

The damage caused to the national wealth of this country by the war is estimated, in the value as of the war's end at ¥65,300,000,000 in total, amounting to ¥4,244,600,000,000 in the converted value as of the end of 1948, out of which 76%, namely ¥49,700,000,000 (¥3,228,700,000,000 in the converted value) represents the direct damage, and the remaining 24%, namely, ¥15,600,000,000 (¥1,015,900,000,000) represents the indirect damage. A classification according to items shows that the damage to buildings is ¥22,200,000,000 (31% of the total), that to chattels ¥17,400,000,000 (27%), that to machines and tools for industrial use ¥8,000,000,000 (12%), that to vessels ¥7,400,000,000 (11%), each amounting to more than 10% of the total, while the damage to the other items is, in each case, below 5%.

With regard to the direct damage, classified according to ownership, loss to the private-owned property amounts to ¥42,600,000,000, which is six times as much as the combined losses to Government-owned and public-owned properties, and represents 86% of all the direct damage; while a classification according to the items of property shows that the damage to chattels is the biggest, amounting to ¥17,400,000,000 (35% of the total), as the result of the destruction of the buildings containing large quantities of furniture, household effects, merchandise, materials, etc. The damage to private-owned chattels alone amounts to as much as ¥15,800,000,000 (32% of all the direct damages). The damage to buildings is also very heavy, amounting to ¥17,000,000,000, nearly the same amount as that to chattels (34% of the total). In this case, too, the damage to private-sustained buildings is the heaviest, representing 83% of the total damage to buildings. Heavy damage was caused also to vessels (¥6,600,000,000; 15%) and to machines and tools (¥4,700,000,000; 9%). The damages to all the other categories are less than ¥1,000,000,000, each, in some cases below 2% of the total damage. In the grand total of damages, machines and tools for industrial use come before vessels, but, in the total of direct damage alone, the order is reversed due to the fact that machines and tools suffered heavier indirect damages than vessels.

Of the indirect damages (¥15,600,000,000), the damage from inadequate repairing (¥7,600,000,000) comes first representing 49%, followed by that due to scrapping (¥4,400,000,000), representing 28%,

while the remaining 23% (¥3,600,000,000) is due to evacuation removals, etc. As for the categories of property, buildings suffered the greatest damage amounting to ¥5,200,000,000, (33% of the total); next comes the damage to machines and tools for industrial use (¥3,300,000,000, representing 21%); and the damage to the other categories are 5% or less each, including that to vessels (¥800,000,000). The indirect damages to unclassifiable amount to ¥3,900,000,000 (25% of the total).

The following table shows the damages done to general asset national wealth in comparison with national wealth as of 1935:

Table XIII. Damages to General Asset National Wealth in Comparison with National Wealth as of 1935

(Unit Amount, ¥1,000,000; Rate, per cent.)

Damage to General Asset National Wealth	Total of Damage			Direct Damage		Indirect Damage		National Wealth Remaining Intact at the War's End		Grand Total of the Above		Amount of National Wealth of 1935, as Converted to the Value as of the War's End F
	Amount A B+C	Rate of Damage A/E	Rate against National Wealth as of 1935. A/F	Amount B	Rate of Damage B/E	Amount C	Rate of Damage C/E	Amount D	Rate against National Wealth as of 1935. D/F	Amount A+D	Rate against National Wealth as of 1935. E/F	
Total	64,278	25.4	34.4	43,643	19.2	15,629	6.2	188,852	101.1	253,130	135.5	136,751
Buildings	21,270	24.6	23.2	17,016	18.8	5,204	5.8	68,215	89.4	90,435	118.6	76,275
Harbors and Canals	123	7.5	10.0	17	1.0	115	6.5	1,632	123.3	1,764	133.3	1,923
Bridges	101	3.5	4.4	55	1.9	46	1.6	2,773	121.2	2,874	125.6	2,288
Machines and Tools for Industrial Use	7,394	34.3	94.0	4,684	20.1	3,310	14.2	15,352	180.6	23,246	274.6	8,501
Railroad and Tramways	834	7.0	8.1	104	0.8	780	6.2	11,618	103.6	12,502	114.7	10,903
Vehicles	639	21.9	26.0	364	12.5	275	9.4	2,274	92.4	2,913	118.4	2,451
Vessels	7,559	80.6	236.5	6,514	71.9	795	8.7	1,766	56.8	9,125	233.3	3,111
Electric and Gas Supply Equipment	1,618	10.8	18.0	838	6.0	720	4.8	13,313	148.1	14,931	166.1	8,837
Telegraph, Telephone and Radio Equipment	233	14.3	19.1	243	12.3	50	2.5	1,683	109.9	1,976	123.0	1,531
Water Service Equipment	366	16.3	21.6	271	12.4	95	4.4	1,814	106.8	2,180	128.4	1,698
Chattels	17,433	21.6	23.1	17,443	21.5	47	0.1	63,448	94.6	80,941	120.7	67,035
Furniture and Other Household Effects	9,558	20.6	24.3	9,558	20.6	—	—	36,839	93.7	46,427	118.0	39,364
Products	7,864	23.9	33.4	7,864	23.9	—	—	23,089	106.6	32,953	140.0	23,541
Coins and Gold, Silver and Other Precious Metals	71	4.5	1.7	24	1.5	47	3.0	1,490	35.7	1,561	37.4	4,170
Miscellaneous	1,243	20.0	47.7	987	15.9	256	4.1	4,964	190.3	6,207	233.0	2,608
Unclassifiable	3,936	100.0	—	—	—	3,936	100.0	—	—	3,936	—	—

As may be seen from the above table, the national wealth of Japan as a whole would have been increased by 36% in 1945, as compared with that of 1935. But in reality, the war came and cut the increase only to 1.1%. The war gave a heavy blow especially upon vessels and industrial machines and tools. But for the war damages, the tonnage of vessels in 1945 would have grown 2.9 times as compared with that of 1935, and the industrial machines and tools 2.7 times. As for vessels, 80% of them suffered damage (the damage corresponds to 2.3 times the whole volume held in 1935), so the volume of vessels remaining at the war's end was only 56% of that held in 1935. While 34% of industrial machines and tools suffered damage (the damage equals almost the whole volume held in 1935), so that they showed an increase of only 1.8 times as compared with 1935.

