

Post Office Life Annuities

Inaugurated in October 1926 the service consists of two systems, i.e., Deferred and Immediate Life Annuities, the business being administered by the same system as that of the Post Life Insurance. The Annuities may be purchased either with or without provision for the return of the purchase money, and purchasers must select one of these two plans when they make their application. The age limit of applicants ranges between 12 and 60 in the case of "Deferred" and between 40 and 80 in the case of "Immediate". The maximum annuity that can be purchased on the life of any one person is ¥2,400, and the minimum is ¥120 under the instalment premium plan or ¥12 under the single premium plan.

Premiums are payable either in a single sum or by instalments; in the latter case, the premium payment is divided into four periods, namely, 10 year payment, 15 year payment, 20 year payment and ordinary payment, and the premium may also be paid yearly, half yearly or quarterly. All premiums are payable either at any post office designated by the purchaser or at his residence to the collector. The rate of interest allowed in the calculation of the value of annuities under the instalment payment plan is 5 per cent and under the single payment plan, such rate shall be determined, from time to time, by the Minister of Communications upon the basis of the current market price of public bonds. The rate is fixed at 5½ per cent for the present.

Deferred Life Annuity Premiums (Cost of ¥100 Annuity)
With Return of Purchase Money

Age	Commencing at 50		Commencing at 55		Commencing at 60		Commencing at 65		
	Male (yen)	Female (yen)	Male (yen)	Female (yen)	Male (yen)	Female (yen)	Male (yen)	Female (yen)	
12...	Instalment	10.24	11.34	6.55	7.50	4.02	4.80	2.31	2.93
	Single	240.90	269.33	162.51	188.54	103.79	126.38	61.60	79.79
21...	Instalment	18.51	20.40	11.61	13.21	7.05	8.35	4.05	5.06
	Single	369.71	412.72	250.87	290.06	161.33	195.30	96.36	123.95
31...	Instalment	39.66	43.43	23.57	26.52	13.92	16.22	7.91	9.66
	Single	596.49	662.52	408.39	468.45	265.50	317.71	160.60	203.36
41...	Instalment	115.59	124.96	57.12	63.12	30.88	35.13	16.82	19.92
	Single	971.98	1,063.49	673.25	757.69	444.32	519.09	273.82	336.68

Immediate Life Annuity Premium Payable in a Single Sum
(Cost of ¥100 Annuity)

Age	Without Return of Money		With Return of Money	
	Male (yen)	Female (yen)	Male (yen)	Female (yen)
40	1,626.66	1,737.28	1,758.44	1,853.32
45	1,501.74	1,633.31	1,654.48	1,755.21
50	1,363.42	1,504.85	1,541.42	1,644.90
55	1,213.72	1,358.53	1,421.20	1,524.16
60	1,056.85	1,198.05	1,296.48	1,395.85
65	899.46	1,030.13	1,170.34	1,263.71
70	747.96	862.88	1,044.33	1,129.97
75	606.24	703.99	920.16	997.39
80	477.09	557.77	800.89	869.66

Summary of Post Office Life Annuity Business

		1927-28	1928-29	1929-30	1930-31	1931-32
		New Contracts:	No.	141,374	32,238	26,897
	Amount (¥1,000) ...	11,648	2,675	2,607	3,542	3,512
Contracts Terminated:						
Death	No.	451	1,095	1,255	1,615	1,786
	Amount (¥1,000) ...	44	82	89	114	127
Surrender	No.	9,143	12,902	9,473	10,209	11,054
	Amount (¥1,000) ...	1,142	1,432	933	1,028	1,123

	1927-28	1928-29	1929-30	1930-31	1931-32	
Cancellation of Contracts by Statute	No.	27,998	13,109	2,057	1,455	3,624
	Amount (¥1,000) ...	3,455	1,606	257	187	445
Increase or Decrease from other Causes:	No.	- 32	- 42	- 21	51	- 74
	Amount (¥1,000) ...	- 267	457	475	369	313
Contracts in force at the end of Fiscal Year:	No.	172,368	177,458	191,549	221,605	228,214
	Amount (¥1,000) ...	13,791	12,888	13,741	15,586	17,090

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GENERAL STATISTICS ON INSURANCE

Business Condition of Home Insurance Concerns (¥1,000)

	1926-27	1927-28	1928-29	1929-30	1930-31
No. of companies	95	93	94	93	92
Nominal capital	342,350	341,260	344,240	342,100	337,030
Paid-up capital	123,404	123,788	124,523	124,270	123,060
Reserve funds	1,053,094	1,168,978	1,301,936	1,454,849	1,569,013
Premiums received	339,731	359,653	387,970	440,987	437,664
Claims paid	102,769	119,429	125,884	141,980	148,825
Business expenses	122,885	123,189	130,660	136,723	135,937
Amount of contracts	20,652,405	22,268,970	23,262,130	25,949,943	27,490,657

Investment in Insurance Business

List of advances and securities in the balance sheets as classified according to their kinds are as follows (¥1,000):—

	1927-28	1928-29	1929-30	1930-31	1931-32
Advances:					
Mortgages on real estates	47,669	48,223	61,104	69,484	80,590
Mortgages on factories	77,374	70,023	70,444	82,228	104,182
Mortgages on vessels	14,595	16,999	18,774	15,313	13,411
Loans on securities	65,437	50,357	63,905	84,758	102,759
Loans on companies policies	77,974	96,885	118,741	153,994	191,642
Loans to public bodies	28,376	28,415	34,728	42,399	49,215
Others	16,779	14,818	11,512	6,060	6,269
Total	328,204	325,720	379,211	454,239	548,067
Securities:					
National bonds	108,322	111,518	120,556	129,646	137,622
Foreign	17,666	16,343	41,497	14,632	707
Local	47,748	56,646	71,015	86,174	94,026
Debentures	312,993	336,387	356,167	412,111	460,748
Stocks	246,665	324,680	340,806	315,753	305,498
Total	733,394	845,574	930,042	958,318	998,605

Assets and Debts of Insurance Companies for the year 1931-32

	Assets (in yen)		
	Life	Conscription	Property
Unpaid capital	20,010,000	3,125,000	190,600,000
Cash	510,949	263,831	442,683
Postal book-transfer savings	1,861,787	529,348	787,725
Bank deposits	138,779,214	33,146,453	89,444,481
Loans	477,424,888	38,524,808	35,120,029
Securities	749,036,755	66,444,268	183,123,685
Trust deposits	31,893,010	2,250,000	11,506,548
Trust of securities	17,540,622	1,314,200	762,313

	Life	Conscription	Property
Real estates	82,611,028	16,082,718	21,410,654
Utensils and books	3,499,432	268,538	1,441,149
Outstanding interest	1,005,285	1,005,285	104,735
Outstanding premiums.....	11,640,233	1,929,332	4,663,326
Agency accounts.....	12,004,799	1,033,979	25,288,898
Outstanding accounts	5,039,789	379,989	1,406,729
Outstanding by reinsured	—	—	2,131,591
Customer accounts.....	—	—	9,773,990
Others	7,437,942	7,442,087	16,341,185
Loss or deficit.....	389,526	389,526	2,282,159
Total	1,557,683,860	165,296,609	596,691,880

Debts (in yen)

	Life	Conscription	Property
Nominal capital	39,230,000	6,800,000	290,500,000
Legal reserves.....	6,619,686	801,750	31,070,829
Other reserves.....	1,132,619	95,280	33,712,667
Liability reserves	1,335,120,042	146,896,165	155,162,407
Current reserves.....	24,522,681	5,229,616	25,293,472
Uncalled by reinsured	—	—	2,447,760
Agency accounts	415,130	121,695	4,678,315
Customer accounts	—	—	6,265,441
Receipt accounts	—	—	1,015,688
Others	15,664,544	1,605,013	18,240,428
Profits or surplus	27,407,712	1,844,733	28,305,875
Total	1,557,683,859	165,296,606	596,691,880

RESULT OF BUSINESS

Life Assurance Concerns

Year	No. of policies	Reserves (¥1,000)	Premiums (¥1,000)	Claims paid (¥1,000)	Business expenses (¥1,000)	Amount of contracts (¥1,000)
1927-28.....	4,733,262	924,820	233,606	68,688	62,179	5,522,383
1928-29.....	4,834,692	1,031,959	254,439	77,615	66,662	6,052,613
1929-30.....	4,968,475	1,163,789	296,193	86,143	69,987	6,663,735
1930-31.....	5,164,548	1,263,135	294,289	93,875	68,464	7,113,828
1931-32.....	5,310,878	1,371,313	309,473	108,034	71,609	7,643,858

Leading Life Insurance Companies for 1931-32

Name of companies	No. of policies	Reserves (¥1,000)	Amount of contracts (¥1,000)	Interests received (¥1,000)	Premiums received (¥1,000)	Claims paid (¥1,000)	Business expenses (¥1,000)
Meiji	409,056	153,296	878,304	9,735	36,241	10,412	6,577
Teikoku	428,830	106,142	601,171	6,920	24,112	8,008	5,152
Nippon	763,397	202,549	1,069,093	13,972	40,240	15,114	9,212
Taiyo.....	104,100	22,428	89,345	1,344	4,550	1,619	1,268
Yurin.....	160,459	32,255	131,732	1,741	5,407	2,510	1,802
Yasuda	235,912	66,485	327,036	4,293	13,876	5,394	3,084
Nippon Kyoritsu.....	51,118	9,689	44,315	606	1,772	665	552
Jinju	215,376	47,254	193,761	2,601	9,054	4,091	2,043
Kyoho	188,856	40,515	196,080	1,962	8,328	2,667	2,308
Nippon Kyoiku	20,118	3,486	10,174	196	370	439	139
Aikoku	141,576	35,867	164,430	2,004	6,740	3,205	1,562
Dai-ichi Conscription	27,186	3,473	19,770	—	958	—	—
Toyo	110,102	30,503	127,484	1,735	6,224	2,288	1,594
Daido.....	224,610	54,192	256,441	3,707	9,453	4,268	2,089

Name of companies	No. of policies	Reserves (¥1,000)	Amount of contracts (¥1,000)	Interests received (¥1,000)	Premiums received (¥1,000)	Claims paid (¥1,000)	Business expenses (¥1,000)
Dai-ichi.....	316,143	104,992	904,042	7,101	32,818	7,409	4,873
Chiyoda.....	376,722	113,808	951,195	7,811	33,801	9,542	6,717
Sumitomo.....	64,522	15,647	142,858	964	5,801	1,874	1,502

Fire Insurance Concerns

Year	No. of policies (1,000)	Reserves (¥1,000)	Premiums (¥1,000)	Claims paid (¥1,000)	Business expenses (¥1,000)	Amount of contracts (¥1,000)
1927-28	9,884	90,499	80,595	32,244	47,899	14,955
1928-29	11,179	98,506	83,219	28,320	50,291	15,635
1929-30	12,463	102,077	87,168	34,028	51,735	17,062
1930-31	15,127	104,127	88,114	32,346	53,205	18,136
1931-32	15,450	105,262	86,566	33,942	51,489	17,490

Leading Fire Insurance Companies for 1931-32

	No. of policies	Reserves (¥1,000)	Amount of contracts (¥1,000)	Premiums received (¥1,000)	Claims paid (¥1,000)	Business expenses (¥1,000)
Tokyo Marine & Fire.....	1,012,702	19,119	1,392,211	6,839	3,171	4,045
Tokyo Fire.....	1,354,268	4,720	1,368,963	5,711	2,456	3,247
Meiji	693,412	16,884	1,033,519	3,495	1,476	1,952
Nippon	1,444,674	9,922	1,416,461	5,286	2,012	3,502
Teikoku Marine & Fire...	400,187	1,601	513,475	2,237	686	1,714
Osaka Marine & Fire.....	481,848	1,804	763,423	2,935	1,597	1,748
Nippon Marine	170,074	1,168	389,574	1,576	675	1,186
Fukoku Fire & Marine ...	76,451	557	169,970	1,009	422	701
Yokohama Fire & Marine	309,830	2,883	742,946	2,833	1,303	1,749
Nippon Dosan Fire	404,719	3,625	596,848	7,082	1,622	1,989
Kyodo Fire.....	862,159	3,280	1,221,433	3,465	1,900	2,067
Hokoku	400,611	2,185	331,120	1,663	681	1,270
Chiyoda	193,447	1,561	468,597	2,024	687	1,595

Marine Insurance Concerns

Year	No. of policies	Reserves (¥1,000)	Premiums received (¥1,000)	Claims paid (¥1,000)	Business expenses (¥1,000)	Amount of contracts (¥1,000)
1927-28	319,257	66,729	23,853	17,123	6,109	972,427
1928-29	418,418	69,349	27,176	18,488	6,427	1,166,789
1929-30	517,457	70,445	29,292	20,180	7,113	1,316,438
1930-31	575,142	70,648	28,428	29,502	6,736	1,338,530
1931-32	707,156	69,803	24,822	17,988	6,027	1,359,601

Leading Marine Insurance Companies for 1931-32

Name of companies	No. of policies	Reserves (¥1,000)	Amount of contracts (¥1,000)	Premiums received (Yen)	Claims paid (Yen)	Business expenses (Yen)
Tokyo Marine & Fire	100,146	119,389	537,557	6,856,905	3,628,915	2,075,397
Tokyo Fire	30,376	900	53,283	1,383,514	1,047,679	221,904
Nippon Fire	2,980	172	5,782	239,229	210,867	16,605
Teikoku Marine & Fire	37,615	874	100,259	1,782,727	1,508,841	461,353
Osaka Marine & Fire	27,385	1,935	45,810	1,599,478	1,118,383	399,355
Nippon Marine	34,834	1,028	23,831	1,666,426	1,192,284	381,722
Yokohama Fire & Marine...	77,353	1,137	94,781	1,510,255	1,210,058	387,138
Kobe Marine Transport & Fire	73,345	1,227	56,139	676,680	421,501	275,991
Asahi Marine & Fire	13,316	358	9,156	273,846	199,631	91,447
Taisho Marine & Fire	21,423	3,398	49,736	1,706,978	1,029,206	404,127

Transport Insurance Concerns

Year	No. of policies	Reserves (¥1,000)	Premiums received (¥1,000)	Claims paid (¥1,000)	Business expenses (¥1,000)	Amount of contracts (¥1,000)
1927-28	68,613	1,774	1,040	248	237	214,518
1928-29	70,573	2,163	1,132	179	246	258,249
1929-30	78,101	2,251	1,100	164	265	218,249
1930-31	77,633	2,152	878	179	211	180,731
1931-32	76,887	2,060	693	143	179	175,673

Leading Transport Insurance Companies for 1931-32

Name of companies	No. of policies	Reserves (Yen)	Amount of contracts (¥1,000)	Premiums received (Yen)	Claims paid (Yen)	Business expenses (Yen)
Tokyo Fire	12,230	110,000	28,574	92,058	10,749	35,852
Nippon Marine	2,964	100,000	4,280	17,111	1,944	4,246
Kobe Marine Transport & Fire	17,978	149,500	37,238	42,024	8,016	20,150
Mitsubishi Marine & Fire	5,866	180,330	7,807	27,869	4,979	990
Daihoku Fire, Marine & Transport	2,749	14,961	100,782	9,917	15,551	41,100

Accident Insurance Concerns

Year	No. of policies	Reserves (Yen)	Premiums received (Yen)	Claims paid (Yen)	Business expenses (Yen)	Amount of contracts (¥1,000)
1927-28	34,274	564,596	417,172	190,762	161,363	110,495
1928-29	57,215	630,858	410,028	192,918	157,631	101,166
1929-30	52,750	684,591	535,443	226,808	211,714	77,878
1930-31	185,171	707,136	641,479	247,680	245,179	78,694
1931-32	105,814	773,651	623,425	276,355	233,418	89,274

Fidelity Insurance Concerns

Year	No. of policies	Reserves (Yen)	Premiums received (Yen)	Claims paid (Yen)	Business expenses (Yen)	Amount of contracts (¥1,000)
1927-28	2,190	53,000	67,655	22,508	23,848	5,257
1928-29	2,038	56,680	88,167	18,822	29,802	4,914
1929-30	2,450	69,000	90,972	31,222	26,181	4,987
1930-31	2,650	80,000	108,914	29,304	33,913	5,715
1931-32	2,943	93,000	96,353	35,165	31,606	5,779

Automobile Insurance Concerns

Year	No. of policies	Reserves (¥1,000)	Premiums received (¥1,000)	Claims paid (Yen)	Business expenses (Yen)	Amount of contracts (¥1,000)
1927-28	51,298	1,558	1,005	298,078	246,979	35,054
1928-29	52,644	1,795	1,169	355,957	326,801	33,616
1929-30	52,077	2,031	1,587	624,508	518,605	58,526
1930-31	65,352	2,067	1,427	700,338	495,649	47,421
1931-32	58,316	2,102	1,360	707,010	495,687	49,226

Steam-Boiler Insurance Concerns

Year	No. of policies	Reserves (Yen)	Premiums received (Yen)	Claims paid (Yen)	Business expenses (Yen)	Amount of contracts (¥1,000)
1927-28	958	41,030	77,664	—	70,672	4,637
1928-29	1,012	44,115	80,551	—	70,913	4,693
1929-30	1,043	44,167	82,321	—	73,644	4,701
1930-31	1,133	44,489	82,745	—	75,679	4,362
1931-32	1,187	40,050	81,275	—	79,126	4,310

FOREIGN INSURANCE BUSINESS

Foreign insurance companies doing business in Japan numbered 45 at the end of 1931, i.e., 42 for property and 3 for life.

Commencement of business is allowed only after depositing with the authorities concerned of the sum of ¥150,000 for life insurance and of

¥100,000 for property insurance is made. These deposits are subject to increase under specified circumstances. The following table shows the amount of capital, and of deposit of leading companies at the end of January, 1933.

Life Assurance Companies

Names of Companies	Head offices	Branch offices in Japan	Date of licensed	Capital	Government deposits
Sun Life Assurance Co. of Canada	Montreal, Canada	Tokyo	Dec. 28, 1901	\$4,000,000	¥19,476,948
The Manufacturers Life Insurance Co.	Tronto, Canada	Tokyo	Dec. 28, 1901	\$1,500,000	¥ 7,025,800
The New York Life Insurance Co.	New York, U.S.A.	Tokyo	Mar. 12, 1902	—	¥ 5,141,377
Total					¥31,643,125

Leading Property Insurance Companies

Names of companies	Head offices	Branch offices in Japan	Capital	Government deposit (Yen)		Date of licensed
L'Union Fire, Accident and General Insurance Co.	Paris	—	Fr. 50,000,000	107,393	Fire	Dec. 28, 1899
The Liverpool and London and Globe Ins. Co., Ltd.	Liverpool	Tokyo	£3,000,000	249,615	{ Fire Marine	May 3, 1900 Apr. 27, 1919
The Yangtze Ins. Association, Ltd.	Shanghai	Yokohama & Kobe	\$2,500,000	291,355	{ Marine Fire Automobile	July 16, 1900 Feb. 26, 1918 July 8, 1922
The Alliance Assurance Co., Ltd.	London	—	£5,450,000	107,393	{ Fire Marine	Oct. 3, 1900 Nov. 10, 1909
The Phoenix Assurance Co., Ltd.	London	—	£3,792,795	321,202	{ Fire Marine	Aug. 10, 1900 Feb. 28, 1914
The North British & Mercantile Ins. Co., Ltd.	London	—	£6,000,000	195,260	{ Fire Automobile	Dec. 3, 1900 Jul. 13, 1920
The Commercial Union Assurance Co., Ltd.	London	Yokohama	£2,950,000	420,883	{ Fire Marine	Dec. 18, 1900
The Royal Insurance Co., Ltd.	Liverpool	—	£6,000,000	175,734	Fire	Dec. 19, 1900
The Northern Assurance Co., Ltd.	London	—	£6,502,500	193,795	Fire	Dec. 24, 1900
New Zealand Insurance Co., Ltd.	Auckland (Newzealand)	—	£1,500,000	310,463	{ Fire Marine	Dec. 27, 1900
The Sun Insurance Office Ltd.	London	Tokyo, Osaka, Yokohama	£2,400,000	325,107	{ Fire Marine	Dec. 28, 1900 Mar. 6, 1923
The Canton Insurance Office, Ltd.	Hongkong	—	\$2,500,000	100,071	Marine	Apr. 23, 1901
The London and Lancashire Ins. Co. Ltd.	Liverpool	—	£3,689,310	100,559	Fire	May 15, 1901
The Hongkong Fire Ins. Co., Ltd.	Hongkong	—	£2,000,000	100,071	Fire	May 15, 1901
Union Insurance Society of Canton, Ltd.	Hongkong	Tokyo, Yokohama, Kobe	£2,000,000	255,420	{ Marine Fire	May 15, 1901 May 28, 1918
The London Assurance Corporation	London	—	£2,000,000	170,853	{ Fire Marine	Sept. 21, 1901
The Law Union and Rock Ins. Co., Ltd.	London	—	£2,075,000	107,393	Fire	Oct. 30, 1901
The Home Insurance Co.	New York	Tokyo	\$12,000,000	268,903	{ Fire Marine	Oct. 20, 1920
Total Incl. other companies (30 companies)				¥ 5,677,337		

Number and amount of contracts at the end of each year of life and property insurance companies for the last five years stand as follows (amount in unit of ¥1,000):—

	Life	Fire	Marine	Automobile (Yorkshire)	Annuity (Sun, Canada)
1927-28.....	No.	34,984	388,896	12,786	429
	Amount	173,911	1,315,699	42,149	1,449
1928-29.....	No.	36,733	298,806	13,349	534
	Amount	196,692	1,198,735	32,697	1,708
1929-30.....	No.	39,171	334,502	17,918	629
	Amount	222,963	1,262,488	45,869	1,857
1930-31.....	No.	41,162	297,612	16,555	595
	Amount	239,064	1,194,171	35,230	1,709
1931-32.....	No.	41,804	235,557	18,767	553
	Amount	243,396	974,365	34,648	23,795

* Amount in unit of yen.

Classification of Contracts for the year 1931-32

	Fire		Marine		Automobile	
	No.	Amount (¥1,000)	No.	Amount (¥1,000)	No.	Amount (¥1,000)
Contracts at the beginning of year:						
Total	302,612	1,320,737	16,555	35,910	595	25,749
Of which reinsured	9,500	140,509	130	679	—	—
New contracts:						
Total	287,047	1,653,794	91,454	279,542	794	34,425
Of which reinsured	9,848	137,536	1,865	21,303	—	—
Contracts which have become claims as per the terms of policy:						
Total	4,522	67,772	4,156	31,602	96	2,116
Of which reinsured	230	5,693	156	2,857	—	—
Of which not extinguished:						
Total	3,928	64,968	4,030	31,199	93	2,102
Of which reinsured	191	5,238	156	2,834	—	—
Contracts extinguished by other causes:						
Total	353,508	1,901,960	89,116	275,848	833	36,362
Of which reinsured	10,715	182,190	1,940	17,406	—	—
Contracts at year-end:						
Total	235,557	1,069,767	18,767	39,201	553	23,795
Of which reinsured	8,594	95,400	55	4,553	—	—

STATISTICS ON RESULTS OF INSURANCE BUSINESS

Life Assurance Concerns

Year	No. of cos.	Policies (¥1,000)	Reserves at year-end (¥1,000)	Contracts at year-end (¥1,000)	Interest received (yen)	Premiums received (yen)	Claims paid (yen)	Business expenses (yen)
1927-28	3	154,903	38,723	173,911	815,543	9,661,447	3,514,895	1,907,570
1928-29	3	173,911	41,938	196,692	975,659	11,068,904	3,944,460	2,254,570
1929-30	3	196,692	45,938	222,963	999,688	12,442,569	4,307,818	2,473,631
1930-31	3	222,963	51,083	239,064	1,019,603	13,419,465	5,403,514	2,567,367
1931-32	3	239,054	53,364	243,397	979,898	13,749,202	5,983,207	2,181,990

3 Life Assurance Concerns for 1931-32

Names of companies	Policies (¥1,000)	Reserves (¥1,000)	Contracts at year-end (¥1,000)	Interest received (yen)	Premiums received (yen)	Claims paid (yen)	Business expenses (yen)
Sun (Canada)	164,789	32,580	175,617	383,779	10,004,931	3,424,278	1,719,810
Manufacturers.....	53,153	12,155	49,740	337,956	2,857,467	1,141,316	429,313
New York.....	21,122	8,628	18,040	258,163	886,774	1,417,613	32,867

Fire Insurance Concerns

Year	No. of cos.	Policies (¥1,000)	Reserves (¥1,000)	Contracts at year-end (¥1,000)	Premiums received (yen)	Claims paid (yen)	Business expenses (yen)
1927-28	26	1,380,733	4,660	1,315,699	6,546,490	2,544,993	2,213,926
1928-29	26	1,315,536	3,553	1,198,735	6,022,298	3,900,922	2,020,259
1929-30	26	1,198,742	3,571	1,262,488	6,482,014	4,020,954	2,168,739
1930-31	26	1,262,399	3,368	1,194,171	6,099,768	2,727,712	2,028,851
1931-32	26	1,180,226	2,716	974,365	5,008,450	2,346,005	1,817,540

Leading Fire Insurance Companies for 1931-32

Names of companies	Policies (¥1,000)	Reserves (yen)	Contracts at year-end (¥1,000)	Premiums received (yen)	Claims paid (yen)	Business expenses (yen)
Phoenix	93,673	192,300	59,097	415,378	216,731	124,613
North British.....	25,270	88,166	27,187	189,237	58,640	58,430
Yorkshire	43,503	88,757	38,224	221,892	149,870	93,194
Commercial	116,373	349,883	86,857	388,759	156,949	172,145
New Zealand.....	139,258	166,167	117,942	415,417	151,910	139,451
Sun (Canada).....	203,010	265,954	137,113	491,700	192,426	197,973
South British.....	61,170	134,642	59,954	253,923	127,035	99,538

Marine Insurance Concerns

Year	No. of cos.	Policies (¥1,000)	Reserves (yen)	Contracts at year-end (¥1,000)	Premiums received (yen)	Claims paid (yen)	Business expenses (yen)
1927-28	15	44,882	630,381	42,149	980,453	598,365	212,700
1928-29	15	42,149	587,819	32,697	991,390	691,293	241,185
1929-30	16	32,697	443,836	45,869	1,079,504	997,517	251,131
1930-31	16	45,869	511,945	35,230	981,072	529,586	245,449
1931-32	16	35,230	402,441	34,648	808,237	422,664	209,253

Leading Marine Insurance Companies for 1931-32

Names of companies	Policies (¥1,000)	Reserves (yen)	Contracts at year-end (¥1,000)	Premiums received (yen)	Claims paid (yen)	Business expenses (yen)
New Zealand.....	17,919	70,894	16,715	143,982	73,249	22,908
Union Canton	5,648	160,000	7,729	323,173	133,859	79,250
London Assurance...	1,308	10,159	1,928	23,773	12,202	4,695
South British.....	3,039	29,680	2,947	74,116	13,633	9,405
Home	2,655	67,083	1,356	118,212	40,178	41,163

Life Annuity Concern (Sun, Canada)

Year	No. of cos.	Policies (yen)	Reserves (yen)	Contracts at year-end (yen)	Interest received (yen)	Premiums received (yen)	Claims paid (yen)	Business expenses (yen)
1927-28	1	12,773	99,625	7,210	3,370	—	3,355	—
1928-29	1	7,210	111,906	8,410	—	5,408	—	—
1929-30	1	8,410	112,846	8,980	—	11,635	—	—
1930-31	1	8,980	133,667	10,053	—	17,000	33	—
1931-32	1	10,053	166,307	14,762	—	43,930	10,053	—

Automobile Insurance Concern (Yorkshire)

Year	No. of cos.	Policies (¥1,000)	Reserves (yen)	Contracts at year-end (¥1,000)	Premiums received (yen)	Claims paid (yen)	Business expenses (yen)
1927-28	1	1,305	32,164	1,449	57,721	18,226	13,073
1928-29	1	1,449	35,515	1,708	76,754	19,468	17,633
1929-30	1	1,708	46,889	1,857	85,081	36,047	17,730
1930-31	1	1,857	33,737	1,909	83,448	40,510	16,415
1931-32	1	25,749	36,389	23,795	74,438	25,832	13,609

HISTORIC FIRES IN JAPAN

During the period of roughly fifty years extending from 1876 to 1925 Japan had 401 big fires each destroying 1,000 houses or over. The quinquennial average and the yearly average for the whole fifty years, as also 11 largest each with over 5,000 houses destroyed, are shown below:—

age for the whole fifty years, as also 11 largest each with over 5,000 houses destroyed, are shown below:—

Quinquennial Statistics of Fires burning over 1,000 Houses

1876-1880	7,256
1881-1885	3,567
1886-1890	3,522
1891-1895	2,809
1896-1900	5,745
1901-1905	1,059
1906-1910	6,716
1911-1915	5,245
1916-1920	2,171
1921-1925	1,657
Average	3,975

Conflagrations destroying over 5,000 Houses

1876 Nov. 27 Nihombashiku, Tokyo ...	8,550
1878 Mar. 17 Kanda, Tokyo	5,125
1878 Dec. 27 Nihombashi, Tokyo.....	10,615
1880 Aug. 7 Niigata City	5,500
1881 Jan. 26 Kanda, Tokyo	10,637
1885 June 1 Toyama City.....	5,900
1899 Aug. 12 Toyama City.....	5,000
1907 Aug. 25 Hakodate City (Hokkaido)	9,000
1909 July 31 Kita-ku, Osaka	11,365
1910 May 3 Aomori City	7,519
1911 Apr. 9 Asakusa, Tokyo	6,362

The two table excludes earthquake fire disasters which are still practically uncovered in Japan.

It should be noted that the word "house" as used here is highly misleading according to the standard in Europe and America, it being in many cases miserable wooden structures not much different from a mere shed.

The marked decrease of fire damage in the latest decade, 1916-1925, is generally accounted for by erection of more fire-proof buildings, construction of fire-zones in several larger cities, greater efficiency of fire-brigades, and so forth. Below is given statistics on fire from 1893 to 1925 and from 1916 to 1925:—

Localities	From 1916 to 1925			From 1893 to 1925		
	Total No. of houses at beginning of year	Total No. of burnt houses	Rate per 1,000 houses	Total No. of houses at beginning of year	Total No. of burnt houses	Rate per 1,000 houses
Hokkaido	4,222,417	32,019	7.583	9,360,177	107,201	11.451
Tokyo prefecture.....	9,240,304	33,997	3.679	21,980,841	100,722	4.582
Kyoto	2,329,017	5,696	2.446	7,045,309	14,782	2.098
Osaka	5,554,905	7,400	1.332	13,688,285	13,375	2.438
Kanagawa	2,424,523	12,324	5.083	6,446,398	39,940	6.196
Hyogo	4,760,256	10,355	2.175	13,270,809	30,249	2.279
Nagasaki	2,106,935	4,909	2.330	5,598,017	13,182	2.355
Niigata	3,270,243	10,889	3.330	10,159,249	54,265	5.341
Saitama	2,351,136	5,512	2.344	7,059,197	23,834	3.376
Gumma	1,795,287	4,503	2.508	5,406,939	21,804	4.033
Chiba	2,515,215	7,716	3.068	7,759,379	32,334	4.167
Ibaraki	2,428,448	10,511	4.328	7,403,927	33,017	4.459
Tochigi	1,874,850	6,281	3.350	5,350,026	25,551	4.776
Nara	1,102,838	1,766	1.601	3,485,943	5,464	1.567
Miye	2,173,497	3,699	1.702	6,469,169	13,439	2.077
Aichi	4,319,008	6,929	1.604	12,569,459	20,295	1.615
Shizuoka	2,721,171	7,805	2.868	7,792,463	18,210	2.337
Yamanashi	1,030,218	4,237	4.113	3,138,415	15,334	4.886
Shiga	1,430,724	1,627	1.137	4,734,977	7,265	1.534
Gifu	2,083,849	5,028	2.413	5,899,555	14,698	2.491
Nagano	2,747,846	7,395	2.691	8,472,164	31,068	3.667
Miyagi	1,556,435	5,011	3.220	4,582,885	20,943	4.570
Fukushima	2,454,380	7,394	3.013	7,029,634	35,018	4.981

Localities	From 1916 to 1925			From 1893 to 1925		
	Total No. of houses at beginning of year	Total No. of burnt houses	Rate per 1,000 houses	Total No. of houses at beginning of year	Total No. of burnt houses	Rate per 1,000 houses
Iwate prefecture.....	1,208,147	5,506	4.557	4,421,887	19,759	4.468
Aomori	1,218,311	11,194	9.188	3,354,519	29,424	8.771
Yamagata	1,511,858	12,711	8.407	4,628,255	37,251	8.049
Akita	1,388,900	8,367	6.024	4,297,836	27,628	6.428
Fukui	1,226,431	5,823	4.748	4,023,143	25,002	6.215
Ishikawa	1,508,658	4,186	2.775	4,005,167	18,644	4.655
Toyama	1,433,741	3,791	2.644	4,583,784	24,480	5.341
Tottori	868,480	2,263	2.606	2,772,605	11,213	4.044
Shimane	1,588,378	4,948	3.114	5,063,890	12,455	2.460
Okayama	2,591,002	6,909	2.677	8,069,317	21,561	2.672
Hiroshima	3,393,561	8,557	2.522	10,253,627	24,364	2.376
Yamaguchi	2,345,895	3,560	1.518	7,292,504	15,520	2.128
Wakayama	1,519,584	1,802	1.186	4,530,966	7,047	1.555
Tokushima	1,377,979	4,143	3.007	4,621,912	15,126	3.272
Kagawa	1,533,353	2,609	1.701	4,532,437	8,823	1.947
Ehime	2,123,791	4,650	2.189	8,780,400	15,361	2.266
Kochi	1,454,737	2,521	1.733	4,128,137	8,403	2.036
Fukuoka	4,183,604	7,739	1.850	11,024,235	22,663	2.056
Oita	1,586,625	4,730	2.981	5,286,366	18,913	3.578
Saga	1,220,100	2,340	1.918	3,783,305	7,021	1.856
Kumamoto	1,931,090	4,908	2.542	6,906,724	19,572	2.834
Miyazaki	979,786	2,366	2.415	3,098,115	9,447	3.049
Kagoshima	2,958,683	7,054	2.384	7,784,084	23,423	3.009
Okinawa	1,117,690	2,805	2.510	3,366,097	8,461	2.514
Karafuto	207,344	2,139	10.310	—	—	—

CHAPTER XXIX

AGRICULTURE

SPECIAL FEATURES OF JAPANESE FARMING

Dr. Ko Nasu, Professor of Tokyo Imperial University, enumerates categorically what he considers peculiar features of Japanese farming, and among others he cites as more significant items the predominant position of rice, the scarcity of live-stock, small scope of farming, etc. To briefly quote what he points out, the area under rice or paddies occupies in Japan proper 3,221,871 hectares out of the total area of 5,866,819 hectares or 55%; in Chosen 1,648,284 hectares out of 4,352,394 hectares or 37%; in Taiwan 613,864 hectares out of 812,114 hectares or 75%. The climatic condition and weakness of Japanese for rice account for this predominance of paddies in Japan. Troubles about irrigation in time of drought is a phenomenon also peculiar to Japanese farming. The scarcity of live-stock especially in Japan proper may be seen from the following statistical table:—

Per 1,000 population	Cattle	Horse	Swine	Sheep	Goat
Average 1907-1911...	26.98	31.05	0.93	0.08	1.79
Average 1912-1916...	25.74	29.43	6.00	0.06	1.83
1925 ...	24.43	26.00	11.26	0.11	2.82
1930 ...	23.24	23.11	11.51	0.36	3.36

Stock farming as a means of sustenance would require far wider land than when raising foodstuffs from the same area. This fact and the comparative poor quality of wild grass (pasturage), the abundance of fish and other marine products along the coast, not to speak of religious prejudice forbidding eating of meat—all these must have discouraged the Japanese people from pursuing stock farming.

As to the small scope of farming, the sub-joined statistical table showing the number of farmers in recent years as divided according to the extent of area they tilled will speak a volume for itself:—

End of year	Under 0.50 hectare (5 tan)	0.50-0.99 hectare (5 tan-1 cho)	0.99-1.98 hectares (1-5 cho)	1.98-2.98 hectares (2-3 cho)	2.98-4.96 hectares (3-5 cho)	4.96 hectares & over (5 cho & over)
1927.....	1,944,523	1,895,837	1,195,332	321,741	133,661	70,514
1928.....	1,946,700	1,894,667	1,209,809	321,202	133,074	70,429
1929.....	1,938,155	1,899,842	1,220,132	318,037	130,169	69,248
1930.....	1,939,404	1,916,367	1,227,417	316,525	129,056	70,901
1931.....	1,941,488	1,933,172	1,236,380	319,747	130,078	72,935

("cho"—about 2½ acres or 0.99174 hectare; "tan"—1/10 cho; hectare—1.00833 cho)

At the end of 1931 the percentage of farmers under 0.50 hectare to the total number was 35.0%, 0.50-0.99 hectare 34.0%, 0.99-1.98 hectares 22.0%, 1.98-2.98 hectares 6.0%, 2.98-96 hectares 2.0%, and 4.96 hectares and over 1.0%. This situation has remained practically stationary in the last 20 years.

Comparative Abundance of Farmers combining other Occupations

Judging from the comparative abundance of farmers who are combining other occupations,

these forming about 88% of the total number of farmers, and the scarcity, on the other hand, of those exclusively occupied in tillage, our authority concludes that farming in Japan is principally depended upon domestic labor, and that it has little to do with capitalism.

It is guided by the principle of self-sufficiency. The Department of Agriculture and Forestry once found upon investigation that 41% of the farmers' domestic economy consists of materials supplied by their own hand.

STATISTICAL ABSTRACTS

Farming Population in Japan Proper

	1920	1925	1930
No. of farming families	5,484,563	5,548,599	5,599,670
Total no. of families	11,121,608	11,999,609	12,705,896
% of farming families to total no. of families	49.3%	46.2%	44.1%

N.B.—Figures of total no. of families are based on the census.

