Senate 5261: Testimony of Joseph H. Defrees, p. 41, January 7, 1919. Also testimony of Secretary Baker, pp. 31–36, Lands and Training Fields.

4. *District Claims Boards*

Each of the departmental bureaus has divided the country into districts, in each of which is located a claims board to which the bureau's claims originating within that district come for consideration, investigation, accounting, etc. The Ordnance Corps has a claims board in its district office at Philadelphia, New York, Bridgeport, Connecticut and Boston, as well as at other points where there is a district embracing ordnance contract work of sufficient importance to warrant a local board. To these district boards fell by far the greater part of the actual work of adjusting the contract relations between contractors and the government. The Purchase Division had its own claims board in the same district, as had any other departmental bureau with contracts enough to make it worth while.

Excepting the Board of Contract Adjustment, all of these agencies for handling claims were established features of the War Department claims organization during peace. The prevailing purpose in the department's policy with regard to these claims and contracts was to negotiate a settlement wherever possible. But where such efforts at mutual agreement failed the way was left open for the contractor upon petition, to have the Secretary of War pass upon the claim, or his duly appointed representative. It was apparent that the secretary himself could not assume any such responsibility in person, and yet it was realized that any attempt to deputize his duties in this respect must carry with it a high rank of official responsibility. Otherwise the decisions would lack weight and force commensurate with the prestige of the department. Consequently the Board of Contract Adjustment is the duly authorized representative of the Secretary of War, much as the War Department Claims Board represents the department, the Bureau Claims Boards the bureaus of the department and the District Claims Boards the respective bureaus in the districts.

Features of District Claims Board Hearings

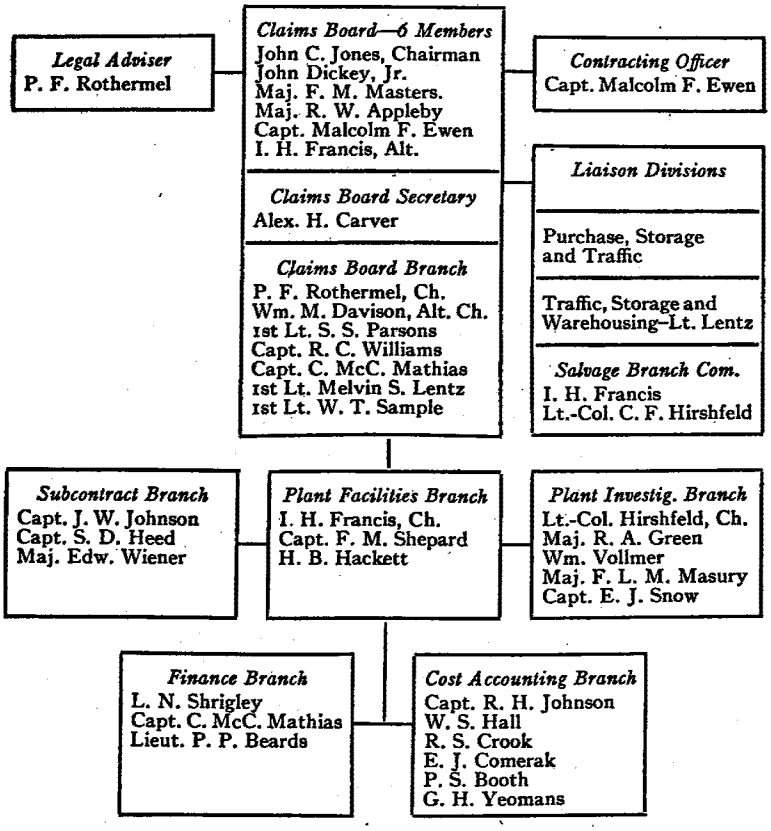
No part of the machinery for clearing decks of pending contracts was better adapted to its purpose than the district claims boards. The plea of the Secretary of War for the utilization of these agencies instead of setting up an entirely new set of district agencies, as was proposed by the Hitchcock Bill, in Congressional discussion on the subject, was by no means misplaced. The personnel, if again the Philadelphia personnel be taken as typical, proved admirably selected to master the problem and effect the desired results. Some account of the procedure will indicate the basis of confidence in their methods and conclusions on which the War Department relied for disposing of the bigger end of the task.

At these hearings the subject of consideration was the brief of the Claims Staff Branch which had investigated the contractor's claim in its several aspects. It was the practice to put into the hands of the members a copy of the brief three days before a hearing occurred, so that each member of the board might be familiar with all or part of the subject which directly concerned him. The secretary was charged with the duty of maintaining a regular schedule of dates and hours of hearings, and it was made his express duty to "notify the ordnance contractor of the date set for the hearing of his claim so that he may be present with his representatives at that time. Such hearing may be of an informal nature in which the claim is freely discussed and an agreement or settlement made which is found satisfactory to both the ordnance contractor and the claims board."

The organization of the claims board is as follows:

SCHEDULE OF ORDNANCE CLAIMS BOARD FUNCTIONS

PHILADELPHIA DISTRICT



From this outline it can be seen how the work was distributed as to personnel, what duplication in functions occurred in the division of duties, and to what extent the five separate divisions of the Claims Board Branch were manned by different persons. The distribution of the civil and military personnel is also thus shown.

It should be noted that probably the majority of the military members were really civilians appointed to military

duty. The contracting officer, of course, was the direct district representative of the Ordnance Corps at Washington, speaking for the government on the contract.

Philadelphia District Ordnance Claims Board

It is the function of the Ordnance Corps of the United States Army to procure, purchase or manufacture and to distribute the necessary ordnance and ordnance stores for the regular army and the National Guard, as well as the national army. This includes cannon, artillery, vehicles and equipment; apparatus and machinery, small arms, ammunition, accoutrements, etc. Its organization on a strictly military basis prevailed during the war until November 10, 1917, after which, in February, 1918, reorganization brought into its operations civilian representatives of eminence in the manufacturing world. The highly industrial character of ordnance production caused the Philadelphia district to be favored with orders and contracts to a larger extent than any other. Its all-round mechanical equipment, its convenient location with regard both to the supply of raw iron and steel and of fuel for manufacturing purposes, its vast population of mechanical talent, and its facilities for domestic and for foreign transportation, together with its extraordinary variety of skilled industries—these were some of the reasons for the remarkable concentration of ordnance orders and contracts in that district. Upon the suspension of war, the volume of claims arising was enormous. So extensive had the volume of contract commitments in that district become as to awaken criticism on the part of others along the Atlantic coast and throughout the interior. That caused the War Industries Board to limit awards to establishments already operating, to suspend enlargements and to allocate contracts to interior points.