Damages to national wealth classified by producer, consumer and communications properties are shown hereunder:

Table XIV. Damages to National Wealth Classified by Producer,
Consumer and Communications Properties

General Asset National Wealth	Damage			National Wealth Remaining Intact at the War's End		Grand Total of the Above		Amount of National Wealth of 1935 as Converted to Value of August, 1945 (in million yen) D
	Amount (in million yen) A	Damage Rate (%) A/C	Rate (%), against National Wealth as of 1935 A/D	Amount (in million yen) B	Rate (%), against Na- tional Wealth as of 1935 B/D	Amount (in million yen) C=A+B	Rate (%), against National Wealth as of 1935 C/D	
Total	64,278	25.4	31.4	188,552	101.1	253,130	135.5	186,751
Producer Property	19,838	24.9	54.3	59,689	168.1	79,527	217.4	36,579
Consumer Property	34,813	24.7	27.3	105,894	83.1	140,717	110.4	127,500
Communications Property	9,617	29.2	42.7	23,269	102.6	32,886	145.0	22,672

(25)

0095

From the above table it will be seen that the damage to consumer property amounts to ¥31,800,000,000, representing 54% of the total; next comes that to producer property amounting to ¥19,800,000,000 (31 per cent), to be followed by that to communications property which is ¥9,600,000,000 (15 per cent). What is to be noticed, however, is the difference in rate of damage rather than that in its amount. In consideration of the effect of damage, etc., the high rates of damage—29.2 per cent for communications property and 24.9 per cent for producer property—though not so big in absolute amounts, may be regarded more serious than the damage to consumer property which is much bigger in actual amount. Their high damage rates are due to the extremely heavy losses to vessels in the case of communications property and to industrial machines and tools, and products in the case of producer property.

Had it not been for the war, the producer property would have increased by the war's end to 2.2 times over 1935, instead of 1.6 times, while in the case of communications property, a possible 45% increase was reduced to 3%. In the case of consumer property, which would have increased hardly more than 10% as compared with 1935, even in the absence of the war, what remained intact at the war's end showed a decrease of 17%.

(2) Buildings

Buildings suffered direct and indirect damages totalling to 22,200 million yen, representing 34% of all the damages to national wealth. Because buildings suffered such a serious damage, the total value of buildings, which would have stood at 90,400 million yen at the war's end showing an increase of 18% as compared with 1935, was reduced to 68,200 million yen, or a decrease of 11%. Below is given a table showing damages to buildings.

(27)

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Table XV. Damages to Buildings

Damage of Buildings	Total of Damage		Direct Damage		Indirect Damage		Amount Remaining Intact at the War's End (in million yen) D	Grand Total of the Above (in million yen) E=A+D
	Amount (in million yen) A=B+C	Rate of Damage (%) A/E	Amount (in million yen) B	Rate of Damage (%) B/E	Amount (in million yen) C	Rate of Damage (%) C/E		
Total	22,220	24.6	17,016	18.8	5,204	5.8	68,215	90,435
Government-Owned	1,619	23.3	1,516	21.8	103	1.5	5,921	6,940
Public-Owned	1,426	22.8	1,307	20.9	119	1.9	4,819	6,245
General	235	21.0	251	19.0	24	2.0	958	1,213
Schools	1,171	23.3	1,076	21.4	95	1.9	3,861	5,032
Private-Owned	19,175	24.8	14,193	18.4	4,982	6.4	58,075	77,250
Urban	17,316	25.1	12,651	18.3	4,665	6.8	21,022	69,114
Rural							30,776	
Special*	1,859	22.8	1,542	19.0	317	3.8	6,277	8,136

* Buildings for special purposes, such as educational institutions, agricultural warehouses, social services institutions, hospitals operated by juridical persons and religious institutions.

(29)

It may be seen from the above table that, according to the ownership of damaged buildings, the private-owned buildings first amounting to as much as ¥19,200,000,000 (86%), which is about 6.5 times the total of both the Government-owned (¥1,600,000,000, representing 7% of the total) and the public-owned (¥1,400,000,000, representing a little less than 7%). With regard to the rates of damage, the private-owned also show the highest rate of nearly 25%, and, out of the total of such damage, the damage to general buildings was the severest, which amounted by itself to ¥17,300,000,000, representing 78% of the total. The comparison between direct and indirect damages shows that the former represents 77% (¥17,000,000,000) and the latter 23% (¥5,200,000,000). Further, it may be noted that the direct damage to private-owned general buildings was the heaviest under the heading of "Damage to Buildings", and amounting to ¥12,600,000,000, or 57% of the total. As to indirect damage, such damage suffered by private-owned general buildings due to compulsory removals, etc., was extraordinarily heavy.

(3) Harbors and Canals

Damage was done to harbors only, and such damage, including both direct and indirect, amounted to ¥130,000,000, which makes them one of the categories which suffered the least damage.

Table XVI. Damages to Harbors and Canals

Total of Damage	Damage to Harbors and Canals		Total Harbors Canals	
	Amount (in million yen)	Rate of Damage (%)	A=B+C	A/E
			132	132
			7.5	7.5
Direct Damage	Total (in million yen)	B	17	17
	Rate of Damage (%)	B/E	1.0	1.0
	Government-Owned (in million yen)		12	12
	Public-Owned (in million yen)		3	3
	Private-Owned (in million yen)		2	2
Indirect Damage	Amount (in million yen)	C	115	115
	Rate of Damage (%)	C/E	6.5	6.5
	Amount Remaining Intact at the War's End (in million yen)	D	1,632	1,614
	Grand Total of the Above (in million yen)	E=A+D	1,764	1,764
	National Wealth, as of 1935 (in million yen)		1,323	1,305

(31)

As shown above, the direct damage was far smaller than the indirect damage, amounting to ¥17,090,000 and representing only one seventh of the total damage. Classified according to ownership, the major part of the damage was suffered by the Government-owned, representing 71% of the total, while the remainder was shared by the public-owned (15%) and the private-owned (14%). Classification according to the kind of structure shows that the damage to embankments was the heaviest, amounting to ¥4,360,000 (Government-owned, ¥2,540,000) and representing about a quarter of the total, while those whose damage was comparatively heavy among the rest included the damage of ¥2,870,000 to landing-places (all Government-owned), that of ¥2,020,000 to embankment and fender materials (all Government-owned), that of ¥1,830,000 to banks (all Government-owned), etc. The indirect damage, which amounted to ¥120,000,000 representing 87% of the total damage, was all due to inadequate maintenance and repairing.