Farming Households and Area

	No. of families	% to total no. of families	Area per household (Hectares)	Total area (Hectares)		Percentage	
				Paddy	Upland	Paddy	Upland
Japan proper	5,633,800	—	1.05	3,185,313	2,719,295	53.9	46.1
Chosen	2,881,689	79.8	1.54	1,615,516	2,732,758	37.2	62.8
Taiwan	414,860	48.7	1.95	398,700	411,560	49.2	50.8
Karafuto	9,953	17.4	2.95	—	29,328	—	100.0

Area of Utilized Land (in 1,000 cho)

Year	Gross area	Under tillage	% to gross area	Pastures, etc.	%	Forest	%	Sundries	%
1909	38,846	5,630	16.4	1,987	5.1	21,295	54.8	9,884	25.5
1912	38,922	5,820	14.9	2,221	5.7	18,906	48.6	11,967	30.8
1921	39,119	6,162	15.7	3,523	9.0	18,606	47.5	10,829	27.7
1924	39,114	6,065	15.5	3,789	9.7	19,533	50.0	9,708	24.9
1927	38,475	6,078	15.8	3,377	8.8	19,677	51.1	9,344	24.3
1930	38,505	5,916	15.4	3,336	8.7	20,056	52.1	9,198	23.8

Area under Different Kinds of Crops in Hectares

	1929	1930	1931
Total area	5,848,695.17	5,867,101.09	5,904,677.83
Area under principal crops ...	4,647,609.32	4,676,344.95	4,706,081.07

Foodstuffs ...	1,066,320.00	1,092,411.57	1,119,136.26
Industrial crops ...	234,158.38	233,506.12	234,761.65
Vegetables	532,230.25	543,900.00	546,592.07
Green manures	424,280.13	424,307.21	447,046.21
Mulberry fields	620,503.04	708,273.62	677,131.14

FINANCIAL ASPECTS OF FARMING

Capital Invested in Farming and other Trades

	Land (in million yen)	Invested in other than land (in million yen)	Total (in million yen)	%
Japan proper	27,700	7,000	34,700	88.0
Chosen	3,200	480	3,680	9.3
Taiwan	970	280	1,070	2.7
Total	31,690	7,760	39,450	100.0

Farming Industry for 1931 as Producer of Wealth

	Value
Rice & other cereals	¥ 1,071,327,440
Other foodstuffs	127,041,099
Industrial crops	77,130,551
Fruits	61,260,820
Vegetables & flowers	167,630,890
Green manures	22,851,824
Tea (green)	18,870,591
Cocoons	275,557,296
Straw wares	25,903,830
Mulberry & fruit saplings	2,872,061
Fowls	35,736,121
Live-stock (head)	4,180,213

Estimated Capital in Different Trades in Japan Proper

	Total capital (in hundred million yen)	%
Farming	347	47.1
Trade	130	17.6
Manufacture	100	13.6
Others	240	21.7
Total	737	100

In raising their rice farmers have to consume (Average per "tan")

	1930 (Yen)	1931 (Yen)	1932 (Yen)
Manures	12.79	8.56	8.27
Seeds bought.....	0.64	0.45	0.46
Miscellaneous ma- terials	1.75	1.24	1.40
Wages	23.81	16.97	17.69
Cattle & other feeds	2.90	2.14	2.07
Depreciation of farm- ing machines and tools	1.98	1.53	1.53
Depreciation of farm-sheds	1.55	1.37	1.36
Total incl. others	67.99	58.95	58.40

MARKET PRICE AND RENT OF ARABLE LAND

The average market price per "tan" of the two kinds of farms and the rent thereof have

INCREASE OF PRODUCTIVE POWER

The average yield per "tan" of tilled area has continued to make perceptible improvement, the data for rice and other cereals being

The Average Yield per "tan" of Rice, "Mugi," and Other Cereals (in "koku")

	1904-1908	1909-1913	1914-1918	1919-1923	1924-1928	1929	1930	1931
Rice	1.63	1.69	1.83	1.89	1.86	1.85	2.06	1.70
Barley	1.41	1.58	1.65	1.68	1.85	1.86	1.86	1.94
Naked barley.....	1.02	1.14	1.16	1.14	1.32	1.26	1.26	1.37
Wheat	0.90	1.02	1.07	1.11	1.25	1.24	1.24	1.27
Soya beans.....	0.77	0.72	0.86	0.87	0.82	0.76	0.86	0.70
Red beans	0.64	0.63	0.70	0.72	0.69	0.68	0.79	0.53
Foxtail millet.....	1.04	1.11	1.20	1.31	1.24	1.17	1.33	1.25
Barnyard millet	1.28	0.89	1.55	1.71	1.49	1.10	1.61	1.24
Proso millet	1.13	1.10	1.23	1.13	1.05	0.99	1.19	0.71
Buckwheat	0.27	0.77	0.75	0.86	0.81	0.81	0.96	0.76
Maize	1.22	1.22	1.22	1.14	1.17	1.12	1.21	0.93
Sweet potato (kwan)	2.83	320	368	375	331	317	347	340
Irish potato (kwan).....	2.32	260	271	265	252	253	266	333
Rape-seed	0.73	0.74	0.74	0.77	0.79	0.87	0.86	0.86
Leaf tobacco (kwan)	37	38	42	44	45	46	50	49

It will be seen that the yield per "tan" has increased considerably during the period. The average per "tan" of "mugi" (collective term for barley, wheat, rye, oats) increased about one-third as compared with the yield in the years about 1904.

POSSIBLE INCREASE OF TILLAGE AREA

The Government Provisional Research Bureau of Industry calculated at the end of

been computed by the Hypothec Bank of Japan as below:—

Year	Price		Rent	
	Paddy	Upland	*Paddy	Upland
1928	¥538	¥329	1.03	¥18.47
1929	523	319	1.03	17.20
1930	489	300	1.03	15.94
1931	411	257	1.02	13.70
1932	386	243	1.01	11.21
1933	887	234	1.02	10.92

*—In koku.

If the figures for Hokkaido and Okinawa, the two lowest in Japan proper, are eliminated, the level will stand much higher. Thus the prices of the two classes of farms ruling in Japan are two or three times higher than in European countries.

For paddy the rent amounts to over 50% of the net yield while for dry farms it corresponds to 30 to 40%.

given here. The average yield per "tan" of rice and other cereals during the last 28 years is reviewed below:—

1918 that the possible margin of increase of tillage area in Japan proper did not exceed roughly 1,650,000 cho. Based on this data Prof. Nasu estimates that considering that between 40,000 and 50,000 cho of arable land was lapsing into decay every year recently the possible margin of expansion of tillage area would not exceed 600,000 cho under ordinary circumstances. The fact that the tillage area totalling in 1880 4,470,000 cho,

2,620,000 paddy and 1,850,000 dry field, advanced by 1931 by about 22% for paddy and 48% for the other, 33% for the two combined, seems to show that the expansion margin has reached saturation point for Japan proper.

SHARE OF FREE HOLDING AND TENANTRY IN THE TOTAL ARABLE AREA

Free holding and tenantry occupied 48% and 52% respectively in the total area of rice land in 1931. For the area under other crops the corresponding figures were 54% for free holders and 46% for tenants. The share of the two classes of farmers worked out to 54% for the former and 46% for the latter. It should be noted that during the 27 years ending 1931 the total cultivated area for free-holders increased only 9% while the rate for tenants was 19%.

IRRIGATION AND DRAINAGE

Government enquiries made some time ago show that the total irrigated area under tillage is 3,028,000 cho, of which 20.6% had ample supply of water, 55% sufficient, and 19% inadequate. The area of paddy-fields subject to defective drainage amounts to 19% while that suffering at time of flood represents 17%. Farming pumps are extensively used in many progressive prefectures. Tracts over 300 cho each that demand improved irrigation and drainage, cover altogether some 800,000 cho. One-crop area of paddy-fields occupies about

60% of the total under rice. Of the total extent of one-crop rice fields, about 136,000 cho or 4.4% of the whole surface under rice, cannot grow second crop owing to insufficient supply of water. Defective drainage stands in the way of utilizing for similar purpose of roughly 560,000 cho, which corresponds to 18.1% of the total land growing rice.

MANURES

The situation of fertilizers consumed in Japan is marked by the steady decline, from sanitary and wage standpoint, of the use of night soil, and on the other hand of the greater consumption of manufactured and other commercial fertilizers. The consumption of self-supplied manures is hard to estimate, but from the rough calculation made by the prefectural offices, it is judged to reach ¥316 millions a year, made up of ¥120 millions for compost, ¥36 millions for green manure, ¥90 millions for night soil, ¥70 millions for others of this description. Similar figures for commercial fertilizers are perhaps more reliable as the returns of home production and imports are available. From these it is concluded that the average yearly consumption for the last three years amounts to ¥224 millions. Of that total bean-cakes form about 48%, sulphate of ammonia 14%, mixtures 10%, and superphosphate of lime 8.7%. The progress of the fertilizer industry recently is briefly described in the Chapter on Industry.

ADJUSTMENT OF FARMS AND CLEARING OF WILD LAND

To increase productive power by drainage, to lessen unproductive area in the shape of boundary ridges, and finally to obviate the disadvantage incidental to scattered existence of small plots of farms belonging to the same owners, the authorities have been encouraging, by offering special privileges as to tax, loan, etc., since 1900 the work of adjustment of farms. The adjustment aims to increase the average to at least 1 "tan" or 4 at the largest for the paddies. The official calculation is that the adjustment will increase the yield by 15%. Then the unproductive areas utilized are

expected to amount to 3% of the area adjusted.

By the end of 1931 the area reported for adjustment aggregated 987,006.9 hectares (995,232 cho) involving an expense of about ¥569,361,154. The work was concluded for about half the area.

To encourage the work of clearing wild land bounty has been granted since 1919 for the reclaimed area of over 4.96 hectares (5 cho), the bounty being 6% of the expense disbursed.

Below is given the description of area before and after adjustment and of its increase or decrease:—

	Before adjustment		After adjustment		Increase or decrease		
	(hectare)	(cho)	(hectare)	(cho)	(hectare)	(cho)	%
Total area	987,007	995,232	1,038,270	1,046,922	+ 51,263	+ 51,690	+ 5.2
Paddy	609,123	614,199	766,979	773,370	+157,856	+159,171	+25.9
Upland	165,663	167,043	136,523	137,661	- 29,139	- 29,382	-17.6
Forest, wasted land, sundries, etc.	100,008	100,841	30,644	30,899	- 69,364	- 69,942	- 69.4
Ponds, marshes, lakes, etc.	14,574	14,695	5,100	5,142	- 9,474	- 9,553	- 65.0
Building lots, cemeteries, ribs, etc.	39,863	40,195	16,853	16,993	- 23,010	- 23,202	- 57.7
Roads, drains, irrigation ponds, etc.	57,778	58,259	82,172	82,857	+ 24,395	+ 24,598	+42.2

STAPLE FARM PRODUCTS

Rice

Area under Cultivation (in hectares)

Year	"Suito" (rice grown in irrigated fields)		Upland Rice		Total
	Non-glutinous Rice	Glutinous Rice	Non-glutinous Rice	Glutinous Rice	
1927	2,757,011	256,205	58,786	75,453	3,147,455
1928	2,767,573	262,273	59,447	76,064	3,165,358
1929	2,782,901	265,642	59,299	75,229	3,184,070
1930	2,814,823	264,305	59,903	73,519	3,212,550
1931	2,825,166	263,769	58,797	74,139	3,221,871

Production (in hectolitres)

Year	"Suito" (rice grown in irrigated fields)		Upland Rice		Total	Average per hectare
	Non-glutinous Rice	Glutinous Rice	Non-glutinous Rice	Glutinous Rice		
1927	100,568,712	8,664,702	1,196,829	1,596,955	112,027,198	35.60
1928	97,391,443	8,588,029	1,239,850	1,561,832	108,781,154	34.36
1929	97,208,248	8,644,504	771,160	812,613	107,436,531	33.74
1930	108,306,871	9,422,982	1,327,885	1,579,497	120,637,235	37.55
1931	89,544,779	7,845,918	1,010,293	1,172,200	99,603,190	30.91

Demand and Supply of Rice

Year	From previous year (1,000 koku)	Output (1,000 koku)	Import (1,000 koku)	Export (1,000 koku)	Consumption (1,000 koku)	Consumption per capita (Koku)	Consumed for sake brewing (1,000 koku)
1927	5,968	55,592	12,670	1,284	67,181	1.095	—
1928	5,766	62,102	11,256	985	70,298	1.129	3,884
1929	7,840	60,303	8,909	539	69,486	1.100	3,825
1930	7,028	59,558	8,602	540	68,931	1.076	4,048
1931	5,719	66,876	11,486	1,963	72,977	1.126	4,474
1932	9,140	55,215	11,603	357	66,345	1.014	—

(koku—1.80391 hectolitres; hectolitre—0.55435 koku)

The domestic yield being generally short of the amount required for consumption, the shortage is met by import from the neighboring countries as well as Taiwan and Chosen.

Varieties of Rice Plant

Of the three main varieties of early, middle and late rice plants, the middle variety is most

productive, as the following average output per "tan" at all the Government Experiment Farms testifies:—

Yield per "tan" of the early variety ("koku")...	2.120
" " " " middle " (")...	2.334
" " " " late " (")...	2.223
Average	2.255

The official estimate of rice crop for the 1933 season as announced by the Department of Agriculture and Forestry on the basis of the condition obtaining at the end of October puts the total amount at 65,963,430 koku, the figure covering the whole of Japan proper. Compared with the first estimate the figure indicates an increase of 0.4 per cent or 277,740 koku owing to the favorable weather condition after September 20. Again compared with the amount of the actual crop of the previous year it is a gain of 9.2 per cent or 5,573,332 koku on the amount of the actual crop of the previous year and a gain of 9.1 per cent or 5,495,094 koku on the average for the past five years. The figures of the actual crop in the past five years are as follows:—

1928	60,303,089 "koku"
1929	59,557,694 "
1930	65,875,535 "
1931	55,215,263 "
1932	60,390,098 "
Average	60,468,336 "
1933:	
1st estimate	65,865,690 "
2nd "	65,963,430 "

Adjusting the Price of Rice

The Law for Adjusting the Supply has been in force since April 1921 to adjust the rice market. For keeping the rice purchased State granaries have been erected at principal centers of distribution, at present Tokyo (300,000 "koku"), Osaka (200,000 koku), Sakata and Moji (50,000 each).

The free arrival of duty-free colonial rice, about 7 million koku from Chosen and about 3 million koku from Taiwan is seriously complicating the question of adjusting the rice market, as the two regions are beyond the control of the law. Of the total volume transacted on the market the colonial produce amounts to about 50% and hence too often rules the price. The operation of the Adjustment Law has caused loss of ¥70,000,000 to the Treasury.

Average Quotations per koku of Medium Rice at Fukagawa Market, Tokyo since 1868 (in yen)

1868	5.98
1877	5.55
1887	5.00
1897	11.98
1907	16.48
1917	19.84
1928	30.03
1930	25.08
1931	18.53
1932	21.15

The two years of extreme quotations are:—

1872	¥3.88
1918	45.99

As explained elsewhere the adjustment of rice-market is seriously complicated owing to the free arrival of cheap rice from Chosen and Taiwan.

Production of Barley and Wheat

Year	Barley			Wheat		
	Production (1,000)	Average per hectare	Aver. per "tan"	Production (1,000)	Average per hectare	Aver. per "tan"
1928 ...	13,720 (hectolitre)	7,606 (koku)	67,790 (yen)	11,525 (hectolitre)	6,389 (koku)	101,541 (yen)
1929 ...	12,838	7,117	66,654	11,407	6,324	96,797
1930 ...	2,792	7,091	50,407	11,099	6,125	75,286
1931 ...	13,309	7,378	42,477	11,555	6,405	53,607
1932 ...	13,663	7,574	36,977	11,721	6,498	66,654

Naked Barley

Year	Production (1,000)			Average per hectare	Aver. per "tan"
	(hectolitre)	(koku)	(yen)		
1928 ...	12,855	7,126	94,562	25.37	1.395
1929 ...	13,210	7,323	95,055	26.59	1.462
1930 ...	10,982	6,088	64,841	22.94	1.261
1931 ...	11,747	6,521	51,838	24.91	1.370
1932 ...	11,827	6,556	48,932	24.86	1.367

Barley, naked barley and wheat constitute the staple crops in upland farms and are also very extensively cultivated as second crops after rice, as shown below, the figures being those for three years ending 1932:—

	Barley		Naked barley		Wheat	
	(hectare)	(cho)	(hectare)	(cho)	(hectare)	(cho)
1930 { Paddy-field	104,223	105,091	298,861	301,352	220,265	222,101
Upland	272,973	275,248	179,939	181,439	267,130	269,357
1931 { Paddy-field	105,634	106,514	292,970	295,412	227,701	229,599
Upland	271,616	273,879	178,488	179,975	269,299	271,543
1932 { Paddy-field	106,103	106,987	293,972	296,422	231,855	233,788
Upland	270,829	273,085	181,753	183,267	272,657	274,929

Supply and demand of "mugi" (barley, naked barley and wheat) including wheat flour are as follows (figures being in unit of 1,000 koku):—

Year	Total output	Import	Export	Consumption	Consumption per capita	1928 ...	21,120	5,692	2,737	24,029	0.386
1926 ...	21,906	3,671	1,498	24,084	0.396	1929 ...	20,763	3,935	1,711	15,667	0.120
1927 ...	20,939	4,366	1,677	23,638	0.384	1930 ...	19,304	5,125	2,129	22,287	0.346

Miscellaneous Grains

	1927	1928	1929	1930	1931
Proso millet (hectolitre).....	440,783	391,827	338,638	424,932	298,543
Buckwheat (").....	1,665,464	1,474,730	1,317,040	1,684,914	1,464,119
Foxtail millet (")	1,936,550	2,040,944	1,665,401	1,874,833	1,741,360
Barnyard millet (")	1,110,864	958,692	684,866	965,924	768,340
Maize(").....	1,157,067	990,756	910,578	1,117,780	780,440

Beans, Potatoes and Sweet Potatoes

	1927	1928	1929	1930	1931
Soya beans (hectolitre)	5,886,469	5,370,034	4,789,623	5,473,255	4,481,980
Red beans (")	1,582,322	1,325,861	1,371,884	1,616,687	1,127,361
Peas (")	812,308	833,998	791,105	693,093	705,993
Horse beans (")	873,490	875,286	882,183	859,735	888,478
Sweet potato (1,000 kg.).....	3,296,250	3,413,129	3,004,674	3,402,302	3,382,010
Irish potato (").....	937,955	923,300	936,414	1,036,632	922,175

Production of Some Special Crops

	1927	1928	1929	1930	1931
Leaf indigo (kg.).....	2,195,201	2,506,965	1,704,578	1,049,678	1,030,905
Leaf tobacco (").....	68,185,680	63,723,068	61,785,139	68,122,586	68,361,413
Cotton (").....	954,041	817,695	628,110	588,128	509,865
Hemp (").....	8,460,983	8,857,624	8,064,806	8,633,558	7,174,781
Rape-seed (hectolitre)	1,076,898	1,074,526	1,120,950	1,169,507	1,159,788

Production of Other Minor Crops (in 1,000 kilograms)

	1927	1928	1929	1930	1931
Radish	2,565,525	2,427,147	2,426,731	2,466,912	2,412,494
Carrot (Daucuscarola).....	111,440	111,585	110,102	118,950	117,100
Burdock (Lappa major)	188,546	186,229	184,824	193,008	191,478
Paper mulberry (bark, dried)	14,651	15,303	13,953	13,670	13,965
Rush for matting.....	41,435	46,336	54,492	51,853	44,932
Flax	8,766	13,395	17,647	15,562	17,486
Taro	611,701	637,538	575,900	616,598	636,563
Turnip	155,951	145,732	145,416	147,284	146,803
Cabbage	118,619	114,375	131,650	152,492	150,124
Onion	206,372	199,487	210,954	228,148	230,656
Welsh onion	87,709	102,759	107,300	134,955	130,296
Peppermint.....	39,581	34,315	42,420	44,744	38,521

The condition of barley crops in the spring of 1933 was as follows, according to official returns:—

	Area under crop (Cho)	Compared with previous year
Barley	347,290.4	- 32,781.8 (8.6%)
Rye	437,656.5	- 42,032.7 (8.8%)
Wheat	615,888.1	- 107,164.3 (2.4%)

	Amount of actual crops (Koku)	Compared with previous year
Barley	6,916,511	- 657,468 (8.7%)
Rye	5,348,929	- 1,207,199 (18.4%)
Wheat	8,003,270	- 1,515,822 (23.2%)

Compared with the amount of the average crop for the past five years, the figures for the last season show decreases of 436,667 koku (5.9%) and 1,372,088 koku (24.0%) in barley and rye respectively, but an increase of 1,655,151 koku (26.1%) in wheat.

STOCK BREEDING

Stock-breeding has not thrived well in Japan, for religious reasons, climatic condition, absence of good pastures and grass, etc. Cattle and horses were reared by farmers, the former as help in tillage and beasts of burdens, while the latter were kept both for riding and also for farmers' uses. The rearing of swine dates from the Restoration while that of sheep has begun to receive serious attention since the World War.

Horses.—The centers of horse-breeding are Hokkaido with 289,498 head for 1931, Iwate, Fukushima and Kagoshima, with 87,207, 80,140 and 77,151 respectively. Persian, Hackney, Anglo-Norman, Thoroughbred are favorite breeds reared. The pari mutuel was revived recently to encourage horse-breeding and to improve the breed. The Army has its own depot presided over by a Lieut.-Gen.

while the Department of Agriculture and Forestry also keeps its own studs, pastures and a depot. Some thousand of horses are imported every year from Australia and other places. Castration is compulsory.

Cattle.—Okinawa or Luchu with 101,503 head is the largest cattle-rearing district followed by Hyogo, Hiroshima and Okayama, with 98,832, 96,527 and 89,260 respectively. The cattle raised in those prefectures are generally for draught and partly for meat. Hokkaido, Chiba and Shizuoka specialize more in milk production, the breed used being in most cases Holstein. Large number of cheap cattle come from northern Chosen. Consumption of beef and other animal flesh in 1930 amounted to 108,174,000 kilograms valued at ¥75,448,000, of which 66% was beef. Frozen meat comes from Australia and China to make good the shortage here. The native-grown beef formerly judged by both Japanese world-travellers and foreigners as the best in the world has somewhat deteriorated owing to the mixing of foreign breed. In Japan beef is much dearer than pork.

Swine.—For swine Okinawa or Luchu stands first as breeding center with 118,976 head, followed by Kagoshima with 61,304, Ibaraki and Chiba with 57,708 and 54,249 respectively. Swine-rearing is essentially a side job of farmers. The best pork comes from Hokkaido.

Sheep.—Sheep-breeding still remains very poor and is negligible owing to absence of good barren land suitable for it.

Dairy-farming.—This is still primitive, condensed-milk, for instance, being imported to the extent of some ¥2 millions. The butter produced in Hokkaido and Koiwai is as good as foreign produce, and in fact, the latter has practically disappeared from the market.

Statistics on Stock-Farming

	1927	1928	1929	1930	1931	
Cattle	No. of stock-families ...	1,193,741	1,203,875	1,208,042	1,215,288	1,223,260
	No. of cows.....	1,059,535	1,072,599	1,087,261	1,099,348	1,112,482
	No. of bulls.....	414,874	411,207	400,979	398,912	399,870
	Total.....	1,474,409	1,483,806	1,488,240	1,498,260	1,512,352
	Calvings	202,430	207,828	208,096	214,006	222,069
	Deaths	14,695	14,667	16,099	14,111	13,765

	1927	1928	1929	1930	1931	
Horses	No. of stock-families ...	1,137,351	1,128,861	1,120,617	1,115,032	1,108,701
	No. of horses	1,214,926	1,210,049	1,207,344	1,203,614	1,393,364
	No. of colts	279,894	284,220	283,016	286,365	283,907
	Total	1,494,823	1,494,269	1,490,360	1,489,979	1,477,271
	Foalings	115,684	119,253	116,598	119,479	117,994
Swine	Deaths	27,642	29,136	29,833	27,787	28,856
	No. of stock-families ...	374,765	409,295	392,718	405,001	486,733
	No. of swine	677,061	763,638	706,151	742,311	947,216
	No. of piglings	461,931	500,961	487,666	524,717	690,047
Sheep	No. of deaths	65,686	69,293	62,820	61,380	108,347
	No. of stock-families ...	3,612	4,038	4,698	5,862	7,048
	No. of sheep	18,788	19,495	20,728	23,702	24,453
	No. of lambs	5,475	5,587	6,064	6,554	7,295
Goats	No. of deaths	2,074	2,727	2,096	2,230	2,597
	No. of stock-families ...	75,531	82,202	84,484	87,653	93,611
	No. of goats	195,004	203,326	215,439	217,189	218,921
	No. of kids	70,303	76,677	74,026	75,069	78,246
	No. of deaths	5,944	6,728	8,370	9,110	8,620

Slaughtering Returns

	1927	1928	1929	1930	1931
No. of slaughter-houses..	601	611	622	627	629
Cattle (head)	282,712	306,834	300,907	262,785	292,122
Calves (")	23,741	28,212	28,097	26,295	27,862
Horses (")	69,831	75,569	77,224	72,430	76,885
Swine (")	561,366	715,802	862,560	725,104	695,385
Sheep (")	688	907	874	1,091	1,140
Goats (")	11,824	13,015	12,986	24,257	27,686
Total	950,162	1,140,339	1,282,648	1,111,962	1,121,081

Protection and Encouragement of Stock Farming Industry

To encourage the improvement of cattle and horses, the Government in 1925 promulgated the regulations pertaining thereto, and annually disbursed from the treasury 25% of the expenses involved in the purchase of foreign bred cattle and horses for each prefecture and for the Live Stock Associations. Also since the same year the Government has been lending free of charge the breeds kept at the Government Live Stock Experiment Station.

The demand for wool increased rapidly during the past few decades, the bulk being imported from Australia. Realizing the urgent necessity of self-supply of wool to be used for uniforms of soldiers, sailors, police officers and others the Government, with a view to increasing the number of sheep to 1,000,000 head, established in 1918 sheep breeding stations at Takigawa, Tomobe and Tsukisappu which in 1928 were combined into one under the name of Tsukisappu Sheep Breeding Station. The Government encourages the industry by grant-

ing bounties, subsidies, etc.

The Government started similar means of encouraging poultry rearing and dairy farming, particularly the manufacture of cheese and butter.

Live Stock Insurance

Animal epidemics are something to be feared as they inflict no small damage on stock farmers. However, as it has not been long since Japan started stock farming on any large scale there has not developed the system of live stock insurance. Only about 120 live-stock associations or unions have undertaken mutual insurance enterprise with 310,000 cattle and 200,000 horses registered. This having failed, the Government, in March 1929, enacted the live-stock insurance regulations which came into force in September the same year. In August 1930 there were 67 live-stock insurance associations, of which 44 already started the business. At the end of 1931 the number of cattle and horses registered reached 96,450, premiums amounting to ¥8,207,310.

Live Stock Associations

The live stock associations are authorized organizations established in conformity with the Live Stock Association Regulations promulgated in 1915. These associations aim at the improvement and development of live stock industry and also furthering of the interests and

benefit of their members.

The associations exist in almost all parts of the country, the number reaching over 500 with a total membership of 1,430,000. The principal enterprises undertaken by the associations are the supply of live stock breeds, holding of live stock markets, fairs, exhibitions, etc.

Statistics on Dairy Farming

Year	No. of dairy-farms	No. of milk cows	Milk (output)		
			Quantity		Value (yen)
			(hectolitres)	(koku)	
1927	17,941	70,716	1,438,509	797,441	28,156,828
1928	18,172	70,591	1,481,271	821,146	27,817,640
1929	19,321	72,281	1,627,443	902,177	28,274,724
1930	20,564	75,455	1,754,204	972,447	26,291,144
1931	21,537	78,235	1,896,988	1,051,600	23,201,930

ANIMAL EPIDEMICS

Rinderpest inflicts now and then heavy damage on owners of milk cows and general stock-breeders, it coming chiefly from Chosen, but

rarely from China. Hokkaido is comparatively free from the attack. The authorities enforce strict examination at Fusan and at ports of import. The number of animals affected during the last few years is shown below:—

Year	Anthrax		Black leg (Cattle)	Cholera (Swine)	Erysipelas (Swine)	Dog	Hydrophobia			
	Cattle	Horse					Cattle	Horse	Swine	Sheep
1927	237	73	85	4,024	2,639	986	9	3	—	—
1928	185	49	74	1,982	1,117	434	6	1	—	—
1929	241	105	94	3,207	758	172	1	—	—	—
1930	206	77	83	1,224	903	65	—	—	—	—
1931	213	47	57	28,954	1,856	44	—	—	—	—

POULTRY

Japan still imports some of cheap eggs from China, which amounted to ¥2,817,197 in 1930, to ¥2,959,704 in 1931 and to ¥43,068 in 1932. The

annual consumption of eggs is estimated at a little under ¥100 millions. Aichi and Kagoshima are noted centers of poultry.

Statistics on Poultry (in 1,000)

Year	No. of families	No. of fowl	Fowls		Value (yen)	Egg (output)	
			No. of chicken	Value (yen)		No.	Value (yen)
1927	3,453	22,330	19,923	41,654	1,981,587	81,473	
1928	3,470	24,608	21,496	43,749	2,248,026	86,344	
1929	3,439	26,417	21,842	44,315	2,528,480	88,686	
1930	3,364	26,982	19,735	37,552	2,654,542	79,293	
1931	3,313	28,843	23,743	35,434	3,008,243	72,169	

HORTICULTURE

Pears, oranges, persimmons and peaches were principal fruits in old days, and with the introduction of meat-eating custom foreign apples, oranges, peaches, pears, grapes, strawberries, cherries, etc. began to be extensively cultivated. Generally speaking, apples are

grown in Hokkaido and Aomori, peaches in the neighborhood of Tokyo, Kanagawa, Okayama, and other prefectures, pears in Shizuoka, Okayama, Niigata, Akita, etc., grapes in Yamaguchi, Ibaraki, Nagano, etc., oranges in Wakayama, Shizuoka and in southern Japan, apri-

cots, almonds, walnuts and some other fruits in Nagano and a few other prefectures and foreign cherries in Yamagata and Fukushima. Japanese cherry trees are chiefly prized for flowers. Persimmons may be said to grow

everywhere, though seldom in orchards. Plums are more generally used as pickle, in which shape they are preserved in almost every household, and plum trees are highly valued both for flowers and fruits.

Output of Fruits (in 1,000, kg.)

Year	Plums	Peaches	Pears	Persimmons	Apples	Grapes	Oranges
1927	773	51,562	146,802	217,853	71,516	41,175	270,067
1928	740	51,767	149,751	222,901	92,060	47,476	257,129
1929	781	48,291	149,251	241,026	93,895	48,169	224,759
1930	597	53,063	143,344	235,312	100,543	54,998	314,538
1931	631	52,418	157,316	201,764	73,271	53,852	319,068

N.B.—Plums in 1,000 hectolitres.

TEA

Tea, once a staple export item, has remained stationary, both in gross output and volume of export. The latter, principally to America which takes over 80% of Japanese export teas, has even declined in the presence of formidable rivals, i.e., Ceylon, India and Java teas. The American consumers, however, still favor the Japanese leaves as they possess a special flavor and preserve their quality much longer than their rivals. The cost of production is higher in Japan than in other centers of manufacture, labor saving appliances being used to less extent than in India and Java. Japanese tea manufacturers are prejudiced against the machine-making process on the ground that it leads to deterioration in quality and flavor. The Shizuoka Tea Manufacturers' Association estimated the cost of hand-made tea in 1917 at ¥1.00 to ¥1.20 per kan as against only 35 to 45

sen for machine-made tea, while in 1918 the figures stood at ¥1.30 to ¥1.50 as against 45 to 60 sen.

The Central Council in Tokyo maintains inspection houses at Yokohama, Kobe, Shizuoka, Yokkaichi and endeavors to prevent the export of adulterated or colored tea which might be rejected by tea inspectors abroad, and also is running its experimental plantation and laboratory in Shizuoka, the foremost center of production. As export port of tea Shimizu, in Shizuoka prefecture, has displaced Yokohama.

Statistics on Tea

Year	Area		No. of manufacturers
	(hectare)	(cho)	
1927	42,906	43,264	1,146,894
1928	42,808	43,165	1,153,767
1929	42,483	42,837	1,136,971
1930	37,773	38,088	1,120,240
1931	37,794	38,109	1,126,318

Output of Various Kinds of Tea (in kilograms)

Year	Green tea 2nd kind (Gyokuro)	Green tea 3rd kind (Sencha)	Green tea 4th kind (Bancha)	Black tea	Others	Total incl. others
1927	252,615	29,092,320	7,364,550	16,582	240,383	36,966,450
1928	266,996	31,063,429	7,550,651	20,779	185,486	39,087,341
1929	242,213	31,152,885	7,795,582	10,099	191,659	39,392,438
1930	283,879	30,934,553	7,211,738	11,647	205,106	38,646,923
1931	268,493	30,812,038	7,028,978	11,955	183,877	38,305,339

Leading Tea Producing Districts (1931)

District	Output (kilogram)	Value (yen)
Shizuoka	19,722,915	7,478,835
Kyoto	1,689,341	1,371,643
Miye	1,797,139	845,007
Saitama	983,408	938,851
Shiga	788,614	560,900
Kagoshima	1,620,889	1,213,385

FUR REARING

The import in 1918 of seven pairs of silver black foxes and other foxes from Prince Edward Island, Canada, gave birth to the Karafuto Silver Fox Ranch Company, Limited. The fox ranching has gradually developed and within four years it reached the stage of exporting furs to Europe.

The Company possesses a fox ranch with an area of 680,000 tsubo (1 tsubo being equal to 6 square feet) of which 15,000 tsubo is used exclusively for breeding of silver black foxes and 5,000 tsubo for other kinds of foxes. In the ranch are kept about 30 head of Holstein cows for obtaining milk for fox breeding, and also there are some 20 horses used for drawing carts. About 500 pieces of fox furs are produced by the Company and are mainly exported to London, Berlin and New York; half of the total are silver black fox furs and exported to London and the remainder are mixed fox furs exported to Berlin and New York. The demand is increasing rapidly.

SALT INDUSTRY

Salt produced in Japan proper is extracted almost entirely from the brine and refined by means of artificial heating, though in Taiwan and Kwantung the natural heating system prevails. The districts bordering on the Inland Sea are the center of production, which reached about 521,261,509 kilograms or 868,769,182 catties in 1931. The same year about 101,122,000 kilograms valued at about ¥1,709,000 from Taiwan and 353,058,000 kilograms valued at about ¥3,628,000 from other countries were imported. Annual consumption is estimated at over 1,500 million catties. In 1931 768,268,000 kilograms were consumed for pickles, soy-brewing, etc. With the restoration of Tsingtao to China the question of how to get regularly the supply of cheap production has become one of a grave importance.

Statistics on salt industry in recent years is as follows:—

Year	No. of factories	No. of manufacturers	Area of salt-fields (Hectares)	Production (1,000)	
				Kilograms	Catties
1927-28	4,674	5,148	5,728.36	619,138	1,031,897
1928-29	4,537	5,015	5,708.03	637,888	1,063,146
1929-30	3,682	3,727	4,888.17	644,151	1,073,585
1930-31	3,449	3,398	4,531.24	628,682	1,047,804
1931-32	3,434	3,373	4,529.85	595,534	868,769
1932-33	3,398	3,408	4,534.00	597,528	—

CHAPTER XXX

SERICULTURE

GENERAL REMARKS

Silk is Japan's staple commodity on the export list, supplying about 60% as against 30% of China and 7% of Italy in the total consumption of the world, and about 89% of that in U.S.A. In the farmers' economy sericulture plays almost as important a part as rice cultivation, and indeed were it not for the profit derived from this subsidiary occupation, Japanese farmers of middle and lower grade would hardly be able to maintain themselves. By rearing the worms in the three seasons of spring, summer and autumn, farmers can at least double the amount obtained from ordinary farming alone. The discovery that the hatching season may be freely regulated by keeping the eggs in cool places has made it possible, by aid of artificial hatching method, to undertake summer and autumn rearing and to double the output of cocoons. As sericulture has seldom succeeded when conducted on a large scale, it looks as if it were specially designed for the benefit of otherwise hard-driven small farmers.

Japanese raw silk is characterized by its high lustre and little wear in glossing, and the filament from the best cocoons measures from 2,000 to 2,500 "shaku" in length and weighs from 0.07 to 0.08 "momme" (1 "shaku"—about 1 foot; 1 "momme"—3.75 grammes). Both in fineness and uniformity of quality marked improvement has been effected of late thanks to better methods of rearing and reeling.

Some of the latest improvements recently effected in silk raising are briefly described below:—

Conditioned-Weight in Raw Silk

The long-standing custom of handling raw silk in non-conditioned weight, containing a slight moisture, has been superseded by an improved practice obtaining in Europe and America where transaction is made on the non-moisture weight system plus 11 per cent of moisture. The defective state of the conditioning machinery in Japan stood in the

way of adopting the system as suggested by American silk trade people, but with the completion of the newly equipped Silk Conditioning House in Yokohama the Government was in the position to enact the Law for Conditioning Raw-silk for Export. It provides that no raw silk may be shipped abroad without passing the examination of the Conditioning House and that transactions should be done only in conditioned-weight. The law came into operation in July, 1927, the two conditioning houses in Yokohama and Kobe being placed under it.

Transactions in Dry Cocoons

The customary practice of trading in raw cocoons only as they are picked from their spinning-nests subject both cocoon-merchants and breeders to serious disadvantage as the transactions require to be done in a hurry while the cocoons are still fresh. Nor are filature people less inconvenienced by this simple mode of transaction inasmuch as too much fund is required all at once to get a supply of the raw material. Another defect of the existing business practice is that the raw cocoons require special care in storing before they are reeled, not to speak of damage in transit. In view of these considerations the Government is encouraging the erection of cocoon store-houses by offering a subsidy. The store-houses so far built number 43 and are capable of holding 244,799 koku (1,253,258 American bushels).

Unification of Silk-worm Breeds

The diversity of the breeds naturally militates against the uniformity of the filaments, not to speak of their intrinsic quality. Indeed lack of uniformity has long been a standing complaint against Japanese raw silk on the European and American markets, which demand a large quantity of raw silk threads of uniform quality. To minimize that trouble, the central and local authorities established sericulture laboratories in order to raise superior breeds for distribution among the breeders. Thanks to the united efforts of all those concerned at present 81 per cent of the spring breed and the same per cent of the summer and autumn breeds consist of the eggs originally distributed by the national and local laboratories, this going far towards the unifying of the threads produced. One of the most important researches carried out in this direction is the discovery that the crosses between the native breeds and either the Chinese or European breeds are markedly superior in all respects than a pure native breed. Which of the sundry crosses is best adapted for rearing in a particular district is demanding the closest attention of those concerned. To determine the selection most of the important sericultural districts keep their own experimental stations at Okinawa, which is much warmer than the rest of Japan proper, and there carry out experimental rearing between the month of February and April to determine the breed judged best for raising in their own particular districts. About 50 such experimental laboratories exist in Okinawa, and it is thought that in time breeds best adapted for particular districts will be fixed.

Improved Mode of Feeding

The mode of feeding the worms has received noticeable change as regards saving of labor and rearing space, and so economise cost. Formerly the tiny worms in the first stage of hatching were fed with fine cut leaves, but they are now given whole tender leaves, while the grown worms are fed on the leaves with twigs on in the spring season, and this simplified method is said to be adopted by some 25% of the total number of raisers. Economy of labor thereby effected is by no means small. Then in some sections of the Kwanto districts rearing has been tried recently under tent or on the shelves suitably arranged under the eaves of the houses. It is even claimed that this simple mode of rearing is no worse as regards the growth of the worms than indoor feeding. When the season happens to be too wet the period of cocooning may be somewhat prolonged, but after all it is doubtful whether such rough mode of feeding is well suited for a rainy climate as Japan. Be that as it may the zealous endeavors made by our sericulturists to in-

roduce economising innovations in the mode of rearing and feeding may have beneficial effect on the development of the industry.

Treating Eggs for Summer and Autumn Rearing

So remarkable has been the development recently made in rearing the summer and autumn breeds, that today their products do not much differ from those of the spring worms, at least in volume. This is due first to the fact that the time for rearing them is much shorter than that for the spring breed, and moreover it falls in the season when farmers are less pressed by rice cultivation. Aided by this double advantage they can rear two or three courses of the worms, and hence secure so many crops of cocoons. There are, however, some serious drawbacks attending this later rearing, as the season is too warm and wet to suit the healthy bringing-up of the worms, and next the egg-cards being kept cold for a long time to arrest premature hatching the growth of the worms is abnormal and the cocoons obtained are therefore inferior in quality. The question of how to overcome these defects has been practically solved after the long researches by the experts, both Government and private. The new process discovered by them consists in forcing at a required time the hatching of the eggs by application of certain chemicals. At present, over 80 per cent of summer and autumn worms come from the eggs thus artificially treated.

Silk-worm Egg Cards

The practical extinction of the once dreaded plague known as pebrine that attacked the worms has resulted in simplifying the manufacture of egg-cards, the process in vogue in Italy and other sericultural centers in Europe having been adopted. This is called in Japan "the flat method" and "the grain method" (in which the eggs are left as individual grains). The latter process has the advantage of allowing the grower to estimate easily and with greater accuracy the quantity of the eggs.

New Reeling Process

Formerly the cocoons were left floating in a hot-water basin when reeling, but this process is likely to be superseded by a sinking method, in which the boiled cocoons sink

to the bottom under the weight of the water that soaks into the cocoon-shell. The new process possesses the merit of easier reeling, improved quality of the filaments, greater

efficacy in production. The State laboratory is trying to popularize the method, and already 35 per cent of the total number of reeling establishments are following it.

REELING ESTABLISHMENTS AND PRODUCTION

As officially investigated, reeling establishments in Japan numbered 60,461 in 1932 or 5,939 (8.9%) below the preceding year. Classi-

fied by the number of basins employed the figures are as follows:—

Establishments classified by Number of Basins

	Those with less than 10	Those with 10-50	Those with 50-100	Those with 100-300	Those with over 300
1932.....	57,070 (94.4%)	1,674 (2.8)	846 (1.4)	687 (1.1)	184 (0.3)
Compared with 1931: -5,593 (8.9)	-124 (6.9)	-57 (6.3)	-130(15.9)	-35(16.0)	

Classified by Kind of Thread Produced

	1932	Compared with 1931
Filatures	3,356 (5.5%)	- 331 (9.0)
Hand-reeling	49,454 (81.8%)	- 4,306 (8.0)
Doupions	7,651 (12.7%)	- 1,302(14.5)

Compared with the figures of previous year, there was marked decrease of hand-reeling business. Doupions that were gradually gaining till 1921, have declined since then.