At the claims board meetings the chairman calls for reports on cases of contracts pending, which the secretary or the legal adviser reads. These reports contain full and complete data as to the legal, industrial, commercial and financial

factors involved. The feature of these reports was that they contain every essential element in fact or law that was likely to have any bearing on adjustment and liquidation of the claim. They had examined the contract or the orders, reported on the cancelation status, on the state of completion of the contract, the contractors' total claim and its separate parts item by item, so as to see whether any unauthorized materials, labor, overhead or facilities claims entered. In parallel columns the items of claims were offset by what in each case the claim staff examiners thought or found to be actually allowable and what items were rejected *in toto*, and on what ground in each case. The cost accountant or examiner who made the plant examination was often present to report in detail on items allowed, reduced, raised or rejected. On such a basis of consideration the amount of claim actually regarded as fair and just was arrived at. Then the contractor claimant was called into the conference, the findings of the board explained and the justness and fairness of the award emphasized as the net terms of settlement.

The net amount for which settlement is made is often only about 10 per cent of the contract claim. If the contractor accepts net terms or any other definite amount, the agreement to that effect is drawn up, signed and forwarded to the department's Claims Board at Washington. That board usually accepts what the district board, on which a departmental bureau's representative sits, recommends, and the contractor has agreed to accept. Prompt payment follows thereafter.

One could hardly enjoy the privilege of attending these hearings without feeling that the clear purpose impelling the machinery of liquidation was a drive for settlement. Where points in doubt or dispute hung fire, the case was often laid aside for a later session, in order to have the particular matter cleared up. This, in not a few cases, required the calling of witnesses. When witnesses were heard the producing of the witness is made a duty of the claims staff branch, through which agency practically all the evidence pertinent to the contract has come.

To summarize the features of evidence before the claims board, one may thus group the material features:

1. The contractor's claim as formulated on the ten or more forms prescribed for the purpose of having a uniform and comprehensive, as well as an authoritative statement of what the claimant regards as due to him from the government under the conditions of the contract.

2. The brief of the staff claims branch in which the results of the several investigations are embodied to check up statements, verify claims and revise valuations, etc., as found in the claim. The conclusions and recommendations summarize the results, indicating what the net claim is regarded as amounting to, in the judgment of the staff.

3. The contract itself, or, in the absence of any written contract, as in the invalid contract cases and others, the rules, conditions and statutory regulations governing contracting on governmental account generally. On the basis of these and other data the net amount of compensation is arrived at which the claims board approves in settlement.

Workings of a Typical District Claims Board

It is not practicable to attempt to describe the workings of more than one of the local district claims boards in the settlement of contract claims. Consequently the Philadelphia district has been selected as representative, both for volume of orders awarded and for variety of products used for war purposes, including ships. And among the different bureaus of the War Department located in that district, the Ordnance Office Claims Board is probably most typical of the methods followed in effecting settlement of the many and enormous contracts. The Ordnance Office has some eleven districts, and the Quartermaster General's Office eight, in each of which there is a claims board at work on their respective bureau claims. These boards are among the best equipped branches of administrative service in the department. An outline of the Philadelphia claims board's organization will indicate in a general way the features of main import.

Organization of Philadelphia District Claims Board Branch (District Ordnance Office)

The claims boards operating in the district in question are primarily adjustment bodies. They were organized to pass on the recommendations of the investigation and accounting staffs into the merits of the various claims of the prime contractors and subcontractors. This comprehensive scope of work was divided into two main branches of activities, as follows:

(1) Claims Board Branch, including the several features of—

(a) Subcontract branch.
(b) Plant investigation branch.
(c) Plant facilities branch.
(d) Finance and cost accounting branches.

There is also a legal adviser, a contracting officer and the secretary of the board, in the personnel of the organization, which are not operating as separate branches.

(2) Associated functions, among which are included—

(a) Purchase, storage and traffic.
(b) Traffic, storage and warehousing.
(c) Salvage board.

In the official description of operations of the Ordnance District Claims Board in Philadelphia, a district that in area covered a main part of the eastern half of the State of Pennsylvania, its procedure is thus described:

> It holds stated hearings in accordance with the schedule prepared and arranged by the secretary of the board; adjusts differences between the government and the contractor as regards the claims, and makes recommendations as well as authorizing settlement contracts which are forwarded to the Washington Claims Board for approval. On receipt of the approval from Washington the final voucher is issued, closing the contract between the government and the contractor.

For the efficient and smooth running of the district board's operations the secretary has as much to do as any single official. Within the district he is the medium of contact between the claims board, the claims staff branch and the contractor. He takes the initial step in all action pertaining

to a claim for the board whether in receiving or disposing of claims. In the order of procedure he receives notice from the office of the Ordnance district chief of the acceptances of suspension or cancelation of orders or contracts. Upon the receipt of such notice he supplies the contractor with the blanks previously prepared for this purpose (Finance Forms 1 to 10), together with instructions for the making out of his claim. On any questions which arise in the course of the preparation of this claim, the secretary is the adviser of the contractor as to the proper method to proceed. Thus the important procedure of settlement of the army contracts of several billions of dollars in value as they stood immediately following the armistice was inaugurated.

But the secretary's functions run through a much wider range of activities. Not only is his office and his service the point of contact with every outside interest, but every internal function of the board or its branches is included in the circuit of his contact. As soon as the claim is received from the contractor, copies (6 or 7) are given a docket number, two copies going to the board's file and four assigned to the claims staff branch, of which there are four divisions. This starts the investigating machinery, which looks into the fourfold phases of the contract claim, in order to verify, check up and report as a unit to the full claims board on the merits of the claim. In this part of the work the technically equipped claims branch has probably the most fundamental duties in the whole procedure. Theirs is the problem of determining the facts as to—

(a) What the subcontractual relations of the contractor claimant are, what pecuniary obligations are involved, as well as assisting the contractor in negotiating settlements with the subcontractor. This is the work of the subcontract branch.

(b) Plant investigation makes inquiries as to all matters pertaining to physical inventories, delays in operations, changes in drawings, counterclaims and similar items, reporting in detail its findings to the claims staff branch.

In the experience of the government the claims for delays in furnishing materials, drawings and instructions to go ahead, or other requisites of the contract, have been a fruitful source of excessive charges. The same is true of the item of changes in the drawings, of which the airplane production was a flagrant instance of vacillation in specifications. The government viewpoint is that as a rule these changes may and often do reduce rather than add to the contractor's expenses. Yet they are usually made the occasion for an extra bill of expenses on public account, and in official opinion are regarded, it may be safely asserted, as an overworked claim for which the plant investigator should always be on the guard.

(c) The plant facilities branch of the investigation work covers that part of the claimant's establishment which is included in equipment, buildings, lands, leases and any other facility of production of the finished ordnance article. Whatever it may need in the way of inventories of facilities it gets from the plant investigating branch, and calls on the cost accounting branch for audits of the books of the contractor claimant.

In its placing of orders or contracts the Ordnance Office found many manufacturing concerns with organizations suited to manufacture products of the kind wanted for war purposes, but whose capacity was nothing like that needed. By advancing capital for increasing facilities to double or more that of the would-be contractor, or by agreeing to pay a price for the article which would amortize the increased cost of the extra facilities, the capacity required by the government was supplied. Then care had to be taken against these claims coming in in any other form. The facilities branch covered these elements.