(4) Bridges

Bridges are also a category which escaped heavy damages. Their damages totalled only ¥100,000,000, the damage rate being as low as 3.5%.

Table XVII. Damages to Bridges

Damages to Bridges			Total
Total of Damage	Amount (in million yen)	A=B+C	101
	Rate of Damage (%)	A/E	3.5
Direct Damage	Amount (in million yen)	B	55
	Rate of Damage (%)	B/E	1.9
Indirect Damage	Amount (in million yen)	C	46
	Rate of Damage (%)	C/E	1.6
Amount Remaining Intact at the War's End (in million yen)			D
			2,773
Grand Total of the Above (in million yen)			E=A+D
			2,874
National Wealth as of 1935 (in million yen)			2,238

The direct damage, which amounts to ¥55,090,000, representing 54% of the total damage, includes, in addition to the damage to bridges for general thoroughfare, the damage of ¥60,000 suffered by bridges built for access to harbors.

(5) Industrial Machinery and Tools

As a result of the airraid on factory zones, machines and tools for industrial use suffered heavy damage, amounting to as much as ¥8,000,000,000, which, among all damages to national wealth, comes third, next after those to buildings and chattels personal. The rate of damage for machines and tools represented 34%, next highest after the damage rate for vessels.

Table XVIII. Damages to Machines and Tools for Industrial Use

Damages to Machines and Tools for Industrial Use			Total
Total of Damage	Amount (in million yen)	A=B+C	7,994
	Rate of Damage (%)	A/E	34.3
Direct Damage	Amount (in million yen)	B	4,681
	Rate of Damage (%)	B/E	20.1
Indirect Damage	Amount (in million yen)	C	3,310
	Rate of Damage (%)	C/E	14.2
Amount Remaining Intact at the War's End (in million yen)			D
			15,332
Grand Total of the Above (in million yen)			E=A+D
			23,346
National Wealth, as of 1935 (in million yen)			8,501

The proportion between direct and indirect damages—59% against 41%, of the total damage—is comparatively close. The high rate of indirect damage was due to scrapping and inadequate repairing in the wartime.

(6) Railroad and Tramways

Under this heading are not included railroad rolling stock and buildings, electric power equipment, etc. Accordingly, the amount of damage is comparatively small, figuring even less than ¥900,000,000, the major part of which represents indirect damage.

Table XIX. Damages to Railroad and Tramways

Damage to Railroad and Tramways		Total	State-Owned Railroads	Local Railroads	Local Tramways	Miscellaneous
Total of Damage	Amount (in million yen) A=B+C Rate of Damage (%) A/E	884 7.0	605 6.0	270 11.4	9 12.7	
Direct Damage	Amount (in million yen) B Rate of Damage (%) B/E	104 0.8	88 0.9	16 0.7	—	
Indirect Damage	Amount (in million yen) C Rate of Damage (%) C/E	780 6.2	517 5.1	168 10.7	86 12.7	
Amount Remaining Intact at the War's End (in million yen)	D	11,618	9,432	1,363	731	62
Grand Total of the Above (in million yen)	E=A+D	12,503	10,067	2,364	71	
National Wealth, as of 1935 (in million yen)		10,903	7,803	1,972	1,000	60

The direct damage amounts to only a little more than ¥100,000,000, representing 10% of the total damage.

(7) Vehicles

The damage to vehicles shows a high rate of 22%, but in value it amounts to a little less than 640,000,000 yen, which is not a large sum of money as compared with the whole damage to national wealth. Of 640,000,000 yen, direct damage accounts for 360,000,000 yen (57%), and indirect damage for the remaining 280,000,000 yen (43%), the damage ratio to all vehicles being respectively a little over 12 per cent and a little over 9 per cent.

Table XX. Damages to Vehicles

Damages to Vehicles		Total	Railway Rolling Stock	Motor Vehicles	Other
Total of Damage	Amount (in million yen) A=B+C Rate of Damage A/E	639 21.9	276 16.1	275 36.8	88 25.7
Direct Damage	Amount (in million yen) B Rate of Damage B/E	364 12.5	163 8.9	130 17.4	71 20.7
Indirect Damage	Amount (in million yen) C Rate of Damage C/E	275 9.4	113 6.2	145 19.4	17 5.0
Amount Remaining Intact at the War's End (in million yen)	D	2,274	1,548	471	255
Total (in million yen)	E=A+D	2,913	1,824	746	343
Possession in 1935 (in million yen)		2,461	1,771	304	386

(34)

(8) Vessels

The damages to vessels were tremendous. In ratio, as much as 80% of the vessels of all Japan were damaged, amounting to 7,400,000,000 yen in value. The damage to vessels ranks fourth in value among damages to various categories of national wealth. The value of the damage is 2.3 times the total value of the vessels held in 1935.

Table XXI. Damages to Vessels

A. Summarizing Table		Total
Total of Damage	Amount (in million yen) A=B+C Ratio A/E	7,359 80.6
Direct Damage	Amount (in million yen) B Ratio B/E	6,564 71.9
Indirect Damage	Amount (in million yen) C Ratio C/E	795 8.7
Amount Remaining Intact at the War's End (in million yen) D		1,786
Grand Total (in million yen)	E=A+D	9,125
Possession in 1935 (in million yen)		3,111

(35)

B. Breakdown of Direct Damage

Direct Damage to Vessels	Total		Government-owned		Public-owned		Private-owned	
	Number of Ships	Amount of Money (in million yen)	Number of Ships	Amount of Money (in million yen)	Number of Ships	Amount of Money (in million yen)	Number of Ships	Amount of Money (in million yen)
Total	15,518	6,564	503	95	246	20	14,769	6,449
Private steamers	3,207 (7,902,000GT)	5,151	—	—	—	—	3,207 (7,902,000GT)	5,351
Government steamers	358	83	368	83	—	—	—	—
Steam-and-sail driven boats	2,070 (189,100GT)	321	—	—	—	—	2,070 (189,100GT)	321
Fishing boats	1,595 (233,800GT)	563	—	—	—	—	1,595 (233,800GT)	563
Lighters	6,731	114	—	—	—	—	6,731	114
Engineering boats	307	29	96	12	210	17	1	0.4
Wooden & other vessels	214 (41,575GT)	37	—	—	—	—	214 (41,575GT)	37
Vessels in dockyards	85	13	—	—	—	—	85	13
Others	941	48	39	0.3	36	3	866	45

(37)

(9) Electricity and Gas Installations

The damage to electricity and gas supplying facilities amounts to a pretty large sum of 1,600,000,000 yen, the damage rate against the whole facilities being 11 per cent. The direct damage and indirect damage are respectively 60 per cent and 40 per cent as shown below.