Number of Basins employed for Reeling

	1932	1931
Total for 1932	365,417	418,402
Establishments using less than 10 basins.....	71,638	19.6
" " " 15-50 "	44,349	12.1
" " " 50-100 "	56,471	15.5
" " " 100-300 "	108,547	29.7
" " using 300 or over "	84,412	23.1
Filatures	277,800	76.0
Hand-reeling	64,803	17.7
Doupions	22,814	6.3

Thread-end Number of Filatures

	1932	1931
Total for 1932	1,550,466	1,617,736

Classified by the number of basins employed the average of thread-ends per basin is shown below:—

No. of thread-end employing	1932	%
under 10 basins	6,855	0.4%
" " under 10-50 basins	160,278	10.3%
" " under 50-100 basins	243,206	15.6%
" " under 100-300 basins	574,756	37.0%
" " 300 or over basins	294,760	18.9%
" " 500 or over basins	270,611	17.4%

Reeling Operatives

	1932	1931
Total for 1932.....	428,763 (M. 30,120; F. 398,643)	495,449

The distribution of operatives as classified by the number of basins employed is as follows:—

In factory employing	1932	%
under 10 basins	72,790	17.0%
" " under 10-50 basins.....	49,221	11.5%
" " under 50-100 basins	65,482	15.3%
" " under 100-300 basins.....	132,195	38.0%
" " under 300-500 basins.....	58,704	13.7%
" " under 500-1,000 basins	50,371	11.7%

Classified by the kind of thread produced the figures are:—

	Number of operatives at filatures.....	%
" hand-reeling.....	338,556	79.0%
" doupions	65,761	15.3%
	24,446	5.7%

Production of Raw Silk

The following figures represent production in 1932:—

	Filatures	Hand-reeling	Doupions
Raw Silk	{ 39,178,545 kg. } 91.1 { 10,447,612 kwan }	{ 1,264,620 kg. } 2.9 { 337,232 kwan }	{ 2,563,313 kg. } 6.0 { 683,550 kwan }
Waste Silk.....	{ 12,354,649 kg. } 91.1 { 3,294,573 kwan }	{ 542,340 kg. } 4.0 { 144,624 kwan }	{ 661,616 kg. } 4.9 { 176,431 kwan }

The growth of raw silk and waste silk both in quantity and value in recent years has been steady, and though this tendency has taken a bad turn of late, especially as regard value, the output continues as active as ever.

forty-four years is shown in the following quinquennial statistics:—

Every 5 years	Average amount of cocoon crops (kwamme)	Index number percent
1885-1889	11,288,682	100.0
1890-1894	15,441,414	136.7
1895-1899	21,517,974	190.6
1900-1904	26,484,132	234.6
1905-1909	32,622,124	288.9
1910-1914	43,184,692	382.5
1915-1919	61,560,686	545.3
1920-1924	66,360,485	587.8
1925-1929	91,666,075	812.0

Kwamme (or kwan)—8.26738 lbs.

For this striking progress in sericultural business was chiefly responsible the greater activity of summer and autumn rearing, especially the latter, which now contributes nearly 50% of the total quantity of cocoons produced. The index numbers attesting this tendency are given below:—

Year	Spring cocoons	Summer & Autumn cocoons	Total
1905	100.0	100.0	100.0
1910	136.8	155.2	143.2
1915	146.1	216.3	170.7
1920	178.3	333.6	232.6
1925	242.3	440.0	311.4
1929	285.6	541.2	374.9

The development in the technical skill of growers has been no less marked in recent years, as may be judged from the following figures:—

Floss Silk

The statistics for this article in recent years are as follows:—

Year	No. of factories	Production		
		Kilograms	Kwan	Yen
1925	245,859	450,210	120,056	5,041,506
1926	33,160	283,279	75,541	2,546,403
1927	23,944	337,553	90,014	2,808,835
1928	18,705	342,761	91,403	2,612,478
1929	15,183	332,093	88,558	2,300,189
1930	14,385	317,430	84,648	1,667,335
1931	11,687	327,488	87,330	1,586,047
1932	12,752	326,284	87,009	1,766,475

Selection of Silkworm Eggs

The Imperial Sericultural Experiment Station has come to the conclusion after years of experiments that the crossed silkworm eggs between Japanese, Chinese and European breeds of the first generation are the best for the purpose for which they are intended. The Station now prepares and distributes them free to local institutes either prefectural or otherwise, which in turn carry on reproduction and distribution for the benefit of private reproducers.

Recent Progress in Sericulture

The remarkable development made by the sericultural business of Japan during the last

Year	Yield of cocoon per 1 egg-card deposited by 28 moths (momme)	Yield of cocoons per rearing family (momme)	Sericultural families by season	
			Spring	Summer & Autumn
1905	1,852	18,342	1,718,211	1,816,423
1910	2,257	25,665	1,804,835	1,914,943
1915	2,440	27,771	1,847,895	1,949,935
1920	3,100	33,423	1,929,465	2,029,333
1925	4,783	43,516	2,000,137	2,076,247
	(Grams)	(Grams)	2,055,036	2,019,397
1927	18,488	161,508	1,966,427	1,949,196
1928	18,627	162,536		
1929	19,989	172,719		
1930	21,548	181,594		
1931	—	171,723		

Output of Cocoons

Number of egg-cards hatched, output of various grades of cocoons produced, and number of egg-cards are given in the following table:—

Year	No. of egg-cards hatched (1,000)	Output of cocoons (1,000 kg.)				Total	
		Normal	Douppion	Waste	Total	(1,000 kwan)	(¥1,000)
1927	7,470	154,552	12,628	6,177	173,357	46,229	307,987
1928	7,921	164,854	13,539	7,463	185,857	49,562	314,595
1929	8,098	169,248	12,849	7,634	189,730	50,595	354,692
1930	8,438	189,820	12,783	7,784	210,387	59,103	210,369
1931	*80,491	180,587	10,123	6,793	197,502	52,667	154,833
1927	10,959	139,780	18,556	9,041	167,377	44,634	188,945
1928	10,978	138,818	12,919	9,340	166,078	44,287	232,084
1929	11,055	162,541	20,701	9,899	193,120	51,499	300,308
1930	10,089	160,807	18,797	9,247	188,851	50,360	93,844
1931	*89,516	141,769	16,439	8,316	166,520	54,405	120,724

* in 1,000 grams

Cocoon Crops for 1931

	Spring		Summer & Autumn	
	1931	Comparison with 1930	1931	Comparison with 1930
No. of egg-cards hatched (Grams)	80,490,932	—	89,515,593	—
(Sheets)	8,585,699	+ 147,541	9,548,330	- 540,573
(Kilograms)	190,502,094	- 12,884,656	166,519,612	- 22,331,813
Cocoon yields (Kwan)	52,667,225	- 3,435,911	44,405,230	- 5,955,150
(Yen)	154,833,330	- 55,535,579	120,723,966	+ 26,880,101

N.B.—1 sheet.....about 9.421 grams. (+increase; -decrease)

N.B.—The total number of rearing families was 2,119,817 and the volume of the yield 364,021,706 kilograms or 97,072,455 kwan valued at ¥ 275,557,296, the former being a decrease of 96,210 (4.0 %) and the latter of 35,216,479 kilograms or 6,391,061 kwan valued at ¥ 28,655,478 compared with the figures of the previous year.

Number of Silk Reelers

The silk reeling households and establishments as classified by the number of basins make the following record:—

1927	79,935	1,734	875	925	83,469	425,595
1928	72,299	1,909	930	952	76,090	435,735
1929	65,431	1,997	985	994	69,407	437,738
1930	66,790	1,977	972	989	70,728	433,637
1931	62,663	1,798	903	1,036	66,400	418,402
1932	57,070	1,674	846	873	60,461	365,471

No. of Establishments and Reeling Basins

Year	Under 10	More than 10	More than 50	More than 100	Total	Reeling basins
1925	181,841	1,903	1,041	846	185,631	535,262
1926	88,311	1,747	838	855	91,751	427,174

Filatures equipped with more than 5,000 basins are—Katakura Reel and Spin. Co. (19,000), Yamaju-gumi (16,000), Gunze Reel Co. (8,000), and Oguchi-gumi (7,000) and Usuisha (7,000).

Output of Raw Silk (in 1,000; 1 kwan—lb. 8.267)

Year	Raw silk			Waste silk, etc.			Total Yen
	Kg.	Kwan	Yen	Kg.	Kwan	Yen	
1925	31,066	8,284	956,052	13,250	3,533	30,307	986,459
1926	34,130	9,160	856,477	13,342	3,558	24,422	880,900
1927	37,051	9,880	798,798	14,148	3,773	19,644	818,442
1928	39,691	10,584	835,468	14,777	3,941	22,786	858,254
1929	42,346	11,292	857,578	15,459	4,122	23,799	881,377
1930	42,619	11,365	536,664	14,029	3,741	15,955	552,618
1931	43,810	11,683	427,691	13,743	3,665	13,818	441,509
1932	43,006	11,468	469,474	13,559	3,615	17,867	487,340

Silkworm Eggs

Year	No. of producers	Reproductive silkworm eggs	Industrial silkworm eggs	Total
1924	8,057	15,811,156	698,596,876	714,408,032
1925	7,676	16,220,929	777,705,559	793,926,488
1926	7,476	16,418,429	805,423,835	821,842,264
1927	7,282	18,482,066	859,083,616	877,565,682
1928	7,195	19,159,118	895,684,790	914,843,908
1929	6,999	19,982,401	858,749,901	878,732,302
*1930	6,885	9,989,780	323,998,052	333,987,832
*1931	6,269	8,871,420	282,902,603	294,774,023

N.B.—Amount produced in number of moths; * in grammes.

Mulberry Plantations

Year ending June	Area of fields		Redemption for rearing houses and instruments	Miscellaneous	Total
	Hectare	Cho			
1924	532,946.58	537,387.8	10.3	11.1	100.0
1925	544,767.67	549,307.4	6.7	12.9	100.0
1926	566,981.85	571,706.7	7.3	12.1	100.0
1927	589,792.46	594,707.4			
1928	604,057.19	609,091.0			
1929	620,503.04	625,673.9			
1930	708,273.62	714,175.9			
1931	677,131.14	682,773.9			

time, however, this important asset of Japan is in danger of turning out to be a serious handicap in the successful management of the industry. In other words, the steady advance of wages in Japan, in common with the rest of the world, has begun to disturb the established equilibrium between the various factors forming the cost of production. The item of wages is shooting far ahead of others, as shown below (%):—

Cost of Production per "kamme" of the Spring Cocoons

Year	Mulberry leaves	Rearing labour	Redemption for rearing houses and instruments	Miscellaneous	Total
1923	45.8	32.8	10.3	11.1	100.0
1925	51.9	28.5	6.7	12.9	100.0
1927	44.2	36.4	7.3	12.1	100.0

N.B.—The above data were obtained by the Raw Silk Association of Japan.

To cope with this menace sericulturists are driven more and more to adopt the extensive-culture method in place of the intensive method formerly in vogue. Thus in the ten leading rearing centers, like Nagano, Gumma, etc. the cocoon-crop per family is growing in volume while in feeding the worms the leaves given are less carefully prepared than before. Some proof of this statement is to be found in the following statistics showing the scope of rearing and the ratio of cocoon-crop obtained:—

Scope of Rearing and Ratio of Cocoon Crop

	Egg-cards hatched per family (sheets)				
	1900	1914	1919	1924	1929
In 10 leading districts	12.4	17.1	15.8	11.8	12.0
Other districts	6.5	7.9	8.1	6.6	6.5
Aver. for whole country	9.3	12.5	11.6	8.9	8.6

Cocoon crop per family (kwan)					
	1900	1914	1919	1924	1929
In 10 leading districts	25,664	39,117	46,923	47,610	59,544
Other districts	13,332	21,224	28,763	32,191	37,204
Aver. for whole country	19,113	30,421	37,183	39,054	46,059
Crop per 1 card (kwan)					
	1900	1914	1919	1924	1929
In 10 leading districts	2,070	2,291	2,972	4,026	4,972
Other districts	2,054	2,679	3,592	4,877	6,173
Aver. for whole country	2,006	2,424	3,212	4,378	5,326

Sericultural Institute

The Imperial Sericultural Experiment Station.—This is a Government institute for conducting scientific researches and investigations on all problems relative to the sericultural industry and also holding lectures and classes to train experts and flature hands. The Station is situated at Nakano, a suburb of Tokyo, with branches in Ayabe, Mayebashi, Fukushima, Matsumoto, Ichinomiya and Kumamoto, all local centers of the industry.

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TRADE SITUATION

Throughout the last season (June 1932 to May 1933) the raw silk market continued very gloomy, the situation becoming worse as the season advanced. The lowest price of the best quality yarns that ruled at ¥660 in January 1932 (of the preceding season) dropped to ¥390 in June the same year. The prices moved a little upward, ¥860 in December of same year and ¥850 in June of next season. The movement of prices for the best quality at Yokohama in the 1932-33 season is shown below (in yen per bale containing 100 kin):—

	Highest	Lowest	Average
1932 June	510	390	469
July	610	503	536
August	1,100	603	803
September	1,100	865	938
October	915	855	890
November	970	860	910
December	970	860	922
1933 January	925	685	766
February	715	660	695
March	690	630	655
April	820	645	728
May	806	760	796
June	760	850	981

Arrivals:					
	1928-29	1929-30	1930-31	1931-32	1932-33
Yokohama	701,321½	764,900	394,752	396,392	367,702
Kobe	252,738	300,148	179,907	198,630	176,702
Total	954,059½	1,065,048	574,657	595,022	544,404
Export:					
	1928-29	1929-30	1930-31	1931-32	1932-33
Yokohama	409,148	342,716	384,993	382,570	365,534
Kobe	143,754	140,339	160,275	167,848	168,152
Total	552,902	483,055	545,268	550,418	533,686
Value (¥1,000)	751,285	604,202	385,805	336,276	412,296
Value per bale (yen)	1,358	1,251	707	610	772

Average Price of Raw Silk

Average spot prices per 100 kin of raw silk of Futoito Best No. 1 by steam flature as quoted at Yokohama are shown below:—

Year	Highest	Lowest	Average
1925	¥2,180	¥1,830	¥2,009
1926	2,010	1,430	1,626
1927	1,500	1,270	1,376
1928	1,400	1,220	1,326
1929	1,420	1,155	1,314
1930	1,190	540	807
1931	760	500	598
1932	1,100	390	701
1933	786	705	759

N.B.—The highest and lowest show the average of 12 months for each year; figures for 1933 are up to June.

Export of Silk Yarns

Turning to export, the volume shipped abroad during the last season (July 1932 to June 1933) aggregated 533,686 bales, the figure being 16,732 bales (3.0%) less than that of the previous season. The arrivals at the ports of export, Yokohama and Kobe, reached 544,404 bales as against 595,022 bales of the previous season. The following statistics gives comparative figures for the past five years:—

The volume of silk shipped by principal silk firms during the 1932-33 season is as follows (in bales):—

Shippers	For U.S.A.		For Europe		Total
	Yokohama	Kobe	Yokohama	Kobe	
Mitsui Bussan	80,460	46,222	9,963	3,560	140,205
Hara & Co.	39,415	—	1,020	—	40,435
Nippon Kiito Kaisha	83,127	39,075	645	50	122,897
Nippon Menka	17,873	11,465	10	—	29,348
Gosho Corporation	6,422	5,335	165	45	11,967
Shin-ei Silk Co.	640	12,425	350	3,490	16,915
Gunze Seishi Kaisha	—	1,795	—	—	1,915
Asahi Silk Co.	61,102	42,754	530	1,390	105,776
Katakura Seishi	44,913	—	—	—	44,913
Others	12,227	—	6,672	546	19,435
Total	346,179	159,071	19,355	9,081	533,686

Japanese and Foreign Shippers

The Japanese firms shipped during the period under review 519,956 bales (97% of the total shipment) against 13,730 bales (3%) shipped by foreign firms, the figures showing decrease of 8,217 and 8,515 bales respectively compared with the previous figures. In the amount handled the Mitsui Bussan heads the list with 140,205 bales followed by the Nippon Kiito (122,897 bales) and the Asahi Silk (105,776 bales).

Relative Amount shipped by Japanese and Foreign Firms

Japanese shippers are now dominant in the direct export of raw silk as shown in the following table:—

Season*	No. of bales exported	Of which Japanese firms	Of which Foreign firms	Percentage	
				Japanese	Foreign
1925-26...	427,878	360,144	67,734	84%	16%
1926-27...	496,740	423,925	72,815	85%	15%
1927-28...	518,173	453,178	64,995	87%	13%
1928-29...	557,864	499,724	58,140	89%	11%
1929-30...	479,262	434,971	44,291	91%	9%
1930-31...	545,268	501,689	43,579	92%	8%
1931-32...	550,418	528,173	22,245	95%	5%
1932-33...	533,686	519,956	13,730	97%	3%

*Note:—The season is reckoned from the 1st of July to the 30th of June the following year.

Yokohama and Kobe as Export Centers of Silk

The disaster that befell Yokohama in 1923 and the temporary crippling of its operation

as the sole export center of silk in Japan has had the result of partly realizing the long cherished wish of Kobe merchants and silk reelers in the adjoining districts to export this foremost staple of Japan on two-port policy. The total volume of silk shipped from Yokohama during the 1932-33 season was 365,534 bales (63%) as against 108,152 bales (37%) from Kobe, the former showing a decrease of 17,036 bales and the latter an increase of 304 bales as compared with the figures of the previous season. The strength of Yokohama as silk port lies first in its longer history, closer relation to America, better banking facilities afforded to silk dealers, and lastly in commanding the support of the most important centers of production, as Nagano, Yamanashi, etc.

SILK CONDITIONING

The Yokohama Conditioning House as reconstructed in 1926 is a 4-storied ferro-concrete structure covering 3,200 sq. yd. It has behind it four warehouses standing in a row for the greater safety of silk stored against disaster from fire.

The Kobe Conditioning House that was closed in 1901 after running about five years as a Government institution was revived in January 1925, this time as municipal undertaking, in consequence of the strong stimulus which the districts forming the western half of Japan proper received on the occasion of the 1923 disaster in the region about Yokohama.

CHAPTER XXXI

FORESTRY

INTRODUCTORY REMARKS

Forests in Japan proper cover roughly 51% of the total area. In this respect Japan comes next only to Finland and Sweden where forests claim 60 and 55% respectively. Over 1,000 species are represented, and forests in Japan may be broadly divided into four zones.

Tropical Zone.—This zone covers the plains of Taiwan, Ogasawara (Bonin) islands, and the southern half of Okinawa (Luchu), with a mean temperature of about 21° C. The representative trees are "ako" (*Ficus wightiana*, var. *japonica*), "takonoki" (a species of *Pandanus*), etc. Bamboos attain a perfect growth in this zone.

Subtropical Zone.—Forests in this zone are found in the northern half of Okinawa, the high lands of Taiwan, Shikoku, Kyushu, and the southern half of Honshu as far as latitude 35° N., the mean temperature ranging from 13° to 21° C. The representative trees in this zone may be divided into broad-leaved evergreens, conifers and broad-leaved deciduous trees. In the first group there are "kusu" or camphor trees (*Cinnamomum camphora*), "kashi" (*Quercus acuta*) and "shi-i" (*Passania cuspidata*); in the second group several species of pines, and in the last group, "kunugi" (*Quercus serrata*), "konara" (*Q. glandulifera* Bl.), etc.

Temperate Zone.—The forests extend over the northern part of Honshu and as far as

south-western section of Hokkaido corresponding to 43½° N., the mean temperature ranging from 6° to 13° C. The forests in this zone are economically the most important in Japan and are generally found in the mountain ranges that divide the Main Island—the Inner Japan section on the Japan Sea and the Outer Japan section on the Pacific. Valuable among the conifers are "sugi" (*Cryptomeria japonica*), "hinoki" (*Chamaecyparis obtusa*), "sawara" (*Chamaecyparis pisifera*), "hiba" (*Thujopsis dolabrata*), "tsuga" (*Tsuga Sieboldi* Carr), "momi" (*Abies firma*), several species of pine, etc. As deciduous trees of value there are "keyaki" (*Zelkova*), "buna" (*Fagus sylvatica* var. *Sieboldi*), "katsura" (*Cercidiphyllum japonicum*), several species of *Quercus*, chestnut trees, maples, fig-trees, magnolia, etc.

Frigid Zone.—Forests found at an elevation of 4,000 or 5,000 feet (above sea level) in Honshu, the northeastern part of Hokkaido, Karafuto and Chishima (Kuriles) form the frigid forests. The principal trees are "shirabe" (*Abies Veitchii*), "todomatsu" (*Abies Sachalinensis*), "ezomatsu" (*Picea ajaensis*), "shikotan-matsu" (*Larix Kurilensis*, chiefly in Karafuto), and lastly "bai-matsu" (*Pinus pumila*) or creeping-pines that grow on the summits of high mountains in Honshu.

AREA OF FORESTS

The area of woodlands in Japan proper has decreased in the last few years though afforestation and other economic adjustments are receiving due attention. Below are given the number and area of forests as classified by ownership (figures in 1,000 hectares; hectare 1.0083333 cho):—

	1918	1921	1924	1929	1930
Crown	1,380	1,409	1,365	1,350	1,433
State	7,617	2,217	7,691	7,700	7,638
Public	4,242	4,084	4,293	4,247	4,186
Temple ...	125	129	131	130	141
Private ...	8,744	9,021	9,544	9,286	9,613
Total ...	22,109	21,850	23,023	22,723	23,011

Of the total wooded area, 23% was under conifers, 43% under broad-leaved trees, 31% under mixed trees, 1% under bamboo, and the rest under miscellaneous trees.

Protection Forests.—At the end of 1931 the protection forests numbered 393,952 covering a total area of 2,067,484 hectares, or about 8% of the aggregate woodland area. Hokkaido headed the list with 694,351 hectares, followed by Niigata with 155,376, Gifu with 152,800 and Yamagata with 137,738. Classified by the purposes for which they are placed under protec-

tion, the number and area of the principal protection forests are tabulated as follows:—

	1929		1930		1931	
	No.	Area	No.	Area	No.	Area
Against denudation of soil	218,336	883,176	221,639	889,372	225,724	891,710
Against winds	13,940	52,602	13,891	54,699	13,586	59,296
For headwaters of rivers	74,828	990,395	75,591	994,824	75,005	997,982
For attracting fish	24,687	47,955	25,258	47,919	25,208	47,847
For scenery	10,513	32,130	10,902	32,156	10,785	31,731
Total incl. others.....	386,317	2,045,353	391,353	2,057,907	393,952	2,067,484

N.B.—Area in hectares

Percentage Forests.—These are the State forests left under the care of adjoining villages or towns which are allowed in return a certain percentage of the produce. They are being gradually converted into communal forests. Their number and area are as follows:—

Year	No.	Area (hectare)
1927	18,571	45,563
1928	17,557	48,357
1929	16,776	47,201
1930	16,028	46,401
1931	15,046	45,468

Important Forests

Of the important forests in Japan proper those of natural or artificial origin are as follows, to mention only a few that are specially valuable.

Forests Artificially Planted.—Forests in Yoshino covering about 82,000 cho or 200,900 acres are well known for their splendid stock of "sugi" (*Cryptomeria japonica*) and "hinoki" (*Chamaecyparis obtusa*) yielding annually about ¥6,500,000 worth of timber valued for building and making casks of sake. Next important forests are the planted area along the river Tenryu, covering 543,000 cho, timber trees grown being principally "sugi" and "hinoki". The annual yield is estimated at ¥1,500,000. Bamboo groves near Kyoto are known as the most valuable in Japan, yielding yearly about ¥2 millions worth of products of diverse utilities.

Forests Naturally Grown.—The Crown forests of Kiso covering over 100,000 cho or 245,000 acres and with the growing stock of 6.6 million koku or about 66,000,000 cubic ft. (1 koku—about 10 cubic ft.) stand first on the list of valuable natural forests in Japan. It belonged to the Lord of Owari before the Restoration and the five species "hiba" (*Thujopsis dolabrata*), "sawara" (*Chamaecyparis obtusa*), "nezuko" (*Thuja japonica*), and "ko-

yamaki" (*Schiadopitys verticillata*) were jealously preserved as protected trees. Of those five species "hinoki" is the most important as to volume and value.

The State forests of "hiba" in Aomori cover some 190,000 cho and in sylvan grandeur are only equalled by the other well-known pure forests of "sugi" in Akita also belonging to the State. The "sugi" zone extends along the banks of the rivers Noshiro and Omono and measures 43,000 cho in area. The aforementioned are regarded as the most valuable natural forests in Japan. Others that are worthy of notice are the State "sugi" forests in Tosa about 30,000 cho, deciduous-leaved forests around Lake Towada famous for its splendid scenery, mixed forests in the Japanese Alps region and in the southern part of Kyushu, the "sugi" forests on Yakushima Island of the Osumi archipelago, Kyushu. Hokkaido supplies about 30 million koku or 300 million cubic ft. of timber from its coniferous, deciduous and mixed forests.

Adjustment of State Forests

The program for adjusting State forests aims at, as ordained by law in 1899, to determine, out of the forests and plains belonging to the State, those that are to be preserved for the benefit of public order and for conducting economic plan. The Forest Fund Special Account System that was in force from 1899 to 1921 laid the adjustment plan on firm basis. Thanks to that system the Government could complete with the fund realized from sale of unnecessary State forests and plains the work of surveying, delimitation, afforestation of blank spaces, experimental planting, etc. Since the year 1922-23 the adjustment and working expenses have been met out of the regular budget.

According to the working plan adopted for adjustment and utilization 416,000 cho of State

forests and plains in Japan proper is to be set apart as necessary and 17,000 cho for disposal as superfluous area. The definite plan of utilization has been arranged for over 4 million cho consisting of 3,690,000 cho wooded forests and plains and 390,000 cho to be reserved from various considerations. The wooded surface is estimated to hold growing stock amounting to 1,406,240,000 koku of which conifers claim 28% and deciduous trees 72%. The stock per cho or 2.45 acres works out to 344 koku. At present the annual cutting area is about 40,900 cho with the conversion volume of 19,340,000 koku. With the exploitation of the area left unutilized and the growth of the artificially regenerated spaces representing 653,000 cho, the conversion volume is expected to make a far better showing.

River Control & Afforestation Work

Of the communal forests those belonging to villages are generally left in utter neglect. With the object of renovating and utilizing the barren area, the Government elaborated in 1912 for the communal forests and plains the river

control work spread over 23 years, it being intended to plant bare spaces of 350,000 cho and to adjust the communal land for best economic purposes. Small aid is granted for encouraging the work. Then the Government is also promoting the planting work of about 330,000 cho of blank area belonging to the communal bodies, the work to be completed in 19 years beginning 1920. The contract arranged between the Government and the communities concerned is that the latter is to offer the land and undertake some slight work of control and protection, while the Government attends to planting, cutting and other necessary business at its own expense. The profit realized is to be shared half and half by the contracting parties.

During the year 1931 a total area of 99,612.79 hectares (100,443 cho) was newly planted with 311,048,353 seedlings, showing a decrease of 1,595.41 hectares (1,608.7 cho) in area and 23,853,132 in seedlings as compared with the preceding year. Below are given the results of the afforestation work for the five years ending 1931 as classified by ownership of forests:—

	Crown	State	Communal	Communal*	Temple	Private	Total
1927... { No. of seedlings (1,000) ...	12,969	36,481	24,901	69,698	2,087	195,530	341,663
{ Area (hectare) ...	3,440	13,353	8,814	22,498	605	58,502	107,213
1928... { No. of seedlings (1,000) ...	16,505	37,663	29,184	71,577	2,926	208,412	366,267
{ Area (hectare) ...	4,406	13,382	10,469	22,137	834	61,390	112,619
1929... { No. of seedlings (1,000) ...	14,776	34,906	44,147	64,747	2,067	186,424	347,066
{ Area (hectare) ...	4,130	13,016	15,395	20,988	613	56,773	110,915
1930... { No. of seedlings (1,000) ...	14,913	33,423	29,387	58,172	1,525	197,482	334,901
{ Area (hectare) ...	4,107	12,580	10,530	19,136	412	54,445	101,208
1931... { No. of seedlings (1,000) ...	18,552	30,890	23,971	58,078	2,064	177,493	311,048
{ Area (hectare) ...	5,369	11,904	8,561	19,590	578	53,611	99,613

* Public forests where afforestation was carried out by the State.

The aforementioned figures, classified by kinds of trees (seedlings) are tabulated as under:—

Classified by Kinds of Seedlings

	1927	1928	1929	1930	1931
Conifers { No. (1,000) ...	307,427	327,808	310,954	294,523	265,887
{ Area (hectare) ...	95,597	100,093	98,729	88,620	84,404
Sugi { No. (1,000) ...	118,682	124,461	117,315	122,024	104,828
{ Area (hectare) ...	37,782	39,345	37,315	36,475	33,866
Hinoki { No. (1,000) ...	67,859	72,244	68,992	66,419	60,913
{ Area (hectare) ...	20,685	21,616	21,536	15,587	18,155
Pine { No. (1,000) ...	76,305	77,569	75,523	61,563	56,034
{ Area (hectare) ...	21,767	21,930	21,829	18,137	16,453
Broad-leaved { No. (1,000) ...	27,609	30,385	29,254	34,485	39,418
{ Area (hectare) ...	9,233	9,633	9,609	10,411	13,054
Kunugi { No. (1,000) ...	18,123	20,565	18,970	20,438	24,828
{ Area (hectare) ...	5,752	6,213	5,967	5,203	7,735
Bamboo { No. (1,000) ...	2,642	1,631	1,166	1,080	1,008
{ Area (hectare) ...	972	784	682	654	627

Classified according to ownership the naturally afforested area for the five years ending 1931 is as follows (in hectares):—

	1927	1928	1929	1930	1931
Crown	8,195	8,154	8,891	8,856	8,923
State	48,444	42,203	45,420	46,228	66,684
Communal	62,340	47,835	38,348	35,058	37,935
Temple	1,197	1,207	1,138	1,043	924
Private	154,713	138,779	129,169	123,336	125,410
Total	274,888	238,178	222,966	224,521	239,877

FINANCIAL ASPECTS

The yield of forests for the five years ending 1931 is shown below (1,000):—

Year	Timber		Fagots		Bamboo		Total value (Yen)
	Quantity (Sq. meter)	Value (Yen)	Quantity (Sq. meter)	Value (Yen)	Quantity (Bundle)	Value (Yen)	
1927	13,002	116,343	50,464	76,572	5,352	5,815	198,730
1928	13,800	118,901	49,795	71,965	5,776	5,721	196,588
1929	14,334	103,462	49,721	62,308	5,472	4,918	170,989
1930	13,259	70,158	49,296	47,683	4,900	3,321	121,162
1931	13,597	63,510	50,549	43,534	5,006	2,850	109,894

Classified by ownership, the following figures (in ¥1,000) are the results for the last three years:—

Year		Crown	State	Communal	Temple	Private	Total
{ Fagots	558	4,297	5,580	265	51,337	62,308	
{ Bamboo	2	15	120	37	4,744	4,918	
1930 ... { Timber	6,128	12,184	3,736	265	47,488	70,158	
{ Fagots	406	3,506	4,374	212	39,186	47,683	
{ Bamboo	1	10	51	22	3,237	3,321	
1931 ... { Timber	5,225	10,597	3,219	256	44,213	63,510	
{ Fagots	442	3,141	4,326	197	35,428	43,534	
{ Bamboo	1	7	65	24	2,753	2,850	

When the disbursements are taken into account, the proceeds from forests must become much less, but this calculation is hardly possible for private forests, as many of their owners do not generally keep exact account of labor spent and expenses paid. Much more precise calculation is shown for State forests in which the account is necessarily kept with greater strictness. The data for the last few years are as follows (in ¥1,000):—

(At the end of Mar.)	Forests in Japan proper (excl. Hokkaido)		Forests in Hokkaido	
	Receipts	Expenses	Receipts	Expenses
1927	35,229	20,336	6,286	3,814
1928	35,808	20,318	7,068	3,526
1929	32,528	23,567	7,201	3,608
1930	33,612	25,009	5,199	2,992
1931	29,525	21,312	5,620	3,068

Principal Timbers

The forest yield of principal timbers in Japan proper was returned as follows for the three years ending 1931 (figures in 1,000):—

Kind of Trees	1929		1930		1931	
	Quantity felled (Sq. meter)	Value (Yen)	Quantity felled (Sq. meter)	Value (Yen)	Quantity felled (Sq. meter)	Value (Yen)
Coniferous:						
Sugi (<i>Cryptomeria japonica</i>)	3,991	39,644	4,147	28,496	4,295	27,313
Hinoki (<i>Chamaecyparis obtusa</i>) ...	690	11,684	636	8,266	637	6,770
Pine	2,891	20,100	2,913	14,687	2,763	12,354
Larch	149	1,163	104	468	116	324
Sawara (<i>Chamaecyparis pisifera</i>) ...	106	689	101	559	103	634

Kind of Trees	1929		1930		1931	
	Quantity felled (Sq. meter)	Value (Yen)	Quantity felled (Sq. meter)	Value (Yen)	Quantity felled (Sq. meter)	Value (Yen)
Hiba (Thujopsis dolabrata)	394	1,613	492	1,388	410	975
Momi (Fir).....	382	1,521	406	825	443	759
Tsuga (Tsuga Sieboldi)	276	921	391	816	414	761
Ezomatsu, Todomatsu (silver fir)...	2,258	8,928	1,235	3,680	1,701	4,002
Total incl. others.....	11,279	87,391	10,588	59,985	11,051	54,556
Broad-leaved:						
Camphor	21	161	37	212	32	179
Keyaki (Zelkova serrata)	57	1,013	80	941	70	799
Kashi (Quercus acuta)	111	857	107	562	97	438
Shioji (Ash)	323	1,647	229	856	277	863
Chestnuts	310	2,214	339	1,584	252	1,114
Nara (Quercus glandulifera).....	782	3,433	568	1,777	552	1,468
Kashiwa (Quercus dentata)	38	182	28	114	24	106
Beech	230	480	355	372	186	264
Kiri (Paulownia)	77	1,638	76	1,290	82	1,242
Total incl. others.....	3,055	16,071	2,680	10,172	2,545	8,954
Grand total.....	14,334	103,462	13,269	70,158	13,597	63,510

Classified by Ownership of Forests (in 1,000)

		1927	1928	1929	1930	1931
		Crown	{ Quantity (sq. meter)	1,207	1,243	1,199
	{ Value (yen)	9,017	8,835	9,202	6,128	5,225
State	{ Quantity (sq. meter)	3,661	3,886	4,901	4,482	4,706
	{ Value (yen)	18,471	18,156	19,598	12,184	10,597
Communal	{ Quantity (sq. meter)	1,228	1,078	1,104	1,071	960
	{ Value (yen)	7,967	6,317	5,779	3,736	3,219
Temple	{ Quantity (sq. meter)	34	29	26	32	30
	{ Value (yen)	477	570	304	265	256
Private	{ Quantity (sq. meter)	6,871	7,564	7,103	6,644	6,662
	{ Value (yen)	80,411	85,024	68,578	47,844	44,213
Total	{ Quantity (sq. meter)	13,002	13,800	14,334	13,269	13,597
	{ Value (yen)	116,343	118,901	103,462	70,158	63,510

The area and the number of trees newly planted in the five years 1927 to 1931 are listed below, with the number of trees planted by way of replenishment:—

Newly planted:		1927	1928	1929	1930	1931
		Conifers	{ No. (1,000)	307,427	327,808	310,954
	{ Area (hectare)	95,597	100,093	98,729	88,620	84,404
Broad-leaved	{ No. (1,000)	27,609	30,385	29,287	34,485	39,418
	{ Area (hectare)	9,233	9,633	9,608	10,411	13,054
Total	{ No. (1,000)	341,663	366,267	347,066	334,901	311,048
	{ Area (hectare)	107,213	112,619	110,915	101,208	99,613
Replenishment:						
Conifers	No. (1,000)	39,991	38,653	35,760	32,458	30,132
Broad-leaved	No. (1,000)	4,855	4,946	4,555	4,782	4,537

Principal By-Products in Recent Years (in ¥1,000)

	1926	1927	1928	1929	1930
Seeds	89	71	53	56	39
Fruits	3,103	4,066	3,784	2,867	3,671
Barks	2,967	3,198	2,732	1,734	1,502
Undergrowth.....	16,281	17,508	16,348	14,555	13,982
Vines and ferns	155	147	141	104	106
Galls	85	87	75	49	54

	1926	1927	1929	1923	1930
Raw mushrooms	3,901	3,800	4,195	2,910	3,520
Dried mushrooms (Shiitake).....	2,588	3,252	3,046	2,601	2,687
Pine black	2	2	2	1	1
Acetic acid lime	110	133	150	136	40
Charcoal	102,530	99,316	90,634	64,950	59,366
Total incl. others.....	138,050	138,469	128,016	96,096	89,259

SUPPLY AND DEMAND OF TIMBERS

Use of Principal Timber Trees.—Of the coniferous trees mentioned above "ezo-matsu," "todo-matsu," and "momi" are pulp-wood, while all the rest are valuable building timbers. The broad-leaved trees are used for industrial purposes, though the Castania is also extensively consumed as railway sleepers. The position of "kiri" or paulownia, one of the lightest and softest woods, is specially imported. It is used extensively in cabinet-work, making clogs, etc.

Camphor.—Of the world's consumption of this article put at about 12 million "kin" per annum, the bulk is supplied by Japan and Taiwan. After the Russo-Japanese war the sale remained long on 8 mil. kin level, to jump to 10 mil. level during the World War. Then the world-wide economic dislocation and over-supply seriously affected the market, so that in 1921 consumption fell to only 2,800,000 kin. Restricted output gradually revived the business and in 1927-28 sale rose to 7½ mil. kin. One thing that darkens the future of natural camphor is the appearance of synthetic camphor originated by Schelling Co. of Germany.

Camphor trees growing in State and Crown forests in Japan proper are estimated at 12 millions yielding about 210,000 "shakujime" or about 2,520,000 cubic ft. (1 shakujime—about 12 cubic ft.) of ripe timber, but as these trees are not always found in easily accessible places and their conversion will not pay at ordinary market rate, the Government has recently been earnestly encouraging the planting of young trees in more convenient places and to convert them after several years' growth. Eight provinces in Southern Japan are granted a small aid for planting. The area under camphor trees in Japan proper is about 2,000 acres, Hyogo prefecture being the refining center. (See also the Chapter on Taiwan).

Inflow of Foreign Timbers.—Up to 1920 Japan's exports of timber exceeded imports but in the following year the trade balance in this item was reversed, and for a few years after the earthquake disaster of 1923 the inflow

amounted to over 100 million yen every year. The annual yield of timber in Japan proper is about 65 million yen, of which 10 million is exported. Thus the imported timber covers half the demand of Japan proper in value, or one-fifth in quantity. The shipment to and from Taiwan, Chosen and other territories range only between 4-8 million yen and does not much affect the general situation. Owing to the gradual fall of prices of the native produces and general business depression, however, the import of foreign timber has decreased since 1929. As a measure for the protection of the native produce the customs duties on imported timber was raised in March, 1929.

The bulk of the imports consists of American goods including Canadian, and occupies about 78% of the total annual inflow, represented by pines, firs, cedars, spruce and hemlock. The pines take the largest percentage, and are displacing the native growth as building material, being cheaper by 30 to 70% than the Japanese produce according to the length, though they are regarded as being inferior to the native pines as building timber and less valued by carpenters and architects.