(d) The finance and cost accounting branches furnished the claims staff branch with information relating to the costs of operations, the prices of materials, the overhead charges, the distribution of expenses, payments to contractors, counterclaims and financial matters generally embraced within a comprehensive accounting and audit of claims.

These four lines of investigation into the contractor's claim, if we add the points covered by the legal adviser, comprise a reasonably complete inquiry into the accuracy and validity of the elements of law and fact involved. These inquiries go to establish the degree of soundness of the contractor's position as a basis for liquidation of the government's obligations, when brought together in the claims staff branch. There they were coordinated and a report made to the district claims board on which report action was taken by that board and on which the board based its findings and recommendations.

Did the government and the contractor receive fair treatment in the effort as thus organized to effect prompt settlement for the enormous volume of claims? It is certain that the investigating, auditing and accounting services of the various claims staffs of the district claims boards, if that of the Philadelphia district be taken as representative, deserve a large part of the credit of saving the postwar contractors from bankruptcy. They also saved the government from recognized exaggerated claims. But for these technically equipped investigators neither contractor nor government could have expected to arrive at a fair and just settlement based on fact and law alike. But by means of these aids the path to adjustment was cleared in a comparatively short period of time. They, armed with the writ of investigation issued by the claims branch of which they are members, constitute the flying wedge of inquiry into the intricate maze of contractual relations and conditions, bringing order and justice out of what otherwise might have turned into chaos.

How the Claims Staff Branch Was Organized

In its structural character the claims staff branch might be properly designated as the "neck of the bottle," and in its functional character as the brain of the investigating service. The claims board itself retained the supervisory and judicial functions, putting the burden of investigation and contact with the industrial processes on the claims staff branch. To the claims staff branch also fell the task of preparing the forms,

inquiring into counterclaims, supplying the technical talent, briefing its own results and reviewing each part or element of investigation that went to make up the consolidated and coordinated return on the contractor's claim. Its branch board of review was composed of the full membership of seven; with a secretary, an assistant, and a recording and routing clerk.

The main internal or staff work of the branch was, however, divided up on functional lines as follows:

1. Forms and methods committee, of five members.
2. Counterclaims committee, of five members.
3. Technical committee, of seven members.
4. Briefing committee, of six members.

In the handling of claims, four copies are received from the claims board's secretary by the claims staff branch's secretary, who routes them through the four committees in the order given above, unless the forms and methods committee finds that the claim is not made out according to instructions to the contractor. In that event the defectively prepared claim is returned to the secretary of the claims board and the return noted on the records of the branch board of review. If correctly prepared it goes at once to the counterclaims committee, where it is examined as to the nature of the contract. Then the examination begins into the merits of the claim and for the discovery of any information that may disclose a counterclaim against the contractor. This is done by means of a writ of investigation issued by the branch board of review to the five different divisions, including subcontract, plant facilities, plant investigation, finance and cost accounting. Out of the reports received from each and all of these regarding the counterclaims the counterclaims committee makes a statement for the use of the branch's briefing committee.

The technical committee likewise examines the claim, and for the purpose of obtaining the necessary information sends out writs of investigation through the board of review to the various branches. On the basis of the final reports thus received the technical committee reviews the claim as to

matters of a technical nature that may be of interest to the board, but reporting its findings to the briefing committee. The briefing committee considers the facts and results as brought out by the investigation committees and branches and prepares a brief of the claim to lay before the board of review for approval or disapproval. If approved, the secretary sends nine copies of the brief with underlying reports and original papers and exhibits to the secretary of the claims board.

This completes the presentation of the claim, its counterclaim and the investigation of the merits of the case as thus formulated. All of this is summed up in the branch brief, which is the real matter before the adjudicating authority—the district claims board. For the expeditious disposal of the matters assigned to each contributing part of the service much depends on the chairman and the secretary of the claims staff branch. The latter especially, being charged with the duty of making up a schedule of inquiries and hearings, must keep track of time allowances for investigations and report delays or changes in dates so as to secure due coordination of the factors that enter into the maintenance of a uniform schedule of hearings. Here progress charts come in, along with daily contact with the branches and the liaison functions. The claims staff branch determines from the reports what witnesses are to be called for the government at the hearings before the board, whose secretary sees to their presence on scheduled dates. The board itself, desiring further investigation, applies to the claims staff branch through its secretary for inquiry into subcontracts, for instance, not only within the Philadelphia district, but also in other districts. These are handled through the subcontract branch. The claims staff branch has, therefore, relations not only with contractors in its own district, but may have to follow the relations into outside districts and reciprocate on their behalf.

Organization of the Five Investigating Divisions

The external work of the claims staff branch is primarily to investigate. Evidently the thoroughness with which the

contract claims are investigated and the interests of the government looked after in the settlement of war contracts depends primarily on three things. First, the capability of the board individually and collectively considered. Secondly, on the elements of mastery embraced in the composition of the claims staff branch, and, finally, in the extent to which the five investigating divisions of the claims staff branch are used effectively to exhaust the merits of the claim, with balanced regard to what may be fair and equitable to both contractor and government.

Owing to the fundamental importance of these investigating branches in this vital work of contract adjustment, some brief outlining of their organization is pertinent to an adequate treatment of the subject. For, in their make-up, even in mere outline, is revealed the grasp of the problem of the proportions never before undertaken. This organizing and operating service was the joint result of several factors, of which mention will be made later. The working outline follows:

1. *Subcontract Division: 3 members and legal adviser—*
   - A. Executive officer, controlling recording and routing, office manager, and office force in general.
   - B. Analysis board, 3 officers.
   - C. Review board, 3 officers.
   - D. Working assignment of classified claims:
     - (a) Claims in Philadelphia district, 4 members.
     - (b) Other claims in that district, 3 members.
     - (c) Claims of DuPont Company, Mr. C. H. Fleming.
     - (d) Claims of Bethlehem Steel Company, Capt. W. N. Bannard.
     - (e) Claims of Midvale Steel Company, Capt. H. L. Cox.
     - (f) Claims from other districts, Capt. E. F. Randolph.
     - (g) DuPont engineering claims, 2 officers.
     - (h) Miscellaneous, 3 officers.

In order to grasp the fuller significance of ordnance investigations as related to contract settlement, one must recall the production side of the ordnance contracts. The entire country during 1918 was districted into eleven ordnance divisions. Each district, under the decentralizing policy of control over manufacturing was organized so as to be practically self-dependent in operation. It had an ordnance chief and representatives of the several divisions of the Ordnance Department. In fact, the district unit was in an essential sense an ordnance office in minature. That plan of organization brought the technical officials into close and effective contact in production. Of this the Chief of Ordnance, in his too brief report of 1918, thus speaks:

> There has been established in this division a technical section, composed of highly trained technical experts, to advise and assist manufacturers. From time to time these experts visit manufacturing establishments, offering professional advice and assistance in cooperation with the staff of the district officers. Frequent conferences are held in the various districts in which manufacturers engaged in the production of similar ordnance material assemble and meet officers of the production division for the discussion of any problems which may be presented. Results show conclusively that these meetings are highly beneficial and are considered by manufacturers to be of paramount importance.[1]

It was such familiarity with the problems of production that developed a capacity for solving the problems of liquidation of the ordnance accounts. Fortunately for the needs of the postbellum business situation, the army specialists, joining with the business executives and the professional accountants, constituted a highly specialized group of war industry experts. It has been one of the best proofs of the sound economic judgment of the war authorities that these men were brought together upon this task in the critical after war adjustment.