Table XXII. Damages to Electricity and Gas Supplying Facilities

Total of Damage	Amount (in million yen)	A = B+C	Total	Electricity Supplying	Gas Supplying
Ratio <td>A/E</td> <td>10.8</td> <td>1,618</td> <td>1,352</td> <td>266</td>	A/E	10.8	1,618	1,352	266
Direct Damage <td>Amount (in million yen) <td>B</td> <td>898</td> <td>671</td> <td>227</td> </td>	Amount (in million yen) <td>B</td> <td>898</td> <td>671</td> <td>227</td>	B	898	671	227
Ratio <td>B/E</td> <td>6.0</td> <td>6.0</td> <td>4.8</td> <td>23.7</td>	B/E	6.0	6.0	4.8	23.7
Indirect Damage <td>Amount (in million yen) <td>C</td> <td>720</td> <td>681</td> <td>39</td> </td>	Amount (in million yen) <td>C</td> <td>720</td> <td>681</td> <td>39</td>	C	720	681	39
Ratio <td>C/E</td> <td>4.8</td> <td>4.8</td> <td>4.9</td> <td>4.1</td>	C/E	4.8	4.8	4.9	4.1
Value of Facilities Remaining Intact at the War's End (in million yen) <td>D</td> <td>13,313</td> <td>13,313</td> <td>12,632</td> <td>691</td>	D	13,313	13,313	12,632	691
Total of the Above (in million yen) <td>E = A + D</td> <td>14,931</td> <td>14,931</td> <td>13,974</td> <td>957</td>	E = A + D	14,931	14,931	13,974	957
Possession in 1935 (in million yen)		8,987	8,987	8,286	701

The rate of damage to electricity equipment is less than 10%, lower than that of gas, because nearly all the hydro-electric generating equipment escaped from damage.

(10) Telegraph, Telephone and Radio Equipment

Owing to airraid of cities and towns, communication facilities suffered a serious damage, but in value it was a little less than 300,000,000 yen.

Table XXIII. Damages to Telegraph, Telephone and Radio Equipment

Total of Damage	Total	Government operated	Telephones of Government	Police Tele-phones	Radio and Other Equip-ment
Value (in million yen)	A = B + C	293	183	25	73
Ratio	A/E	14.8	12.8	7.8	50.7

(39)

Direct Damage						
Value (in million yen)	B	243	146	16	71	10
Ratio	B/E	12.3	10.2	5.0	49.3	12.3
Indirect Damage						
Value (in million yen)	C	50	37	9	2	2
Ratio	C/E	2.5	2.6	2.8	1.4	2.5
Value of Facilities Remaining Intact at the War's End (in million yen)	D	1,683	1,247	296	71	69
Total of the Above (in million yen)	E=A+D	1,976	1,430	321	144	81
Possession in 1935 (in million yen)		1,531	1,434	65	32	

(11) Water Supply and Sewerage System

The damage to the water supply and sewerage system amounts to 400,000,000 yen, which is a comparatively small sum, but the rate of damage is as high as 17 per cent.

Table XXIV. Damages to Water Supply and Sewerage System

				Total
Total of Damage	Value (in million yen)	A	B+C	366
	Ratio		A/E	16.8
Direct Damage	Value (in million yen)		B	271
	Ratio		B/E	12.4
Indirect Damage	Value (in million yen)		C	95
	Ratio		C/E	4.4
Value of Facilities Remaining Intact at the War's End (in million yen)			D	1,814
Total of the Above (in million yen)			E=A+D	2,180
Possession in 1935 (in million yen)				1,698

Insufficient repairing is the main cause of indirect damage.

(12) Goods and Property in Store

Resulting from a heavy damage sustained by buildings, goods and property in store suffered a serious damage which amounts to 17,500,000,000 yen, the rate of damage being 22 per cent. This is not only due

to the heavy damage to the furniture and household effects in ordinary houses, but because products, unfinished goods and raw materials in factories and warehouses sustained a serious damage.

Table XXV. Damages to Goods and Property in Store

		Total	Furniture, Household effects	Products	Coins, etc.
Total of Damage					
Value (in million yen)	A=B+C	17,443	9,558	7,864	71
Ratio	A/E	21.6	20.6	23.9	4.5
Direct Damage					
Value (in million yen)	B	17,443	9,558	7,864	24
Ratio	B/E	21.5	20.6	23.9	1.5
Indirect Damage					
Value (in million yen)	C	47	—	—	47
Ratio	C/E	0.1	—	—	3.0
Value of Goods and Properties Remaining Intact at the War's End (in million yen)	D	63,418	36,869	25,089	1,490
Total of the Above (in million yen)	E=A+D	80,941	46,427	32,953	1,561
Possession in 1935 (in million yen)		67,035	39,354	23,541	4,170

According to the above table, the rate of damage to each item against the total is shown as below, and there is not much difference in ratio between the damage to furniture and household effects and that to products, both forming the greater part of the total damage.

Total	100.0%
Furniture, Household Effects	54.6
Products	45.0
Coins, Gold, Silver and other Precious Metals	0.4

(13) Miscellaneous

The damage to miscellaneous includes that to the machines and instruments (except those for industrial use), books in libraries, and structures, amounting to a total of 120,000,000 yen, the damage rate being 20 per cent.