The following table shows the figures of foreign timbers imported during the last few years (in yen):—

Year	America (incl. Canada)	China & Kwantung	Others	Total
1927.....	83,425,000	1,652,000	18,728,000	103,805,000
1928.....	91,811,000	1,102,000	18,095,000	111,008,000
1929.....	72,426,000	815,000	15,597,000	88,838,000
1930.....	39,352,000	932,000	12,800,000	53,084,000
1931.....	33,954,000	583,000	8,843,000	43,380,000

The following figures (in unit of ¥1,000) will serve to show the supply and demand situation of timber in the past six years ending 1932:—

Year	Product	Imp rt	Export	Consumed
1927.....	116,342	103,805	15,899	204,248
1928.....	118,901	111,008	17,964	211,945
1929.....	103,462	88,837	21,138	171,162
1930.....	70,159	53,083	14,622	108,618
1931.....	63,379	43,379	9,953	96,935
1932.....	—	35,029	11,328	—

SAWING BUSINESS AND WOOD INDUSTRY

The Government some years ago started on its own account wood-conversion enterprise, whereas formerly it confined itself to selling trees growing in State forests as they stood.

The statistics on lumber companies for 1931 is as follows:—

Table with 4 columns: Total, No. of companies, Capital subscribed (¥1,000), Reserves (¥1,000). Total: 900 companies, 68,007 capital, 4,416 reserves.

* Paid-up capital.

Principal Wood Industry

Since the World War investment in forestry business and products has made a credible growth, especially in sawing business, match-sticks and forest-planting; yet on the whole the financial result in this particular line can by no means be regarded as satisfactory.

Pulp.—The wood pulp industry in Japan was represented by 566,709 tons in 1931, but decreased to 551,120 in 1932. The wood consumed for this purpose comprises firs, pines, "tsuge," etc. supplied from forests in Japan proper, Karafuto, Siberia and Chosen.

appended statistics will serve to show the recent situation of demand and supply of wood pulp (figures being in ton):—

Table with 5 columns: Year, Product, Import, Export, Consumed. Data for years 1928-1932.

The total production is distributed as follows:—

Table with 6 columns: Territories, 1928, 1929, 1930, 1931, 1932 (Estimate). Data for Karafuto, Hokkaido, Main island, Chosen, Manchoukuo, and Total.

Match-sticks.—The export of match-sticks formerly stood at about ¥3 million level, but the figures fell to ¥1,160,619 in 1930, to ¥942,267 in 1931 and then to ¥285,779 in 1932.

Other smaller items are the pencil industry which has sunk into an almost insignificant position, chess-board business, toy-making, cork and acetic acid manufacturing, to mention those of recent origin.

GAME LAWS

Formerly no regular rules existed for the protection of useful birds. The crane was then the only protected bird, chiefly from curiosity. Afterward about 200 species of birds were either placed under absolute protection or protected during the season of laying.

game may be captured or killed with the special permission of the Minister of Agriculture and Forestry. Permission to hunt in forbidden areas and season must be applied for.

Shooting licenses are of two classes: "A" is issued to those who use firearms while "B" is issued to those who adopt other methods of killing or capturing game. Each is of 3 grades classified according to property and income of the applicant, the fees ranging between ¥45 and 5.

snipe, brown-ear, bulbul, dusky ouzel, etc. It should be noted that damage inflicted on crops by insects is roughly estimated at 10 million yen a year.

Birds and Beasts of Game

Birds.—Aisa, Atori, Ahodori, Aosagi (heron), Aoji, Ikaru, Isuka (crossbill), Wu (cormorant), Uso (bullfinch), Uzura (quail), Kakesu (jay), Kashiradaka, Kawarahiwa (gold finch), Kamo (wild duck), Karasu (crow), Gan (wild goose), Kiji (pheasant), Kuina (moorhen), Kumadaka (hawk), Kuroji, Keri, Goisagi (night-heron), Shigi (snipe), Shime (common hawk), Shirohara, Suzume (sparrow), Daizen,

Chidori (plover), Tsugumi (dusky ouzel), Nyunai-suzume, Nojiko, Hakucho (swan), Hato (dove), Hayabusa (peregrine falcon), Ban (grouse), Hiyodori (brown-ear), Hiwa (siskin), Hojiro (bunting), Mashiko, Mamichajinai, Misago (eaglefisher), Miyama-hojiro, *Munaguro, *Yamadori (copper pheasant), Washi (eagle), Ezoyamadori, Oshidori (mandarin duck).

Note.—Those marked with asterisks are protected for 8 months, from March to October.

Beasts.—Badger, weasel, otter, antelope, fox, deer, sable, flying squirrel, and squirrel are protected for 9 months from March to November.

CHAPTER XXXII

FISHERY

INTRODUCTORY REMARKS

The total value of catches in Japan proper is about ¥250 million every year, of which 64% is represented by coastwise fishery, 8% by aquiculture, 25% by deep sea fishery and 3% by trawling. Thus it will be seen that coastwise fishing occupies an important position. Roughly estimated, the total value of annual catches has increased three times in the past sixteen years, while the quantities have been nearly doubled in the same period, though of late the total value is on decrease.

The principal kinds of fish and shell-fish that are used as articles of food are, in the central and southern districts of Japan proper, pagrus, bonito, sardine, horse mackerel, tunny, oyster, clam, prawn, lobster, etc.; in the northern districts, herring, cod, salmonidae, crab, laminaria, etc. For the whole country there are tunny, flat-fish, yellow-tail, etc. For industrial use there are coral, isinglass and starch weed, etc. Marine products for export have good customers in China where dried cuttlefish, sea cucumber, earshell, shark's fins, luminaria, isinglass, etc. are much in demand. Products going to other markets are canned salmon, trout, sardine, tunny, crab, prawns, preserved cod and mackerel, fish oils, potassium iodine from seaweed, coral, shell-buttons, etc.

In pelagic fishing, the most important since the prohibition of sealing is line-fishing for cod. The seine fishing for bonito and tunny also promises to grow in importance. Then there is whaling which has made marked development since the introduction of the Norwegian method. Of late ground net fishing by motor boats has come in vogue, while the use of more effective steam-trawlers in place of simple native boats has become a notable feature recently.

Besides marine products for home consumption there are several items that figure on the export list; those going to China are chiefly articles for table use, while fish oil, iodine taken from sea-weeds, isinglass, corals, etc., are exported to Europe and America. Salt refining as extracted from brine has been from ancient

times an important industry along the shores bordering on the Inland Sea and elsewhere. With the enforcement of the Salt Monopoly Law the districts open to the business have been restricted. Aquatic culture has been known from olden times in Japan, especially in the form of pond-culture of gold fish and carp and fagot-culture of oysters and the edible sea-weed laver. Coming to more recent years the artificial rearing of snapping-turtles, eels, salmonidae and some shellfish has made great development. Oyster culture on the French plan is becoming popular in some parts of the country. Salmon culture is especially noticeable in the rivers of Hokkaido and northern Japan; trout in the mountain lakes of northern Japan; carp, eel and snapping turtle in southern Japan.

The administrative side of the industry is fairly complete. Under the Fishery Law, which provides for protection and propagation of fish and control of fishermen, the prefectural governors are empowered to give orders regarding restriction or prohibition in the catching of fish, sale of manufactures, fishing tools, and boats, the number of fishermen, etc. For the promotion of the industry legislation has lately been made in regard to aquatic products associations (Suisan-kai). These are of two kinds, namely, the Municipal and the Prefectural, which come under the control of one central institution, the National Aquatic Products Association. Besides, there are 3,892 fishery guilds with aggregate membership of 512,761 in 1930 and 47 aquatic products guilds with 51,371 members in 1931.

The following shows the value of catches in recent years (¥1,000):—

Year	Coastwise fishery	Aquiculture	Pelagic fishery	Trawling	Total
1927	229,138	22,921	78,500	9,457	340,016
1928	209,264	23,566	80,872	10,159	323,861
1929	204,498	22,316	89,534	9,761	326,109
1930	162,928	18,509	66,547	7,626	252,610
1931	147,806	19,129	57,979	6,285	231,189

FISHERY

FISHING POPULATION AND BOATS

Permanent Fishermen and Occasional Fishermen

		1927	1928	1929	1930	1931
Fishing	Permanent fishermen	643,611	649,623	643,506	643,772	645,870
	Occasional	482,372	480,807	467,496	456,928	461,636
Aquiculture	Permanent fishermen	13,986	13,399	14,092	14,696	16,332
	Occasional	99,287	105,476	104,841	105,840	108,445
Manufacturing	Permanent fishermen	104,634	109,586	115,493	115,435	110,566
	Occasional	135,886	139,467	141,298	136,684	135,547
Total	Permanent fishermen	762,231	772,608	773,091	773,903	772,768
	Occasional	717,545	725,750	713,635	708,432	708,628

N.B.—The above figures cover both employers and employees.

Fishing Craft

	1927	1928	1929	1930	1931
Without engines	333,757	334,681	328,858	323,228	318,443
With engines	20,797	25,445	31,103	36,067	42,247
Total	354,554	360,126	359,961	359,295	360,690

COASTWISE FISHERY AND MARINE PRODUCTS

The following shows the results of coastwise fishing and marine product manufacturing for the last five years (figures in ¥1,000):—

	1927	1928	1929	1930	1931
Catches:					
Fish	166,005	156,560	153,424	121,733	110,772
Shell-fish	11,001	12,112	10,491	8,464	7,136
Other aquatic animals	30,232	28,930	29,311	23,168	21,892
Sea-weeds	21,899	11,660	11,270	9,560	8,005
Total	229,138	209,264	204,498	162,928	147,806
Marine products:					
Food	149,069	154,383	158,132	126,351	112,366
Manure	29,448	24,171	23,137	16,572	15,130
Fish oil	3,690	4,407	5,180	3,404	2,481
Glue	868	980	1,047	641	732
Total	183,084	183,944	187,498	146,969	130,709

Below are given the figures for years as classified by the kinds of fish and manufacture:—

	1930			1931		
	1,000 kgs.	1,000 kwan	¥1,000	1,000 kgs.	1,000 kwan	¥1,000
Principal catches (fish):						
Herring	327,605	87,361	7,543	405,220	108,059	7,214
Sardine and anchovy	715,048	190,679	19,006	911,773	243,140	17,972
Bonito	11,126	2,967	2,589	11,368	3,031	2,258
Mackerel	48,638	12,970	5,631	55,182	14,715	5,184
Tunny	20,796	5,546	6,510	19,364	5,164	5,266
Yellow tail	25,488	6,797	7,866	25,940	6,917	7,191
"Tai" (Pagrus)	12,297	3,280	10,232	11,944	3,185	9,145
Salmon	16,719	4,458	3,831	17,461	4,656	3,345
Eel	3,216	858	2,974	3,346	892	2,689
Carp	1,352	361	740	1,426	380	682
Total incl. others	1,538,580	410,288	121,734	1,833,826	489,020	110,772
Principal marine products:						
Dried bonito	6,731	1,795	11,025	9,477	2,527	12,453
Dried cuttle-fish	13,392	3,571	7,505	13,333	3,555	6,444

	1930			1931		
	1,000 kgs.	1,000 kwan	¥1,000	1,000 kgs.	1,000 kwan	¥1,000
Herring manure	41,166	10,978	3,664	50,655	13,508	3,227
" dried.....	11,552	3,081	2,628	14,222	3,793	2,085
Sardine, salted & dried ...	28,278	7,541	3,566	28,887	7,703	2,998
" boiled & dried ...	44,758	11,936	10,006	46,873	12,500	8,618
" manure	111,182	29,648	8,172	136,250	36,333	8,080
Cod, dried	7,293	1,945	1,360	7,141	1,904	1,109
Prawn, boiled & dried ...	2,207	588	1,558	1,985	529	1,081
Total incl. others	387,325	103,287	126,351	382,748	102,066	112,366

PELAGIC FISHING AND WHALING

With a view to encouraging pelagic fishery, a small amount of bounty is granted to owners of fishing craft of approved standard as to type, etc., under the provisions of the Pelagic Fishery Encouragement Law. The rate of bounty is ¥60 or less per ton of iron or steel bottom and ¥45 or less per ton of wood bottom, ¥22 or less per horse power of steam engine and ¥40 per horse power of motor engine, etc. For vessels exceeding 60 tons a bounty corresponding to 2/10 or less of the estimate cost of the hull, engines, equipments, etc., may be granted irrespective of the above specifications.

The State aid is granted on fishery using drag-net and drift-line and on bonito-fishing.

In 1931, 9,048 boats with a total crew of 111,778 were engaged in deep-sea fishing in Japan proper, the aggregate catches amounting to 585,990,773 kg. or ¥57,978,535 in value. During the same period there were 193 steamers (300,311 tons) and 10 sailing ships (2,179 tons) that fished in the waters of the Maritime Province, Kamchatka and Saghalien, and they caught 45,770,000 kg. or 305,133 koku of salmon, trouts, herrings, and crabs.

Deep Sea Catches (In Japan Proper for 1931)

	Circle net	Deep-sea net	Drift	Long line	Hand	Bonito angling	Others	Total
Open Boats:								
No.	31	234	139	136	26	—	24	590
Tons	170	1,760	1,167	1,062	181	—	144	4,484
No. of crew	747	900	935	787	287	—	101	3,757
Motor Boats:								
No.	648	2,395	842	2,621	641	909	438	8,458
Tons	7,529	60,298	13,422	44,724	5,962	29,719	4,386	166,040
No. of crew	9,600	21,620	9,242	28,611	7,104	27,022	4,822	180,021
Total catches:								
(¥1,000)....	3,028	21,982	3,955	13,779	1,764	11,176	2,295	57,979
(1,000 kg.).....	118,916	217,581	41,682	101,415	17,429	70,523	18,445	585,661
Total catches for 1930:								
(¥1,000).....	3,300	28,175	4,623	15,589	2,316	11,092	1,451	66,547
(1,000 kg.).....	78,392	246,530	43,011	85,918	15,675	59,371	8,283	537,177
Total catches for 1929:								
(¥1,000).....	4,635	36,653	6,192	19,410	4,687	16,128	1,827	89,534
(1,000 kg.).....	91,966	258,841	48,535	88,999	21,834	60,353	11,732	582,259

Besides, in 1931 whales caught amounted to 1,004 (¥766,208 in value).

Trawling.—This method of fishery is under control of the Government which, to check suicidal competition and overcatching, limits the number of trawlers to 70 only. The limit has already been reached. The principal fishing grounds are the Eastern China Sea and the Yellow Sea, the ports of Shimonoseki, Hakata and Nagasaki being bases for the

boats. Sea breams, *Sciaena schlegeli*, holoccephali, turbot, etc. are principal fishes caught, the value of the catch for 1931 totalling 58,951,553 kg. or 15,720,414 kwan (¥6,284,550 in value).

Whaling.—The noted whaling grounds along the coast of Japan are the sea off Kinkazan Island (in summer) as far south as the mouth of the Tokyo Bay, also the sea off Kishu, Tosa,

Nagato and Kyushu (all in winter). Russian whalers in the Korean field have been completely superseded by their Japanese rivals since the war of 1904-05. The Kuriles also supplies a good ground.

The cateceans are protected by the Government Ordinance enforced in 1919 which allows whaling only to licensed persons, the permit being effective for five years. The number of ships is limited to 30. A fine not exceeding ¥100 besides confiscating of the apparatuses, etc. is imposed for violation of the provisions.

The whale catches in recent years in Japan proper and territories are listed below:—

Year	Japan Proper		Territories	
	No.	Value (Yen)	No.	Value (Yen)
1927	1,177	1,307,833	369	780,585

AQUICULTURE

At the end of 1931 there were 151,565 culture grounds that covered about 499,770,658 square meters and yielded the catches valued at 19,128,963 yen. The lakes at Nikko and Hakone, Lake Shikotsu in Hokkaido and Lake Towada in Aomori are noted for trout sport. The principal catches in recent years are as follows (¥1,000):—

Year	Oyster	Corp	Eel	Mussels	Total incl. others
1927.....	1,009	3,399	2,882	1,114	22,921
1928.....	1,182	4,405	3,232	1,097	23,566
1929.....	1,341	4,252	3,572	1,097	22,316
1930.....	989	3,698	2,914	734	18,509
1931.....	1,103	3,409	2,902	715	19,124

Pearl Fishery.—Mikimoto's artificial hatching at Toba of pearl-oysters according to a patented process deserves mention, this being one of the most important hacheries in Japan and elsewhere. In principle it is identical with that in natural pearl-formation, consisting as it does of putting into the oyster-shell when it is three years old a foreign substance which it incapsulates with the beauti-

1928	1,118	1,453,618	332	685,010
1929	1,220	1,473,835	255	558,340
1930	1,368	1,246,671	349	612,132
1931	1,04	766,208	221	375,423

Coral Fishery.—Corals were mostly collected in the seas around Kyushu, but recently good coral beds have been discovered in the seas near the Bonin Islands and northern Formosa.

The amount of collection in recent years is as follows:—

Year	Quantity		Value (Yen)
	(Kilogram)	(Kwan)	
1927.....	2,284	609	67,815
1928.....	2,205	588	120,941
1929.....	2,228	594	54,579
1930.....	727	194	19,539
1931.....	308	82	12,234

ful secretion. After keeping it for four years the shells are taken out. Mikimoto's oyster bed is in the Bay of Ago near Toba (Shima) and extends 20 nautical miles.

The objection often raised abroad against the culture pearls has been completely refuted by some distinguished biologists of England, France and Germany. After exhaustive researches in 1921 they declared that the "culture" pearl is a real pearl in every respect. Then in 1924 the Paris Court declared that "the Japanese culture pearls produced by scientific stimulation of the oysters are in no sense false or imitation pearls, and they can be sold as real pearls without any indication of their origin."

The Bay of Omura, near Nagasaki, was formerly a noted center of natural pearls, and at present both natural and culture-pearl industry is extensively conducted by the Omura Bay Pearl Co. At the end of 1931 the number of pearl-oyster beds was 141, area being 67,047,990 sq. meters or 20,282,017 tsubo. The catches for the last five years are as follows:—

		1927	1928	1929	1930	1931
Pearl-oyster	No.	3,329,020	2,009,635	5,439,888	6,160,522	10,289,214
	Value (yen) ...	88,144	77,972	142,144	173,457	117,721
Pearls	No.	588,659	1,781,834	641,484	819,496	1,079,163
	Value (yen) ...	484,826	484,947	600,932	712,460	564,538

FISHERY IN HOKKAIDO

Hokkaido is widely reputed as one of the three important fishing grounds in the world both on account of deep-sea and coast fishery. During the year 1931 catches and marine pro-

ducts amounted in value to ¥28,341,536 and ¥33,967,718 respectively. Principal catches are herring, salmonidae, cod, sardine, flat-fish, etc., in the sea around the island, and as regards

shell-fish and sea-weeds, cuttle-fish, octopus, crabs, scallop, laminaria, etc. Herrings stand foremost in value, as may easily be imagined.

The total catches in 1931 amounted in value to ¥28,341,536, the average of ¥152 per capita of the total fishing population. Below is given the amount of catches in Hokkaido for the year 1931:—

	Catches	
	Quantity (kg.)	Value (Yen)
Fishes.....	901,415,953	19,414,415
Herrings.....	405,211,523	7,213,174
Sardines.....	331,014,221	3,411,893
Cods.....	67,233,566	2,234,063
Salmons.....	13,888,369	2,435,646
Trouts.....	39,421,264	1,881,123
Shell-fishes.....	39,215,843	2,039,683
Abalones.....	820,909	157,268
Oysters.....	2,402,843	20,206
Mussels.....	127,718	5,287
Sea-weeds.....	274,616,250	2,707,097
Total incl. others.....	—	28,341,536
Marine products.....	—	33,967,718

EXPORT OF FISH AND MARINE PRODUCTS

Marine products, fishes cured in cans or bottles, and fish oils and whale-oil figure on the customs report as follows (in unit of ¥1,000):—

	1930	1931	1932
Marine products:			
Tangles & sliced tangles.....	3,164	1,293	2,013
Fresh fishes & shell-fishes.....	2,359	2,077	1,397
Fishes, dried.....	5,694	2,856	1,773
Shell-fishes, dried..	2,864	1,542	665
Total incl. others	18,080	10,177	7,257
Canned or in bottles:			
Crabs.....	14,478	12,159	10,750
Salmons.....	3,983	3,697	5,039
Others.....	3,302	3,092	6,984
Total.....	21,763	18,948	22,774
Fish & whale oil:			
Fish oil.....	7,600	1,797	2,768
Whale oil.....	361	146	466
Total.....	7,961	1,943	3,234

FUR-ANIMALS

In December 1911, the Seal Protection Treaty

was concluded among the four Powers, namely, Japan, Great Britain, the United States and Russia. In accordance with this treaty the hunting of fur-seals and sea-otters in the North Pacific waters was internationally prohibited and the number of the mammals hunted annually by the contracting parties was fixed. As a result, the number of fur-seals has increased immensely. In 1911, prior to the enforcement of the said treaty, the number of the mammals was 7,400 in addition to 2,700 newborn baby-seals, but in 1917, namely, six years after the treaty took effect the number of grown-up mammals and baby-seals increased to 15,000 and 3,900 respectively, the figure further increasing to 27,800 and 12,600 respectively in 1928.

The seals migrate from the southern sea every year about the middle of May, and between October and November they leave for the south. Their migration zone extends, in the Japan Sea, to Tsushima Island and in the Pacific, to the sea off Choshi of Boso Peninsula.

JAPANESE FISHING ABROAD

Russian Territory.—Japanese fishermen are allowed by virtue of the Portsmouth Treaty of Peace to carry on fishing along the coasts of the Maritime Province, Kamchatka and Saghalien. The new fishery convention assuring the fishing rights of Japanese in the territory according to the Portsmouth Treaty was concluded and signed in March 1928, the pact to be renewed on the expiry of 8 year term. At present there are 17,240 Japanese fishermen in the territory, their catches amounting to 45,770,000 kg. representing 305,133 koku as in 1931. The chief items are salmon, trout and herring. The cod and crab fishery is also promising. The fishing grounds include Kamchatka, the Sea of Okhotsk, Maritime Province and Karafuto. Of all the 596 grounds 287 were being exploited by the Japanese in 1931.

The details for recent years may be seen from the following table:—

Year	No. of grounds		No. of fishing craft				No. of fishermen	Amount of catches (100 kg.)
	Total	Of which Japanese	Steamers		Sailing vessels			
			No.	Tons	No.	Tons		
1927.....	503	248	241	303,526	41	9,423	20,552	444,949
1928.....	490	235	264	396,962	25	6,967	20,902	1,126,613
1929.....	579	276	268	424,395	21	5,332	21,591	563,266
1930.....	610	292	252	442,067	6	1,583	22,227	889,690
1931.....	596	287	193	300,311	10	2,179	17,240	457,700

Of the 5 companies engaged in fishing and canning business in this region, the Kamchatka Fishery and Yushutsu Shokuhin Cos. were amalgamated in 1921 with the Nichiro Gyogyo Kaisha (Russo-Japanese Fishery Co.).

Canada.—Japanese fishing in the Skeener and Fraser rivers of Canada was started in 1888, the chief spoil being salmon. The enterprise has greatly developed since, and at present fishing-vessels licensed by the Canadian

Government number over 200, their annual catches reaching several million yen in canned salmons alone.

California.—There are about 1,000 Japanese fishermen in California (Los Angeles, San Pedro, etc.) owning over 200 fishing vessels, mostly of the latest type. The catches are tunny, bonito, yellow-tail, saury-pike, sardine, etc., the bulk being taken by the local canning companies.

CHAPTER XXXIII

MINES AND MINING

INTRODUCTORY REMARKS

Japan is poor in mineral resources, and it is only copper that she produces more than enough to supply her requirements. In iron, coal, petroleum and some others she is hardly self-sufficient and has to import good deal from outside.

Metal-Veins and Strata

Metal-veins in Japan are generally found in eruptive rocks of the Tertiary formation while the strata exist in the crystalline schist and in Palaeozoic formation, locally designated

as Chichibu system.

Of the metallic minerals in Japan copper is economically the most important, and after it come gold, silver, and iron. The last, however, is less than 1/10 of copper in value. Other minerals worked are, in the order of their economic value, lead, zinc, pyrite, manganese, antimony, tin, bismuth, quicksilver, chromite, tungsten, and molybdenite. Nickel, cobalt, iridium, osmium, etc., are also known to occur, though they have not been worked. Radium is also judged to exist.

MINING CONCESSION AND PROSPECTING

A concession is limited to not less than 50,000 "tsubo" (about 41 acres) for coal and 5,000 "tsubo" for other minerals, but in all cases the area must not exceed 1,000,000 "tsubo" (250,000 acres).

The right of prospecting is valid within the limit of 2 years from the date of registration. Japanese subjects and companies under Japa-

nese law can acquire mining rights which are regarded as real rights and treated as immovable property. However, they cannot be made the object of right other than that of succession, transfer, national tax collection and distraint. Right of permanent mining may constitute the object of mortgage.

Mining Lots

The total mining lots and those under work in the last ten years are tabulated as follows:—

Year	Total Mining Lots			Lots under Work		
	No.	(Area) (hectare)	Area per lot (hectare)	No.	Area (hectare)	Area per lot (hectare)
1922.....	5,630	544,073.13	96.64	1,319	213,787.17	162.08
1923.....	5,516	543,363.24	98.51	1,335	222,358.27	166.58
1924.....	5,448	530,250.04	97.33	1,336	218,294.59	163.39
1925.....	5,195	523,749.74	100.82	1,213	209,264.67	172.52
1926.....	5,099	513,751.02	100.76	1,195	221,874.06	185.67
1927.....	4,993	508,055.72	101.75	1,183	221,508.13	187.24
1928.....	4,913	508,595.36	103.52	1,176	221,031.41	187.95
1929.....	4,780	497,521.48	104.08	1,265	223,416.95	176.61
1930.....	4,620	483,873.96	104.73	1,186	223,254.61	188.24
1931.....	4,400	450,534.22	102.39	1,099	210,378.12	191.43

NON-METALLIC DEPOSITS

Coal and petroleum are principal non-metallic deposits in Japan, especially coal. It is oftener found in the Tertiary system than in any other. Anthracite coal-fields are found

in Mesozoic strata, but they are comparatively insignificant. The seams occur in the Tertiary formation and produce bituminous coal, as all the important measures in Kyushu and Hokkaido are.

MINERAL PRODUCTION

The latest statistics on principal mineral productions in Japan proper are as follows:—

	1927	1928	1929	1930	1931	
Gold	Quantity (gram.)	9,606,956	10,390,463	10,422,322	12,067,899	13,373,333
	Value (yen)	13,170,699	14,685,045	14,764,627	16,120,291	17,986,568
Silver	Quantity (gram.)	140,946,848	160,023,735	160,604,484	175,063,959	175,765,205
	Value (yen)	5,452,844	6,516,019	6,139,329	4,510,812	3,598,709
Copper	Quantity (kg.)	66,571,248	68,232,864	75,469,049	79,032,844	75,848,181
	Value (yen)	47,888,858	55,271,862	69,399,811	50,231,252	33,627,912
Lead	Quantity (kg.)	3,393,948	3,652,869	3,373,944	3,582,114	3,069,853
	Value (yen)	904,629	847,552	859,231	686,254	557,637
Tin	Quantity (kg.)	680,194	744,600	802,098	930,484	1,015,286
	Value (yen)	1,778,047	1,523,087	1,577,868	1,238,507	1,036,916
Zinc	Quantity (kg.)	17,497,747	19,116,950	22,099,129	24,669,224	25,407,089
	Value (yen)	6,157,601	6,339,605	7,197,563	6,042,068	4,471,742
Pig iron & steel	Quantity (metric ton)	105,135	117,817	112,530	127,700	215,684
	Value (yen)	8,199,453	9,919,882	10,024,469	6,852,594	7,879,528
Iron pyrite	Quantity (metric ton)	515,871	603,780	627,902	572,746	570,047
	Value (yen)	9,672,101	8,164,932	8,133,011	7,291,234	6,382,873
Manganese	Quantity (metric ton)	27,560	17,693	18,446	19,588	12,849
	Value (yen)	643,789	424,658	367,934	358,573	170,903
Phosphorus ore	Quantity (metric ton)	75,386	58,776	14,573	27,713	21,148
	Value (yen)	1,309,153	906,241	168,265	311,771	204,247
Coal	Quantity (metric ton)	33,530,607	33,860,181	34,257,817	31,376,213	27,987,271
	Value (yen)	257,280,705	254,516,131	245,761,504	192,995,507	151,949,901
Sulphur	Quantity (metric ton)	61,340	70,063	65,464	62,360	61,499
	Value (yen)	3,301,757	4,095,521	3,638,048	3,396,208	3,166,177
Sulphur ore	Quantity (metric ton)	16,770	13,319	15,087	14,623	2,230
	Value (yen)	107,267	110,475	123,217	100,586	18,614
Petroleum (crude)	Quantity (hectolitres)	2,615,454	2,922,517	3,113,399	3,165,602	3,057,662
	Value (yen)	12,466,489	12,945,601	13,707,355	14,272,461	8,356,850
Petroleum (gas)	Quantity (cubic hectometers)	280,967	274,692	286,841	433,502	766,159
	Value (yen)	791,086	758,263	793,040	988,260	1,405,931
Total value (yen)		409,315,020	424,706,673	435,374,532	356,720,087	292,925,985

GOLD

The principal gold producing districts in Japan are at present confined to the northern corner of Taiwan, the northern and southwestern sections of Kyushu, especially Kagoshima, and some northeastern parts of Honshu (Main Island), including the island of Sado. Lately Oita prefecture in Kyushu has become the most noted center of production, with an output in 1931 of about 4,898,475 grams representing ¥6,531,332 in value.

Deposits and Geology.—The greater part of the veins worked in Japan are found in Tertiary rocks, especially in the sedimentary and eruptive rocks. The gold ores in Japan occur in the five modes of fissure-filling or veins, impregnations, and in the three modes of deposit, viz. metasomatic, contact-metamorphic and mechanical detrital. This explanation also

applies practically to silver, to be mentioned below:

Demand and Supply.—The output of gold has shown a slight increase in recent years, amounting in value to about 20 million yen, including Taiwan and Chosen. But this much is covered by the use for medical and industrial purposes, and does not remain in the country as gold bullion. It is due to the imported gold that the specie reserve of Japan showed a large increase in recent years compared with the early years of the Taisho Era.

Placer Gold.—The locality most celebrated for it is or rather was Esashi in Hokkaido, the Klondyke of Japan. In 1890 there was collected 119,082 momme of gold according to the official returns, but at present the annual yield has dwindled to about 8,559 grams (valued at ¥37,496) as in 1931.

SILVER

As in the case of gold, silver ores in Japan are found in the inner side of the northern and the southern area of Japan proper, owing to the fact that the neo-volcanic rocks from which the metal is chiefly derived, exist in highly developed condition in those particular regions. Just as in the case of gold, silver veins are mainly found in the eruptive and sedimentary rocks of the Tertiary formation. The ores exist in the form of argentite, itephanite, pyreryrite, etc., but in Japan such minerals as galena, tetrahedrite, chalcopyrite, etc. yield a larger supply of the metal. Silver mines now worked exist in the Main Island, Kyushu and Hokkaido, but are absent in Taiwan and Shikoku. The total output in 1931 was 175,765,205 grams representing ¥3,398,709 in value.

COPPER

Next to coal, copper is the most important mineral production in Japan. The ores are found both on the outer and the inner sides of the southern and the northern arc of Japan proper. The contact-metamorphic type is much in evidence in the southern arc, and the metasomatic type in the northern, while the vein type predominates in the inner arc, i.e. the region on the Japan Sea side. It is in the latter that greater part of the mines exist.

The war boom has left the copper mining industry of Japan in a crippled state owing to the cost of production remaining on a much higher level than in America, and Japan, which before the World War ranked second to America as exporter of this metal, has lately begun to purchase it from that country, as shown in the following figures (in kilograms):—

	Production	Export	Import
1927.....	66,571,249	2,789,000	13,159,800
1928.....	68,232,865	2,965,400	20,464,100
1929.....	75,469,049	8,255,600	8,500,300
1930.....	79,032,844	33,201,000	2,460,400
1931.....	75,848,181	26,603,200	2,019,900

For the marked drop in production the close of minor mines is responsible, the leading mines operated by wealthy owners such as Hitachi by Kuhara, Ashio by Furukawa, Besshi by Sumitomo, Kosaka by Fujita, and

Osaruzawa and Ikuno by Mitsubishi keeping up their work practically uncurtailed. The first four mines now produce about 45,910,302 kilograms or 64% of the total output in Japan.

Manufactured Articles.—Another equally notable feature is an increased consumption of metal at home, due to the fact that the leading copper magnates have begun exporting it not as raw material but as finished articles, i.e. wire, plates, rods, electric machines, etc. all of the forementioned five leading copper-mines running their own works for the purpose. What is interesting is that the Furukawa Firm arranged with the A.E.G., Germany, for the production of finished copper articles at its works near Ashio. It may be added that to rescue the copper industry from the menace of being swamped by the cheaper American production the Diet passed in 1921 a bill to raise the import duty from ¥1.20 per catty to ¥7.00.

IRON

Of all mineral products Japan feels the greatest shortage in iron, either as ores or as manufactures. The country needs annually about 2 million m. tons of steel materials and 400 thousand m. tons of pig iron for casting. The amount met by production from native ores is only a small part (about 80,000 m. tons) of the total demand, and the bulk is supplied by the ores and manufactures imported chiefly from India, China and America. Total import of iron in 1931 was valued at ¥48,027,029 comprising 400,735 metric tons (¥11,522,147) of pig including alloys, 263,161 metric tons (¥29,385,850) of steel materials and 1,549,919 metric tons (¥12,780,190) of ores.

The output in Japan proper, which was 55,524 metric tons pig and 49,511 metric tons steel materials in 1927, grew by 1931 to about 156,831 metric tons (¥4,936,078) and 58,853 metric tons (¥2,942,650) respectively. But the consumption is far in excess of the above figures, being estimated at 1,409,366 metric tons of pig iron, 1,929,509 metric tons of ores, and 1,634,911 metric tons of steel materials, which can easily be supplied at home if all the furnaces are allowed to work full time. Demand and supply of pig iron, iron ore and steel materials in recent years are shown below (figures being in metric tons):—

Pig iron (including iron alloys):

	1927	1928	1929	1930	1931
Output	912,183	1,109,627	1,112,437	1,187,491	934,188
Import	580,670	712,734	794,861	518,011	495,862
Export	4,325	4,904	791,653	515,261	494,575
Demand	1,488,528	1,817,457	1,903,527	1,700,090	1,427,499
Iron ore:					
Output	159,005	157,706	177,556	245,991	208,181
Import	1,106,252	1,842,363	2,258,920	2,251,386	1,726,504
Export	—	—	4,299	2,466	5,176
Demand	1,265,257	2,000,069	2,432,177	2,504,911	1,929,509
Steel materials:					
Output	1,415,121	1,720,489	2,033,880	1,919,290	1,662,858
Import	814,264	824,737	790,058	437,103	265,548
Export	155,743	181,944	203,771	237,719	223,961
Demand	2,073,642	2,363,282	2,620,167	2,120,450	1,634,911

LEAD, DISMUTH, ZINC

The principal ores are in the form of galena associated with zincblende. The ores are distributed along the inner arc of Japan. Bismuth is negligible in output, and comes chiefly from Kamioka mine.

In geological formation and distribution zinc is practically identical with lead. As zincblende the ores are extensively distributed. Fukuoka prefecture is the center of zinc. The output of zinc reached its apex of 91,197,000 "kin" valued at ¥27,215,753 in 1916, but since 1917 has gradually come down, the figure for 1931 being returned as 25,407,089 kilograms (¥4,471,742).

IRON SULPHIDE

The pyrite deposits, now so extensively used for manufacturing sulphuric acid, are extensively distributed, that is in the Main Island, Kyushu, and Shikoku.

TIN

Tin occurs in Japan as veins and deposits, the former generally in the Paleozoic and Mesozoic strata, and sometimes in granite. The deposits are found chiefly in Kyushu, and also in Tajima and Mino provinces.

The tin industry is a new innovation, and is an enterprise of the Mitsubishi, which started the refining business at its Ikuno mine in 1914. At the Firm's Osaka Smelting Works tin printing rolls are also produced.

PRINCIPAL METAL MINES

The leading metal mines (gold, silver and copper) producing not less than ¥1,000,000 worth a year are tabulated as follows:—

MERCURY, ARSENIC, GRAPHITE

Mercury exists chiefly in Shikoku, where a mine in Tokushima prefecture contains cinnabar along the plane of fault in the Mesozoic limestone. Arsenic is found in Kyushu, mostly in the form of arsenious oxide. Arsenopyrite, arsenious sulphide, and realgar are also found in Echigo and Hokkaido.

In 1931 the output of arsenious acid amounted to 2,588,093 kilograms valued at ¥201,293.

Graphite was produced to the amount of 3,250,013 "kin" in 1919, but dropped to 295 metric tons (¥13,448) in 1931.

TUNGSTEN, MOLYBDENUM

Of these rare metals the former comes from Gifu, Yamanashi and a few other prefectures. Several rich tungsten veins have been discovered in Chosen. The other metal comes from Toyama, where the output of the ores rose to 3,224 "kan" during the World War.

SULPHUR

Being a volcanic country Japan is naturally rich in sulphur deposits, they chiefly occurring as solfataras. High grade deposits alone are generally worked, i.e. those containing not less than 40%. Sulphur deposits are much in evidence at the northern corner of Taiwan, the Japan Sea districts in northern Japan, and the eastern part of Hokkaido.

Gold Mines (in grams)

Name of Mines	1927	1928	1929	1930	1931
Saganoseki	2,456,959	2,685,056	2,367,129	3,053,507	3,816,748
Hidachi	1,657,598	1,799,265	2,015,934	2,476,808	2,610,645
Besshi	490,373	481,673	759,851	890,114	1,201,751
Naoshima	481,800	772,400	733,902	956,690	1,123,155
Taio	1,298,726	1,072,669	1,105,061	1,093,518	1,080,110
Mitsui-Kushikino	970,946	914,123	920,557	926,034	966,498
Konomai	648,405	733,564	757,265	852,904	898,596
Kosaka	524,351	575,006	541,922	569,854	576,344
Sano	303,645	306,409	311,557	351,299	289,536
Yamagano	188,389	166,928	162,047	155,249	200,538
Ashio	119,201	141,476	151,000	131,706	126,656
Osaruzawa	30,814	55,639	52,375	40,162	95,169
Todoroki	142,433	127,178	111,952	117,981	82,114
Shizukari	44,003	43,691	43,017	25,247	75,922
Kamioka	53,708	55,088	45,187	48,065	47,922
Arakawa	27,615	23,479	44,782	50,894	42,568

Silver Mines (in grams)

Besshi	12,325,020	17,164,046	18,223,913	19,254,285	29,620,192
Hidachi	20,010,765	20,771,565	21,048,607	25,203,124	26,006,540
Naoshima	13,797,600	20,648,400	22,752,852	28,339,623	22,788,763
Saganoseki	27,597,623	28,778,438	28,220,016	30,687,464	21,648,135
Kosaka	16,465,510	17,852,048	14,923,541	15,180,233	17,203,876
Ashio	13,177,455	14,500,526	13,638,679	13,055,182	14,510,888
Kamioka	7,715,993	7,804,710	8,187,346	7,055,182	10,519,499
Mitsui-Kushikino	6,250,301	5,922,630	6,194,630	6,148,070	6,639,190
Konomai	2,449,519	2,859,214	3,113,313	4,887,072	5,645,985
Sado	3,931,328	4,075,973	3,853,511	4,934,274	4,230,063
Taibu	4,212,173	3,152,914	3,425,187	3,098,993	3,674,227
Osaruzawa	1,625,419	1,877,689	2,401,353	2,732,953	3,315,831
Todoroki	4,022,430	3,310,890	2,919,649	3,315,840	2,151,258
Yatsumori	41,595	1,140,229	1,345,749	1,769,843	1,832,948
Hosokura	825,919	753,694	902,059	992,331	801,854
Arakawa	519,300	515,423	730,085	830,611	591,261

Copper Mines (in kilograms)

Ashio	13,294,075	13,713,730	13,521,151	14,064,498	14,714,066
Besshi	12,630,812	13,244,237	15,418,712	12,490,409	13,226,957
Saganoseki	8,065,931	8,054,167	10,940,222	12,632,061	10,096,485
Kosaka	8,781,051	8,947,900	9,197,986	9,937,444	9,608,049
Hidachi	7,737,215	6,934,616	7,755,338	8,546,054	8,361,230
Naoshima	3,795,917	4,858,523	5,939,072	6,824,721	6,546,868
Osaruzawa	3,237,888	3,405,126	3,869,858	4,983,857	5,715,573
Yatsumori	41,023	1,148,924	1,645,688	2,250,457	2,101,696
Arakawa	1,690,873	1,659,643	1,824,100	1,894,089	1,556,880
Makimine	877,430	1,008,715	1,208,607	1,366,767	1,255,937

COAL

The coal found in Japan is bituminous and lignite, and is of Tertiary formation, anthracite seams being scanty. Of the Tertiary coal-fields those in Kyushu and Hokkaido are the most extensive and valuable. In Honshu they

are found only in Iwaki and Hitachi (popularly called "Joban" district) but the coal produced there is inferior to that of Kyushu and Hokkaido in quality as well as in quantity. The principal coal-fields in Kyushu are those of Chikuho (Chikuzen and Buzen), while in Hok-

kaido the coal-fields in the province of Ishikari are most important. The coal-fields now in operation aggregate 410 million "tsubo" in area in Japan proper besides 395 million "tsubo" now closed down. According to the investigation made by the authorities concerned, the total stock of coal is distributed as follows, classified according to localities (in metric tons):—

(End of Dec.)	Kyushu	Hokkaido	Iwaki	Total
1927	658,207	396,846	241,303	1,296,356
1928	1,064,743	666,854	212,728	1,944,325
1929	1,333,717	801,853	154,314	2,289,884
1930	1,372,752	977,349	110,332	2,460,433
1931	1,163,078	963,774	79,566	2,206,418

Output, Import, Export, etc.—The annual output of coal is about 30 million m. tons, and on the whole Japan has been self-supporting in this mineral. Till about 1921 the exports exceeded the imports, but the adverse balance

has marked the coal trade since then, due more to the influx of cheaper Chinese coal than to the exhaustion of strata in the coal-producing districts. For this comparative high price of Japanese coal are responsible the distance of the principal coal mines from industrial centers, heavy freight charges both on that account and imperfect facilities for loading and unloading, low efficiency of Japanese workers and lastly high wages.