In the classification of subcontracts for the purpose of clearing up claims there was no room for other than a grouping on the basis of the contracting concern as the unit. That is the feature of the assignment of investigators in the foregoing outline. Some one is placed in charge of the subcontracting

[1] Report of the Chief of Ordnance, 1918, p. 12.

relations of each large prime contractor and has his associates and staff to do justice to the phase of the problem entrusted to him. Thus specialization is utilized to advantage. The affairs of the given contractor, as for instance, the DuPont Company or the Bethlehem Steel, are thus mastered in the service of intelligent adjustment.

When, however, it comes to plant investigation a different arrangement of work follows. Here it is not relations with other producers, but rather the special products that are the subject of inquiry. Consequently the division of labor is on a commodity basis.

2. Plant Investigation Division: 5 members—

A. Analyzing board, 8 members.
B. Board of review, 5 members.
C. Secretary and recording and routing.
D. Investigating sections:
   (a) Projectile section, 7 members.
   (b) Trench warfare section, 5 members.
   (c) Powder and explosives, 7 members.
   (d) Gun carriages, 4 members.
   (e) Small arms—steel and wood, 6 members.
   (f) Miscellaneous, machinery and containers, 6 members.
   (g) Small arms ammunition, 1 officer.
   (h) Oils, preserving, 1 officer.
   (i) Special investigation, 8 members.

Besides investigating under writ from the claims staff branch, to which the report goes by way of the board of review, this division handles requests for inventories or appraisals from either the plant facilities division or the cost accounting division. In the matter of plant valuations it is the final authority.

3. Plant Facilities Division—3 members—

One feature of the Ordnance Office policy was to utilize the industries of the country for the production of the major

portion of its needed quota of munitions. The government's arsenals, for example, produced about one-seventh of the rifles required for foreign service. But private enterprise would not, indeed could not, be expected to put its own capital into the enlargement of its buildings, the purchase and installation of machinery and the leasing or ownership of lands, to say nothing of extending public utilities for so large an increase in workers at any given industrial center. The large iron and steel industries within the Philadelphia district lent themselves to the urgent needs of the government, and to these the public funds were advanced on terms varying with the circumstances and conditions. This accounts for the appearance of plant facilities as so important an item in many of the claims settlements. In this district a special staff of investigators was organized to deal with the subject. Its features were as outlined herewith:

A. Analysis board of 8 members with a civilian chairman. This board had jurisdiction in the matter of:
   (a) Land leases and liens, 2 members.
   (b) Buildings, 2 members.
   (c) Machinery and equipment, 2 members. For the largest plants there were appointed individual investigators, as shown in the following:
   (d) Bethlehem Steel Co., Mr. H. B. Hackett.
   (e) Midvale Steel and Ordnance Rifle Plant, Maj. W. H. Tilton.
   (f) Midvale Steel and Ordnance Gun Plant, Capt. H. L. Cox.
   (g) Loading plants, Maj. H. W. Goddard.
   (h) Marlin-Rockwell, Lt. R. S. Guerber.
   (i) Eddystone Munitions Co., Maj. J. A. Brown.
   (j) Miscellaneous.

Besides these there were the following boards: inventory, review and salvage.

4. *Finance Division: 3 members*—which investigates the following features of the settlement claims:
   1. Financial standing of contracting parties.
   2. Relations of prime contractors to subcontractors.
   3. Counterclaims, advance payments, etc.

5. *Cost Accounting Division: 3 members*—which divides its work into the following lines:
   1. Analysis board, 5 members.
   2. Review board, 5 members.
   3. In charge of cost-plus contracts:
      (a) Midvale Steel and Ordnance (Eddystone), with staff of one chairman, 4 accountants and 14 clerks.
      (b) Midvale Steel and Ordnance, general plant, with one chairman and 3 clerks.
      (c) Tacony Ordnance Corp., 1 head and 4 clerks.
      (d) McArthur Bros., 1 head, 2 accountants, 4 clerks.
      (e) J. G. Brill Co., 1 head, 2 accountants, 6 clerks.
   4. In charge of claims investigation.
   5. Assistant supervisors (6), junior accountants (6), and clerks qualified in accounting (17).

This completes the outline organization of the five investigating branches or divisions of the claims board branch. It serves to indicate into what matters each of the several activities is directed, so as to cover the entire field of contract claims in the course of settlement. These five different branches are the sources of the results which are combined into the complete return on a given claim, for the action of the claims board branch, before submission with recommendations to the Ordnance District Claims Board. If the contractor accepted the conclusions of the claims board, the agreement is put into writing, forwarded to Washington for approval or rejection, and if approved is promptly paid for and the contractual relations closed. As has been stated, in the vast majority of cases the approval of the departmental authorities after review at Washington was given to the

district claims boards findings as accepted by the contractor. In the terms of settlement, the contractor often accepted property at agreed prices; but where that was not the case, the property retained by the government was either stored, removed or turned over to the sales director to dispose of at the best terms obtainable. That ended the chapter.

CHAPTER IV

Summary and Conclusions

One of the first things to impress itself upon the reviewer of war time contracting is the fact of the enlargement in both the range and the variety of economic experience through which the government and business passed within these few years. One of the revelations has been the prominence of public spirit as a factor in war time enterprise. It is not too much to say that war service infused a new altruistic element into economic life, Another outcome has been the discovery of vast and as yet undeveloped powers of cooperation between private enterprise and governmental authority. The traditions of American business had theretofore rather been those of antagonism between these two sources of economic power. As a consequence American efforts had been handicapped in the field of international competition as compared with other countries. If the war shall have taught the value of working together in international enterprise, the government will have learned one of its most needed lessons.

Another conclusion from a retrospective survey of public contracting is that the government has come to appreciate more fully the value of large scale business organization as a means of economic achievement. This was demonstrated in the mediating service of the various trades organizations in marshaling their industrial and commercial membership to meet the needs of the government early in the war period. For example, the knit goods trade and industry was never united until the needs of the army and navy had made unity of action among its members of vital importance in supplying this class of products. Such an emergency seemed to bring forward the right leaders and to inject the right attitude into the trade to ensure a high grade of cooperation.

Among the engineering organizations of the country a

similar result was seen in the capacity of American professional and business organizations to cooperate in public services. Much the same may be said of the accounting and the legal professions. Probably the government, in these few years of contracting for war purposes, derived more advantage from the voluntary cooperation of the three professions of law, engineering and accounting than from any other three that could be named. These three at every stage of the drafting and execution of contracts, in which the government had billions of costs at stake, rendered continuous and expense saving services. In no stage of the relation of contractor to government did they jointly appear to more advantage than in the cancelation, liquidation and final settlement of these contracts. Their services in expediting settlements have been exceptional.