Table XXVI. Damages to Miscellanies

Damage to Miscellanies	Total of Damage		Direct Damage		Indirect Damage		Value of Those Remaining Intact at the War's End (in million yen)	Total of the Above (in million yen)	Possessions in 1935 (in million yen)
	Value (in million yen)	Ratio (%)	Value (in million yen)	Ratio (%)	Value (in million yen)	Ratio (%)			
Total	1,243	20.0	987	15.9	256	4.1	4,964	6,257	2,608
Books in Libraries	21	24.7	21	24.7	—	—	64	85	67
Motor Fire-Engines	7	10.8	7	10.8	—	—	58	65	10
Structures owned by Government	141	12.5	110	9.7	31	2.8	989	1,130	689
Machines and Instruments of the National Railway	50	17.9	36	12.9	14	5.0	230	280	239
Factory Structures	83	5.0	—	—	83	5.0	1,583	1,666	325
Mine Structures, Machines and Instruments	382	15.8	254	10.4	128	5.4	2,040	2,422	1,278
Others	559		559		—	—	—	559	—

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As shown in this table, mine structures, machines and instruments suffered a serious damage forming 31 per cent of the total damages of this category. Next comes the damage to structures attached to Government buildings (11%). The direct damage is four times as large as the indirect damage.

(14) Unclassifiable

Such kind of goods as are difficult to classify into any of the preceding 13 items are enumerated here. The damage to this category is all indirect and its items are as follows:

Total	3,936 (in million yen)
Assets Disposed of by the People's Rehabilitation Bank	2,198
Metals Collected for Special or Emergency Use	547
Loss of Assets due to Suspension of the Government Compensation	1,191

The assets disposed of by the People's Rehabilitation Bank (Kokumin Kosei Kinko) mean business utensils which had been held by small and middle enterprisers, were taken over by the said Bank due to enterprise readjustment and scrapped into pieces. In the metals collected for special or emergency use are included those metals handled other than by the Industry Equipment Corporation (Sangyo Setsubi Eidan), 570,000 tons of iron-made articles and 70,000 tons of articles made of lead, copper and aluminium, consisting chiefly of buildings, furniture and household effects.

The loss of assets resulting from suspension of the Government compensation means the unpaid compensation for the damages caused by the collapse of buildings due to construction of underground ways for military and air-defence purposes and the damages to private ships caused by collision with drifting naval vessels or the damages to property due to remodelling of ships and pulling-down of buildings for safety by order of central or local government without legal authorization.

The 13 kinds of goods and properties the damages to which have been described above may be characterized as general national wealth

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having nature of assets in itemization in the investigation of national wealth of 1935, as distinguished from the items enumerated in the following. Forests, fields and trees should be considered to be national wealth having the nature of resources, not of assets. "Roads" and "National treasures, historic spots and scenic beauties" are treated different from the general asset national wealth for convenience' sake. The damage to items enumerated in paragraph 15 and the following is all direct damage.

(15) Forests, Fields and Trees

Their damage is the smallest of all amounting to only 6,250,099 yen. The rate of damage they suffered is also trivial as shown below. Nearly all the damages were sustained by privately-owned forests.

Table XXVII Damages to Forests, Fields and Trees

Direct Damage to Forests, Fields and Trees	Area (in million chō)	Amount (in million yen)	Rate of Damage
Grand Total		6.0	
State-owned Forests	494	0.1	0.0088
Privately-owned Forests	2,077	5.8	0.0080
Total	2,571	5.9	0.0081
Government-owned Trees	—	0.3	—

(16) Roads

Not being the direct target of bombing, roads sustained a comparatively slight damage, which amounts to 243,780,000 yen.

Of the above figure, 110,000 yen is the damage to roads to harbors, and the rest is that to roads in general, of which details are as follows:

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Table XXVIII Damages to Roads

Direct Damage to Roads in General	Total		Concrete-Paved		Asphalt-Paved		Gravel-Roads	
	Area (1000 s. m.)	Amount (in million yen)	Area (1000 s. m.)	Amount (in million yen)	Area (1000 s. m.)	Amount (in million yen)	Area (1000 s. m.)	Amount (in million yen)
Total	4,579	244	953	53	1,935	179	1,691	12
National Roads	373	65	62	3	259	61	52	0.2
Prefectural Roads	915	31	159	10	321	14	435	7
City Roads	3,221	147	732	40	1,354	104	1,139	4
Town and Village Roads	67	1	0.01	0.001	1	0.02	65	1

(17) National Treasures, Places of Historical Interest and of Scenic Beauty

The damages to national treasures and places of historical interest and of scenic beauty, amount to as much as 800,000,000 yen. This is because they are a special property, and are naturally appraised high. Besides, there are damages to treasures which are a historical and cultural property, but as it is difficult to evaluate the damages to them, they are not included in the following table:

Table XXIX Damages to National Treasures, Places of Historical Interest and of Scenic Beauty

	Area (Isubo)	Amount (in million yen)
Total	—	775
National Treasures	10,157	283
Places of Historical Interest	17,240	236
Buildings	4,439	222
Gardens	12,801	64
Places of Scenic Beauty	40,217	201
Buildings	119	1
Gardens	40,098	200
Others		5

(47)

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(18) Aeroplanes and Naval Vessels

Damages to military properties such as aeroplanes and naval vessels may be added here for reference. They amount to a total of 40,400,000,000 yen.

Of this total, 3,390,000,000 yen is direct damage and the rest is indirect damage. However, the term "indirect damage" as employed in this paragraph means the amount left over at the war's end. Aeroplanes and naval vessels lost their value as such as they were all dismantled after the war. So they are regarded as indirect damage.