The following statistics on output, import, export and consumption of coal in recent years is for Japan proper (in 1,000 metric tons):—

Year	Output	Import	Export	Stock	Consumption
1926	31,426	2,044	2,611	1,022	29,837
1927	33,530	2,703	2,190	1,296	32,747
1928	33,860	2,778	2,184	1,944	32,514
1929	34,257	3,254	2,043	2,289	33,179
1930	31,376	2,692	2,130	2,460	29,478
1931	27,987	2,693	1,540	2,206	26,933

Output of Leading Coal-fields in Japan Proper

(In unit of ¥1,000)

Coal-fields	1929	1930	1931	
Miike (Kyushu)	22,721	23,427	18,673	Mitsui Mining Co.
Onoura (Kyushu)	11,361	10,580	8,022	Kajima Mining Co.
Mitsui Tagawa (Kyushu)	9,880	9,511	7,665	Mitsui Mining Co.
Futase (Kyushu)	8,471	8,611	6,858	Department of Com. & Ind.
Yubari (Hokkaido)	7,770	7,982	6,127	Hokkaido Colliery S.S. Co.
Bibai (Hokkaido)	7,435	7,305	5,361	Mitsubishi Mining Co.
Sakito (Kyushu)	6,401	5,905	4,683	Kyushu Colliery S.S. Co.
Okinoyama (Yamaguchi)	6,035	5,522	4,441	Okinoyama Mining Co.
Namazuta (Kyushu)	5,860	5,499	4,025	Mitsubishi Mining Co.
Uchigo (Iwaki)	5,293	5,821	4,973	Iwaki Mining Co.
Shin-yubari (Hokkaido)	4,979	4,447	2,851	Hokkaido Colliery S.S. Co.
Hokoku (Kyushu)	4,816	4,803	3,827	Meiji Mining Co.
Kineshima (Saga)	4,706	4,630	3,566	Kineshima Mining Co.
Mitsui Sunagawa (Hokkaido)	4,706	4,519	3,418	Mitsui Mining Co.
Iizuka (Kyushu)	4,590	4,550	3,640	Nakajima Mining Co.
Mitsui Yamano (Kyushu)	4,488	3,982	3,148	Mitsui Mining Co.
Takashima (Kyushu)	4,122	4,392	3,642	Mitsubishi Mining Co.
Tadakuma (Kyushu)	4,093	3,953	3,102	Sumitomo Mining Co.
Nakatsuru (Kyushu)	3,800	3,313	2,893	Taisho Mining Co.
Aichi Hokoku (Saga)	3,701	3,467	2,692	Mitsubishi Mining Co.
Matsushima (Kyushu)	3,530	—	1,506	Matsushima Mining Co.
Iriyama (Iwaki)	3,423	3,557	2,606	Iriyama Mining Co.
Akaike (Kyushu)	3,421	3,293	2,723	Meiji Mining Co.
Shinnyu (Kyushu)	3,403	3,364	2,604	Mitsubishi Mining Co.

The following statistics compiled by the Mining Bureau shows the details of the output

of the chief mines for five years ending 1931 (in metric tons):—

	1927	1928	1929	1930	1931
Lump	8,981,281	8,758,484	9,061,173	8,368,244	7,187,709
Dust	15,133,923	15,527,052	15,792,481	14,862,291	13,708,900
Cut	5,128,397	4,791,086	4,324,543	3,367,612	2,753,659
Unscreened	4,143,559	4,617,675	4,835,742	4,569,866	4,155,067
Peat	143,447	165,883	243,878	208,200	181,936
Total	33,530,607	33,860,181	34,257,817	31,376,213	27,987,271

Analysis of coals from the principal coalfields is shown below:—

Name of Coal-fields	Water	Volatile matter	Cake	Ash	Sulphur	Caking quality	Specific gravity	Calorific power
Chikuho Namazuta...	1.66	42.50	52.68	3.16	0.18	Cakes and swells	1.208	75.90
Miike 8 ft. seam.....	0.70	42.15	43.85	3.30	3.34	Cakes	1.273	—
Hizen Takashima ...	0.98	39.08	53.52	6.53	0.65	Cakes	1.270	80.30
Ishikari Yubari	1.46	42.89	57.11	4.54	0.30	Not	1.200	—
Jo-ban Shiramizu.....	5.05	44.36	40.81	3.75	1.39	Caking	1.304	—

PETROLEUM

Petroleum veins are principally found in Tertiary terrains and, according to geologists, the oil-bearing veins extend from Taiwan to Karafuto (Saghalien). In practice, the districts bordering on the Japan Sea, especially Niigata and Akita prefectures, are the principal oil-fields of Japan. Petroleum was known in Echigo (Niigata) from remote times, but it was from 1900 that the industry began to present a marked activity. The principal concessions in Niigata are Higashiyama, Nishiyama and Niitsu, while those in Akita are Kurokawa, Toyokawa and Michikawa, all of which date from 1913.

The consumption of petroleum in Japan is roughly estimated at 280,000,000 gallons annually, of which only 23 per cent is represented by home supply, the shortage being covered by import, consisting of 53 per cent of foreign oil and 24 per cent of foreign crude oil refined in Japan. Whilst the home demand has been doubled in the last two decades, the yield

	1927	1928	1929	1930	1931	
Gasoline.....	Quantity (hectolitre)...	12,083,865	16,233,594	19,995,760	21,916,680	20,817,638
	Value (yen).....	1,328,734	1,328,734	1,814,148	2,187,147	2,379,624
Kerosene	Quantity (hectolitre)...	459,868	458,932	370,713	416,407	1,955,626
	Value (yen).....	4,333,206	4,444,123	4,678,616	4,063,506	11,024,203
Neutral	Quantity (hectolitre)...	1,715,125	1,993,841	2,116,770	2,111,313	1,699,147
	Value (yen).....	8,688,762	9,243,832	10,376,040	9,684,604	6,353,587
Fuel.....	Quantity (hectolitre)...	1,170,681	1,253,669	1,179,129	1,194,223	1,061,256
	Value (yen).....	12,660,425	12,722,770	12,241,545	10,191,070	7,170,357
Lubricating.	Quantity (hectolitre)...	327,522	390,277	379,873	353,528	666,890
	Value (yen).....	1,107,699	1,264,120	3,003,145	822,589	1,610,578
Asphalt	Quantity (kg.).....	13,153,155	22,410,278	31,078,729	26,909,023	44,979,779
	Value (yen).....	411,698	758,259	1,088,799	773,630	1,126,146
Wax	Quantity (hectolitre)...	11,915	14,504	14,894	20,859	49,202
	Value (yen).....	364,037	437,618	623,137	675,471	1,164,906

of crude oil in Japan proper has dwindled, and even when the output in Taiwan is added, it shows but a slight increase over the figures of twenty years ago. The unfavorable situation may chiefly be explained by the inflow of American oil and the comparative high cost of working at home. Although the yield of crude oil is on the decrease, the enterprise of refining imported crude oil has recently become more active, particularly owing to the increased import of Russian oil in recent time, and the production of refined goods has increased. Still the imports of foreign refined oil amount to four or five hundred thousands yen every year. With a view to encouraging exploitation in the country, the Government adopted in 1927 a measure for granting subsidy to prospectors of oil-fields.

Output and Import of Petroleum

The following statistics on the production of petroleum are based on the investigation of the Department of Commerce and Industry:—

	1927	1928	1929	1930	1931	
Pitch	Quantity (kg.).....	71,090,842	83,899,950	59,746,046	30,601,297	26,091,360
	Value (yen).....	1,096,884	1,272,675	765,864	335,959	223,050
Total value (yen).....	40,746,577	46,376,991	50,816,764	49,047,318	49,523,925	

According to the trade report of the Finance Department the imports of various forms of oil in the past few years were as follows (in unit of 1,000):—

	Crude (incl. fuel)	Gasoline	Kerosene	Lubricating (A)	Lubricating (B)	Total
1928 {	Quantity (gals.).....	830,654	10,437	68,504	5,799	40,003
	Value (yen)	45,164	6,585	30,684	4,023	3,481
1929 {	Quantity (gals.).....	419,817	9,814	90,401	6,573	34,966
	Value (yen)	46,603	4,088	34,682	4,557	2,997
1930 {	Quantity (gals.).....	426,374	2,890	110,829	5,131	*33,718
	Value (yen)	44,796	986	37,867	3,382	2,537
1931 {	Quantity (gals.).....	453,608	2,289	120,139	5,060	*28,772
	Value (yen)	44,064	794	35,998	2,983	1,954
1932 {	Quantity (gals.).....	568,665	1,424	133,383	4,836	*26,557
	Value (yen)	54,887	370	36,533	4,443	2,355

N.B.—(A)—Lubricating oil with specific gravity of 0.9218 or less.

(B)—Other lubricating oil.

*—In kin.

Supply and Demand of Refined Oil

The following statistics will serve to show the situation of supply and demand of refined oil in recent years, the figures including those

in territories (in 1,000 cases; 1 case—9.5 gallons):—
situation of supply and demand of refined oil in recent years including those in territories (in 1,000 cases; 1 case—9.5 gallons):—

	Gasoline	Kerosene	Neutral	Fuel	Lubricating	Total	
1929 {	Output	1,981	666	2,997	1,374	501	7,519
	Refined	3,408	1,000	3,714	2,201	298	10,621
	Import	8,325	4,357	82	1,381	13,074	27,219
	Export	4	38	—	80	—	124
	Demand.....	13,710	5,985	6,793	4,876	13,821	45,235
1930 {	Output	2,126	678	2,566	1,300	566	7,235
	Refined	3,041	970	3,799	2,279	307	11,396
	Import	9,913	3,100	7	1,188	15,392	29,610
	Export	1	161	6	180	—	348
	Demand.....	16,079	4,597	6,365	4,587	16,265	47,893
1931 {	Output	2,676	702	2,488	1,456	1,303	8,625
	Refined	5,558	1,064	3,027	2,326	221	12,196
	Import	11,673	2,481	7	1,074	19,303	34,538
	Export	1	124	32	96	—	253
	Demand.....	19,906	4,123	5,490	4,260	20,827	55,106

N.B.—“Refined” means oils refined from imported crude oil.

INVESTMENT IN MINING BUSINESS

The investment in mining business is steadily increasing, and coal claims the largest share followed by metals and petroleum. The progress in recent years may be seen from the following table:—

	No. of Cos.	Subscribed capital (Yen)	Reserves (Yen)	Profits (Yen)	Dividends (Yen)	Loss (Yen)	
1928	Metal	69	417,408,400	76,987,226	22,511,839	15,241,746	4,773,634
	Coal	105	385,413,700	26,868,288	11,711,498	7,142,003	13,011,829
	Petroleum...	18	169,062,000	25,513,403	8,720,719	7,225,874	82,900
	Others	9	6,235,000	1,333,667	732,794	523,750	67,051
	Total	201	979,119,100	130,612,584	43,676,850	30,163,378	17,935,413
1929	Metal	79	497,481,400	62,410,034	27,351,019	18,005,324	14,983,118
	Coal	100	368,593,200	30,326,664	12,706,871	8,568,725	3,093,942
	Petroleum...	16	153,312,000	22,094,721	15,842,420	6,686,000	168,471
	Others	21	14,703,500	1,117,817	770,398	491,320	545,276
	Total	216	1,034,090,100	116,949,296	56,679,708	33,751,369	18,790,807
1930	Metal	85	418,153,200	45,204,067	14,417,218	10,590,850	2,150,743
	Coal	88	343,913,200	30,974,007	8,351,933	6,449,626	18,212,362
	Petroleum...	16	148,162,000	22,756,567	6,406,093	5,090,500	191,715
	Others	14	14,098,500	1,068,495	726,811	472,500	1,765,808
	Total	203	924,331,900	100,033,136	29,902,055	22,603,476	22,320,628

NUMBER OF MINE WORKERS

Mine-workers and placer workers as classified by the mines they are working at are as follows (year ended June):—

Mine Workers:	1927	1928	1929	1930	1931
Metal.....	45,656	44,646	48,009	45,025	39,596
Coal	239,167	237,890	228,761	204,526	154,398
Oil-wells	5,889	5,816	5,900	4,973	4,254
Total incl. others	295,629	293,172	286,964	258,469	202,355
Workers Employed (in 1,000):	1927	1928	1929	1930	1931
Metal.....	13,201	13,757	13,149	13,742	10,282
Coal	57,991	60,115	53,620	39,404	38,296
Oil-wells	2,090	1,871	1,703	1,507	1,339
Total incl. others	74,552	76,988	69,470	65,681	50,916
Placer Workers:	1927	1928	1929	1930	1931
Gold	37	72	28	70	107
{ Number	37	72	28	70	107
{ No. employed.....	4,256	6,174	435	6,406	6,100
Iron	219	124	97	137	106
{ Number	219	124	97	137	106
{ No. employed.....	55,234	3,863	1,566	2,151	2,626
Others ...	47	80	140	146	135
{ Number	47	80	140	146	135
{ No. employed.....	4,110	8,339	16,886	14,395	24,159
Total... { Number	303	276	265	353	348
{ No. employed.....	63,600	18,426	18,887	22,952	32,885

Accidents at Mines

	1927	1928	1929	1930	1931
No. of accidents	136,108	142,035	129,649	107,346	78,310
Deaths	1,002	891	964	874	694
Casualties	164,595	142,865	130,383	107,710	78,649

CHAPTER XXXIV

INDUSTRY

GENERAL REMARKS

Industrial revolution in Japan which gradually began in the early stage of the Meiji era, and the gradual displacement of household industry by the factory system, and the handwork by machines were most remarkable after the Sino-Japanese war (1894-95). The growth of national consciousness resulted in the creation of factories of manifold kinds and this activity was especially conspicuous in the spinning industry. By the time of the Russo-Japanese war of 1904-5 the mechanical industry had made a great stride while the chemical industry appeared on the scene. The promotion of electric supply business was also a new feature of the times. It should be added that for this rapid development of national industry, the technical education encouraged both by the Government and general public played an important part. The effect of stimulating and carrying all industrial activities not only enabled Japan to produce most articles sufficient to meet the demand at home but enough to ship a large quantity abroad. Especially noteworthy in this respect was the activity of shipbuilding, engineering, chemicals, ceramics, woollen fabrics, machines and various other industries supplying articles of daily use. Japan was no longer a mere imitator of the Western method in her industry but was now in the position to develop her own originality, thanks to the establishment of laboratories of the latest type and the further progress of technical education. The rapid growth of the manufacturing and other industries was not an unmixed good, for in their haste to meet foreign orders, even at exceptionally low rates, Japanese manufacturers not unfrequently did not scruple to ship abroad articles of inferior quality. To recover this impaired reputation and the foreign markets closed to their products, Japanese manufacturers, under strong warning from the authorities, have started a movement to adopt measures intended to prevent the appearance of shoddy goods.

Deflation and Contraction.—As the only

expedient for self-preservation, almost all the manufacturers have been obliged to restrict the output unduly expanded during the war boom. The first restriction was called for soon after the post-bellum reaction and was aimed at clearing the heavy stock left as a drag on the market with the restoration of peace. The restriction was temporarily suspended in some fields of manufacturing industries at least, when the stock in the Tokyo-Yokohama districts was destroyed in the seismic disaster of 1923. With the lapse of this temporary activity in the fall of 1924, the manufacturers had to meet the necessity of effecting drastic readjustment of their abnormal position that had been delayed by the earthquake disaster. The result was the second period and more thorough contraction that set in about that time and this heroic measure seems, it is satisfactory to see, to have been carried out for larger half of all the economic and industrial organizations in Japan, thereby giving hope for the recovery of their normal condition sooner or later.

The period of contraction and the restriction of production continued for the subsequent several years and contributed to stabilizing the foundation of national industries. Meanwhile both the Government and the manufacturers made concerted efforts for the rationalization of national industries on the one hand and developing market abroad for their products on the other. As a result of their strenuous efforts the Japanese manufactures have now developed an extensive market in foreign land in almost all directions while at the same time the national industries have effected and are making a sound development. Although the restriction of output is being still maintained in most lines of manufacturing industries in view of overproduction in the past period and the lingering world-wide depression some fields of manufacturing industries, particularly those engaged in the production of war materials, are enjoying more or less activities since the Manchurian affair.

The merger of industrial companies during the three years and a half from 1926 to the end of first half of 1928 aggregated 275 in number, representing a paid up capital approximating ¥449 millions.

FACTORIES AND EMPLOYEES

The number of factories employing over 5 operatives and of employees in recent years are as follows:—

No. of factories:	1926	1927	1928	1929	1930	1931
Run by motive power ...	41,514	43,726	46,247	48,822	51,407	53,442
Run by manual power...	10,192	9,954	9,701	11,065	10,827	10,994
Total	51,906	53,680	55,948	59,887	52,234	64,436
No. of operatives:						
Male	893,834	923,201	948,876	855,187	796,282	—
Female	981,361	975,671	987,373	969,835	887,281	—
Total	1,875,195	1,898,872	1,936,249	1,825,822	1,683,563	1,660,332

The number of factories and of operatives employed for the year 1931 as classified according to the nature of business is as follows:—

Kind of factories	No. of factories	% to total	No. of operatives	% to total
Textile	20,965	32.5	898,792	54.1
Mechanical	4,133	6.4	84,269	5.1
Machine & tool.....	5,850	9.1	158,351	9.5
Pottery	3,167	4.9	56,731	3.4
Chemical	3,389	5.3	122,461	7.4
Wood	5,200	8.0	56,658	3.4
Printing	2,948	4.6	51,367	3.1
Food & drinks	12,567	19.8	133,516	8.1
Gas & electric	498	0.8	8,248	0.5
Others	5,719	8.9	89,939	5.4
Total.....	64,436	100.00	1,660,332	100.00

The factories are classified as follows according to the nature of industry, horse power, etc. for 1930 and 1931:—

Kind of factories	1930			1931		
	Factories run by motive power	Factories run by manual power	Total	Factories run by motive power	Factories run by manual power	Total
Textile	18,200	2,106	20,306	18,879	2,000	20,965
Mechanical	3,687	317	4,006	3,812	321	4,133
Chemical	2,745	1,127	3,329	2,803	586	3,389
Food and drinks	9,465	2,834	12,309	12,567	2,826	12,567
Machine & tool.....	4,990	614	5,604	5,850	610	5,850
Pottery	2,078	1,127	3,205	3,167	1,016	3,167
Wood	4,069	897	4,966	5,200	996	5,200
Printing	2,658	101	2,759	2,948	118	2,948
Gas & electric	461	5	466	498	8	498
Miscellaneous.....	3,054	2,232	5,286	5,719	2,417	5,708
Government works	336	64	400	—	—	—
Total.....	51,743	10,891	62,634	53,442	10,192	64,436

Classified according to the nature of business the production in the last five years is as follows (¥1,000):—

Kind of factories	1927	1928	1929	1930	1931	
	Textile	2,676,689	2,868,383	2,997,829	2,027,940	1,802,997
Mechanical	467,123	544,802	689,505	518,384	434,871	8.3

Kind of factories	1927	1928	1929	1930	1931	
	Machine & tool.....	582,961	629,926	682,162	615,683	443,341
Pottery	192,012	203,162	219,801	158,927	142,316	2.8
Chemical	845,721	936,095	1,077,609	924,018	829,077	15.8
Wood	187,260	193,549	194,389	157,550	142,823	2.8
Printing	192,706	184,035	182,954	179,564	167,310	3.4
Food & drinks	1,073,420	1,136,544	1,124,227	949,929	834,687	16.2
Others	224,045	251,708	246,740	193,977	187,126	3.6
Repair works.....	303,923	277,318	301,583	228,748	193,588	0.3
Total.....	6,745,861	7,205,522	7,716,798	5,954,741	5,178,135	100.0
Gas (100 cubic meters)	4,718,833	5,765,203	6,739,574	8,305,314	7,275,522	
Electric (1,000 kilowatts) ...	5,713,183	7,888,712	8,501,032	9,406,062	9,232,221	

Details of the aforementioned figures for 1931 (production, number of factories and operatives, etc.) are shown in tabular form below:—

	Production (Yen)	No. of factories	Prod. per 1 factory	No. of operatives	Prod. per 1 operative
Textile:					
Spinning.....	429,496,842	3,874	110,866	385,074	1,115
Cotton spinning	394,722,509	287	1,404,706	127,470	3,096
Cotton fabrics	343,546,524	4,418	77,760	110,476	3,109
Silk fabrics	169,208,250	1,773	44,847	69,910	2,420
Woolen fabrics & mixed woolen fabrics.....	110,817,599	725	152,851	30,097	3,682
Hosiery	47,858,681	1,277	37,477	17,582	2,722
Mechanical:					
Iron works	141,779,023	146	971,089	18,068	7,846
Copper works	58,750,472	47	1,250,010	3,504	16,766
Iron casting works.....	33,271,007	947	35,133	15,629	2,128
Machine & tool:					
Electric machine & tool ...	46,644,363	334	139,653	13,365	3,490
Insulated wire & cable ...	41,727,183	66	632,230	4,606	9,059
Rolling stocks	80,775,230	784	103,029	18,494	4,367
Vessels	87,901,215	362	242,821	33,449	2,627
Pottery:					
Porcelain & earthen ware...	21,219,335	1,012	20,967	16,672	1,272
Glass & glass ware	35,713,354	466	70,638	14,726	2,425
Cement	61,246,102	31	1,975,680	7,398	8,278
Enamelled ware	5,292,317	36	84,005	2,400	2,205
Chemical:					
Industrial stuff	76,908,907	274	280,689	9,295	8,274
Dyes	11,681,830	30	389,394	1,005	11,623
Rubber	68,647,332	593	115,762	26,490	2,591
Paper	146,126,242	501	291,669	24,328	6,006
Artificial silk	51,022,936	12	4,251,911	18,069	2,823
Fertilizer	129,720,866	249	520,967	9,838	13,185
Others:					
Wood	92,551,337	2,499	37,035	27,163	3,407
Wood ware manufacture ...	54,355,573	2,701	20,124	29,495	1,842
Printing	171,216,165	2,592	66,055	47,523	3,602
Book-binding.....	5,496,398	356	15,439	3,844	1,429
Sake brewing	286,304,804	5,273	54,296	53,657	5,335
Beer brewing	63,653,126	14	454,651	2,849	22,342
Soy, "miso," etc.	84,967,250	1,335	63,645	14,343	5,923
Flour milling	86,298,756	111	777,466	2,261	38,168
Sugar manufacture.....	101,600,220	86	1,181,397	3,092	32,859
Hat manufacture.....	8,790,780	274	32,083	5,388	1,631
Leather goods manufacture	14,365,055	234	61,389	3,699	3,883
Paper goods manufacture...	22,779,669	703	32,403	8,649	2,545

The amount of raw materials consumed is shown below for the same year, with percentage to the total amount consumed and that to the production:—

	Total production (Yen)	Raw materials consumed (Yen)	% to total	% to production
Textile	1,926,806,911	1,321,385,192	43%	69%
Mechanical	431,438,297	361,285,089	12	84
Machine & tool	498,014,537	172,063,964	6	35
Pottery	144,712,508	364,580,087	1	25
Chemical	816,559,004	388,299,937	13	48
Wood	146,906,860	103,224,309	3	70
Printing	176,712,563	92,033,007	3	52
Comestibles & drinks	837,773,011	439,666,460	14	52
Others.....	184,453,265	119,028,239	4	65
Gas & electric	14,758,483	21,719,350	1	—
Total	5,178,135,439	3,055,163,634	100	—

Development of Motive Power.—Figures of horse power for recent years as classified according to the kind of engines used are as follows:—

	1926	1927	1928	1929	1930	
Steam	535,834	493,190	617,337	377,283	309,742	
Steam turbine	160,279	1,639,139	1,683,786	1,567,690	1,475,504	
Gas	37,617	33,276	30,893	20,956	32,075	
Oil	21,277	26,920	30,474	25,113	27,710	
Motor	1,794,644	2,148,961	2,300,761	4,930,951	3,859,560	
Water wheel	{ Turbine Pelton's Japanese ...	871,403	1,153,213	1,345,445	2,038,347	2,310,865
		225,821	253,854	374,562	555,803	527,424
		5,598	5,292	5,410	12,162	8,086

SPINNING AND WEAVING

SPINNING INDUSTRY

Cotton Spinning

According to the report of the Japan Spinners' Association formed by 71 companies which practically control over 90% of the total of this particular industry, the paid-up capital amounted to over ¥397 millions at the end of 1st half of 1932, the number of factories over 265. As regards the number of working spindles, Japan with over 8,000,000 ranks 7th on the list of leading spinning countries of the world.

The progress of cotton spinning in Japan is indeed quite creditable, for within some forty years it has attained the position of foremost importance in her industrial scheme, the export of cotton yarns and fabrics amounting to 25-30% of the total value of Japan's export trade in recent years.

This development is all the more remarkable as Japan had to contend with adverse circumstances, being dependent upon foreign supply for raw materials and machinery. The drawback has been partially compensated for

by cheap female labor, nearness to the world's greatest market of cotton yarns, China and other Eastern countries, and peculiar skill of Japanese mills for mixing up Indian, American and Chinese cotton. The domestic and Chinese demand for coarse yarns under No. 20 counts, for which unskilled female labor can fully be utilized, may also be mentioned in this connection.

Japanese Spinning Interests in China

The Japanese spinning interests in China is represented by 1,175,680 spindles in Shanghai, 262,352 in Tsingtao, 102,436 in Manchuria, 24,816 in Hankow, 25,000 in Woosung; total 1,574,284 at the end of June 1929. There are besides 125,000 Chinese spindles managed by Japanese under trust. The Japanese activity in this particular field in China therefore comes to nearly 1,700,000 which amounts to nearly 50% of the total in operation in that country, the total investment amounting to ¥200 millions. This enterprise of Japan has

lately experienced set-back owing to the anti-Japanese agitation on one hand and the marked development of native industry on the other. The mills in and about Shanghai had to close temporarily during the Shanghai incident in the early part of 1932.

Shanghai is the most important center and contributes over two-thirds both of spindles and looms, of Chinese, Japanese and foreign mills. The export of Japanese cotton yarns and fabrics to Shanghai has declined, the decrease being more marked in coarser yarns than in finer grades.

Present Tendency

To meet the changing situation Japanese spinners have begun to direct their attention to the manufacture of (1) yarns of finer counts and of superior quality, and (2) cotton piece goods like sheetings, towels, etc. The new policy requires higher technical skill than can be expected from the 2 shift system, day and night. No skilled labor can be developed under such uncongenial condition.

Disposal of Cotton Yarns

The situation of supply and demand in recent years is summarised in the subjoined table (in bales):—

Year	Output	Import	Export	Consumed by weaving cos.	Consumed at home
1927	2,530,690	2,821	115,285	732,911	1,682,496
1928	2,451,862	*1,099	70,309	757,517	1,624,034
1929	2,792,586	*1,572	67,631	840,684	1,884,271
1930	2,524,699	9,059	59,383	741,476	1,726,862
1931	2,557,146	115,508	31,441	753,079	1,781,612
1932	2,810,437	28,585	89,469	814,772	1,900,967

N.B.—1 bale=48 kwan=180 kilograms; * in 1,000 kin.

The output of finer yarns is steadily gaining ground, and at present those of 43 counts or higher form about one half of total exports.

Abolition of Night Work.—After July 1, 1929, the night work in spinning factories was abolished in accordance with the provisions of the revised Factory Law, and to counteract the effect of the abolition the spinners increased the number of spindles by over 575,000 during the three years before the abolition. The

number of operatives was reduced by about 30%, and means was taken at the same time to compensate for the possible decline of output by greater efficiency of the operatives. The result was highly satisfying, the production in 1930 showing an increase of about 3,400,000 kwan on the figure before the renovation. The situation in recent years is shown in the following table:—

Year	Aver. no. of companies	No. of spindles in operation (1,000)	Output of yarns (1,000 kwan)	Output per spindle (momme)		Ginned cotton consumed (1,000 kwan)	Workers		
				Ring	Mule		Male	Female	
1927	1st half.....	50	5,000	64,383	84.7	140.8	74,076	39,828	137,418
	2nd "	50	4,662	59,914	83.5	184.6	68,617	37,697	125,351
1928	1st "	53	4,704	58,288	86.0	193.6	66,672	36,147	117,398
	2nd "	56	4,983	62,173	88.0	196.8	71,242	36,564	117,997
1929	1st "	57	5,419	65,965	88.8	161.8	75,931	35,309	121,323
	2nd "	57	6,149	70,942	79.0	110.4	81,750	35,138	127,575
1930	1st "	58	6,098	66,702	76.9	120.6	76,503	33,346	121,048
	2nd "	60	5,698	57,288	71.5	144.5	65,147	27,058	96,915
1931	1st "	60	5,729	60,160	75.0	149.4	70,012	24,179	95,053
	2nd "	60	6,080	65,718	77.7	170.6	75,326	23,143	100,963
1932	1st "	61	6,202	68,760	81.9	184.2	78,036	21,645	104,918

Raw Materials Imported.—In the absence of raw cotton at home, Japan must rely upon China, India, U.S.A., etc for its supply. The American cotton is arriving in larger quantity, owing to the gradual improvement in the

quality of yarns produced. The imports in the five years ending 1932, classified according to countries and including cotton in the seed and ginned cotton, are shown below (in bales, each containing 400 lbs.):—

Year	American	Indian	Chinese	Egyptian	Others	Total
1928	1,047,000	1,526,000	549,000	33,000	18,000	3,172,000
1929	1,217,000	1,672,000	472,000	41,000	68,000	3,470,000
1930	1,093,493	1,526,570	452,504	33,726	46,768	3,153,061
1931	1,426,532	1,544,126	473,026	51,583	10,271	3,505,538
1932	2,480,054	863,878	341,733	63,339	66,144	3,815,174

Financial Aspects

The business aspect of the spinning companies has, taken on the whole, been far more favorable than that of any other lines of equal importance. Below is given the business results of 11 leading companies devoted to this industry for the last five years:—

Year	Capital p.u. (¥1,000)	Reserves (¥1,000)	Profits (¥1,000)	Rate of profits to p.u. cap. %	Dividend %
1928...	227,207	213,555	35,468	31.2	19.2
1929...	230,382	222,315	33,792	20.0	19.1
1930...	230,382	219,599	12,715	11.0	12.3
1931...	224,757	210,984	25,971	23.1	13.5
1932...	229,007	214,267	29,909	26.1	13.5

Average No. of Working Spindles per Day

Year	No. of companies	Capital paid-up (¥1,000)	No. of factories	Aver. Working Spindles per Day				
				Rings (1,000)	Mules (1,000)	Throwing spindles (1,000)	Looms (1,000)	
1927	1st half	64	390,703	247	5,892	36	788	76
	2nd "	64	391,551	257	6,079	36	787	78
1928	1st "	68	426,376	258	6,230	41	792	79
	2nd "	72	419,792	259	6,425	42	809	81
1929	1st "	72	428,099	259	6,488	42	807	79
	2nd "	70	429,415	258	6,796	41	808	78
1930	1st "	73	433,048	262	7,048	41	801	78
	2nd "	74	425,316	263	7,172	42	803	79
1931	1st "	73	421,327	262	7,269	42	810	79
	2nd "	73	398,855	263	7,498	37	802	78
1932	1st "	71	397,903	265	7,762	35	798	78

Silk and Hemp Spinning

Silk spinning is generally a subsidiary business of leading cotton mills as Kanegafuchi, Fuji, Nagoya, etc.

The official statistics give the output of spun silk as follows:—

Year	No. of factories	Output of spun silk	
		Value (¥1,000)	Quantity (1,000 kg.)
1929	43	81,426	8,868
1930	42	51,753	7,866
1931	43	51,745	8,939

Hemp spinning and weaving business is conducted by the Teikoku Seima Co. and a

Year	Production (Lbs.)	Import		Export		Estimate Consumption (Lbs.)
		(Kin)	(Yen)	(Kin)	(Yen)	
1928	15,405	192	456	51	113	16,075
1929	26,368	468	855	116	183	25,832
1930	35,958	639	942	2,403	3,236	33,607
1931	46,764	847	1,005	1,931	2,244	45,275
1932	64,389	280	408	5,558	5,910	57,344

few other smaller concerns. The position of this industry in recent years is represented by the following figures according to official statistics:—

Year	No. of factories	Output of yarns	
		Value (¥1,000)	Quantity (1,000 kg.)
1929	47	18,051	17,513
1930	42	14,969	14,943
1931	37	12,216	13,286

The Rayon Industry

Started in 1918, the development made since then is striking as indicated by the following figures (1,000):—

The demand for rayon fabrics is also increasing year by year, the output in recent years being as follows (in value):—

Rayon fabrics incl. rayon & silk	1930		1931		1932	
	yen	%	yen	%	yen	%
mixed fabrics	97,286,709	88.67	104,772,534	85.37	121,740,755	81.18
Rayon & cotton mixed fabrics	8,932,347	8.14	7,422,410	6.05	13,386,686	8.93
Rayon & hemp mixed fabrics	5,958	0.01	3,352	—	28,208	0.02
Rayon & wool mixed fabrics	3,487,261	3.18	10,532,312	8.58	14,795,548	9.87
Total	109,712,275	100.00	122,730,608	100.00	149,951,197	100.00

From 1926 to 1932 the number of mills increased from two to thirteen with the total capacity of some 48,500 lbs. a day, the production in 1932 reaching over 64,389,000 lbs. Over-supply was feared in spite of the ¥125 duty imposed per 100 lbs. but the actual fact proved

otherwise, as the foregoing figures show.

According to the returns compiled by the Oriental Economist, the manufacturing capacity and estimate capacity per day and per month of leading companies in 1932, 1933 and in near future are calculated as follows (metric ton):—

Name of cos.	1932 (June)		1933 (June)		1934 (June)		1934 (Dec.)	
	Per day	Per month	Per day	Per month	Per day	Per month	Per day	Per month
Teikoku Rayon Co.	24.2	16,000	30.3	20,000	30.3	20,000	43.3	28,600
Toyo Rayon Co.	18.2	12,000	22.9	15,100	32.9	21,700	33.0	21,780
Asahi	Nobeoka	—	—	—	5.0	3,300	5.0	3,000
	Otsu	—	—	—	15.1	10,000	15.1	10,000
	Bemburg	3.5	2,300	7.0	4,600	10.0	6,600	10.0
Showa	12.2	8,808	16.5	10,940	18.0	11,880	19.0	12,540
Kurashiki	9.9	6,540	14.1	9,310	16.0	10,560	17.0	11,220
Nippon Kagaku Seishi	—	—	—	—	10.0	6,600	10.0	6,600
Nippon	—	—	—	—	13.0	8,580	20.0	13,200
Kinka	—	—	—	—	5.0	3,300	10.0	6,600
Nisshin	—	—	—	—	5.0	3,300	5.0	3,300
Shinko	—	—	—	—	10.0	6,600	10.0	6,600
Fukushima	—	—	—	—	5.0	3,300	5.0	3,300
Total	84.1	55,560	118.9	78,450	175.3	115,720	207.4	416,940

Note.—Nippon Kagaku Seishi, Nippon Rayon, Kinka Rayon, Nisshin Rayon, Shinko Rayon, Fukushima Rayon Cos. and Nobeoka and Otsu plants of the Asahi Bemburg Rayon Co. were newly created in 1933 and will commence operation in 1934.

The Asahi Bemburg Rayon Co.—The Bemburg Rayon Co. of Japan, established in Osaka April 1929 as a joint enterprise of the Japan Nitrogen Fertilizer Co. and Asahi Silk Co., effected merger with the Nobeoka Ammonium Co. in July 1933. The company has been renamed the Asahi Bemburg Rayon Co. capitalized at ¥46,000,000 of which ¥32,500,000 paid up and has become the largest rayon manufacturing concern in Japan. The Bemburg Rayon Co. is known as the producer of rayon yarns of 750 denier grade claimed to be of equal excellence to natural silk yarns.

she heads the list of all exporting countries. In conformity with the favorable trend of export trade, the production of high class rayon yarn has increased markedly. The production of rayon yarn below 100 deniers for the first nine months of 1933 doubled that of the previous year, while the production of 120 denier yarn increased approximately 40 per cent compared with the similar period of last year.

New Rayon Enterprise

The Kanegafuchi Spinning Company has purchased a lot of land covering 300,000 tsubo at Takasago in Hyogo prefecture to start the manufacture of rayon according to the Viscose method. The work on the factory will be started early next year, the initial productive capacity being estimated at five tons a day. The necessary power will be generated at its own plant. Rayon threads and staple fibre pro-

Expansion in Rayon

Remarkable expansion has been attained in the production of rayon yarn and the export of rayon tissues in recent months. In the output of rayon yarn Japan now ranks second in the world, while in the export of rayon tissues

duced will not be placed on the market, but are to be used by the company. The company also has decided to manufacture caustic soda,

sulphuric acid and other industrial chemicals to be used in rayon manufacture and printed cloth will be manufactured.

TEXTILE INDUSTRY

Japan exports no small quantity of cotton and silk piece goods, which are however, defective in one important respect, being narrow in width and length. The fact is Japanese weavers are accustomed to turn out goods intended for home market, measuring only 1 ft. in width and 28-30 ft. in length. These are not fit for foreign market. Fabrics that are wider are limited to calico, shirtings, sheetings, "kaiki", etc., which are either of recent origin or are intended for shipment abroad. Lately a movement has been started to remove this defect. The official statistics for recent years are as follows:—

Statistics on Textile Industry

Year	Factories	Looms		Operatives (average per day)	Output (¥1,000)
		Motor driven	Hand looms		
1927	182,722	48,285	237,578	574,838	1,865,720
1928	175,883	35,498	226,897	564,110	2,049,144
1929	174,081	32,885	203,584	533,825	1,905,194
1930	161,537	33,078	185,827	484,120	1,493,973
1931	160,511	33,686	182,504	422,314	1,373,897

The output of fabrics is classified as follows (¥1,000):—

Year	Silk fabrics	Silk & cotton mixed fabrics	Cotton fabrics	Hempen fabrics	Woolen fabrics
1927	411,104	469,409	725,419	21,082	238,706
1928	482,682	540,669	786,634	18,740	220,419
1929	445,550	493,851	736,534	18,747	210,512
1930	391,606	425,139	498,021	14,623	164,584
1931	376,757	406,857	423,023	13,436	153,824

Cotton Fabrics

The number of factories, operatives, etc. in the last five years is as follows:—

Year	No. of factories	No. of looms	No. of operatives (Daily aver.)	Value of output (Yen)
1927	76,248	365,970	296,233	743,314,693
1928	75,535	369,072	288,560	725,419,240
1929	73,215	369,947	281,363	784,633,689
1930	74,734	362,819	256,940	736,533,751
1931	66,491	348,903	221,755	498,021,084

Note.—Factories employing under 5 operatives are excluded.