War contracting had a very marked effect on the position of the economically superfluous middleman in trade with the government. In the navy before the war it had been the rule that "no person shall be received as a contractor who is not a manufacturer of, or regular dealer in, the article which he offers to supply."[1] This kept out the man who carries his office in his hat. In the War Department, as in every other department, after June 16, 1916, under the National Defense Act, the Attorney General's suggestion was made effective then and thereafter. According to that every bidder had to agree that he had employed no third person to solicit or obtain his contract and promised not to pay to any third person any compensation on that account. Revised Statutes, section 3737, forbade transfer of contract or order, thus supporting direct dealings between contractor and government.

War Time Status of the Government Contract

From what has thus far been seen it is plain that the government contract itself has undergone a marked transformation in passing from peace to war service. As an instrument of public bargaining with private concerns, the status of both

[1] Revised Statutes, sec. 3722, p. 735.

of the parties to the agreement has changed. It ceased to be simply an isolated resultant of the free play of economic elements in the open market under normal conditions of supply and demand. The position of the contractor, instead of being determined by competitive bidding, in war becomes largely the result of compulsory cooperation. He is no longer free to act as an independent individual; he figures rather as a member of his trade or industrial organization. Collective judgment, rather than individual enterprise, determines his relation to the government in supplying the resources of the nation to meet the demands of war. The statutory criterion of compensation defines his interest as a price that is fair and just—nothing less and nothing more.

In like manner the position of the government, the other party to the contract, has changed. In the peace time contract the contracting officer represented the government. He signed for the United States, although representing only an isolated bureau or division. But under the coordination of purchasing power, of contracting scope running into hundreds of millions of dollars a month, the governmental side of the bargaining equation becomes a colossal engine of command over goods and services. This organization was mighty enough to fix price levels for the market as a whole, by the cooperation of the War Industries Board and under the mastery of a single director as the official contracting head.

Theory of the Contractor's War Time Position

A further comparison of the position of the contractor in war time with that of times of peace serves to bring out still another change. In peace his responsibility is much wider and his share in assuming risks is much more extended. Under competitive conditions of award he has to take his chances with all others on the common plane of responsibility, be that technical, financial or commercial in character. But in war time, at a period when materials, labor and funds are all considered as first of all at the service of the government, the theory of the contract shifts, like every other economic

arrangement, to the war time basis. In making this shift, however, the government often takes over the risks of enterprise. The contractor becomes the cooperator with the government, rather than the competitive performer on a project in which the hazards of the enterprise still lie on his side of the equation. But what the contractor lacks in economic hazards he adds in fiduciary obligation. In other words, war time contracting puts the contracting party in the position of having his compensation practically guaranteed, but binds him to work for and with the government to accomplish the object quickly. The very purpose of releasing him from contractual risks and of assuring him a given recompense is to divest him of those claims of self-interest in order that he may be free to serve the government in the fiduciary capacity of a war worker. It makes no difference whether the contractor be an individual or a corporation; or whether he be executing a fixed price, a cost-plus or an agency contract; his having divested himself of the risks of an undertaking and having become assured by contract of the costs being covered and a safe margin of profit, the center of gravity of his responsibility passes to the status of more intense cooperation with government. Anything less is a clear evasion of obligation.

On this vital principle of fiduciary relation of the agent to the project the American International Shipbuilding Corporation at Hog Island took the less defensible position of nonliability for the unfavorable results and methods there disclosed. Its officers assumed the attitude indicated in the following, in reply to a charge of mismanagement:

1. That each substantial act of the agent was approved, expressly or impliedly, by the Fleet Corporation or its representatives.

2. That if the Fleet Corporation was dissatisfied with the management its remedy under the contract was to terminate the agency; that it could not have the benefits of the agent's continuous management and at the same time charge the agent with mismanagement.

3. That the Fleet Corporation in placing an additional order with the agent on May 7, 1918, with full knowledge of past conditions, waived any charges of waste and mismanagement and admitted by its conduct that the agent was worthy of its agency and entitled to receive additional trust and responsibility.

4. That when all is said and done this was a war job where speed was of the essence, and that an undertaking of such a nature is to be judged not by its costs but by its accomplishments.

This alleged defense is not wholly in line with fact. It is wholly out of line with the lawful right of the government to review the acts of its agents at later dates. The fact is that the agency contract relation is a most intimate assumption of business accord as between contractor and government. So much so is this the case that the datum of confidence and cooperative capacity is assumed as an essential condition of entering into the contract of the agency type. A corporation's managers and advisers who lack this concept of contractual duty, so far as to excuse themselves from due vigilance against gross mistakes on an emergency project, attempt to evade joint responsibility. On such a policy of evasion, no contracting concern would dare to build a reputation for fiduciary trustworthiness.

Fiduciary Position of Agency Contractors

One can not go far into the field of government contracting in the war without realizing that many of the concerns which got jobs on the agency basis did not measure up to the confidence imposed in their competence and fidelity. Possibly the heads of firms may have entertained the higher conception of fiduciary service in war time; but it is none the less the fact that in the execution of the work in both method and quality, as well as in the profiteering purpose controlling the jobs, the active officials in charge worked on a much lower level of what was due to the government. In the agency contract the government assumes all the risk for the express purpose of getting the use of the agent's organization and operating heads at cost. This cost it covers in a fee presumed to be generous enough to insure the contracting agent's coming out even.

A good instance of this kind is reported in the agency contract of the Marlin-Rockwell Loading Company, March 23, 1918, for the erection and operation of loading drop shells, on a 10 per cent cost-plus contract. In addition to that the agent was to be paid 10 per cent on the cost of operation until one-fourth of the specified number of bombs had been loaded.

That rate was to continue until the government should arrive at a basic cost, when the agent was to get, in addition to its 10 per cent, one-half of the difference between the basic and the actual cost, so long as its total profit did not exceed 15 per cent.

This was presumably a generous even though a hazardous contract, so far as compensation was concerned. Instead of doing the work themselves, this concern subcontracted the work for $6,500,000 for a fee of 3 per cent on cost.