Table XXX. Damages to Vessels of the Navy and Aeroplanes

Total of Damage	Total	Naval Vessels	Aeroplanes
Value (in million yen) A B C	40,382	18,756	21,626
Ratio A E	100	100	100
Direct Damage			
Value (in million yen) B	3,390	1,589	1,801
Ratio B E	8.4	8.5	8.3
Indirect Damage			
Value (in million yen) C	6,526	3,067	3,459
Ratio C E	16.2	16.4	15.9
Value Remaining Intact at the War's End (in million yen) D	(6,526)	(3,067)	(3,459)
Total of the Above E=A+D	40,382	18,756	21,626

Damages to naval vessels are classified in the following table:

Table XXXI. Damages to Naval Vessels

Direct Damage to Naval Vessels	Extent of Damage		Amount Remaining Intact at the War's End (in million yen) B	Total (in million yen) C=A+B
	Value (in million yen) A	Ratio (%) A/C		
Total	15,089	80.4	3,667	18,756
War-ships	8,285	89.1	1,009	9,294
Battleships	2,719	92.0	237	2,956
Aircraft Carriers	2,918	90.6	303	3,221

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Cruisers	2,292	86.9	316	2,638
Seaplane Carriers	135	91.8	12	147
Submarine depot-ships	27	57.4	20	47
Mine-Laying Bots	155	75.6	50	205
Gun-boats	39	48.8	41	80
Other Naval Vessels	6,801	71.9	2,658	9,462
Destroyers	2,170	81.2	503	2,673
Submarines	2,103	74.6	820	3,223
Coast-Defence	515	99.1	533	1,048
Others	1,716	68.1	802	2,518

Fifty-five per cent of the damage to naval vessels is the damage to "war-ships," and the damage to "other naval vessels" is 45 per cent. The direct damage to these naval vessels is as much as 23 per cent of the whole damage to peaceful national wealth.

Lack of reliable data makes it difficult to give the details of the damage to aeroplanes. The calculation of the damage shown below is based on the actual results of production of aeroplanes during the period from December 1911 to July 1945, but the classification into army and naval planes is available.

Table XXXII. Damages to Aeroplanes

Damage to Aeroplanes	Direct Damage		Number Remaining Intact at the War's End	
	Actual Number A	Ratio A/C	B	Total C=A+B
Amount (in million yen)	18,767	86.8	2,859	21,626
Number	65,538	80.5	15,886	81,424

(49)

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2. Damages to Production Capacity

(1) General Observation

While the nation's wealth as a whole suffered a tremendous amount of damage during the Pacific War as explained in Chapter I, the damage to the industrial production capacity also attained magnitude as the devastating attacks on the industrial districts were intensified. In this Chapter, an overall picture of the war damage done to the industrial production capacity will be given. The categories of production capacity mentioned here will be taken to mean the direct production capacity, and the damage done to such capacity will be interpreted to represent only such direct damage as was caused by aerial bombardment and bombardment within the Japanese territory, but not the indirect damage such as losses incidental to dispersal for safety, supply removal to overseas territories, conversion to military production, etc. The figures for the damaged capacity in the following table were obtained by means of summing up the individual damage done to production capacity on each occasion in reference to each of the items in brackets or category shown in the table.

With the wordings defined as above, we give below a table showing the whole picture of war damage done to the capacity of industrial equipment in this country. In connection with the table, it should be noted:

- (a) That in order to avoid possible inaccuracy that might arise from conversion of figures, figures and units appearing in reports from the offices who made the surveys were used as they were in the following table, despite the lack of uniformity in indicating the capacity on a daily, monthly or yearly basis;
- (b) That the capacity as of the end of 1944, less the damaged capacity, does not always show the amount left available at the end of the war, because the capacity may have undergone a change on account of other causes.

Table XXXIII. Damages to Industrial Production Capacity

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Branches of Industry	Unit	Daily, Monthly or Annual Capacity	Capacity at the End of 1944 (A)	Damaged Capacity		Capacity at the War's End	Number of Operating Unit		
				Amount (B)	Ratio (B/A)		Before Damage	After Damage	As of March 1947
Power Industry									
Coal power electricity	1,000 kwh	Annual	2,450 (750)	741 (70)	30.2	1,680 (630)	116	12	114
Hydroelectricity	"	"	6,074 (287)	—	—	6,233 (299)	1,440	5	1,410
Gas	1,000 M ³	Daily	4,620	1,453	31.5	2,978	176	50	173
Petroleum refining	1,000 kl	Annual	3,739	2,169	58.0	1,443	23	12	20
Synthetic petroleum	kl	"	80,800	36,000	44.6	42,400	6	2	0
Iron and Steel Industry									
Rolled steel	1,000 m.t.	"	7,998	—	—	8,040	—	—	42
Pig iron	"	"	5,769	—	—	5,660	—	—	11
Special steel	"	"	900	—	—	919	—	—	59
Non-ferrous metal Industry									
Electric copper	Metric ton	Monthly	12,680	2,800	22.1	10,380	12	3	12
Lead	"	"	4,300	—	—	4,450	5	—	6
Zinc	"	"	6,870	100	1.5	6,770	9	—	9
Tin	"	"	990	—	—	990	3	—	3
Gold	kg.	"	4,205	30	0.7	4,445	7	1	7
Silver	"	"	38,750	400	1.0	40,350	9	1	9
Mercury	"	"	31,300	—	—	32,900	7	—	5
Aluminium	Metric ton	"	11,100	2,650	23.9	8,350	9	3	8
Alumina	"	"	29,890	3,700	12.6	27,490	12	4	12
Magnesium	"	"	400	40	10.0	360	6	2	6
Machine Industry									
Machine tools	"	Annual	172,000	43,000	25.0	120,000	329	105	165
Bearings	¥ 1,000.	"	382,000	76,500	20.0	257,800	34	4	15
Vacuum tube	1,000 p'ces	"	9,020	5,020	55.7	4,000	—	—	—
Steam locomotives	Number	"	823	227	27.5	—	—	—	—
Electric locomotives	"	"	200	18	9.0	—	—	—	—
Passenger carriages & electric cars	"	"	2,156	530	24.6	—	14	12	14
Freight trucks	"	"	17,000	3,060	18.0	—	—	—	—
Automobiles	"	Monthly	3,600	750	20.8	1,850	13	2	21
Bicycles	1,000 units	Annual	1,440	720	50.0	720	180	36	400
Chemical Industry									
Ammonium sulphate	Metric ton	"	1,659,000	897,000	54.1	762,000	14	13	18
Calcium cyanamide	"	"	856,000	8,000	2.2	844,000	9	1	11
Superphosphate lime	"	"	1,861,090	303,780	16.3	1,557,220	25	7	25
Carbide	"	"	379,200	6,000	1.6	373,200	26	2	24
Sulphuric acid	"	"	6,281,300	905,300	14.4	5,376,000	104	23	83
Caustic soda	"	"	722,550	257,860	35.7	464,690	42	5	40
Soda ash	"	"	830,200	158,400	17.8	527,200	7	3	4
Alcohol	kl	"	245,900	28,100	11.4	217,800	31	6	31
Fatty acids	Metric ton	"	123,630	27,774	22.5	95,856	26	7	24
Soap	"	"	161,310	61,689	38.2	99,621	46	14	43
Cement	"	"	7,779,000	2,101,800	27.0	5,377,920	36	34	37
Sheet glass	Case	Monthly	438,000	—	—	443,000	6	—	5
Rubber	Metric ton	Annual	62,976	26,880	42.7	36,096	405	140	382
Hide and leather	"	"	72,819	14,128	19.4	58,691	41	19	48
Fiber Industry									
Rayon yarn	"	Daily	153	6	3.9	151	7	1	7
Staple fiber	"	"	307	2	0.7	301	14	2	14