Staple Products

Wide Cloth

Year	White cloth (meter)	Striped stuff & colored (meter)	Flannel (meter)	Crape (meter)	Total incl. others (¥1,000)
1927	73,764,077	27,617,910	165,478,678	90,999,101	539,357,036
1928	91,597,443	61,531,610	181,589,990	78,381,326	511,254,007
1929	83,651,742	58,395,679	267,589,904	89,623,490	588,544,424
1930	88,958,260	59,066,294	204,785,952	82,828,193	555,445,409
1931	67,904,489	107,290,999	203,112,038	68,643,201	370,018,277

Narrow Cloth

Year	White cloth (rolls)	Striped stuff (rolls)	Colored stuff (rolls)	Crape (rolls)	Total incl. others (¥1,000)
1927	94,867,993	44,312,202	7,959,086	1,350,315	173,767,526
1928	97,279,966	44,912,403	9,130,464	1,160,976	178,968,804
1929	94,481,109	37,262,462	8,664,891	825,244	162,637,149
1930	96,875,310	32,404,412	6,773,125	663,015	148,766,487
1931	89,519,722	29,453,323	6,289,160	725,798	101,185,824

Silk Fabrics

Of the silk piece goods for export the Fuji pongee, ordinary pongee and "habutaye" are three staples. The other silk goods exported are "kaiki" "chirimen" (crape), "kohaku", etc. The "kaiki" has fallen in repute owing to deterioration of quality. What is interesting is that ordinary pongees are now extensively

produced in Fukui and Gifu prefectures with yarns imported from China. The Fuji pongee is of recent origin for which the credit goes to the Fuji Gassed Yarn Mill. Made of spun silk, there are two varieties, heavy and light, the former resembling the Chinese pongee and the latter "habutaye," and though less lustrous is stronger. It is largely used for silk shirts.

(Other kinds of silk fabrics are mostly for domestic market, and generally produced by women by hand-machines. For costly heavy stuffs such as satin, silk crepe, and brocade, Nishijin (Kyoto), Kiryu, Ashikaga, etc. are noted. Kiryu in particular has made rapid

growth as the manufacturing center of foreign-going articles. Fukui and Ishikawa prefectures produce over two-thirds of the total output amounting to about 3½ million pieces for the whole country. Official data on silk and silk cotton fabrics are as follows:—

Year	No. of factories	No. of looms		No. of operatives (Daily aver.)	Value of output (Yen)
		Power looms	Hand looms		
1927	90,096	93,272	119,409	219,007	494,374,530
1928	86,782	101,485	112,364	217,771	469,408,811
1929	84,348	111,104	106,945	217,631	540,669,173
1930	83,107	125,849	99,190	215,925	494,850,647
1931	79,864	133,244	92,941	206,542	425,138,608

Staple Exports

Year	Habutaye (Kin)	Kabeori & crepe (Sq. yard)	Satin (Sq. yard)	Pongee (Sq. yard)	Taffetas & poplin (Sq. yard)
1928	1,803,640	26,867,741	8,014,323	23,754,945	4,580,678
1929	1,857,876	26,300,318	12,020,948	25,847,810	10,171,880
1930	1,174,153	20,806,160	3,232,557	17,040,794	73,837
1931	692,136	21,203,203	2,593,214	25,630,094	25,914
1932	707,761	23,814,928	3,322,123	24,222,010	649,128

Note:—Best customers for "habutaye" are U.S.A., England and France, and those for satin, U.S.A., China and India. About half of export crepe goes to Australia and Canada while the bulk of pongee silk is taken up by U.S.A.

Woolen Goods

With the first woolen cloth mill, the Government Senju Woolen Factory, created in 1876, the absence of all essential factors for the building up of the industry, i.e. absence of raw materials, machinery, and skilled labor militated against the creditable development of this industry. It was by turning out plain stuffs for soldiers and sailors' uniform and for other similar purposes that the Japanese woolen weavers could keep up their business with more or less success. It was only during the World War that they enjoyed abnormal prosperity when they exported no small quantity of cloth, serges, etc. to Russia and other markets cut off from the supply of European goods. The Japanese mills have since been

experiencing with growing intensity the pressure of foreign fabrics principally English, which continued to arrive in large quantities in spite of tariff wall. The tariff rate was increased to ¥57.50-97.50 per 100 kin (subject to the 100% luxury ad val. duty since August 1924). The prospect of the industry, however, is by no means so disappointing, for with increased skill Japanese weavers have lately begun to turn out with Australian and other foreign top and wool the stuff of excellent quality.

Leading Companies and Their Business Results

The leading companies in this line of business are as follows, with their rate of profit at the end of November 1932:—

	Subscribed capital (¥1,000)	Capital p.u. (¥1,000)	Reserves (¥1,000)	Profits (¥1,000)	Rate of profit to p.u. capital	Dividend
Nippon Keori	50,000	27,500	22,267	4,586	33.4%	12.0%
Tokyo Muslin Boseki	10,702	7,778	150	734	19.0	—
Toyo Muslin	9,179	9,179	100	778	25.2	7-5.0
Shinko Keori	5,000	3,000	580	1,806	34.0	18.0

Muslin-de-Laine

This industry is more favorably placed than that of heavier woolen stuffs chiefly because the Japanese mills in this line are less pressed by European rivals than in the case of the

other, the goods being intended for wider circles of consumers, and because they generally combine other lines, as manufacture of calico, cashmere, cotton yarns, etc. This light stuff as manufactured in France, Germany and

elsewhere was originally intended for Far Eastern markets, but just as European cotton yarns of coarser grade were practically supplanted in time by the production of the countries which at first depended upon foreign supply, muslin-de-laine also met a similar fate at least as regards Japan. Japanese muslin-de-laine first appeared on the export list in 1905 when the export amounted to 97,000 yards against 11,363,000 yards imported the

same year.

After 1917 the import disappeared from the customs returns. Interesting to state, the Prince of Wales' visit to Japan in 1922 has incidentally given a list to the export of muslin to Europe and America in the shape of brightly printed "happy coat." About 400 package valued at ¥600,000 of this fancy dress went abroad every month for some time afterward.

Data on Woolen Fabrics

Year	No. of factories	Looms		No. of operatives (Daily aver.)	Muslin (1,000 meters)	Flannel (1,000 meters)
		Power	Hand			
1927	867	16,288	3,239	36,219	140,858	2,661
1928	878	27,005	2,420	40,883	159,644	2,986
1929	852	21,320	1,373	40,342	151,661	3,041
1930	924	20,585	704	39,020	151,400	2,499
1931	960	20,803	694	34,562	140,414	2,875

Year	Serge (1,000 meters)	Blankets (sheet)	Woolen cloth (1,000 meters)	Total incl. others (¥1,000)
1927	30,805	1,171,651	6,597	205,252
1928	37,368	1,049,308	8,888	238,706
1929	42,842	1,039,845	7,568	220,419
1930	43,558	863,930	8,184	210,512
1931	42,985	854,880	7,384	164,584

Import of Woolen Goods and Raw Materials

Year	Woolen Goods (sq. yard)			Combed yarns (1,000 lbs.)	Top & Raw materials (1,000 lbs.)	
	Total	Woolen goods	Woolen & cotton mixed goods		Total	Of which wool
1927	16,281,699	8,040,570	8,241,129	18,226	105,559	99,239
1928	17,348,901	7,466,043	9,882,858	11,549	117,913	115,697
1929	10,913,688	4,483,434	6,430,154	7,423	108,992	107,949
1930	6,829,562	2,747,296	4,082,266	7,912	115,999	115,560
1931	7,129,007	2,513,502	4,615,505	9,234	191,374	190,568

Export and Import of Serges and Blankets

Year	Export				Import			
	Cloth & Serge		Blankets		Cloth & Serge		Blankets incl. travelling rugs	
	S. yard	Value (yen)	Kin	Value (yen)	S. yard	Value (yen)	Kin	Value (yen)
1927	1,757,131	2,615,347	82,100	267,126	7,456,037	19,590,135	57,159	347,757
1928	2,200,762	3,119,032	64,000	153,699	4,483,434	12,327,519	41,283	311,037
1929	1,928,393	2,050,466	57,400	87,227	2,747,296	7,023,582	29,079	156,782
1930	727,016	695,389	51,700	£3,982	2,513,512	6,033,119	23,077	130,523
1932	2,854,437	2,531,713	123,200	198,174	2,365,100	6,518,178	10,498	88,070

Statistics on Muslin-de-laine

Year	Output (1,000)		Import*		Export	
	(Meter)	(Yen)	Yard	(Yen)	Yard	(¥1,000)
1927	159,644	99,058	—	—	2,067,000	1,628,000
1928	151,661	89,070	—	—	742,768	528,997
1929	151,400	82,732	—	—	1,178,197	751,901
1930	140,414	54,519	—	—	1,041,559	493,694
1931	147,818	49,476	—	—	660,114	280,880

* No import since 1917.

ELECTRIC AND GAS INDUSTRY

ELECTRIC INDUSTRY

General Remarks

The first private electric enterprise ever started in Japan was the Tokyo Electric Light Co. that began to operate in 1887 and of course the power was generated by coal-burning. It was not till 1891 that hydro-electric enterprise began to exist. Interesting to note, the successful canal work for leading the water of Lake Biwa to Kyoto, completed in 1890, suggested this novel electric business. As might be expected, coal-burning current was at first far in excess of the volume of water-power, but with the rise of the price of coal, especially from about the close of the Japan-China war (1894-5), the attention of the enterprising public was more powerfully drawn to the advantage of white coal. The scope of work, however, was still very much limited owing to imperfect experience of our electric engineers and other causes. The success realized in 1907 by the Tokyo Electric Light Co. in transmitting from a 15,000 k.w. hydraulic plant at Komabashi, Yamanashi prefecture, on the Katsura River to Tokyo (50 miles) 55,000 volts was a turning point in the history of electric engineering in Japan. In 1914 the Inawashiro Hydro-electric Co., subsequently merged in the Tokyo Electric Light Co., completed the far more ambitious work of transmitting 115,000 volts of super high pressure current from Lake Inawashiro to Tokyo (150 miles), and Japanese engineers sufficiently demonstrated their capability to undertake hydro-electric work of any magnitude.

Latest Development

In the amount of capital invested and in the rapid expansion of work the hydro-electric industry stands foremost among all the industrial enterprises of Japan. What specially marks it is the growing tendency shown lately of concentration of different companies under the control of a few big establishments. The Tokyo Electric Light Co. has absorbed several companies and it now commands the

total paid-up capital of about ¥430 millions the largest corporation of all in Japan. The Toho Electric Power Co. of Tokyo has in a similar manner grown to a big concern of about ¥130 millions, while its sister concern, now rival, Daido Denryoku (cap. ¥176 mil.) succeeded in March 1922 in transmitting 70,000 volts to Osaka from its plant on the River Kiso and is supplying Tokyo, a distance of over 300 miles. The lighting stage has passed and the power stage has come.

As may be judged from the natural features of the land the districts forming the broadest section in Central Japan contain the most important sites for electric generation. The river system of the Kiso exploited by the Daido Electric Co., of the Kurobe by the Nippon Electric Power Co., and some other heads, all in the high alpine table-land, supply current to Tokyo-Yokohama, Kyoto-Osaka-Kobe and Nagoya districts, of high pressure of about 154,000 volts. As regards the volume of water power available, the River Shinano stands first with 1,280,000 h.p. as average capacity per annum. Details are shown in the subjoined table. (p. 412)

Available Water-Power

The final researches conducted by the Government and concluded in 1923 estimate that the total volume of water power that can be developed from 2,822 sites existing in Japan proper is 6,415,000 h.p. on the basis of minimum flow and 14,090,000 h.p. at the maximum, if based on the six-month flow, the yearly average being 11,933,000 h.p. The electric undertakings in operation and under construction at the end of December 1931, numbered 7,096 including both Government and private, and representing 3,056,936 k.w. for water power, 1,599,588 k.w. for fire-burning, total 4,656,524 k.w., besides 1,867,291 k.w. water and fire combined remaining uncompleted, so that Japan possesses theoretically immense reserve power waiting exploitation.

Total Number of Electric Power Establishments

Year		Water power	Fire-burning	Power purchased	Total
1927	{ In operation.....	1,444	1,034	3,473	5,951
	{ Under construction	221	32	171	424
1928	{ In operation.....	1,479	1,006	3,621	6,106
	{ Under construction	197	20	135	352

Year		Water power	Fire-burning	Power purchased	Total
1929	In operation.....	1,440	933	3,901	6,274
	Under construction	165	25	176	366
1930	In operation.....	1,451	885	4,372	6,708
	Under construction	144	18	151	313
1931	In operation.....	1,423	916	4,757	7,096
	Under construction	121	47	147	315

Total Generating Capacity

Year		Water power (Kw.)	Fire-burning (Kw.)	Total (Kw.)	Rate of increase in capacity developed		
					Water	Fire-burning	Total
1927	In operation	2,111,087	1,356,044	3,467,131	7.5%	10%	8.5%
	Under construction ...	1,764,334	152,825	1,917,159			
1928	In operation	2,290,351	1,531,703	3,822,054	8.5%	13%	10%
	Under construction ...	1,693,270	146,882	1,840,152			
1929	In operation	2,581,949	1,611,647	4,193,623	13%	5%	9.5%
	Under construction ...	1,325,788	246,747	1,572,535			
1930	In operation	2,797,637	1,601,677	4,399,314	8%	—	4.9%
	Under construction ...	1,385,454	275,466	1,660,920			
1931	In operation	3,056,936	1,599,588	4,656,524	8.5%	—	5.5%
	Under construction ...	1,392,099	475,192	1,869,291			

Rivers and the Average Potential Amount of H.P.s per annum

The following table gives the names of principal rivers in the Eastern and Western zones with their average yearly amount of H.P.s, the rivers being divided for convenience into those emptying into the Japan Sea and those into the Pacific Ocean:

Japan Sea Group

River	Aver. amount of h.p.s.
Agano	990,000
Hime	145,287
Ishikari	200,000
Kurobe	550,000
Kuzuryu	120,656
Jintsu	416,341
Jeganji	92,856
Mogami	213,785
Shinano	1,280,000
Sho	292,268
Tetori	80,464

Pacific Ocean Group

River	Aver. amount of h.p.s.
Abukuma	111,507
Arakawa	63,324
Fuji	288,872
Kino	72,187
Kiso	1,160,000
Kitakami	114,574
O-i	200,000
Sagami	200,000
Sakawa	60,518

River	Aver. amount of h.p.s.
Tenryu	690,000
Tone	158,460
Yahagi	59,299
Yodo	200,000

Dry Season.—The dry season comes twice a year in Japan for a short period both in winter and summer, when the available power of a Japanese river decreases about 40 per cent from the normal. The average decrease of all rivers at any time is, however, estimated at 20 per cent in Japan. The shortage during the dry season is met by auxiliary steam plants.

Largest Load Centers

The three largest load centers in Japan are Kei-Hin (around Tokyo and Yokohama), Chukyo (around Nagoya) and Kei-Han (around Kyoto, Osaka and Kobe).

The territory around the three centers may also be divided into two zones.

1. Eastern zone with center in Kei-Hin district (Tokyo and Yokohama).
2. Western zone with center in Chukyo district (Nagoya) and Kei-Han district (Kyoto, Osaka and Kobe).

These two zones are geographically separated by the Japanese Alps and the River Tenryu.

Largest Transmission

The existing large transmission lines under operation are listed below:—

Names of Companies and Transmission lines	Distance in miles
Eastern Zone:	
Tokyo Electric Light Co.	
Inawashiro Line	140
Tokyo Electric Light Co.	
Joetsu Line	150
Kei-Hin Electric Power Co.	
Koshu Line	125
Average Eastern Zone	132
Western Zone:	
Daido Electric Power Co.	
Suhara-Osaka Line	150
Nippon Electric Power Co.	
Sadatsu and Osaka Line	190
Average Western Zone.....	170

Generation and Frequency

According to the investigation made by the Toho Electric Power Co., Ltd., the amount of power generated at different frequencies at the end of June of each year are as follows:—

Year	Kw. at 50 Cycles	Kw. at 50 Cycles	Kw. at Misc. Frequencies	Total
1912.....	117,000	137,000	60,000	314,000
1915.....	160,000	231,000	80,000	474,000
1917.....	290,000	297,000	104,000	691,000
1919.....	377,000	429,000	38,000	899,000
1921.....	504,000	708,000	194,000	1,316,000

Since June 1921, the installation of the 60-cycle machines has surpassed that of 50 cycles, and it may be said that at present the ratio of 50 to 60-cycle power plants is 2 to 3.

Electric Machines and Apparatuses

Japan is now self-supporting in telegraphic and telephone apparatuses, electric fans, and similar minor articles. She has so far advanced in technical skill that generators of the size of 20,000 kilo-volt ampere, motors of several thousand h.p., motors for steel-rolling, weaving, etc. are turned out at such big works as Shibaura Works, Mitsubishi's Kobe Shipyard, Kawakita Works, Kuhara's Hitachi Engineering Works, etc. Due to the development of this branch of industry in recent years Japan is now rather an exporter than importer of electric machines, except in the case of high-grade makes for which Japan is still dependent on foreign makers. An interesting sign of the times is the alliance recently effected between Japanese works and foreign makers, i.e. the Shibaura Works and the G.E.; the Tokyo Denki and the Westinghouse; Furukawa Firm and Siemen-Schuckert; and the Nippon Dento

and the W.E. This alliance has proved highly beneficial to both parties.

Figures for the last five years available are as follows (¥1,000):—

Year	Electric apparatus	Bulbs, etc.	Wires & cables	Total
1927.....	94,002	25,685	107,286	226,973
1928.....	125,395	26,817	109,742	261,954
1929.....	126,738	29,088	110,543	266,369
1930.....	106,840	23,216	73,725	203,781
1931.....	73,435	17,811	51,424	142,670

Supply of Power

The most remarkable progress in demand is seen in the field of electric power. At the end of 1931 number of electric motors installed was 519,765 having total capacity 3,832,517 h.p. Compared with the figures for 1922, three times and two times increased in a decade in number and horse power. Of the figures about 390,000 motors having 1,320,000 h.p. are served by commercial power companies and 129,000 having 2,513,000 h.p. driven by private and government plants.

Besides electro-motive power the demand for electric energy for other purposes in industry and household at the end of 1931 was estimated at 930,000 k.w. or four times of that for 1922. This is partly because of the outstanding progress in household electrification. Below are given the statistics showing progress in the demand for the electric power in recent years:—

Year	Electric motors		Installed capacity for other purposes
	No. of installed	Total horse power	
1922.....	192,017	1,661,147	221,722
1924.....	243,756	1,823,235	274,367
1926.....	298,956	2,292,690	341,981
1928.....	412,156	3,050,390	685,054
1929.....	456,793	3,319,217	689,811
1930.....	497,857	3,577,410	864,095
1931.....	519,765	3,832,517	929,510

The demand for power is steadily growing for diverse chemical industries, the power supplied increasing to 3,832,500 h.p. in 1931 from 3,577,410 h.p. in 1930.

Motors as classified by use are as follows for 1931:—

	No. installed	Horse power
Textile	99,700	665,700
Mechanical	62,900	531,200
Chemical	43,000	762,600
Foodstuffs	139,400	333,500
Mining & refining	21,800	892,200
Miscellaneous.....	153,001	647,300
Total.....	519,000	3,832,500

Electric Light

The number of lamps installed, which increased about ten per cent annually for the past ten years, is now nearing saturation and declining in the rate of increase, due in part to the reduced use of electric lamps on the part of the customers suffering from the depression. The number has nearly doubled in past decade and the average candle power has increased from 15 candles in 1922 to 21 candles in 1931. There were about 37,410,000 lamps representing about 782,300,000 candles or 57 lamps representing 1,190 candles per hundred of population at the end of 1931.

Of the total number of lamps installed, about 5,690,000 or about 42 per cent represent those under meter rate system that has been of late widely adopted. As this rate system is not only more rational than the flat rate, but also has no less bearing upon power economy, there is reason to expect a new aspect of rate situation in near future, a sign of which can be read in so many cases of the companies introducing meter rate and improving conditions of service. The following table shows the progress in the demand for electric lighting in the last ten years:—

Progress in the Demand for Electric Lighting

Year	Number of customers	Number of lamps installed	Estimated candle power	Estimated wattage
1922	7,899,718	20,522,324	307,123,757	401,659
1923	8,305,218	21,687,810	334,162,383	430,014
1924	8,976,991	24,447,732	404,210,635	556,211
1925	9,652,058	27,320,740	461,073,576	574,268
1926	10,165,739	30,159,042	547,918,369	683,584
1927	10,547,235	32,322,991	605,604,846	736,179
1928	10,847,342	33,909,420	656,348,698	797,458
1929	11,170,618	35,893,352	704,634,862	863,046
1930	11,352,372	36,839,607	727,868,987	887,703
1931	11,446,539	37,413,988	782,340,943	959,144

It is understood that to such a conspicuous growth of electric lighting is the cities mainly responsible; for one hundred and nine cities claim 15,950,000 lamps or 43 per cent and six

premier cities 8,990,000 lamps or 24 per cent, the latter representing 241,300,000 candles or 30 per cent of the total at the end of 1931 for all Japan.

	No. of lamps	No. of candles	No. of lamps	No. of candles
Tokyo	2,931,000	88,834,000	Nagoya	815,000
Osaka	2,506,000	64,440,000	Kobe	835,000
Kyoto	1,325,000	35,561,000	Yokohama	573,000

The following table shows the number of households, lamps, candles, and motors in the last six years:—

Year	No. of households (1,000)	No. of Installations (1,000)		Per 100 pop.		Motors (1,000)		
		No. of lamps	No. of candles	Lamps	Candles	No.	H.p.	K.w.
1926	10,166	30,159	517,918	49.5	905	299	2,293	1,710
1927	10,547	32,323	605,604	53.0	990	340	2,405	1,704
1928	10,847	33,909	656,349	55.0	1,060	412	3,050	2,264
1929	11,171	35,893	704,635	57.0	1,118	457	3,319	2,476
1930	11,352	36,840	727,869	57.2	1,129	498	3,577	2,669
1931	—	37,414	782,340	57.4	1,190	520	3,833	—

Tariff Reduction Agitation.—The lighting tariff reduction movement that originated in Toyama prefecture in July 1928 and spread throughout the length and width of the country has led to a general reduction for both lighting and power supply. During the first half of 1929 this reduction was effected by

over 54 electric light and 30 power supply concerns. Finding it hard to maintain their business many minor electric establishments have approached local public corporations to purchase their business, such negotiations having been successfully concluded in Toyama, Miyagi, Yamaguchi, Kochi and other places.

A similar movement has recently affected the gas industry in Tokyo, Kyoto Osaka, Kobe and other large cities.

Financial Aspects

As alluded before the electric industry occupies as regards the total capital invested the foremost place among all the industrial enterprises of Japan. With the marked development effected recently in the scope of work this particular economic activity has in fact become financially one of international importance. Indeed it has succeeded in inducing American and British capitalists to lend their spare hoardings. The fixed capital amounted to ¥4,900,000,000 at the end of 1931 supporting ¥3,200,000,000 paid-up capital representing ¥4,100,000,000 of the authorized capital and ¥2,400,000,000 of the bonds and debentures. For this striking swelling of capitalization is respon-

sible incessant expansion in scale and scope of the modern large power plants and the long distance transmission. The capital invested has increased four fold in past ten years or about two fold in past five years, and the amount of the bonds and debentures outstanding has increased nine fold in ten years or two fold in five years, representing more than seventy per cent of the paid up capital.

Though the industry as a whole reported net profits of about 10 per cent for many years, it has been showing smaller profits due principally to the economic slump. Of 587 joint-stock companies conducting electric light and power business, 40, 181 and 125 paid dividends of more than 10 per cent, less than 10 per cent and less than 5 per cent for the latter half of 1931 respectively; 237 were incapable of declaring any dividend. The following figures will show main financial features from 1922 up to 1931:—

Year	Gross cap. (¥1,000)	P. u. cap. (¥1,000)	Fixed cap. (¥1,000)	Debentures & loans (¥1,000)	Profit (¥1,000)	Ratio to p. u. cap.	Reserves (¥1,000)
1922	2,124,047	1,507,949	1,686,493	415,325	188,295	12	80,140
1923	2,366,845	1,703,195	2,039,721	585,634	192,212	11	91,268
1924	2,615,582	2,012,205	2,466,586	760,327	217,249	11	98,370
1925	2,813,921	2,218,649	2,769,096	1,070,879	252,977	11	119,295
1926	3,187,232	2,453,588	3,177,205	1,226,280	279,331	11	133,607
1927	3,524,199	2,677,153	3,667,387	1,506,040	279,541	10.5	150,483
1928	3,740,905	2,868,717	3,912,314	1,818,760	282,880	10	160,577
1929	3,984,816	3,019,222	4,478,128	2,129,871	301,900	10	176,688
1930	4,098,984	3,180,810	4,780,404	2,381,207	255,800	8	178,847
1931	4,143,034	3,234,181	4,896,338	2,471,532	227,062	7	—

The investment classified by kind of business makes this showing for 1930 and 1931 (in unit of ¥1,000):—

Year	Kind	No. of undertakings	Nominal capital	Capital paid-up	Fixed capital	Debentures & Loans
	Electric railway	151	629,719	408,995	708,834	340,964
	Both combined	48	2,046,860	1,756,032	2,613,076	1,205,618
	Total	679	4,098,984	3,180,810	4,780,404	2,381,207
1931	Electric supply	535	1,437,426	1,010,051	1,535,101	862,392
	Electric railway	191	653,213	433,300	755,223	373,849
	Both combined	49	2,052,403	1,790,830	2,606,014	1,235,291
	Total	773	4,143,043	3,234,181	4,896,338	2,471,532

Rating

This has on the whole made perceptible increase in recent years, as shown below:—

Year	Rating				Supply of power	
	5 c.p.	10 c.p.	15 c.p.	1 kw. hour	Daytime 1 h. p	1 k. w.
1912	48.5 sen	73.2 sen	100.0 sen	16.5 sen	8.66 yen	7.5 sen
1926	59.3 "	74.4 "	89.4 "	20.0 "	8.76 "	7.1 "
1927	58.9 "	74.3 "	88.6 "	20.2 "	8.68 "	7.1 "

The Electro-Chemical Industry
In the pre-war days this particular industry

was confined to the production of galvanized copper, calcium carbide, nitrogen-fertilizers,

etc., but at present the sphere of work comprises other fields, i.e. iron and steel foundry, and manufactures of alloy, cement, bleaching power, potassium chlorate, etc. The high water mark was attained 1918 when the output represented ¥166 millions, but decreased in 1931 to ¥94,221,000, of which the bulk consisted of copper, gold, silver and blue vitriol (¥52,642,000) and calcium carbide, lime nitrogen and ammonium sulphite (¥25,757,000). The excess power is utilized for the production of nitrogen, ammonium sulphate, etc. Production in recent years is shown below:—

Year	Value
1927	¥130,740,000
1928	143,383,000
1929	152,011,000
1930	131,516,000
1931	94,221,000

Classified according to items:—

Calcium, carbide, lime nitrogen and ammonium	¥25,757,000
Phosphorus	575,000

Tin	1,179,000
Caustic soda	2,874,000
Copper, gold, silver and blue vitriol	52,642,000
Iron, steel and ferro-alloy	3,449,000
Zinc and bismuth	1,125,000
Bleaching powder	1,399,000
Solidified oil	1,047,000
Miscellaneous	4,174,000
Total	94,221,000

Business Result of the Electro-Chemical Industry

Year	Capital p.u. (¥1,000)	Profit (-loss)	Rate of profit to p.u. capital	Dividend %
1929 { 1st half	17,500	1,130	12.9%	8.0%
2nd "	17,500	1,126	12.8	8.0
1930 { 1st "	17,500	613	7.0	5.0
2nd "	17,500	110	1.2	—
1931 { 1st "	17,500	-308	—	—
2nd "	17,500	-320	—	—
1932 { 1st "	17,500	-237	—	—
2nd "	17,500	850	9.7	—
1933 1st "	17,500	1,288	14.6	—

GAS INDUSTRY

Enactment of the Gas Business Law in 1923 has had beneficial effect on the development of the industry, as it entitles as a gas company to appeal to the Government whenever a public body unreasonably interferes with its plans for making reasonable expansion of business. For lighting purposes gas has been much encroached upon by electricity, but what has been lost is more than compensated for by steady increase of consumption for cooking and other household purposes. It is believed that by effecting proper improvement in generation and piping the business can be made far more profitable. The chief by-products, coke and tar, are still reduced to gas, but should be utilized to greater advantage. The average caloric quantity in larger cities is 400 B.T.U. on the average, and the charge per cubic meter is between 7.3 sen (Tokyo) and 15.8 (Kuwana).

The relative proportion of gas for different purposes is shown below:—

Year (End of Mar.)	No. of installation	Motor	Motive h.p.
1927	2,234,722	358	6,524
1928	2,623,257	308	6,162
1929	3,057,487	265	6,023
1930	3,438,194	224	4,712
1931	3,704,090	193	3,307

Number of installed households, number of installation, motive power, and volume of gas supplied during the fiscal year 1929-30 of six premier cities are listed below:—

	No. of households	No. of installation	Motive h. p.	Volume of gas supplied (1,000 cubic meters)
Tokyo	604,378	1,440,779	1,970	318,356
Osaka	290,163	43,508	—	111,359
Kobe	111,053	280,809	2,717	42,029
Nagoya	68,655	235,668	112	36,501
Kyoto	75,170	197,931	—	33,501
Yokohama	28,121	75,078	—	14,724

The situation of the industry in recent years is as follows:—

Year (End of Mar.)	No. of works	Capital p.u. (¥1,000)	Production (1,000 cubic meters)	By-products	
				Coke (Fr. tons)	Coal-tar (1,000 ft.)
1926	74	606,377	786,611	706,475	42,951
1927	78	318,798	578,494	803,581	56,770
1929	81	350,233	653,838	899,120	61,751
1930	87	382,930	700,249	876,998	62,989
1931	94	395,632	740,081	890,071	68,313

Balance Sheet (5 leading companies)

Year	Subscribed capital (¥1,000)	Capital paid-up (¥1,000)	Reserves (¥1,000)	Profits (¥1,000)	Ratio to p.u. cap.	Dividend %	
1928... 2nd half	155,000	133,821	9,114	10,119	16.2	10.1	
1929...	1st "	155,000	9,790	11,468	16.6	10.0	
	2nd "	175,000	155,750	10,673	12,163	16.0	10.1
1930...	1st "	175,000	155,750	11,495	12,578	16.2	9.9
	2nd "	175,000	160,000	11,906	12,293	15.4	9.6
1931...	1st "	183,000	160,000	12,508	12,316	15.4	9.1
	2nd "	200,000	166,250	11,364	12,440	15.4	8.9
1932...	1st "	200,000	166,250	11,666	12,736	15.3	8.9
	2nd "	200,000	166,250	12,202	12,385	14.9	8.9

MECHANICAL INDUSTRY

A brief survey of the situation of some of the important mechanical industries in Japan is given in this section, the information being based on the Industrial Japan, the Major Industries of Japan (by U. Mogami), Kōgyo Nenkan (pub. by Kosei-kai), the Statistical Annual of the Dept. of Commerce & Industry, etc.

Motors

Water-wheels.—The Dengyo-sha, Hidachi Works, and Okumura Electric Co. are principal makers in this line, the machines now turned out by them being of high-grade quality and developing tens of thousand kilowatts. The growing activity of water-power exploitation at home and in neighboring countries gives a good promise for the future of this particular mechanical industry.

Steam Turbines.—For turbines of various types of excellent make the Mitsubishi and Kawasaki Shipyards, Osaka Iron Works, etc. are noted. The Navy arsenals are no less active in this work so that the home manufacture is now sufficient to meet the requirements of warships. The native makers can now turn out turbines of over 10,000 kilowatt capacity for use other than marine.

Diesel Engines.—In petroleum semi-Diesel engines, especially those of 30 to 100 H.P. capacity made by the Niigata and Ikegai Iron Works are of wide repute as motors equipped to fishing vessels and have largely contributed to the recent development of the fishing industry. It is significant to note that the Niigata Iron Works has secured the patent right of Millies Vicker Co. of England and the Kobe Steel Works that of Sulzer Co. of Switzerland, and are manufacturing turbines of over 600 H.P. of these special types.

Smaller size petroleum engines for agricul-

tural purpose are in great demand recently, the Kubota Iron Works and Tobata Co. being leading manufacturers in the line.

In air engines Japan has practically attained a stage of self-supply, and the Army arsenals and the Mitsubishi Air Craft Co. (formerly Internal Combustion Engines Works) are now turning out engines of Salmson, Hispano-Suiza and Nevia type of excellent make and high efficiency.

Electric Apparatuses, Machines, etc.—The leading concerns with paid-up capital of over one million yen in this industry are the Shibaura Engineering Works, Hidachi Works, Mitsubishi Electric, Okumura Electric, Fuji Electric, Kawakita Electric, Yasukawa Electric Cos. etc. The number of workers employed by these and other smaller establishments reached about 50,000. The annual output for the five years ending 1931 is as follows (¥1,000):—

Dynamos & elec. tric dynamos...	1927	1928	1929	1930	1931
	21,299	20,421	23,935	19,211	15,235
Motors.....	24,396	23,739	22,935	37,548	22,215
Insulated wires...	77,611	92,808	57,966	45,195	31,863

In the manufacture of electro-meters, indicators, other electric supplies and telegraphic machines the home industry has already reached the stage of self-sufficiency. The Shibaura Engineering Works and Tokyo Electric Co. are well known for their meters of the American General Electric Co. and the Ashida Works those of the American Sangamo Electric Co. The Yokokawa, Tokyo Keiki Kyoritsu Denki, Nippon Denki, Kuwana Denki, Nisshin Denki and Shikishima Denki Cos. are leading makers of indicators, while telegraphic and wireless apparatuses are turned out at the Oki Denki, Kyoeki Denki, Annaka Denki, Nippon

Musen, Tokyo Musen and Yoshimura Cos. The bulk of telephonic apparatuses is also supplied by home manufactures, only a small portion being imported. Leading makers in the line are the Nippon Denki, Oki Denki, Kyoritsu Denki, Kycei Denki, Kawakita Denki and To-A Denki Cos. Before the Japan-China (1894-5) the production hardly exceeded 1,000 a year, whereas the annual output at present exceeds 95 million yen.

Batteries.—The investment in the business aggregates about ¥9 millions. The Nippon and Yuasa Battery Cos. specialize in storage batteries and turned out about 80 per cent of the total production, their manufactures going to China, India and Australia. The production of dry batteries is centered about Tokyo and amounts to ¥3½ millions a year, of which some 10 per cent is exported to China, South Seas, etc.

Electric Wires and Cables.—The annual production is valued at over 100 million yen (¥51,424,000 in 1931). The factories identified with the business are Furukawa Electric, Sumitomo Electric, Fujikura Electric Wire Cos. etc.

Spinning & Weaving Machines.—Noted makers are the Toyoda, Harada and Enshu Shokki Cos., the first-named being especially known as the only factory capable to turn out the whole range of spinning machinery. Its working capacity is about 60,000 spindles a year. After all foreign-made machinery is still predominant in Japan, about 5 million spindles in operation being of foreign origin.

Bridge Materials.—There are made by the Ishikawajima Dockyards, Kisha Seizo Kaisha, Kawasaki Dockyards (Hyogo), Yokokawa Works (Tokyo & Osaka), Osaka Iron Works, Mitsubishi Dockyards (Kobe), Uruga Dockyards, etc., and their annual production is estimated at 200,000 tons.

Locomotive & Rolling Stocks.—The progress in this line has made marked strides and the Japan-made locomotives are now extensively used on Government railways and in China. The oldest and foremost in the line is the Kisha Seizo Kaisha of Osaka, followed by Japan Car Mfg. Co., Kawasaki Dockyards, Hidachi Works, Mitsubishi Dockyards, and others, their total capacity reaching 450 cars (about 40,000 tons) a year. The Hidachi Works, Mitsubishi and Kawasaki Dockyards have recently started manufacture of electric

locomotives, and several 1,200 H.P. locomotives made by the Hidachi Works are employed on the State rly. lines. In passenger and freight car building the Government Railways Works, Kisha Seizo Kaisha and Japan Car Mfg. Co. stand high, their combined manufacturing capacity reaching 2,500 passenger cars and 10,000 freight cars, each of 10 tons capacity, in a year. For motors and brakes for electric cars there are the Government Rly's O-i Factory, Shibaura Engineering Works, Hidachi Works, Mitsubishi Electric Engineering Co., Kawasaki Dockyards, etc. The Mitsubishi Electric Co. and Japan Air Brake Co. manufacture air Summitomo and Kobe Steel Works supply automatic couplers of excellent make.

Motor Cars & Cycles.—The Ishikawajima Dockyards, Kaishinsha, Hakuyosha and Tokyo Gas Denki Kogyo Co., stand in good repute for producing passenger and freight cars, while as makers of motor cycles the Katsu Factory, Rishshosha and others are well known.

Optical Instruments.—The Nihon Kogaku Industrial Co. is credited for excellent optical implements, surveying machines and other scientific implements.