In the investigation, which followed complaints, it was found that in discharging their first duty to select a site, the company put the matter into the same hands as those which for $3,000 an acre disposed of the Hog Island tract that had been offered a short time before at a rate of $300 an acre. A large part of the land was under water at high tide when a dike broke a few weeks later. In its designing of the plant the company had no aptitude nor claim to such a job. On operation it will be enough to quote the report of Major Clair Foster, after his visit to the construction locality, where none of the contracting company's staff could be found, except a few who knew nothing and had been brought in from jobs of quite different character. Major Clark thus summarizes the exploiting agent's viewpoint:

> Regarding the Marlin-Rockwell Company, to my way of thinking, the outstanding fact disclosed by this inspection is that that company failed to comprehend the fundamental difference between a "contract" for the performance of which it would be entitled to make whatever money it could by risking its own resources, and a trust accepted by it as an employe of the government. It failed to see that, risking nothing of its own that any other employe is not risking, it was engaged like any other employe of the government to forget all about pay day and to work shoulder to shoulder with its fellow employes for the common good.[1]

War Contracts Had First Call on Capital

The theory of the priority of war business, as it related to capital issues, is illustrated by the operations of the Capital Issues Committee. This committee was not authorized until almost a full year after the war began. By the act of

[1] Hearings on War Expenditures, Ser. VI, Vol. I, pp. 705–706.

April 5, 1918, it took over the work of the Federal Reserve Board, which had exercised restraining control on capital issues to conserve financial resources for war needs. Its policy was to authorize "capital for use only by those enterprises and industries which served some immediate or definite military or economic need." There were total applications for $2,564,021,000. By this means banking and investment resources were conserved both for credits to contracting concerns and for the purchase of Liberty bonds. Out of a total of $2,064,803,000 passed the two main portions were for public utilities and manufacturing—two divisions of enterprise which had direct relation to the war industries at various places. These two uses made up three-fourths of the entire issues approved.[1] These results are to be taken in connection with the advances of capital by the War Credits Board to various war contractors.

Methods of financing war contract industries developed with experience. It took nearly a year to see that on a scale of production so stupendous some extraordinary means of supplying capital to contractors and municipalities affected thereby must be provided. Such work on a smaller scale might have been done by the regular banking concerns out of their ordinary resources. In fact, banks are as a rule rather prone to welcome government contractor accounts. The war industries, many of them highly centralized on an extensive range of outlays and advances for materials and to subcontractors, entailed heavier financing than was deemed wise for the local banks to assume. To meet these needs in hundreds of localities where war orders and contracts had been placed the War Finance Corporation was created by Congress and organized with a capital of $500,000,000 and an authorized issue of $3,000,000,000 in bonds.[2] It was authorized to "make loans to banks and trust companies by which they were to finance operations necessary or contributory to the prosecution of the war." The policy was not to act directly

[1] Report of Capital Issues Committee, House Document No. 1485, 65th Cong., 3d Sess., pp. 1, 5.
[2] *Official Bulletin*, May 20, 1918, p. 8.

with the industries but to make approved advances through the local banks. This supplied a readily available reservoir of credit and working capital. It proved to be one of the wisest aids to relieve ordinary commercial banking and at the same time to assist industries in the production of war materials without delays for want of financial backing.

Federal Taxes on War Contract Profits

On the economic distribution of the shares of wealth produced the war developed some marked results. The unusually high rates of income taxes and the excess profits taxes as levied by the federal authorities were an attempt to recover some of the extraordinary gains from war contracting. Even before the United States entered the war, the munition manufacturer's tax (approved September 8, 1916, Title III) levied a tax of 12½ per cent on the entire net profits of such industries. The enormous profits of the contractors for European countries at war before this country came in had produced a speculative rise in security values in the iron and steel industries, as in others, whereby an entirely new group of millionaires arose. On these profits the taxing powers tried to lay hands, only to find that after a year or two wages and price levels generally had risen to more than overtake the anticipated profits. In the case of some of the small arms industries the advances in labor and material costs were such as to bring severe losses to the contractors. This experience was duplicated elsewhere.

The munition manufacturer's tax of prewar times was instructive from another viewpoint. It attempted to define how net profits were to be arrived at by specifying the several elements that might be included in the costs of production (section 302, of act cited). In the next act of Congress, of March 3, 1917, passed more than a month before the outbreak of war with Germany, the first real war tax was provided for. It levied an excess profits tax, in addition to the munition manufacturer's tax, of "8 per cent of the amount by which such net income exceeds the sum of (a) $5,000 and (b) 8 per cent of the actual capital."

This impost applied only to corporations and partnerships in this form. It made still another contribution to the technical side of economic terms, by its definition of invested capital. By section 203 of this second of the war measures, invested capital was made to mean—

(1) Actual cash paid in,

(2) The actual cash value, at the time of payment, of assets other than cash paid in, and

(3) Paid in or earned surplus and undivided profits used or employed in the business, but not including borrowed money.

A third stage in the effort of Congress to take for public use a part of the profits of war industries and incomes came with the Revenue Act of October 3, 1917. Its features were the graduated income and excess profits taxes. After the income tax returns and excess profits taxes of March 3, 1917, had been compiled in the office of the Commissioner of Internal Revenue, it was apparent that the profits of practically all the main kinds of corporations could easily stand a much heavier rate of excess profits taxes. Consequently, as the war contracting had enriched trades and industries phenomenally, as the Borah Report proved beyond dispute, a war excess profits tax of "60 per cent of net income in excess of 33 per cent of such capital," was not considered unduly burdensome as the maximum rate. The attempt to forestall an admittedly general evasion of war profits taxes, by a more rigid form of reports and returns, as proposed by Senator King of Utah, in the course of the enactment of the act of October 3, 1917, failed of approval, largely for administrative reasons. There was not any doubt on the question of the government not getting anything like the proportion of excess war profits that European governments did.

Congressional Criticism and War Contracts

It has already been pointed out that Congress had comparatively little to do directly with the military part of the war, but that its services consisted mainly in discussion and inquiries as to the economics of expenditures for the conflict.

In doing that, it must of course not be assumed that Congress made a point of interfering with the administrative part of war. It was rather in the line of seeing that the laws of Congress were observed, that the policies of the administration were pursued along fair and just lines, and that the fiscal ways and means were supplied in quantities, kinds and at times when most needed. It was, in short, the business of Congress to see in a general but substantial way that the game of war from the business side was played with as much regard to fairness as the circumstances of war admitted.

Congress in this capacity occupied itself in seeing to it that the contractor did not get too much the better of the bargain in his dealings with the government; and also that the government did not in its exercise of power unduly overreach the contractor. Congress thus became an economic arbiter between the two parties to the war contract, in a much larger sense than is generally appreciated. It gave a prompt protection to the public interest by its investigations; and when the government became overweening it was a strong reminder to public authorities that even though this was a war era still the public law rather than official will was the source of authority. The vigilance of Congress is therefore one of the reasons why a nation usually comes out of war with a stronger grip on the rights of person and of property. In its investigation into the contracting activities of some of the advisory committees of the Council of National Defense it restored the constitutionally provided function of the departments. It also, in the same inquiry, relieved the contracting public from having to deal with other than the legally authorized officials. Finally, as in the Dent Act, it passed after due discussion such enabling legislation as was necessary to settle on fair terms with contractors who had begun work in good faith but without a formal contract. This act had much to do with the expedition with which the War Department liquidated the unfinished contracts in which the armistice caught the war contracting industries.