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Petroleum Refining	1,000 kl	Annual	80,800	80,000	44.6	42,400	6	2	0
Synthetic petroleum	kl								
Iron and Steel Industry									
Rolled steel	1,000 m.t.		7,998	—	—	8,040	—	—	42
Pig iron	"		5,769	—	—	5,060	—	—	11
Special steel	"		900	—	—	919	—	—	59
Non-ferrous metal Industry									
Electric copper	Metric ton	Monthly	12,680	2,800	22.1	10,880	12	8	12
Lead	"	"	4,300	—	—	4,450	5	—	6
Zinc	"	"	6,870	100	1.5	6,770	9	—	9
Tin	"	"	990	—	—	990	3	—	3
Gold	kg.	"	4,205	30	0.7	4,445	7	1	7
Silver	"	"	38,750	400	1.0	40,350	9	1	9
Mercury	"	"	31,300	—	—	32,900	7	—	5
Aluminium	Metric ton	"	11,100	2,650	23.9	8,350	9	3	3
Alumina	"	"	29,390	3,700	12.6	27,490	12	4	12
Magnesium	"	"	400	40	10.0	360	6	2	6
Machine Industry									
Machine tools	"	Annual	172,000	43,000	25.0	120,000	329	105	163
Bearings	¥ 1,000	"	382,000	76,500	20.0	257,800	84	4	15
Vacuum tube	1,000 p'ces	"	9,020	5,020	55.7	4,000	—	—	—
Steam locomotives	Number	"	828	227	27.5	—	—	—	—
Electric locomotives	"	"	200	18	9.0	—	—	—	—
Passenger carriages & electric cars	"	"	2,156	530	24.6	—	—	—	—
Freight trucks	"	"	17,009	3,060	18.0	—	—	—	—
Automobiles	"	Monthly	3,600	750	20.8	1,850	13	2	21
Bicycles	1,000 units	Annual	1,440	720	50.0	720	180	36	400
Chemical Industry									
Ammonium sulphate	Metric ton	"	1,659,000	897,000	54.1	762,000	14	13	18
Calcium cyanamide	"	"	356,000	8,000	2.2	344,000	9	1	11
Superphosphate lime	"	"	1,861,090	303,780	16.3	1,557,220	25	7	23
Carbide	"	"	379,200	6,000	1.6	373,200	26	2	24
Sulphuric acid	"	"	6,281,300	905,300	14.4	5,376,000	104	23	83
Caustic soda	"	"	722,550	257,860	35.7	494,690	42	5	40
Soda ash	"	"	832,200	158,400	17.8	527,200	7	3	4
Alcohol	kl	"	245,900	28,100	11.4	217,800	31	6	31
Fatty acids	Metric ton	"	123,930	27,774	22.5	95,856	26	7	24
Soap	"	"	161,310	61,689	38.2	99,621	46	14	43
Cement	"	"	7,779,000	2,101,800	27.0	5,677,200	36	34	37
Sheet glass	Case	Monthly	438,000	—	—	443,000	6	—	5
Rubber	Metric ton	Annual	62,976	26,880	42.7	36,096	405	140	582
Hide and leather	"	"	72,819	14,128	19.4	58,691	41	19	43
Fiber Industry									
Rayon yarn	"	Daily	153	6	3.9	151	7	1	7
Staple fiber	"	"	307	2	0.7	301	14	2	14
Cotton and staple fiber spinning	Spindle	"	3,592,000	633,352	19.0	2,800,648	40	11	64
Wool-combing	"	"	650,150	279,678	42.4	376,472	17	12	13
Wool-carding	Card	"	635	214	33.7	421	71	16	63
Silk-spinning	Spindle	"	332,552	35,330	12.0	144,852	25	4	14
Hemp-spinning	"	"	361,394	123,260	34.1	231,834	33	10	29
Cotton-weaving	Loom	"	143,785	20,121	13.5	123,747	2,302	—	2,327
Silk and rayon weaving	"	"	195,675	6,951	3.6	151,213	8,421	349	13,127
Wool-weaving	"	"	12,425	2,133	17.2	1,264	554	51	561
Rayon woodpulp	Long ton	Annual	211,300	103,900	5.1	210,200	—	2	3
Paper woodpulp	"	"	757,050	78,420	10.4	678,630	75	16	90
European paper	1,000 lbs	"	1,639,853	97,272	5.9	968,226	—	—	61
Cardboard	"	"	751,764	63,470	8.4	677,986	313	15	—
Japanese paper	"	"	400,243	6,543	1.3	393,282	—	—	2-2

It will be noted from the table that almost without exception all descriptions of industrial equipment were damaged more or less. However, as the importance of each branch to the whole of the nation's industrial production varies, a simple comparison of the rates of damage as given in the table will not indicate the relative gravity of such damages in a right proportion. For the same reason, it would be difficult to assess the extent of damage done to the capacity of our industry as a whole. At best, only a very inaccurate conclusion, which might prove misleading, can be drawn from those data. We have therefore refrained from making any such attempt.

It may be added that the ratio of the damage to the whole damage of the national wealth works out at 20.1 per cent.