Mechanical and Engineering Production (¥1,000)

	1917	1928	1929	1930	1931
Ships	65,930	48,894	52,709	115,137	38,176
Cars, etc.	85,040	106,033	153,239	90,487	75,615
Pumps, cranes, etc.	12,252	16,569	16,818	17,085	10,840
Machine-tools, finishing machines, etc. ...	56,901	62,753	70,899	54,437	54,374
Electric apparatuses	53,104	67,159	36,624	29,291	21,929
Meters, gauges, etc.	14,886	16,937	17,612	15,894	13,492
Clocks, watches, etc.	8,878	9,403	9,066	11,409	6,075
Arms, etc.	16,000	22,294	18,646	13,141	13,443

Dynamos.—The following figures show the output of principal products in this line at such leading works as the Nagasaki and Kobe Dockyards of the Mitsubishi Firm, the Kawasaki Dockyard at Kobe, the Kobe Iron Works, etc. (in ¥1,000):—

	1927	1928	1929	1930	1931
Boilers, steam turbines	1,121	3,208	5,649	5,169	6,369
Steam engines ...	24,397	22,935	37,548	36,377	22,215
Pumps	7,852	9,812	8,608	8,001	6,837
Electro-motors ...	21,238	20,422	1,766	1,687	1,104
Gear-wheels	12,104	10,628	3,497	6,565	6,962

Import of Dynamos, etc. (¥1,000)

	1928	1929	1930	1931	1932
Boilers, economizers	1,199	1,365	3,256	2,505	1,243
Steam turbines...	245	825	1,025	696	182
Electric motors...	6,416	6,832	3,539	1,999	1,644
Internal combustion engines ...	12,842	18,113	14,477	10,930	12,471
Water-wheels.....	559	1,095	36	—	9
Total	21,361	28,231	22,333	16,130	15,549

Year	Value
1929	689,505
1930	493,709
1931	434,868

Exports of machines & parts, steamers & marine engineering machines, transportation machines, railway rolling stocks, watches, scientific instruments for the last five years are as follows:—

Mechanical Industry in Customs Returns

Production of miscellaneous metallic for the last five years is as follows (¥1,000):—

Year	Value
1927	467,123
1928	544,802

Year	Value
1928	¥28,975,484
1929	38,611,271
1930	35,664,995
1931	29,890,739
1932	34,699,948

Principal items of exports are as follows:—

Items	1928	1929	1930	1931	1932
Clocks	1,741,457	1,054,547	1,462,865	689,048	920,462
Musical instruments & parts.....	553,537	651,180	411,314	81,975	189,672
Bicycles and parts	10,685,103	12,673,355	10,893,205	8,441,503	11,506,367
Ships	2,830,824	6,390,064	5,893,205	3,960,591	7,488,218
Electric machines	1,690,687	2,453,690	3,003,440	2,686,192	1,414,745
Telephone.....	453,713	919,724	601,434	521,151	642,429
Spinning and weaving machines...	3,072,573	3,661,083	3,852,144	5,156,102	3,650,922

Imports

	1928	1929	1930	1931	1932
Machines and parts	92,205,459	121,094,903	85,714,172	50,910,084	60,572,902
Steamers and marine engineering machines, railway rolling stocks, transportation machines.....	48,787,178	40,521,727	22,993,255	17,382,243	15,705,911
Scientific instruments and guns	18,796,985	18,248,179	11,536,111	8,108,890	14,661,356

Principal items of imports are as follows:—

Items	1928	1929	1930	1931	1932
Gas, oil, hot-air engines	12,842,277	18,113,303	14,476,911	10,929,656	12,471,317
Water turbine and Pelton wheels	559,205	1,095,931	36,136	—	9,081
Boiler and fittings.....	3,349,590	2,376,404	3,124,470	2,237,654	1,192,482
Air and gas compressors	1,979,660	2,539,905	2,024,204	642,609	809,802
Cranes	279,085	479,137	300,896	287,102	4,102
Electric generators & motors ...	6,416,372	6,832,403	3,538,611	1,999,408	1,643,969
Metal working and wood working machinery	4,381,878	5,624,385	4,841,017	3,070,106	5,808,181
Spinning machinery.....	10,431,087	14,486,612	6,365,232	3,512,433	7,998,254
Paper making machinery	379,807	346,421	127,908	38,743	37,030
Sewing machinery	5,242,884	9,220,086	3,940,018	2,627,981	3,106,274
Railway cars and parts	2,091,839	1,420,673	324,218	132,856	74,347
Watches and parts	13,770,655	9,545,870	4,896,992	2,378,063	2,894,234
Bicycles	1,684,196	1,606,653	967,095	654,333	583,466
Bicycles and parts	1,573,233	1,236,193	596,604	399,212	211,820
Locomotives and tenders	905,264	1,062,555	544,389	59,530	70,397
Scientific instruments	16,387,655	16,280,469	10,698,063	7,330,023	8,833,861
Fire-arms & parts thereof.....	2,409,330	1,967,710	8,8048	778,867	5,827,495

Capital, Factories and Operatives

The figures for 1930 showing the financial aspect of companies devoted to this industry

and the number of works employing 50 operatives or more are as follows:—

	No. of companies	Subscribed capital (¥1,000)	Capital paid-up (¥1,000)	Reserve (¥1,000)
Joint stock companies.....	621	517,248	517,248	88,382
Partnership.....	1,322	225,746	—	1,194
Total.....	1,942	743,094	517,248	89,576
Electric machines and tools ...	340	225,343	166,198	28,340
Vessels.....	89	236,734	169,739	31,167
Manufacturing & finishing machines.....	473	72,229	41,961	5,920
Machines and tools for technical use.....	207	50,919	32,484	6,661
Rolling stocks.....	245	60,058	47,535	9,097
Steam turbines, boilers, etc. ...	168	25,512	15,155	811

In 1930 the operatives numbered 231,434 of which 168,338 were in private and 63,096 in Government works, the male workers claiming 218,839.

CHEMICAL INDUSTRY

GENERAL SITUATION OF NEWLY STARTED CHEMICAL INDUSTRIES

The bio-chemical industry has made a fairly good progress after the World War. Of about 1,000 brands of new medicines now on the market about 300 are of foreign origin and the rest Japanese.

SODA ASH

Until 1914 the bulk of soda ash consumed in Japan was supplied by England. Owing to the stoppage of imports consequent upon the War on one hand and the sudden growth of demand at home on the other, the Asahi Glass Co. took up in 1915 and carried into effect the Government project to establish a soda ash plant. As the concern, which is an enterprise of the Mitsubishi Firm, had to face the competition of the formidable foreign rivalry the business cost it dear, but at last it succeeded in turning out about 20 tons a day by 1922, to increase to 45 in 1925 and 55 in 1926, with prospect of 80 a day in near future. The Japan Soda Co. established in 1918 joined the Asahi Glass Co., but soon experienced similar difficulty, and being less powerfully backed than the other temporarily shut down its factory in 1924. It was reopened in January 1929 and is now turning out 40 tons a day, which it expects to increase to 80 tons in near future. The Government's decision to grant bounty for 5 years commencing with 1929 has had the desired effect of reviving the business of our hard pressed manufacturers who had to contend with Brunner Mond's product and the African natural salt.

Absence of cheap industrial salt is the primary drawback in the development of this industry in Japan which requires some 200,000 tons of cheap salt for making annually 100,000 tons of ash, the quantity which Japan wants. The supply of industrial salt now comes mainly from Shantung and Spain. The combined output of the two existing concerns can cover over 16 per cent of the whole domestic consumption at present. The import of soda in 1931 and 1932 amounted to 90,560,500 and 77,398,000 kin respectively.

Caustic Soda, Soda Ash and Bleaching Powder

The production of caustic soda in Japan was yearly on the increase from 1920 up to now, the output in 1932 reaching 41,864 metric tons. Import of caustic soda in 1932 totalled 28,192 metric tons, showing a decrease of about 13,404 metric tons below the previous year's figure. Partially due to the restricted output enforced since July 1925, the consumption of both goods has gradually increased, bleaching powder from larger production of paper and establishment of new pulp factories, and caustic soda from the recent development of rayon and other fibre industries.

The following statistics show the volume of production, import and export of caustic soda, and import of soda ash and natural soda, with the supply and demand of bleaching powder, for the years ended 1932 (in metric tons):—

	1928	1929	1930	1931	1932	
Caustic soda	Production.....	27,516	33,261	32,850	36,577	41,864
	Import.....	61,123	42,388	37,617	41,596	28,192
	Export.....	33	19	12	125	22,290
	Consumption.....	88,606	75,630	70,456	78,159	67,818
Soda ash imported.....	41,204	49,523	36,634	18,685	25,917	
Natural soda imported.....	37,440	29,594	28,622	35,641	20,507	
Bleaching powder	Production.....	42,033	54,647	44,139	36,580	42,885
	Export.....	3,061	3,109	3,447	3,866	2,857
	Consumption.....	38,973	51,538	40,671	34,346	39,828

CERAMICS

Porcelain and Pottery.—In the production of foreign style crockery for export Aichi prefecture, where Seto, the most flourishing center of this industry in Japan, is situated, ranks first. Its total output, domestic and foreign consumption combined, amounts to about half of the total for the whole country which in 1931 reached over ¥54,197,884. The leading establishments are the Nippon Toki, Nagoya Seito, Matsuura Koshitsu Toki (Hard Porcelain), etc. Other producing centers are Aichi with ¥27,276,552 or 50% half of total production followed by Gifu with ¥8,043,484 or 14% of the total value, Kyoto (noted for decorative wares), Saga (noted for Arita or Imari porcelain), Miye (Banko porcelain), Ishikawa (noted for Kutani porcelain), etc.

Bricks, Tiles, Clay-pipes and Shippo (Enamel ware).—These are self-sufficient as to supply, and Shippo has a leading center in Aichi. The Shinagawa White Brick Co. and Kanamachi Brick Co. are leading manufactures in this line.

Statistics on porcelain, pottery, tiles and clay-pipes is as follows:—

Porcelain and Pottery			
Year	No. of factories	No. of operatives	Production (yen)
1927.....	7,020	45,426	73,970,523
1928.....	6,840	46,118	74,363,381
1929.....	6,862	47,108	76,726,018
1930.....	6,685	44,366	74,767,470
1931.....	6,435	41,226	62,419,930

Tiles			
Year	No. of factories	No. of operatives	Production (yen)
1927.....	13,140	41,595	38,703,792
1928.....	12,915	41,896	34,425,461
1929.....	13,012	42,905	34,120,428
1930.....	12,485	40,605	30,601,448
1931.....	11,962	38,066	22,640,180

Clay Pipes

Year	No. of factories	No. of operatives	Production (yen)
1927.....	897	3,122	3,552,890
1928.....	885	3,108	3,728,507
1929.....	878	3,193	4,542,070
1930.....	838	3,319	4,578,015
1931.....	832	3,150	4,301,342

GLASS AND GLASS WARE

The output of glass and glass ware which was about 7 million yen in value in the pre-war years increased to ¥64,360,000 in 1919 and ¥56,221,000 in 1920, though it declined to ¥44,669,000 in 1929, ¥40,583,000 in 1930 and ¥34,388,000 in 1931. The glass manufacturing industry in Japan was started in 1861 when the Government established the Shinagawa Glass Works. Foreign experts were engaged to instruct Japanese in this particular art.

At present the production of plate glass and bottles predominates over that of other articles. In the manufacture of the former, the Belgian process by hand blowing method was formerly employed, but today the tank furnaces and automatic machines with Siemens gas firing arrangements are installed in most of the factories for the manufacture of both plate glass and bottles. The enamelled glass ware and the pressed glass ware are still the products of manipulation. Coal firing and the system named "rentai furo" having a mouth for blowing flames in the center are employed. This method, however, is likely to be substituted and superseded by the western labor-saving machines. Bottle-making by American method is now turning out greater output than that by hand-blowing process, and some of the companies have adopted the Owen's automatic blowing machines while others are using American O'Neil-Lynch machines or special Japanese automatic machines.

The raw material for glass making, for instance, various kinds of sand and limestone, can be obtained in abundance in the interior

of the country. Very small quantity of soda ash is produced in Japan, greater part being imported from England. Glass melting materials are obtainable in Japan, while fuels come from Hokkaido and Kyushu and small quantity from China. The export of glass and glass wares in 1930 reached ¥9,609,270, decreased to ¥6,534,269 in 1931, and increased to ¥9,281,682 in 1932, the figure including window glass ¥377,594, bottles ¥3,370,595, spectacles ¥412,909, beads ¥1,043,159, looking glasses ¥1,306,022, etc.

CEMENT

The industry which at one time suffered from overproduction recovered buoyancy after the earthquake disaster of 1923, owing to the activity of the building industry, hydro-electric enterprises and reconstruction work, and the scarcity of stock in hand. At one time brisk business favored the industry despite the general depression. In 1926, however, the demand began to wane while the expansion work effected by the manufacturers resulted in oversupply, partially caused by the arrivals of foreign products. The keen competition among the manufacturers to dispose of their stocks in view of the tight money seriously affected the market prices, and they had to make arrangement for the reduction of output by 35% to 32% since July 1927. This largely improved the situation, and with the increase of demand in 1929 and the gradual diminution of the stock the industry recovered activity, though exports remained very dull owing to the competition of German and English Portland cement in India and the

	1929	1930	1931	1932
Capacity per month.....	500,361	580,516	697,063	562,485
Production				
{ Cement.....	4,399,800	3,748,330	3,614,914	3,731,382
{ Clinker.....	4,327,350	3,694,270	3,628,085	3,739,122
Shipment				
{ Total.....	4,147,830	3,836,900	3,619,076	3,791,440
{ For home consumption	3,666,560	3,204,500	3,077,547	3,321,421
New contract..				
{ For home market.....	3,953,690	3,244,450	3,062,632	3,683,945
{ Export	473,790	579,020	525,420	524,030
Stock				
{ Cement.....	250,920	161,840	159,825	100,045
{ Clinker.....	113,390	67,150	84,144	89,247

The Asano Cement Co., the pioneer of the line, is the oldest in Japan and is proud of its enormous capital and of its turning out a considerable quantity of cement. Its factories are distributed in important places such as Tokyo, Kawasaki, Moji, Hokkaido, Osaka, Nishitama and Taiwan, and have a total of twenty-six revolving kilns. Annual output amounts to over

South Seas, where the market is now practically closed for the Japanese goods.

It is noteworthy that cement mills are now considering a further increase in output in expectation of a further increase in demand.

Sales for the home market showed a considerable increase, reaching a high record of 379,857 tons in March 1933. Total deliveries during the first seven months of 1933 reached 2,230,958 tons, an increase of 502,127 tons or 29.0% over the previous year. Shipments to Manchoukuo and Kwantung Province have also shown a heavy increase, the total during the first seven months amounting to 145,170 tons, a marked increase of 86,858 tons or 14.0% over the previous year. Exports witnessed an upward tendency since last autumn, favored by the low exchange rate. The total for the first seven months of this year amounted to 231,971 tons, an increase of 35,745 tons or 18.2% as compared with the previous year. The outlook is, however, less favorable on account of the higher customs tariffs and other trade barriers abroad.

As a result of the favorable market conditions, stocks registered a fair decrease, reaching the low level of 100,045 tons at the end of December 1932 as against 159,825 tons at the end of the previous year. Holdings at the end of July 1933 totalled 176,422 tons, a reduction of 102,655 tons or 36.8% compared with a year ago.

Below are given the capacity per month, production, shipment, etc. of cement in the last four years ending 1932 (in metric tons):—

11,000,000 barrels which represent 30% of the total production of the country.

The conspicuous improvement in the cement market led to better business results of cement manufacturing companies. Detailed for the first half of 1933 for six leading companies as compared with the two preceding terms are as follows:—

INDUSTRY

	1932		1933
	1st half	2nd half	1st half
No. of companies	6	6	6
Paid-up capital (¥1,000).....	37,911	37,911	38,642
Net profit (¥1,000)	1,458	1,718	2,483
Ratio of net profit to paid-up capital	7.8	9.1	12.9
Dividend (¥1,000)	803	965	1,543
Dividend ratio (%)	4.2	5.1	8.0

SUGAR

(Also vide Chapter on Taiwan)

Japan has at present two centers of sugar production, i.e. Okinawa or the Luchu (in Japan proper) and Taiwan (Formosa), but the latter is in comparatively important than the other, not only on account of its larger supply of crude sugar, but because of the fact that the refining business as conducted in the

homeland is practically undertaken by the Formosan sugar concerns. The production of sugar has suddenly increased from about 1907, the yearly output in recent years amounting to over 14 million piculs. The consumption is also increasing, i.e. 14,235,177 piculs in 1929 and 14,863,860 piculs in 1930. About 3,858,499 piculs were shipped abroad in 1930.

Sugar production in Taiwan for 1930-31 season totalled 1,328,798,700 kin, a record high amount since the occupation of the island by Japan. Because the prices remained low and owing to arrival of foreign product at lower figures the Formosan sugar manufacturers were in difficulty and some concerns had to cut down their dividends. Demand and supply of sugar in Japan proper and Taiwan for the last five years are as follows (in piculs):—

Supply and Demand in Japan Proper

Year	Production	Import	Import from territories	Export	Export to territories	Consumption	Consumption per capita
1926.....	1,607,387	7,585,372	7,448,968	3,063,087	249,407	13,329,233	22.15
1927.....	1,622,394	7,037,469	7,240,517	2,684,498	309,164	12,901,748	21.16
1928.....	1,931,952	6,350,938	10,006,970	3,868,982	227,135	14,193,741	22.76
1929.....	1,865,208	3,795,855	12,177,935	3,290,222	382,369	14,235,117	22.53
1930.....	1,652,076	4,077,603	12,992,680	3,637,298	221,201	14,863,860	22.96

Supply and Demand in Taiwan

Year	Production (100 kin)	Import (100 kin)	Export (100 kin)	Consumption (100 kin)	Consumption per capita (Kin)
1926-27	6,852,340	588,915	6,845,771	595,484	14.33
1927-28	9,667,548	157,558	9,198,255	726,852	17.10
1928-29	13,155,475	58,446	12,527,152	586,769	13.48
1929-30	13,508,059	60,164	12,855,864	712,329	15.96
1930-31	12,287,987	80,598	12,681,392	682,387	14.86

N.B.—100 kin—1 picul.

Raw Sugar.—The supply of crude sugar being insufficient in Japan proper the refineries use the raw material from either Taiwan or Java. The recent figures on the refining business are given below:—

Year	No. of Factories	Amount of raw materials used	Production (1,000 kin)
1926.....	17,455	959,550	939,498
1927.....	15,375	883,664	976,758
1928.....	15,478	951,951	944,326
1929.....	14,181	918,612	907,056
1930.....	13,450	822,583	815,436
1931.....	12,884	873,359	870,005

Beet-Root.—The beet-root sugar industry is no novel affair in Japan, for it was first attempted in Hokkaido by the Colonial Government in 1879 and by a private concern in

1888. Both attempts failed and were wound up, the failure principally attributed to the ill-chosen position of the farms, i.e. in the districts subject to comparatively heavy rain in the harvesting season. The subsequent inquiries and experiments having proved that the districts of Kitami and Tokachi are free from this disadvantage, the two beet-root concerns that were established after the Armistice have chosen their farms there, but so far the results are not encouraging.

The Tariff Question.—To shelter Japanese sugar refiners a protective tariff of ¥2.50-5.30 per 100 picul is levied on the import. At one time the home refiners could import crude sugar free by way of rebate when it was refined in Japan, but this measure having been strongly opposed by the Formosan sugar fac-

ories, the imported crude sugar is now subject to a slight duty.

Statistics on New Modern-Style Companies
(At the end of March 1932)

Name of companies	No. of refineries	Nominal capital (¥1,000)	Paid-up capital (¥1,000)	Raw materials consumed (1,000 kin)	Output of sugar (1,000 kin)	Output of molasses (1,000 kin)	Capacity per 24 hrs. (M. ton)
Taiwan Sugar Co.	13	63,000	43,080	3,329,844	471,140	75,215	11,814
Shinko Sugar Co.	1	1,200	1,200	159,201	20,911	5,087	560
Meiji Sugar Co.	7	48,000	34,800	2,463,585	320,188	57,272	8,520
Dai Nippon Sugar Co.	6	51,417	40,142	2,492,099	307,809	63,792	7,638
Ensuiko Sugar Co.	6	29,250	17,438	1,589,131	213,133	37,424	5,880
Niitaka Sugar Co.	3	28,000	10,750	653,540	85,122	16,546	3,284
Teikoku Sugar Co.	5	18,000	13,500	1,155,345	139,095	33,915	3,234
Showa Sugar Co.	2	3,260	3,260	311,019	38,643	8,968	1,310
Daito Sugar Co.	1	1,750	1,750	98,965	13,162	2,879	392
Shinchiku Sugar Co. ...	1	1,200	1,200	101,376	12,159	3,366	560
Saroku Sugar Co.	1	700	700	71,552	7,377	2,948	336
Total	46	245,777	167,819	12,431,655	1,628,738	307,412	43,528

The combined total of the paid-up capital, profit, the rate of profit and dividend of the six leading concerns (Taiwan, Ensuiko, Dai

Nippon, Meiji, Niitaka and Teikoku) for three years ending 1932 are as follows (¥1,000):—

Year	Subscribed capital	Capital paid-up	Reserve	Profit	Rate of profit to p.u. cap	Dividend
1930... { 1st half	237,667	154,270	51,834	12,236	16.2	8.8
1930... { 2nd "	237,667	154,317	53,234	6,658	8.6	7.7
1930... { 1st "	237,667	159,710	53,440	7,654	9.6	7.7
1930... { 2nd "	237,667	159,710	54,026	7,113	8.9	7.7
1932... { 1st "	237,667	159,710	54,417	10,077	12.6	7.7
1932... { 2nd "	237,667	160,608	55,316	16,617	20.8	7.8

ARTIFICIAL FERTILIZERS

The growing importance in Japan of the need of chemical fertilizers in preference to those of natural origin has stimulated the rise of enterprises for the fixation industry for producing sulphate of ammonia and nitrogen compounds. At present there are 4 companies for turning out the latter with the output of about 75,000 tons, of which 45,000 tons come from the Electric-Chemical Co.'s works. The manufacture of sulphate of ammonia is more active and totals about 200,000 tons of which the Japanese Nitrogenous Fertilizer Co. supplies over 100,000 tons. There are other projects in this line with prospective output of 200,000 tons. It may be noted that the acquisition of the Haber's patent during the World War has done much for the development of this branch of chemical industry in Japan.

As quick-acting fertilizer, sulphate of ammonia is judged to be better suited than bean cakes for Japanese soil, the frequency of rainfall in Japan seriously affecting the effective power of more enduring fertilizers. Moreover,

beans as manure are more costly than the sulphate, so far as the nitrogenous value is concerned, and it seems that they will in future be better utilized as foodstuff instead of as manure. The sulphate that used to come mostly from England and America is now principally supplied by Germany which in 1932 sold to Japan over 59% out of the total arrival of 197,891,600 kin (¥7,035,354).

MATCHES

On the strength of relative cheapness Japanese matches once gained in importance in export trade, but of late the advance of the price of raw materials and higher wages at home caused a setback especially as regards exports. Of all factories existing at present the Daido Match Co. is the biggest, contributing about 80% of the total output. The Company was established in October 1927, by the amalgamation of three match manufacturing concerns, namely, the Toyo, the Nippon and the Kobayashi Match Companies. Later, two similar concerns, the Kobayashi Match Co. and

Shinzo Yamato's Match Factory, both old establishments, effected amalgamation with the Daido Match Co. By combining several companies the Company effected the ideal of industrial rationalization and thereby consolidated its foundation. Furthermore, the Company absorbed several minor establishments of the line and established four subsidiary concerns, these being the Asahi Match Co., the Chugai Match Co., the Sanyo Match Co. and the Chosen Match Co.

In 1920 the industry suffered from over-supply chiefly due to the dwindled consumption at home and slack export to China, India and other places as well as the competition offered by foreign matches on the American market. The amount of output and export of matches in recent years is shown below:—

Year	Production	
	Gross	Yen
1927	3,301,575	14,540,033
1928	19,471,637	12,445,793
1929	21,607,683	9,825,495
1930	16,722,653	7,464,081
1931	13,535,353	6,686,245

Year	Export	
	Quantity (1,000 kin)	Value (¥1,000)
1928	22,189	5,118
1929	13,465	3,715
1930	12,275	2,965
1931	7,537	1,409
1932	4,065	938

DYE-STUFF

Under Government encouragement many companies in this line, such as the Japan Dye-stuff Co., Osaka Chemical Co., etc., were created soon after the outbreak of the World War and began to produce dye-stuffs either exclusively or as subsidiary business and by 1918 they were in position to export Japan-made dyes such as sulphuric black, methyl violet, congo red, etc., mostly to China and India. Meanwhile foreign dyes re-appeared on the Japanese market, the imports reaching ¥34,441,700 in 1920 and ¥32,082,500 in 1921, apart from 488,973 kil. of the German indemnity dyes that arrived in May 1921. Though the import duty on the foreign manufactures was raised in 1920 to 35% ad val. the invasion of the foreign goods almost strangled the infant industry. As a measure to protect the home industry the duty on basic, direct, acid, mordant, acid mordant, sulphur and vat dyes

and oil soluble dyes was increased in 1926 to ¥78-188 per 100 kin, and in the mean time measures were taken to restrict the import of over 40 specified dyes such as congo red, sulphur black, rhodamine B. extra croceine scarlet, mordant yellow, etc. At present the Japanese industry can meet the domestic consumption as regards aniline salt and sulphur black dyes, also the entire demand for methyl violet, besides supplying about one half of the consumption of aniline and alizaline dyes, amounting to over 4,000,000 kin annually. The Japan Dye-Stuff Co. and Miike Dye-stuff Factory have recently succeeded in effecting the manufacture of artificial indigo which Japan consumes to the extent of about 2 million kin annually. The artificial indigo industry is now placed under the protection of the Dye-stuff Regulation revised in 1929 for this purpose, at the same time slightly increasing the amount of bounty funds, extending the period of the working of the Regulation till 1934.

Betanaphthol and exynaphthoe acid and derivatives thereof, hitherto unenumerated in the tariff schedule, were included in dutiable list in 1929, the rates corresponding to about 30% ad val.

The new Japan-German Treaty concluded in 1928 contains a special arrangement as regards dyestuffs, according to which the importation into Japan of about 60 kinds of German dyes and intermediates, the manufacture of which is already possible in Japan, is subject to the consent of the Japanese Government. During the two years following the conclusion of the treaty the said agreement was carried out quite loyally by both parties concerned.

Production of synthetic colors in recent years is as follows:—

	1929 (Yen)	1930 (Yen)	1931 (Yen)
Basic	1,135,997	1,264,933	1,616,985
Direct	2,194,340	1,916,283	2,032,422
Acid	931,734	671,118	691,570
Mordant	209,819	177,442	160,908
Sulphuric	2,902,936	2,445,204	2,208,409
Com. { Vat ...	296,360	301,054	556,161
{ Other..	8,924,534	7,891,555	8,378,329
Neutral	6,931,514	4,655,050	4,338,188
Total	15,856,048	12,542,605	12,716,517

The total import of synthetic colors amounted to 3,329,671 kin valued at about ¥7,282,756 in 1931 and to 3,293,117 kin valued at about ¥9,066,438 in 1932. Classified by countries the

figures for two years are as follows:—

	1931 (Kin)	1932 (Kin)
France	177,551	202,634
Germany	1,781,218	1,941,122
Swe'en	624,861	588,163
U. S. A.	630,547	471,461
Total incl. others	3,329,671	3,293,117

BREWING

The brewing industry in Japan comprises "sake," beer and soy, for wine is still insignificant and as yet enjoying the benefit of non-taxation. The two indigenous industries of "sake" and soy are still primitive in process, and various new methods, several of them patented, have so far failed, especially as regards soy.

Sake.—For "sake," the national liquor brewed from rice, "Five villages of Nada" in Hyogoken, situated about midway between Osaka and Kobe, are the most noted center of production. What is interesting is that the fame of "Nada sake" is generally attributed not to any improved process of brewing but to the peculiar quality of water in certain wells existing in the five villages. The general opinion is that the bacilli found in the water possess the virtue of imparting a peculiarly agreeable flavor to the liquor. One defect of the "sake" industry is that it is difficult to keep its quality unimpaired beyond a few months, and to brew it all through the seasons, winter being the principal time for brewing it. With the object of removing such defects Government started in 1904 an experimental laboratory at Oji, a suburb of Tokyo, with the object of brewing the liquor all the year round. A further development made was more remarkable as it consists in manufacturing "sake" by synthetic process by dispensing with rice altogether, and this new liquor bears the brand known as "Rikyu." It was discovered by Dr. U. Suzuki, Gov. Physical and Chemical Institute. The process is believed to save 5 million "koku" heretofore required, "Shochu," a Japanese alcohol made from rice, and also a small quantity of alcohol are produced. Leading centers are Nada, Fukuoka, Hiroshima, Kyoto, Okayama, and Aichi.

Recent statistics are as below:—

Output at leading centers (years at the end of September; in koku)

	1929	1930	1931
Hyogo (Nada).....	696,299	629,966	561,349
Fukuoka	274,449	259,094	278,360
Hiroshima	228,746	224,065	204,647
Kyoto.....	265,660	225,342	216,879
Okayama	146,224	141,073	125,551

Beer.—Beer-brewing was first started early in the Meiji era by an Englishman in Yokohama and this was followed by a Japanese brewery in 1873 at Kofu. The business was also introduced about 1876 to Hokkaido under the tutelage of German experts and with the supply of foreign materials. However, it was not till 1893 that the industry had reached the stage of self-sufficiency and to produce enough to send the goods to the neighboring markets. The financial panic in 1910 and the consequent reduction to the minimum output of 1,000 "koku" per year drove small producers out of existence leaving a few large companies in the field, these being the Dai Nippon Brewery Company, Kirin Brewery Company, Kabuto Brewery Company and Teikoku Brewery Company. The World War which ruined the Oriental market for European beer offered an available opportunity to Japanese beer to develop market abroad and the staple was largely exported to the Asiatic and South Sea markets. The foreign demand has fluctuated, but later a steady increase has been noted following the post-bellum depression and the great earthquake of 1923. This, combined with the increase of domestic demand, accelerated further development of the industry.

At present there are 16 breweries in Japan. The Dai Nippon Brewery Company, controlling 7 plants, produces Yebisu, Sapporo and Asahi brand beer, its output amounting to over 50% of the total production of the country. The following figures will explain the recent situation of the industry (in koku):—

Year	Output
1927	795,335
1928	904,377
1929	895,945
1930	846,014
1931	797,544

Year	Export	Import
1928	41,917	Negligible
1929	39,156	"
1930	38,634	"
1931	36,637	"
1932	68,812	"

The output of three leading brewery companies, Dai Nippon Beer, Mineral Water and Kirin Beer, in the recent years is shown below (in koku):—

Year	Dai Nippon Beer	Mineral Water	Kirin Beer
1929	488,111	92,389	245,882
1930	423,561	108,862	221,890
1931	370,827	103,914	196,031
1932	354,002	121,285	197,890

The Beer Law as amended in 1908 allows the use of rice, maize or sugar, to produce beer of mild taste and free from turpidity, and the Rebate Law on Liquors is now applicable on export beer. At present the raw materials are supplied at home, though hops and corks are imported.

Soy.—In the manufacture of soy Chiba prefecture heads all other places on the list as to output. Principal manufacturing centers are Noda and Choshi. Parched wheat mixed with salt and beans is a principal ingredient. The process is still far from scientific, requiring about 12 months before the liquid is ready for sale. It is also costly, as it does not much admit labor-saving appliances. To obviate these disadvantages several patented processes have been tried, but most of them have failed. In 1917 the leading soy manufacturers at Noda combined and formed the Noda Soy Co., capital ¥7,000,000 p.u. with capacity of about 250,000 "koku" i.e. about 60 per cent of the total output of the prefecture. The company has now a capital of ¥30,000,000 (¥26,250,000 p.u.) and produces 500,000 "koku" a year, the "kikkoman" brand soy manufactured by this company ranks first both in quality and output. The commodity is recently exported to European countries and China to the extent of about 18,000 koku (¥1 million) annually. The number of factories is about 12,600 throughout the country.

Statistics on Sake, Beer & Soy (in koku)

(End of Sept.)	Sake		Beer		Soy Production
	No. of factories	Production	No. of factories	Production	
1927...	19,527	5,439,581	14	795,335	4,157
1928...	18,608	5,158,738	14	904,377	4,301
1929...	17,905	5,326,245	14	895,945	5,132
1930...	17,313	4,810,100	14	846,014	4,737
1931...	16,849	4,121,837	14	797,544	4,878

N.B.—Soy in 1,000 hectolitres (1 hectolitre—0.55 43 koku; 1 koku—1.8039 hectolitres).

FLOUR MILLING

At first the production was limited to the extent of covering the need of the country and no small quantities were imported from abroad, chiefly from U.S.A. Consequent upon the marked development of flour industry in recent years the domestic product at present not only covers the entire demand of the nation but the surplus product is exported to foreign markets. The export of the article to Manchoukuo (Manchuria) which was 3,379,000 barrels in 1927 increased to 9,976,000 barrels in 1932. In near future, it is expected the monthly shipment will reach over 1,000,000 barrels.

Demand and supply of flour in recent years are shown in the following table (1,000 barrels):—

Year	Output	Import	Export	Consumption
1927	36,701	897	3,379	34,220
1928	42,478	374	6,433	36,420
1929	43,159	314	8,271	35,203
1930	40,962	877	5,396	36,448
1931	42,088	258	6,080	36,266
1932	41,989	112	9,976	32,125

Owing to the scarcity of wheat production in this country the flour milling concerns have to import wheat from foreign countries such as U.S.A., Canada, Austria, China, and lately from Soviet Russia. In this respect the Japanese flour manufacturers are placed in a very advantageous position as they have the free choice of material supplying country which enables the companies concerned to stop the selfishness of a single country which might otherwise monopolize the import, but also check the advance of the price of wheat in this country.

The Nisshin Flour Milling Co. is the largest flour manufacturer in this country with the manufacturing capacity of 38,000,000 barrels in a year, although at present it turns out only 17,000,000 barrels. The daily output in the first half of 1931 was 21,000 barrels, representing about 45% of the combined production of all four mills in this country. In May 1931 the Company's factory at Tsurumi was destroyed by fire and in consequence the company's capacity was reduced by about 8,000 barrels a year. The Tsurumi factory contributes about one-third to the production of the company and is counted as one of the largest establishments in this country.

PAPER

The consolidation of the three leading paper manufacturing concerns which went into effect May 18th, 1933, marks the new era of rationalisation in the Japanese paper industry. Those three companies are the Oji, Fuji and Karafuto Kogyo; while the Oji Paper Mfg. Co. retaining its old title, the other two were amalgamated to the Oji.

It is one of the outstanding features of the year in the paper industry, if not in the whole of the Japanese industries, for the consolidation of the three companies, more or less being rivals each other in the past, enables the new Oji which controls approximately 80% of Japan's paper output to stand up on its feet more solid and to push its new programme of expanding into still a newer field of the industry.

So much is the new development. Historically Japan has, from olden times, been producing some of the finest grades of hand-made paper from fibres of certain shrubs, "mitsumata", "kozo" or paper mulberry, etc.

The manufacture of machine-made paper in this country dates back from 1872 when a modest mill was established in Tokyo. At present there are some fifty mills of larger scale, scattering all over the country—from Karafuto on the farther north down to Japan proper and up to the Yalu River, the boundary line of Japan and Manchoukuo. They are capable of manufacturing almost all kinds of paper and paperboard—printings, newsprint, writings, wrappings and packings, etc., including such specialties as cigarette paper and condenser paper for industrial purposes.

Thus the paper industry is now one of the major industries of the country and as far as quantity of the production of paper and paperboard is concerned, Japan ranks the fifth in the list of the world's paper manufacturing countries, the yearly production being estimated at nearly three quarters of a million tons. The Association of Japanese Paper Mills includes membership of seven companies, operating some 140 paper machines at present and supplying nearly 90% of the so-called foreign style papers consumed in the country. Among them, the Oji is by far the largest by virtue of its recent consolidation. Mitsubishi, Hokuetsu and Nippon Shigyo are also sharing important places. The total output of the Association members in the past five years are as follows (in 1,000 lbs.):—

Year	Printing & writing	Newsprint	Packing & wrapping	Others	Total
1928 ...	445,482	534,116	153,049	173,108	1,305,755
1929 ...	512,459	571,112	184,375	150,241	1,418,187
1930 ...	455,047	568,361	182,617	161,509	1,367,534
1931 ...	449,656	515,594	208,261	157,073	1,330,584
1932 ...	395,137	543,572	233,617	138,989	1,311,315

Outside of the foregoing Association, there are some 20 mills specializing in the manufacture of strawboard and other paperboard. The production of paperboards in the past five years is as follows (in 1,000 lbs.):—

Year	Strawboard	Other paperboard	Total
1928	159,775	44,982	204,757
1929	181,404	20,711	202,115
1930	150,790	49,066	199,856
1931	152,589	49,852	202,441
1932	152,277	77,013	229,290

By the foregoing tables, it is encouraging to note that Japan's production of the so-called foreign style papers and paperboards has been kept high despite of general depression prevailing particularly in the past few years. Not only the industry is now almost sufficient to take care the domestic requirements, but also a considerable quantity of its product is exported to Manchoukuo, China, Strait Settlements, British India, U.S.A. and a few other countries.

While exports are increasing, imports are decreasing on the whole year by year. Japan's imports are limited mostly to those specialties which call for a smaller quantity of demand at home and are therefore less remunerative for such undertakings. Figures of imports and exports in recent years follow:—

Year	Imports		Exports	
	Quantity (1,000 lbs.)	Value (¥1,000)	Quantity (1,000 lbs.)	Value (¥1,000)
1928 ...	106,631	16,093	165,314	21,335
1929 ...	85,304	13,685	176,871	22,490
1930 ...	102,655	11,581	211,956	23,230
1931 ...	116,315	11,746	188,524	20,995
1932 ...	116,475	11,652	132,604	14,022

Note.—In export figures, paper manufactures are not included since their quantity is not available. They are exported to the amount of over five million yen annually.

Japanese Paper.—As a rule native style papers are of hand-made and dependent on household industry, a factory on a modern scale being an exception. They are manufactured almost in every part of the country and they are extensively used among the Japanese in their

daily life for decorative as well as for practical purposes.

As already mentioned, some of the finest grades of papers produced in the country are of hand-made, i.e., "Gampi", "Hosho", "Mino", "Torinoko", etc., the excellent quality of which is widely recognized throughout the world. Provinces of Tosa, Mino and Echizen are considered the three important centers of production.

With the development of machine-made papers, the native style papers are also manufactured by machine in recent years. The manufacture of this latter class of paper is represented by "Hanshi", general term applied to ordinary writing paper. A yearly average for the production of the native style paper is estimated at about 55 million yen, of this 42 million yen by machine-made and the remaining 13 million yen by hand-made. The output for the whole country is shown below (in ¥1,000):—

Year	Hanshi	Minogami	Torinoko	Total incl. others
1927.....	8,072	1,522	5,301	59,005
1928.....	4,752	883	7,278	61,199
1929.....	12,139	1,048	7,585	60,685
1930.....	6,048	845	4,368	47,880
1931.....	5,350	826	5,088	45,989

Notes.—Above figures are taken from the statistics year-book of the Department of Commerce and Industry. This year-book, however, does not give its reference to the whole of native style papers, nor it gives the quantity for the total.

Wood Pulp.—The development of paper industry has stimulated the growth of the wood pulp manufacture. Before the World War the industry was less significant, but since the outbreak of the War the Japanese wood pulp industry has made its headway and the home product is now almost sufficient to meet the demand at home. The growth of this industry may be best illustrated in the following figures (1,000 lbs.):—

Year	Production	Index
1914	201,318	100
1920	600,905	298
1925	928,942	461
1930	1,401,203	696
1931	1,234,509	613
1932	1,269,428	631

Most of the pulp mills are located in Hokkaido and Karafuto. The output for the whole country in the past five years is as follows:—

Year	Chemical pulp	Mechanical pulp	Total
1928.....	749,457	534,681	1,284,138
1929.....	822,933	580,700	1,403,633
1930.....	818,839	582,364	1,401,203
1931.....	717,293	552,135	1,269,428
1932.....	692,998	541,511	1,234,509

A considerable volume of wood pulp is still being imported from abroad, the supply among mainly from Canada, Sweden and U.S.A. It must be noted, however, that a portion of the imported wood pulp is used for the manufacture of artificial silk and that at present there is no separate figures available to distinguish the so-called rayon pulp from the paper pulp. In this connection it may be noted that a new mill for rayon pulp is under construction by the Oji Paper Mfg. Co. on the eastern coast of Karafuto. The quantity and value of wood pulp imported during the past five years are shown in the following table:—

Year	Quantity (1,000 lbs.)	Value (¥1,000)
1928	165,109	11,455
1929	181,512	13,485
1930	178,568	12,084
1931	227,168	11,840
1932	228,371	15,329

Fancy Work.—Paper fancy work is the latest innovation and dates from about 1911 when the Nippon Kogyo Co. in Tokyo started the work. Output of folding fans, fans and lanterns in the last five years is as follows:—

Paper Goods Manufacture

Year	Folding fans		Fans		Lanterns		Total incl. others (Yen)
	(Pieces)	(Yen)	(Pieces)	(Yen)	(Pieces)	(Yen)	
1927	3,310,000	135,500	10,324,958	681,077	2,388,960	288,393	21,968,119
1928	5,079,330	192,731	3,437,771	196,400	3,035,789	335,884	23,534,172
1929	5,525,953	227,476	3,175,895	224,466	2,199,301	285,060	27,596,395
1930	4,527,000	103,030	3,004,023	152,077	2,479,722	268,435	25,605,146
1931	4,439,000	88,900	3,602,756	164,103	3,165,236	372,470	23,477,423

Hats and Clothing.—The gloomy prospect of the native paper industry has begun to brighten with the discovery in recent years of a new method of utilizing the mulberry-bark paper for preparing threads of strings used for weaving hats and clothing. At present the demand of the country is almost met by home products, hat manufactories number about 8,513 with 24,269 workers employed. The "Toyo

	Production			Exports		
	1929	1930	1931	1930	1931	1932
Felt hats	6,021,245	4,423,543	4,297,707	1,510,841	844,239	1,216,885
Cloth ..	3,776,107	3,365,059	2,656,573	959,397	662,572	1,157,227
Imitation panama ..	2,356,784	2,050,483	1,341,768	4,429,447	7,325,188	4,498,191
Straw ..	4,633,146	3,610,741	3,128,216	311,619	452,609	238,952
Total incl. others...	17,564,275	14,601,495	12,085,620	9,364,267	10,530,911	7,713,090

CELLULOID

With the resumption of work by the European manufacturers after the restoration of peace in 1914, the output of the home industry which once reached 3,822,000 "kin" relapsed to 2,438,000 "kin" in 1918. The export also declined till the figure has fallen to insignificant.