On the side of control of war expenditures Congress did not

figure very creditably. Early in 1917 it was proposed that Congress should be represented in some way in seeing that the vast amounts it was appropriating were properly applied. That was parried by the shallow excuse that it would "reflect on the administration." The aircraft fizzle proved that its fears were not ungrounded. But the proposal never came to anything and Congress during the entire war practically voted everything, without much question, that was asked officially. The hearings before the Appropriations Committees prove that this was not done without some formal inquiry as to purpose and adequacy of the estimates submitted for Congressional approval. Apart from these committee hearings there was little discussion on the requests of the administration's spokesmen for billions of authorizations either in bond issues or taxes to be raised. In fact, Congress was a unit in approving most of these measures required for the financing of the war, because of its faith in the justness of the struggle.

Concrete Economic Results of War Contract Era

It now seems in order to try to summarize some of the more specific economic results arising from the contractual experiences of the war era. Much might be brought to light regarding war contracts as a source of contribution to national wealth, as a prolific source in the rise of a new class of millionaires and as a period in which the purchasing power of millions of wage earners was swollen beyond the dreams of the most imaginative. This increment of wage earning purchasing power took its rise in the American war contracts with European countries, resulting in the inflation of wage scales ostensibly in keeping with the exaggerated ideas of contractors' profits. When, owing to changed economic conditions in cost of production, many of these profits disappeared, wages did not, however, come down but held their high ground or went on advancing. Theirs was the harvest of a scarcity market in an emergency era.

This sudden increment in buying power made itself felt

not only in the price levels of necessities but equally so in luxury products. The arrival of a new class of purchasers for consumption in the retail markets reacted on wholesaling, thence on the jobbing trades and ultimately but promptly back to the mills. Urgency of demand for early delivery made every link in this series of price factors more and more independent of conservative standards of value. Mills kept putting up prices as bidders rivaled each other for supplies. To make matters worse, war contract priorities reduced the number of concerns free to make commercial goods, thus further intensifying the demands and enhancing the profits of the manufacturers. Under these circumstances nothing short of the firm hand of commandeering authority was able in some instances to get government work done. In order not to restrict the sources of profits more than necessary and thus unduly narrow the basis of excess profits revenues, orders were often apportioned as equitably as practicable among the members of a given industry. This equating adjustment of public and private interests was one of the better results from the relations of government to private enterprise during the war. Much of the credit for the measure of success in this was due to the industrial and commercial organizations cooperating with the government, either locally or through the War Industries Board.

Still more specific results are the following:

Defects of Bureau System Disclosed

The war disclosed the defects of the several bureaus of the War Department as contracting units. Least of all of these defects appeared in the Engineering Corps, whose practices and traditions kept it in touch with business life in peace. But all of the bureaus suffered from competition among themselves in the same markets and from the extremely limited range of competitive bidding into which prewar contract awards had fallen. Under this serious handicap they passed into the war time market with grievous results as to costs. To these the early breakdown of the Quartermaster

General's contracting service was partly if not mainly due. Its prompt reorganization in line with more effective methods of war supply eliminated much senseless competition among governmental purchasing agencies.

Principles of Price Control Developed

Price control on the part of the government comprises a most valuable contribution to economic experience. Probably the best results were exemplified in the navy, where the principle of fair prices and reasonable profit found embodiment in contractual practice to a remarkable extent. The Navy Department bureaus, especially the Bureau of Supply and Accounts, demonstrated what might be done with an equally well equipped and effectively managed staff of purchasing agents, commodity specialists and cost determining accountants. In the reorganized Quartermaster and Ordnance offices, as the Division of Supply and Storage under the General Staff, much equally good purchasing was accomplished. The principles of control, both statutory and administrative, as treated in Part I, indicate that the government before the war ended, during most of 1918, had a much firmer grasp of its supply problems than in any previous war in which the United States had a part. Congress was quicker to detect wrong systems, wasteful methods of administration; and the Executive sooner or later adjusted its faulty practices to better standards. The protective services of advisory agencies, of the food and fuel control and similar means of ensuring some regard for reasonableness in price fixing were of untold value in keeping down contracting costs.

Abiding Faith in Competitive Awards

The war time experience with forms of contracts proved the abiding faith of the government in the wisdom of competitive bidding as a means of arriving at an approximately fair level of costs. The engineering profession's utilization of the cost-plus contracts for public awards may have a limited field in experimental, emergency and pioneering lines, but

certainly it has not found favor in Congressional quarters. Possibly the emergency work contracts of the camp and cantonment type may have justified themselves. But nothing that the government has done, of which the general public has had close cognizance, had at first a more demoralizing effect on the confidence of employes or employers in government business ability than these very contracts. In the judgment of many, these and the shipbuilding and aircraft contracts, owing to their wasteful execution and to excessive costs, were among the most potent factors in promoting wage exactions, price inflation and speculative trading at the expense of the government and of the normal cost of living.

Accountancy Gives Scientific Character to Contract Control

One unique result of war contracting is the enhanced importance given to the service of accountancy in safeguarding public cost keeping, contracting and claims settlements. Government control over costs of work being done developed enormously on this technical side of its equipment. There is still limited service for the old line specialist; but his work is being expanded into the staff and line accounting which gives the central office better control over production on public account, regardless of where it is carried on. It brings to the service of the official inspection force a power of supervision over processes not hitherto available. In short, the more direct use of cost accounting and organization of production on such lines has imparted a distinctly more scientific character to the contract relations of government to industry.

Reflex Action of Standardization on Industry

Standardization has gained vastly by reason of the work of war contracting. The specifications of the formal contract have often introduced for the first time exact standards of measurement into the industrial processes of manufacturing concerns. Take this single case. A small foundry in Connecticut took to making six-inch mortar shells for the Ordnance Corps, and soon learned the lesson of ordnance exact-

ness. Before that it had been making bed casters in which there were 124 separate parts. After learning the secret of standardizing work from the war contracts it reduced these parts to twelve. It got back to commercial work on this new basis within fifteen days after the armistice, eager to test the possibilities of standardizing methods in cost reduction.

Thus the army and the navy have taught the civilian manufacturer many a secret of competitive power in the emergency work of the war. This result leads one to suggest that in the cooperation of the technical with the practical in our industrial life there are untold potentialities of which the war work has given but a hint. The standardized contract is but another gain in this direction.

Probable Economic Outcome of Shipbuilding Program

It is almost too soon to assay the gains or losses from our shipbuilding experience. Something will depend on the policy adopted for control and working standards in the field of operation. But it is doubtful whether the hopes of mass production on the fabricated plan of standardized ships will be realized, now that the pressure for tonnage is removed. The fields of service are so varied in their bearing on types and methods of construction, and the adaptations of tonnage to these specific uses are so persistent in maritime competition, as to emphasize specialization rather than standardization as the thing of the future. Some of the most advanced authorities regard standardized ships as a thing of the past in the race for maritime mastery. It is still too much of an open question to decide how much of our shipbuilding experience in the war program extended is asset and how much liability. It is quite probable that the excessive costs of production in these government yards may in due time under fabulously high freight rates run up their earnings of operation to a point of profits that will wipe out the billion or more dollars which was expected to be charged off in the final financing. This view is based on the official announcement that the net earnings of the Quistconk—the first Hog Island ship to be accepted

by the government—on a ninety-two-day voyage earned $461,161; the estimated cost of this ship was $1,100,000. Up to October 8, 1919, scarcely a year after war ceased, this yard delivered its fiftieth ship. All of these were promptly put into operation and from the date of commission have been earning these exceptional profits. Other fabricating yards have been doing almost if not quite as well in enhancing the operative earning power of the Shipping Board on its government built tonnage. In wooden shipbuilding results were a disappointment through no defect in the idea.