Of all the branches, the highest rate of damage suffered was 58.0 per cent in the petroleum refining, while except for such branches as have survived the war without damage, the lowest was the 0.7 per cent in the staple fiber industry. Among the major divisions, the damage was heavier in the power and machine industries. Particularly in the former, the ratio ran as high as 30 to 58 per cent, with the only exception of the hydroelectricity where no damage was sustained. The effect of the damages in those branches were not limited within themselves. As they are basic branches of the nation's industry, the production capacity as a whole was more seriously affected by the damages in them than by those in other branches. Next to the power industry, the damage was the heaviest in the machine industry. This may easily be explained by the fact that the plants belonging to this branch of industry were the main targets of bombing during the war. Also in the chemical industry, the ratios of damage were considerably high except in the case of sheet glass manufacture where no damage was sustained.

On the other hand, the major divisions where the damage was relatively slight include, in the first place, the non-ferrous metal industry: It will be seen from the table that of the ten branches of the non-ferrous metal industry, three escaped from damage. Even of the remaining seven branches, the damage rates were mostly low except aluminium (23.9%) and electric copper (22.1%) manufacturing capacity. In the fiber industry, too, the rates of damage were generally low. Especially, in the woodpulp and paper manufacturing industry, even the ratio of damage

to the paper woodpulp manufacturing capacity, which was the highest in the group, amounted to only 10% or thereabout. But certain branches of fiber industry were deprived of their capacity to a considerable extent: wool-combing, 42.4%; wool-carding, 33.7%; and hemp-spinning, 34.1%.

What has been described above pertains to direct damage done to the industrial production capacity of this country. It may be noted that a big loss had been brought about therein through conversion to military production, removal to overseas territories of manufacturing equipment, before they were directly crippled by airraid and bombardment.

In the following paragraphs, the direct damage done to the major divisions of industry are explained in detail.

(2) Power Industry

Except for the hydroelectric equipment which escaped damage, the rates of damage in the power industry were excessively high. Even the steam power generating equipment, which ranked the lowest in the damage rate, lost more than 30 per cent of their capacity, while the oil refining equipment, the most seriously damaged, was destroyed to the extent of as much as 58 per cent, thus losing more than half of the capacity held at the end of 1944.

Air attacks on power plants, transformer stations and other installations were intensified toward the end of the war, concentrating on steam power plants. Therefore, while the ratio of damage to the generating capacity of steam power plants was 30.2 per cent, the hydroelectric plants remained almost intact.

In regard to gas producing equipment, the number of damaged plants amounted to 50 (out of 176 in all); 2 (out of 6) in Hokkaido; 41 (out of 139) in Houshu; 4 (out of 3)* in Shikoku; and 3 (out of 23) in Kyushu. Classified according to the extent of damage, 22 were seriously damaged; 14 were half damaged; and the rest suffered slight damages. Installations which suffered damages were chiefly gas tanks, refining equipment, gas producers, machine shops, transmission lines, electric motors, compressors, etc.

The petroleum refining plants which were damaged throughout the country numbered 12. Geographically, none in Hokkaido; 1 (out of 3)

in Tohoku; 4 (out of 8) in Kanto-Shinetsu; none in Tokai-Hokuriku; 5 (out of 5) in Kinki; and 2 (out of 2) in Chugoku. As to the extent of damage, 6 plants were seriously damaged; 4, half damaged; and 2, slightly damaged. Generally speaking, the damage was more severe in regard to those plants located on the Pacific Coast where imported crude oil was refined than those found in the domestic oil producing areas.

The synthetic oil plants damaged during the war were two: the Ube Plant of the Teikoku Nenryo and the Kawasaki Plant of the Nihon Yuka. The Ube Plant which had accounted for 40 per cent of the total capacity of this country before it was destroyed, lost its entire capacity after two airraids.

(3) Iron and Steel Industry

The damage affecting the capacity to produce iron and steel is not known in detail. The figures submitted to the Allied General Headquarters by the Tekko Kyogi-kai (Iron and Steel Council) in November, 1945, are given below. It should be noted that the figures represent actual capacity instead of designed capacity of equipment and that the damage given in the list covers not exactly the airraid damage alone.

Table XXXIV. Damages to Iron and Steel Industry

Description	Capacity as of the End of 1944 (in 1,000 m.t.)	Capacity Damaged (in 1,000 m.t.)	Ratio of Damage (%)	Capacity as of August 20, 1945 (in 1,000 m.t.)
Rolled Steel	4,467	645	14.4	3,822
Pig-iron	3,461	849	24.5	2,612
Special Steel	1,051	231	22.2	817

(4) Non-ferrous Metal Industry

As already mentioned, among the ten branches of this industry, three remained intact and, with the exception of aluminium and electric copper manufacturing capacities which were damaged 23.9% and 22.1% respectively, the ratios of damage were generally low.

As regards electric copper, the original production capacity amounted

(55)

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to 140,000 metric tons per annum. But at the war's end it was reduced to 115,000 metric tons. The plants which suffered damage were the Hidachi Plant of the Nihon Kogyo, the Miyako Plant of the Toa Kogyo and the Yokkaichi Plant of the Ishihara Sangyo.

Loss of aluminium manufacturing capacity amounted to 2,650 metric tons per month, which represents damages done to three plants.

The total alumina manufacturing capacity of the twelve plants was 29,390 metric tons per month before they were destroyed. Of them, 4 plants were damaged in airraids, resulting in a loss of capacity amounting to 3,700 metric tons.

Two magnesium plants were damaged with a loss of monthly production capacity of 40 metric tons.

(5) Machine Industry

The equipment of machine industry, on which the airraids were concentrated, came next to the power industry in respect of the extent of damages. The rates of damage done to the capacity in each branch of this industry exceeded 20 per cent, except for the capacity to manufacture electric locomotives and freight cars, 9% and 18% loss respectively.

In 1944, the machine tool production capacity amounted in value to ¥600,000,000, of which reportedly 48.2 per cent was lost before the war's end. As shown in the table, the ratio of damage in terms of metric tons was 25 per cent. It is concluded, therefore, the production capacity suffered more in respect of higher grade products.

The following table shows the extent of loss in the machine tool production capacity in terms of the numbers of installed machines.

Table XXXV. Damages to Machine Tools

Peak year (1943)	40,330 units
Prewar year (1941)	31,500 "
Before damage	38,002 "
Damage	6,500 "
War's Ending	33,709 "
1947	25,840 "

(56)

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