Aircraft Production in Army and Navy

Results in the aircraft production contracting have to be judged mainly from the military viewpoint. If the moral effect on the enemy of the extensively advertised production on an enormous scale was such as to shorten the conflict by a single month, then the country's thanks are due to the publicity end of the aircraft program. If the war ended only two weeks earlier on its account, it canceled more than half of the appropriated cost of $640,000,000 in 1918. Otherwise the results must be valued in terms of the scrap heap and salvage account rather than by any contribution of a positive character to economic experience. Even the much exploited Liberty motor, unsupported by official backing, sinks to its place as an emergency product with all the disadvantages of the conditions and circumstances of its origin. The aircraft industry as such derived mainly negative gains from the governmental program of the War Department.

The results are quite different in the navy where aeronautical manufacturing by private concerns was encouraged in every reasonable way.[1] By utilizing these facilities from the start, and standing by them in realizing the high production schedule of 1918, while developing its own facilities concurrently, the navy by the middle of 1918 was in position to transfer certain producing concerns to the belated army work.

[1] Report of Chief of Bureau of Construction and Repairs, Navy Department, 1918; on airplane production, pp. 13–14; on spruce production, pp. 15–16.

In the navy's airplane spruce production, it secured cooperation of the most desirable kind from the start, while the army methods of handling this part of its aircraft program resulted in dissension among the lumber producing agencies, thus vastly enhancing the expense in creating added facilities while setting the existing ones at loggerheads.

Housing Operations on the Whole Justified

In the housing operations during the war the government sought to reduce the appalling labor turnover at its various producing plants, by making the conditions of living more tolerable. In stabilizing the labor conditions the Housing Bureau and Corporation of the Department of Labor worked on right lines and followed sound methods and policies in the main. It produced results of great economic service in munition production especially. It differed in the end with its Congressional investigators on the question of whether to complete or to cancel certain projects incomplete when the war ended. On the whole the Housing Corporation showed the better business judgment on questions of policy of sale of properties in unfinished condition especially where the local demand for housing was admittedly in excess of the supply. Congress, however, bent on reducing expenses, decided adversely; and was probably too much influenced by results as seen in the Plaza project at the national capital.

Government Brought New Standards to Industry

In nothing did the American manufacturer appear to better advantage than in his prompt response to the proposal to adapt his working forces and his equipment to the needs of the war. This was on a par with the attitude of the engineering and other professions. By this means the industrial capacity of the country was vastly increased in any given direction. Ordnance experts sent out among contracting plants assisted greatly in speeding up, in reaching quantity production and in anticipating the contract delivery schedule. As a result the close of the war left us with a large increase in the number of

specially skilled workmen in the finer lines on metal working and instruments of precision. The Navy Ordnance Bureau makes special mention of a typical instance of this in a Muskegon firm in the making of gun sights.[1] Of such there were thousands unnoted.

Another remarkably good record was made in the industrial field in the readiness with which the manufacturing plants after the armistice took up their commercial work. Many of these war working plants had learned to do higher grades of manufacturing by virtue of their government contracts. More of them learned for the first time the economy of standardization. They therefore took advantage of this experience in governmental work, by entering upon more lucrative kinds of commercial contracts. This entrance into a newer field upon return to peace was for industry one of the most valuable by-products of the war. In a series of reports on the demobilization of industry, Captain William A. Du Pay published the results of an inquiry among munition plants, following the termination of contracts.[2] He found that at the end of two months after the armistice there was only a shadow of the war time production left in some lines. Gradual cancelations had averted disaster.

Remarkably Rapid Transition to Peace

Under the general scheme of terminating and settling contracts the assets tied up were much more promptly liquidated than had been expected. By the army's plan, it will be recalled, district claims boards for ordnance contract settlement were established, consisting of the district officer, a civilian, the civilian representative of the War Industries Board and three army officers. For the purchase and storage (quartermaster) the zone supply officer established a board of contract review composed of army officers and one civilian. When these agencies had reached an agreement of settlement with the contractor, the results went before the Board of Contract Ad-

[1] Report of 1918, p. 6.

[2] *Philadelphia Ledger*, Business Section, January and February, 1919, especially Articles II (January 23), III (January 25), IV, V, and VII (February 4, 1919).

justment at Washington for approval and prompt payment. Failure of parties to agree resulted in 75 per cent payment subject to subsequent adjudication in the Court of Claims. By this method the "frozen assets" due to the sudden stopping of war were released within ninety days of November 11, in the great majority of cases. Thus the stupendous commitments aggregating $12,000,000,000 at that date were mainly melted into commercial resources at the service of peace time industry. In the item of motors, for instance, the cancelations were $271,000,000, in the Purchase and Storage orders of over a billion dollars. Ordnance and Aircraft had $10,000,000,000 of contracts pending. During the first six weeks $3,000,000,000 of these contracts were canceled. At the end of two months probably half of the contracts were still running, but rapidly tapering down to the vanishing point. Such was the case with small arms. The industries which had served well in war were thus not hurried back to peace conditions, with the abnormally high prices for raw materials and a labor situation that required careful handling.

The clearing up following the war covered a most extensive field of financial, industrial and commercial readjustment. In liquidating the contract work the policy of a gradual release of labor and industry justified itself by results. That this was accomplished without so much as developing an unemployment problem of any significant proportions is in itself a credit to the government, to contracting concerns and to the country in general. In the liquidation of the material resources involved, the government realized a cash price of $400,000,000 for its war assets in France, or almost as much as the Liquidation Commission asked for it. This sum should be compared with that of $1,839,787,989 as the total amount expended by the American Expeditionary Forces abroad between April 6, 1917, and June 1, 1918. The process of salvaging is still going on in domestic quarters. And though there have been flagrant cases of delinquency in the custody of war property, the main trend of settlement has exceeded the rate of progress anticipated by the business community. The

methods of adjustment as carried out by the district claims boards and their staffs thus far, with some signal exceptions due to contractual greed or official incompetence, have been a credit to those who planned and carried out the program.

With this work completed, the war driven organizations of economic life turn full face-about toward the demands of peace. The slowing up through which the nation is passing in its producing and commercial efforts is akin to the attitude of a patient recovering from a fever. But this giant nation is none the less on the sure road to recovery from the many mistakes to the surer masteries of a future fuller than ever of the possibilities of economic service of itself and of its fellow peoples.

INDEX