Celluloid and Celluloid Goods Manufacture

Year	Output of celluloid		Output of celluloid goods manufacture (Yen)			Export of celluloid goods manufacture (¥1,000)	
	(Kg.)	(Yen)	Toys	Combs	Total incl. others	Toys	Sundries
1927.....	3,414,386	9,372,344	1,539,335	3,125,764	4,665,099	4,077	840
1928.....	3,989,593	10,992,705	1,724,404	3,825,784	5,550,188	4,230	1,015
1929.....	3,806,322	12,278,950	2,025,614	535,105	7,229,743	5,573	1,834
1930.....	4,146,334	8,029,945	1,757,250	364,910	4,315,794	4,423	1,268
1931.....	4,847,891	7,800,899	861,112	393,991	3,602,730	3,041	921

LEATHER

Comparative inactivity of stockfarming in Japan makes it impossible for the country to be self-dependent in the supply of hides and leathers, especially in view of the growing demand for leather goods. Imports from China and Australia, etc. make up the deficit, exclusive of that from Chosen. The increase of import duty in 1911 from ¥5.60 per 100 "kin" to ¥15.20 and the removal of 5% ad val. duty hitherto imposed on ox hides have given a great stimulus to the leather industry. However, in view of the absence of raw materials at home and the imperfect technical knowledge, specially as regards the thin article, the prospect of the industry is rather gloomy. The art has not yet advanced beyond producing sole and box leather.

Following figures show the output, import and export of leather in the last five years:—

Panama hat" has gradually gained in popularity on the foreign market, its production once reaching about ¥5 millions, though it has now declined to a little over ¥1 million. The total production of hats in 1931 amounted to ¥12,085,620 (2,444,327 dozens). The data on production and export of hats in recent years are shown below (amount being in unit of yen):—

nificance. In August 1919, leading manufacturers combined to form the Dai-Nippon Celluloid Co. with a capital of ¥12,500,000 to tide over the difficulty. Japan commanding the supply of camphor is at least advantageously placed in this particular branch of industry. The production and export situation in the past five years is shown below:—

Year	No. of factories	No. of operatives	Output (Yen)		
			Toys	Combs	Total incl. others
1927.....	894	3,751	52,568,243		
1928.....	862	3,895	53,364,900		
1929.....	741	3,366	24,376,458		
1930.....	697	3,356	25,666,003		
1931.....	686	3,459	18,390,534		

The production classified according to kinds is as follows (in yen):—

Year	Export			Import		
	Cows & calves	Horses	Others	Export	Import	Others
1927.....	34,425,515	2,203,487	15,939,241	¥1,004,805	¥7,713,475	
1928.....	33,752,601	2,753,540	16,858,759	695,163	7,289,507	
1929.....	21,243,948	1,868,216	1,264,294	384,527	4,989,212	
1930.....	21,790,520	2,766,033	1,109,450	179,305	4,347,562	
1931.....	15,536,023	1,876,290	3,617,670	267,783	3,617,670	

ISINGLASS

Japanese isinglass (kanten) has been exported to Europe and America of late years as a product peculiar to Japan, the article being used there chiefly for making jam. The production and export in the past few years are as follows:—

Year	No. of factories	Production		Export	
		Quantity (Kg.)	Value (Yen)	Quantity (100 ⁰ kin)	Value (¥1,000)
1927.....	405	1,383,713	4,129,404	1,816	3,249
1928.....	400	1,358,648	4,242,557	2,150	4,122
1929.....	405	1,451,482	4,342,613	2,204	4,649
1930.....	411	1,387,620	3,951,402	2,112	3,833
1931.....	431	1,529,310	4,123,898	2,015	3,416
1932.....	—	—	—	2,157	3,163

RUBBER & RUBBER GOODS

The manufacture of rubber in this country can be traced as far back as 1872, when Japan-made rubber toy-balloons appeared on the market for the first time, but the rubber enterprise in those days was of very small scale and not worthy of mentioning. A rubber plant established by Hidekata Tsuchiya at Asakusa in Tokyo in 1883 was the first plant established for the purpose of manufacture of diving apparatus. After many changes and reorganizations this small plant grew up into the present Mitatsuchi Rubber Manufacturing Company.

Japan-China war (1894-95), Japan-Russia war (1904-05) and the World War gave the opportunities for the development of this industry, the demand for rubber goods gradually increasing in all directions. The manufacture of ebonite was started in 1892, followed by that of rubber balls in 1897, bicycle tires in 1902, and rubber shoes in 1910. The bicycle tires, rubber shoes and rubber socks are counted as three principal rubber products in Japan. Japan imports crude rubber from Straits Settlements, British India and Dutch East Indies. The imports have steadily increased in recent years, but due to the fall of price, the value of imports has remarkably declined. The total imports in 1932 amounted in value to about ¥15,000,000, showing an gain of about ¥2,800,000 over previous year. Besides supplying the domestic demand, a considerable quantity of rubber goods goes to China, Straits Settlements and Dutch East Indies, the bulk consisting of tires, toys, rubber shoes and other rubber manufactures. The fall of prices consequent upon keen competition among the producers and the appearance of inferior goods later impaired the

reputation of Japanese products on foreign market. In addition, the increase of customs duties in foreign countries in recent time has seriously menaced the export of Japanese rubber goods which remarkably decreased recently. The Federation of Rubber Goods Manufacturers' Association which was formed in 1931 with the object to remove such evils and promote the export trade of the line is making efforts for the development of this industry.

There are now over 50 firms that turn out tires, tubes, pipes, etc., their combined output in 1930 and 1931 being ¥60,766,000, and ¥59,661,000 respectively. The Tokyo, Yokohama and Nippon Rubber Companies are leading establishments exclusive of those run by foreigners.

Japanese Rubber Enterprise in Malaysia.—Japanese rubber enterprise in the Malay Peninsula has made a marked progress. At one time the vested interest reached about ¥50,000,000 for 248 plantations covering over 200,000 acres, the output being estimated at 4 million pounds or more. Later, sale to British planters is said to have much curtailed the scope of the Japanese rubber enterprises. In 1926 there existed 18 concerns with plantations covering the combined area of about 20,000 acres, and an investment of about 70 millions, the leading establishments being the Nan-u, Nettai Sangyo, Sumatra, Nanyo, Malay and Borneo Cos. Besides several wealthy capitalists as Mitsui, Mitsubishi, Furukawa, Fujita, Morimura, etc. are interested in this business.

LACQUER AND LACQUER WARE

For the decreased export recently were chiefly responsible the use of inferior Chinese lacquer and the imperfect preparation of the body, making the ware unfit for drier climates as in America and Europe. The demand for lacquer, however, has largely increased lately at home and abroad. At present about two-thirds of the juice consumed come from China, but being tapped from wild trees, and crudely refined, it is much inferior to the home article. Bowls of all sizes and shapes for serving food, trays for holding them, caskets, boxes, etc. are some of the utensils and furniture which are made by our lacquermen. As centers of this industry there are Wajima and Yamashiro-Yamanaka in Ishikawa prefecture with their production amounting about to ¥2,239,846 in 1931, both reputed for producing very durable wares; Takamatsu in Shikoku

and Murakami in Echigo for vessels designed with "tsuishu" or "piled up" lacquers; the three northeastern districts of Aizu, Nambu and Tsugaru for kitchen and decorative wares which are not antique in design and make. Shizuoka contributes 60% of the total exports at present but the fact that Shizuoka makers have too much directed their efforts to producing cheap and showy wares catering to foreign customers considerably lowered the tone

and quality of their production. Other places to be mentioned in this connection are Nagoya, Kyoto, Kuroe (Wakayama prefecture), Takaka (Toyama prefecture), etc. The juice has wider application than it had formerly, being used, for instance, for varnishing railway and other cars, coating the bottom of warships, etc. Statistics on this industry is shown below:—

Year	No. of factories	No. of operatives	Production of ware (Yen)	Production of juice	
				Quantity (Kg.)	Value (Yen)
1927	9,794	26,642	34,523,511	318,375	1,458,143
1928	10,286	27,168	35,962,754	283,914	1,276,428
1929	10,350	30,078	33,866,882	319,210	1,397,447
1930	10,081	28,622	28,244,095	373,529	1,183,553
1931	10,056	26,975	25,653,693	257,680	1,185,741

OILS, FATS AND WAXES

With abundant supply of raw materials, fish oil at home and bean oil from Manchoukuo, Japan is well prepared for the progress of the hardened oil industry. About 80% of the total production once found a market abroad to be used for soap making in place of beef tallow, but the dwindled demand for this material with gradual recovery of the tallow industry abroad operated unfavorably to the hardened oil mar-

ket of Japan. Two or three leading concerns in this line have been dissolved or suspended operations. Fish and train (whale) oils, vegetable oils and waxes have also greatly suffered of late both in output and export. Their recent movement may be seen from the following table compiled from the official reports:—

Vegetable Oil (production being in 1,000)

Year	No. of factories	No. of operatives	Rape seed		Sesame		Yemola		Total production incl. others (Yen)
			Kg.	Yen	Kg.	Yen	Kg.	Yen	
1927	3,983	8,335	41,311	15,223	3,796	2,444	1,838	896	39,927
1928	3,523	8,822	30,023	12,214	5,020	2,646	2,114	1,107	41,033
1929	3,649	8,278	35,465	12,439	4,830	2,399	2,706	1,443	44,348
1930	3,785	7,714	38,556	16,826	6,816	2,382	5,629	2,422	34,106
1931	3,507	7,671	33,117	8,074	7,172	2,429	7,273	2,055	29,135

Year	Cotton seed		Bean		Peanut		Total production incl. others (Yen)
	Kg.	Yen	Kg.	Yen	Kg.	Yen	
1927	6,057	1,914	33,319	11,151	476	230	39,927
1928	5,852	2,011	38,406	13,710	350	166	41,033
1929	11,054	3,394	43,590	13,964	606	254	44,348
1930	13,900	2,569	39,689	9,146	662	234	34,106
1931	8,295	1,456	46,883	9,144	1,161	276	29,135

Fish Oil and Train Oil (in 1,000)

Year	Sardine Oil		Herring Oil		Train Oil		Cod oil		Total	
	Kg.	Yen	Kg.	Yen	Kg.	Yen	Kg.	Yen	Kg.	Yen
1927	16,519	1,842	4,848	635	3,159	427	853	134	30,557	3,698
1928	12,979	1,983	4,749	708	3,503	710	913	151	27,874	4,408
1929	21,809	2,914	2,887	448	3,609	656	875	155	35,798	5,181
1930	25,69	1,989	4,659	425	3,730	311	748	99	40,205	3,404
1931	31,539	1,541	4,920	292	2,601	144	886	84	45,246	2,481

Oils and Fats in Trade Returns (in ¥1,000)

Year	Export				Import		
	Bean oil	Rape seed oil	Whale oil	Camphor oil	Volatile oil	Cotton seed oil	Beef tallow
1928	1,625	2,105	221	1,003	2,537	4,906	5,407
1929	2,237	4,316	44	563	2,699	6,381	5,020
1930	4,360	4,672	361	340	2,392	3,769	3,895
1931	1,049	1,963	146	478	1,988	1,910	2,481
1932	1,010	1,308	466	619	2,541	2,348	2,454

SOAP

There are in Japan about 200 soap factories and more than half of them are equipped with motive power. Toilet soaps are mostly manufactured by milling process. Among toilet soap factories, the "Kwao" Soap Factory of the Nagase Company, "Mitsuwa" Soap Factory of the Marumiya Company, "Record" Soap Factory of the Godo Yushi Company, the "Shiseido" Soap Factory, "Club" Soap Factory of the Nakayama Taiyodo, "Misono" Soap Factory of the Ito Kochoen, are prominent. With the rapid

increase of demand for soap in recent years, its output has increased, amounting to about ¥30,000,000 in 1931, nearly six times that of 1913. Annual output is estimated at about 60,000 tons and the annual consumption per head is estimated at about 1 kilogram. Over two-thirds of the total output was represented by toilet soaps while the remaining one-third by industrial and laundry. Japanese soap generally goes to China, Manchoukuo and Dutch East Indies, the total export in 1932 amounting to about ¥1,200,000. The production and export in the last five years are shown below (1,000):—

Year	Laundry (Kg.)	Medicinal (Kg.)	Industrial (Kg.)	Toilet (Dox.)	Powder (Kg.)	Total output (Yen)	Total export (Yen)
1927	—	—	5,657	18,172	—	36,141	—
1928	—	—	6,045	19,241	—	39,146	2,088
1929	23,249	.5	5,238	16,611	4,964	38,943	1,637
1930	28,623	104	9,091	17,131	4,575	35,362	1,410
1931	28,635	140	5,173	21,064	9,908	29,901	692

PEPPERMINT

Peppermint has its center of production in Hokkaido, which supplies about 33,083,610 kilograms valued at ¥1,915,448 which claims 85% of the total production, being followed by the prefectures of Okayama and Hiroshima. The production suddenly decreased in 1918 due to the encroachment of higher-price rice and other crops on the peppermint area, but since then the former level has been recovered. The production and export in recent years are as follows:—

Year	Production			
	Menthol crystal		Menthol oil	
	(Kg.)	(Yen)	(Kg.)	(Yen)
1927	256,472	3,727,027	246,749	1,578,104
1928	192,607	3,456,656	203,798	1,394,692
1929	250,036	4,570,870	268,585	1,495,146
1930	230,996	2,118,262	250,345	1,059,940
1931	212,960	2,726,206	232,560	923,883

Year	Export of peppermint oil	
	Quantity (Kin)	Value (Yen)
1928	405	2,076
1929	531	2,276
1930	384	1,222
1931	356	856
1932	542	1,260

BUILDING INDUSTRY

According to the investigation of a certain banking institution, there were 108,628 newly constructed buildings during 1926 in the six premier cities, viz. Tokyo, Osaka, Yokohama, Kyoto, Kobe and Nagoya, and their suburbs, where the Law for Buildings in Urban Districts is in force. The figure excludes temporary buildings erected in the burnt zones of

Tokyo and Yokohama. The amount expended approximated ¥450 millions against ¥501 millions of the previous year.

The combined floor space of the new buildings completed during that year in the six cities was 3,305,822 tsubo (tsubo—about 4 sq. yds.), subdivided as follows:—residences, 1,471,765 tsubo; business offices and shops,

1,133,244 tsubo; industrial plants, 596,183 tsubo, and other structures 104,630 tsubo.

Cost per tsubo is tabulated below:—

	Wooden frame	Stone	Steel frame
Residences.....	¥135	¥270	¥400-450
Offices.....	160-180	230-270	320
Industrial plants.	100	180	160
Others.....	160-180	230-270	320

The total amount of money invested in new construction is estimated as follows for the six cities and suburbs:—

Residences.....	¥186,180,000
Offices.....	188,869,000
Industrial plants.....	57,436,000
Others.....	16,609,000
Total.....	499,104,000

The relative amount spent by the cities on new buildings is shown below:—

Cost of Buildings by Cities (in ¥1,000)

Cities	Residences	Offices	Plants	Others	Total
Tokyo.....	57,176	60,004	19,042	2,774	138,999
Kyoto.....	24,074	15,254	2,005	2,054	43,381
Osaka.....	52,481	76,574	28,124	4,343	161,523
Kobe.....	18,315	7,540	3,211	2,883	31,951

AUTOMOBILE INDUSTRY

Reflecting on the importance of the automobile industry the Government has decided to provide measures for the encouragement of this particular industry in this country, which is still in very infantile stage. The import of automobiles to this country in the past ten years has been increasing at the rate of 25 per cent yearly on the average, but the total import in 1932 decreased to ¥15 millions from ¥33 millions in 1929. The establishments engaged in the line worthy of mentioning are the Ishikawajima Dockyard, Kaishinsha, Hakuyosha and Tokyo Gas Denki Kogyo Co., which stand in good repute for producing

STATISTICS ON AUTOMOBILES IN RECENT YEARS

1932	No. of persons engaged in business...	Riders 4,276	Lorries 1,048	Osaka.....	6,345	10,388	2,480	3,175	
	Mileage (miles).....	76,569.6	27,580.7	Hyogo.....	3,505	4,447	783	2,308	
	No. of vehicles.....	21,226	1,651	Kyoto.....	3,980	4,262	1,189	824	
				Saitama.....	3,518	3,078	1,088	1,775	
No. of Chauffeurs in 1930				Kanagawa...	2,396	2,872	4,199	3,662	
	Riders		Lorries		Others.....	47,599	31,297	42,697	44,024
	No. of applicants	License granted	No. of applicants	License granted	Total.....	70,519	72,283	120,418	85,862
Tokyo.....	4,176	15,939	47,382	30,094					

Cities	Residences	Offices	Plants	Others	Total
Yokohama.	8,820	13,173	1,705	935	24,635
Nagoya ...	25,314	16,324	3,348	3,629	48,615

Compared with the returns for the previous year when 109,585 houses with the combined floor space of 3,297,056 tsubo were newly completed in the six cities the amount invested for the purpose was less by about 10 per cent as is shown in the following table (in ¥1,000):—

	1925	1926
Tokyo.....	174,728	138,999
Kyoto.....	43,653	43,381
Osaka.....	168,740	161,523
Kobe.....	38,860	31,951
Yokohama.....	28,754	24,635
Nagoya.....	46,574	48,615
Total.....	501,386	499,104

It is significant to note that the cost of construction recently is going down for all kinds of buildings, the rate in 1926 being about 10 per cent lower than that in the previous year. In all the foregoing figures extensions were estimated to cost as much as the new building, remodelling 90% and thorough overhauling 60% of the new.

passenger and freight cars, while as makers of motor cycles the Katsu Factory, Risshosha, etc. are well known. The Ishikawajima Dockyard enjoys the State aid under the military motor car protection regulation and represents the automobile interests in this country. How to encourage the growth of this infantile industry has lately begun to draw attention of the Government. It may be stated that Ford established in 1924 its own factory in Japan. (The Ford Automobile Co. of Japan, at Yokohama), the suit being followed by the General Motors Co. of Japan, which has its factory and head office in Osaka.

Import of Automobiles

Year	Automobiles			Total (¥1,000)
	No.	Value (¥1,000)	Parts of Automobiles (¥1,000)	
1928.....	7,782	13,770	18,474	32,224
1929.....	5,018	9,545	24,062	33,608
1930.....	2,591	4,896	15,876	20,773
1931.....	1,887	3,378	12,951	16,379
1932.....	977	2,894	11,927	14,821

The growing popularity of automobiles recently either for private use or for commercial purpose may be seen from the under-mentioned statistics, classified into three main divisions (riders, lorries and special):—

Countries	Total	Riders	Lorries	Rate per 10,000 pop.
Japan.....	88,708	57,827	30,881	13.8
America.....	25,814,103	22,347,800	3,466,303	2,080.6
France.....	1,689,405	1,251,538	437,862	403.8
Britain.....	1,558,032	1,211,795	346,237	338.4
Canada.....	1,190,979	1,025,124	165,855	1,150.3
Germany.....	684,015	522,943	161,072	108.3
Australia.....	571,417	466,930	104,487	741.7
Argentina.....	366,324	297,571	68,753	314.2
Italy.....	294,243	220,922	73,321	71.5
Brazil.....	199,570	134,050	65,520	49.6
Spain.....	189,650	133,305	56,345	79.6
New Zealand.....	184,509	154,243	30,266	1,278.9
Belgium.....	174,654	111,376	63,278	215.8
British India.....	166,813	128,863	37,950	4.7
South Africa.....	156,248	139,384	16,864	195.0
Sweden.....	144,572	106,501	38,071	235.4
Netherlands.....	124,255	78,833	45,422	156.9
Denmark.....	120,338	86,487	33,851	335.2
Dutch India.....	88,178	73,776	14,402	14.5
Switzerland.....	82,301	65,106	17,195	201.9
Mexico.....	80,801	64,301	16,500	49.3
Czechoslovakia.....	74,640	52,129	22,511	50.7
Algeria.....	50,250	43,550	6,700	82.8
Hawaii.....	47,846	37,102	10,744	1,252.5
Norway.....	46,478	28,600	17,878	165.4
Ireland.....	46,243	38,548	7,695	157.0
Uruguay.....	45,595	38,088	7,507	239.6
Chile.....	42,547	29,705	12,842	99.2
Cuba.....	40,305	28,121	12,184	111.7
Philippine Is.....	37,049	25,621	11,423	29.8
Austria.....	33,923	20,551	13,372	50.5
Egypt.....	31,130	26,530	4,600	21.0
Portugal.....	30,557	25,342	5,215	45.9
Greece.....	19,250	14,500	4,750	31.0

The number of imported automobiles in use in this country, classified according to their kinds, is as follows (figures at the end of Aug. 1930):—

Year	Riders	Lorries	Special	Total	Rate of increase
1928.....	42,015	17,871	1,825	61,711	24.2
1929.....	54,250	25,213	1,138	81,471	32.0
1930.....	58,690	29,744	1,682	90,260	10.6
1931.....	63,917	32,859	2,220	98,996	9.9
1932.....	66,906	34,521	2,478	103,915	5.0

The number of automobiles in Japan is quite insignificant as compared with the figures of other countries. America occupies about 75% of the total automobiles in the world, followed by France, Britain and Canada. As to the rate of per 10,000 population America claims 2,081, followed by New Zealand with 1,279, Hawaii 1,253 and Canada 1,150. The number of automobiles in 1931 classified by countries is shown below:—

Kinds	No. of cars	Kinds	No. of cars
Ford	32,122	Hudson	955
Chevrolet	30,430	G.M.C.	664
Buick	3,111	Citroen	654
Star	2,579	Oldsmobile	653
Essex	1,829	Pontiac	616
Whippet.....	1,733	Leo.....	601
Overland	1,677	Packard.....	570
Dodge Brothers	1,454	Willys Knight.....	538
Chrysler	1,135	Wolseley	514
Nash	1,000	Graham Page Brothers	513
		Oakland.....	503

MOTOR CAR TRADE IN JAPAN

The year 1932 opened with the motor trade in Japan facing the same restricted business conditions—characteristic of trade generally—from which it has suffered throughout 1931; looking forward, however, as ever, to a revival being brought about by political changes and improvement in the economic situation at home and abroad.

The extraordinary features of the motor situation in Japan, as distinguished from the other great countries of the world, continue undiminished—accentuated, indeed, as time passes: the comparatively small number of motor vehicles in use; the almost total preponderance of taxis, trucks and buses, and the correlative dearth of private owned and used cars; the practically complete supremacy of American cars; and the hampering effect of governmental laws and regulations.

It is estimated that in 1932 there were approximately 103,915 motor-cars of all kinds in use in Japan, the number thus finally exceeding 100,000, as compared with 98,996 about a year ago. These 103,915 are divided fairly evenly between the usual passenger cars on the one hand, and motor trucks and buses on the other. About half of the total number are in use in Tokyo and Osaka, with about 25,000 and 15,000 respectively, the other half being distributed throughout the country, mostly in such cities as Nagoya, Hiroshima, Kobe, Yokohama, etc.

Nearly 95 per cent of the passenger cars in Tokyo are estimated to be in the taxi class, and in the case of Osaka the figure closely approaches 100 per cent. Thus, for practical purposes, the motor trade in Japan is divided between truck chassis and cars for taxi purposes. The general trend is well illustrated by the fact that while five years ago 55 per cent of General Motors sales in Japan were

Chevrolets, in 1931 95 per cent were Chevrolets.

Motor buses are increasingly favored by the public in preference to the antiquated electric street cars. As a result, especially in Tokyo and Osaka and other cities, the bus services are expanding more or less slowly, with occasional reductions in fares.

Motor trucks are being used more and more, especially for interurban and country-urban hauls of produce, and the tendency is toward heavier trucks. Truck sales, however, are being cut into a good deal by three-wheeled motorcycle rear-vans, which are highly popular for city small freight transportation.

Motor cars privately owned for personal transportation are remarkably few, representing only some 2 or 3 per cent of the total number of passenger cars. Cars driven by their owners are almost at the vanishing point, such motorists being only a sprinkling of foreign residents and automotively progressive Japanese.

The causes preventing greater private ownership include: high taxes, vexatious police regulations, lack of sufficient money among the general public to enable the purchase of cars, lack of residential garaging facilities, and narrow streets in the residential districts. People recognize the convenience of having one's own car, but find it cheaper and almost as convenient to take a taxi or a bus. In addition to this there is still an almost universal lack of knowledge and desire for knowledge about the mechanical features or even operation of a motor car, which in turn requires a chauffeur, an added expense.

Of the approximately 103,915 motor cars of all sorts now in use, it is estimated that 75 to 80 per cent are General Motors and Ford products, divided, taking the country as a

whole, fairly evenly between these two great organizations. The General Motors plant being located at Osaka, there is naturally a leaning toward their products in western Japan, while the same thing holds true of Ford, whose plant is at Yokohama, in eastern Japan. If anything there is a slight preponderance of General Motors cars in use, for the reason that besides Chevrolets and trucks, they put out a variety of other cars, with which Ford does not compete. Moreover, General Motors have now commenced to bring in their Opel cars, made in Germany, low-priced but of good appearance and performance, which it is planned to assemble at the Osaka plant. The remaining 20 or 25 per cent are largely represented by Chrysler products and other higher priced American cars.

The only non-American car that in past years has secured, and retains, anything like a real footing in the Japanese market is the French product Citroen. This is due to the efficiency and cooperation of the Citroen organization and their representatives in Japan, and service facilities, and the inherent qualities of the car itself, and taken altogether Citroen has been the only European car to successfully stand the test of conditions in Japan. Citroen has been rather quiescent during the past two or three years, owing to the reorganization and the unexampled depression, but it will probably forge ahead again. The Japan Citroen organizations owns a large tract of land in Yokohama for the erection of an assembly plant when the time is ripe.

Japanese manufacture of motor cars still remains a practically negligible quantity, though it has been carried on in desultory fashion for a number of years. No passenger cars worth talking about are produced, and the only truck chassis of any importance are the Sumida, formerly Wolseley, whose engine is made in Tokyo under British patent, and the Chiyoda, formerly TGE. The production of each is about 12 or 15 monthly, the Sumida being used mostly for busses, and the Chiyoda being absorbed by the Army.

Hitherto these cars have been manufactured with the aid of a substantial subsidy from the army, but this source of funds, which meant in effect that the tax payers were enabling these makers to turn out a handful of cars, has now come to an end. They will next try hard, no doubt, to get a fresh subsidy, even

if a reduced one, through the Home Office, but it is doubtful if they will succeed in view of the government's lack of money.

One of the main reasons why motor cars cannot be successfully produced in Japan is that there is not a sufficient market for the would-be makers to go into quantity production. This state of affairs has been brought about by the use of motor cars having been throttled from the beginning, a quarter of a century or so ago, by high duties, high taxes, and other restrictive laws and regulations enforced by the Government which now wishes to see a motor industry established.

Of more promise is the manufacture of three-wheeled motorcycle rear-vans. Some two or three hundreds of these convenient but noisy and somewhat dangerous (because by some peculiar anomaly the police do not require the drivers to have a license) little vehicles are turned out monthly in Tokyo, Hiroshima, Osaka, and elsewhere. They are fabricated mostly with imported 500 c.c. engines and ignition and lighting systems and certain other equipment, though some of them have engines also built in Japan. It is difficult to estimate the number in use, but they certainly run into a good many thousands in both Tokyo and Osaka, with large numbers proportionately in the other cities.

The market for motorcycles proper is divided about equally between Indian and other American machines on the one hand, and B.S.A. and other British products on the other. The only motorcycle of other nationality that has made and keeps much headway in Japan is the German B.M.W. There is a scattering of other European makes. The total number of motorcycles, both solo and with sidecars, in use in Japan now, is estimated at something in the neighborhood of 22,000. The British machines are practically all used solo and consequently predominate in this class, while the sidecar outfits are practically all American. The sturdy American sidecars have proved to meet requirements in Japan perfectly, while the British sidecars do not stand up under conditions in this country.

The status and achievements of the General Motors and Ford plants in Japan, and their enormous influence are so well known as to hardly need comment. However, apart from the important fact that they practically supply the motor transport of the country with good and serviceable cars at reasonable cost, the

important contributions that General Motors and Ford otherwise make directly to the welfare of the country should be recorded, especially in view of the campaign for "home products."

While the engines, chassis, and certain other parts are imported from America, as it is economically impracticable to manufacture them here yet, large quantities of tires, batteries, upholstery, glass, rubber equipment, and other materials produced in Japan are used, to say nothing of the labor employed. In the case of General Motors, ¥6,318,533 was paid out in Japan in 1930 for various materials and supplies, transport and communication services, wages, customs, and taxes. The amount varies from year to year according to prosperity or otherwise prevailing, and in former years has been considerably greater. Moreover, since its establishment in 1927, the General Motors plant at Osaka has added approximately ¥10,000,000 worth of products to the exports of Japan, shipped mostly to other Oriental countries. The original plant investments of both General Motors and Ford also constitute no small item.

General Motors, Ford, and Citroen have all inaugurated instalment payment systems, as favorable as possible under the inconvenient laws governing such matters in Japan, and have found them to work out fairly satisfactorily. Losses through default are reported at well under 5 per cent. The instalment payment system is taken advantage practically only by those buying cars for taxi purposes, and a very large proportion of such cars are bought under this system.

Used or nearly worn-out cars formerly were shipped into the country districts for re-sale and years of further use, but this practice is dying out, and the practice now is mostly to scrap such cars.

The Bosch electrical equipment organization is one of the notable features of the automotive life of Japan. Bosch products and service reach every part of the Empire, from the headquarters in Tokyo and the branch service stations in Kobe, Nagoya, and Fukuoka, through a nationwide network of dealers.

The reasons for the outstanding success of Bosch in a business so difficult both technically and commercially are worth while recording. The plain fact is that Bosch products are recognized in Japan as pre-eminent,

occupying the unique position of setting the quality standard. This reputation has been built up by the lifelong spirit of the now aged and revered founder, Robert Bosch of Germany, as put into practice in Japan by Mr. Karl Zehender with the able support of the agents, C. Illies & Co. Mr. Zehender came to Japan several years ago, and thanks to his far-sightedness and untiring energy the Bosch watchword "Service after Sale" has been translated into actuality. Recognizing the great future of automotive transportation in Japan, and at enormous labor, he began at once after his arrival and has carried on the intensive training of technicians in both mechanical work and sales, who now staff all the service stations. The latter are like oasis in a desert, giving welcome relief to motorists of all sorts.

The guiding idea is not only to supply the customer with a supremely good product exactly meeting his requirements, but also to continuously cooperate with him in seeing that the material is applied and used correctly. The four Bosch service stations are the finest institutions of their kind in Japan, and, indeed, are alone in their class. They supply and serve not only the automotive industry, but practically every great industrial organization in the country with injection pumps, and hundreds of kindred apparatuses and equipments. They frequently circularize dealers and users throughout the country with the latest results of Bosch researches. The original German Bosch and the American Bosch organizations have been unified in Japan, as in the United States.

The tire trade in Japan is practically dominated by the Dunlop Rubber Co., whose fine new plant is in the Wakinojima suburb of Kobe. This outstanding organization, which is a tribute to British energy and enterprise, also makes an important contribution to the welfare of the country, in the form of payments for wages, taxes, etc., as do General Motors and Ford. It practically supplies the country with tires of fine quality at moderate prices, and especially 80 per cent or more of the large requirements of General Motors and Ford. In other words, roughly 75 per cent of the cars in the country, as well as a large proportion of the motorcycles, are equipped with Dunlop tires. The fact that General Motors and Ford continue to use the Japan-made Dunlop tires year after year is in itself a sufficient tribute to their excellence. And it is an

interesting example of American, British and Japanese cooperation.

There are few other factories making tires on a much smaller scale, and Goodyear, Miller, and other American tires, which enjoy considerable trade, are imported. The French Michelin seems to have dropped out.

Gasoline, lubricating oil, etc., are supplied by Rising Sun, Associated, and other foreign companies, and one or two Japanese organizations. The number of up-to-date gasoline and oil stations, many of them new, now serving the motor traffic in the big cities and on much-used highways, is noticeable.

BICYCLE MANUFACTURING INDUSTRY

In Japan, there are about 2,000 bicycle factories excluding small workshops which specialize in the manufacture of accessories. Some of these factories have a capacity of manufacturing 1,000 bicycles daily, while others are only able to turn out 10 bicycles a day. On account of the economic depression at home and abroad, the bicycle manufacturing industry is now suffering to a great extent.

It is, however, reassuring to note that in recent years the bicycle manufacturing industry has attained such a remarkable development that a large number of home-made bicycles are shipped abroad to the extent of ¥3,000,000 annually. They are mostly forwarded to China, the South Sea Islands, India and other Asiatic countries where they are competing with British bicycles. In this competition, home-made bicycles are steadily over-running the British articles.

It was in 1893 or 1894 that bicycles were first imported to Japan from England. At that time, the price was as high as ¥150 or ¥200 per bicycle. At present, the price of home-made bicycles is as low as ¥15 or thereabout per vehicle. Even in rural districts, cyclists are fast increasing in number. The registered trade marks of home-made bicycles are so numerous that it is almost impossible to ascertain what trade marks signify superior quality. Because of the cheap price, cyclists are replacing their old vehicles with new ones after the lapse of one year and a half or two years. This means that the demand for bicycles will increase year after year. However, the price is so low that the profits of manufacturers are only nominal. It is, therefore, deemed advisable to effect the nationalizations of the bicycle manufacturing industry without delay.

SUNDRY INDUSTRY

CANNED ARTICLES

Japan's canning industry, especially that of fish, is now an established line of international fame. Tinned salmons to England and tinned crabs to America are important items

of export. The center of the packing industry is Hokkaido and Hiroshima prefecture. The salmons come from Russian Siberia and tinned crabs from Karafuto, Hokkaido and the Kuriles. The bulk is handled by the Nichiro Gyogyo (Fishery) Co.

Statistics

Year	No. of factories	No. of operatives	Production (in yen)			
			Fishes and shell-fishes	Fruits	Vegetables	Total incl. others
1927	711	2,434,287	7,158,700	999,788	3,106,181	18,449,302
1928	713	2,013,825	7,575,068	1,821,159	3,871,668	20,426,192
1929	735	2,449,262	12,826,317	1,073,456	3,975,526	23,104,991
1930	766	2,361,889	8,409,868	690,454	3,639,961	18,165,867
1931	779	2,184,562	6,672,286	824,097	2,737,542	15,403,366

CONDENSED MILK

An import duty of ¥8.30 per 100 "kin" is imposed upon desiccated milk and ¥13.40 upon other kinds imported from abroad, while the

home product is exempted from income tax for the first three years, besides receiving rebate on the sugar consumption tax paid. Foreign competition and over-production have

retarded the development, as may be surmised from the following table:—

	1927	1928	1929	1930	1931	
Production...	kg.	10,884,301	10,050,221	10,914,812	15,421,732	11,364,452
	yen	7,764,078	7,188,145	7,864,393	9,954,493	6,131,077
Import	kin	7,697,837	8,234,259	7,557,524	6,947,825	3,658,183
	yen	3,826,301	3,995,476	3,269,280	2,850,920	1,943,552
Export	kin	290,935	239,418	594,282	1,684,285	1,805,027
	yen	129,088	138,385	212,744	399,994	429,812

TOYS

Toy manufacture in Japan is passing from household to factory industry. Its centers are Tokyo, Kyoto, Osaka and Nagoya, each having some speciality. Tokyo produces mainly celluloid, tin and rubber toys with some quantities of wooden and cloth toys. Osaka is noted chiefly for cloth toys, paper novelties and celluloid, Kyoto for its exquisite porcelain toys and earthenware, etc. In the manufacture of dolls Kyoto stands first in art, Tokyo and Osaka coming next. In wooden toys, inlaid wood and other artistic objects, Hakone, the famous summer resort near Tokyo, has long been noted for excellent workmanship, but these articles are now produced at various other districts with increased demand both at home and abroad.

Exports (in ¥1,000)

Year	Celluloid	Tissue	Metal	Pottery	Rubber	Wood	Total incl. others
1928.....	4,229	805	1,352	411	1,934	498	11,001
1929.....	4,572	992	1,869	406	2,161	600	13,855
1930.....	4,423*	740	1,478	419	2,049	559	11,699
1931.....	3,041	573	1,461	258	2,199	450	9,824
1932.....	2,527	797	2,492	298	5,507	1,189	15,119

WATCHES AND CLOCKS

Manufacturing of clocks, both standing and hanging, dates from about 1882, and in 1920 clock works numbered 34, mostly in Aichi prefecture though on insignificant scale.

Watch manufacture as at present carried on is represented by the Seikosha run by Messrs. K. Hattori & Co. of Tokyo, the production of watches and clocks for the last five years being as follows:—

Year	Clocks				Watches	
	Standing		Hanging		Piece	Yen
	Piece	Yen	Piece	Yen		
1927.....	1,079,542	2,535,241	590,464	2,921,621	104,771	976,043
1928.....	1,135,758	2,612,744	425,257	2,606,781	78,097	866,169
1929.....	1,232,269	3,664,390	506,504	2,176,758	238,236	1,365,932
1930.....	1,155,988	2,055,593	478,565	1,911,182	181,233	1,013,042
1931.....	933,287	1,350,822	362,011	1,390,718	169,358	657,528

STRAW, CHIP AND HEMP BRAIDS

The use of straw braids for the manufacture of toys and other articles has been known

from ancient times in the neighborhood of Tokyo, but it was in the early days of Meiji that, at the suggestion of some foreigners, the

Production

Year	Metafic (yen)	Porcelain (yen)	Paper (yen)	Celluloid (¥1,000)
1927.....	796,619	90,183	321,255	1,539
1928.....	820,941	201,631	187,280	1,724
1929.....	985,369	82,717	205,553	2,025
1930.....	1,110,529	222,940	161,827	1,757
1931.....	802,336	122,726	309,452	861

Exports chiefly consist of porcelain and celluloid toys as well as cotton and paper novelties for Christmas and Eastern season. The demand for leather and inlaid wood works is on the increase. The bulk of tin toys goes to England, Canada, China, India and Siberia. There are also bamboo wares shipped abroad. The statistics for the recent years are as follows:—

manufacture of hats with straw was started at Omori near Tokyo. Soon the industry spread to various parts of the country, especially to Okayama and Kagawa, which are now the principal centers of the industry, the two places supplying the bulk of the products.

The manufacture of chip braids was first started at Omori and other places near Tokyo,

which had lost the business of straw braid. The center of the industry later shifted to Yamaguchi, Okayama, Kagawa and other prefectures. The wood of the "populus temula" is best suited for this kind of braid.

The number of factories and amount of production are tabulated as follows:—

Year	No. of factories	Production (in 1,000)									
		Straw		Chip		Straw and chip mixed		Hemp		Total	
		Bundle	Yen	Bundle	Yen	Bundle	Yen	Bundle	Yen	Bundle	Yen
1927.....	77,786	7,511	2,246	1,521	162	207	72	13,165	4,266	22,404	6,745
1928.....	87,101	8,233	2,432	1,546	155	19	4	7,152	2,177	66,950	4,767
1929.....	86,163	9,091	2,828	1,155	147	8	1	8,357	1,596	18,611	4,573
1930.....	83,668	6,510	1,561	1,609	159	21	2	7,381	1,300	15,521	3,022
1931.....	82,122	5,494	995	4,733	149	18	4	6,152	1,002	13,397	2,150

Hemp braid industry was first started in Yokohama after the Russo-Japanese war, and in point of value hemp braid now occupies a good position on the list of exports. The following figures show the recent situation of this industry:—

Exports (in ¥1,000)

Year	Straw	Chip	Hemp	Total incl. others
1928.....	2,192	59	2,459	4,717
1929.....	2,887	36	2,250	5,186
1930.....	1,594	13	1,853	3,467
1931.....	918	21	875	1,821
1932.....	1,357	39	1,780	3,228

HOSIERY

The principal center of this industry is Osaka where over ¥50 millions worth of goods or about 50 per cent of the total production in Japan, were turned out during the war-boom. There are three large companies in Osaka, i.e. Japan Hosiery, Marumatsu & Co. and the Japan Spinning & Weaving Co. Cotton goods once occupied 80% of the total output, but now fell to 64% representing ¥34,608,863. Japanese hosiery goods find good market in China, India, South Seas and Africa.

Data on hosiery for the last five years are as follows:—

Year	No. of factories	No. of operatives	Production (yen)			
			Shirts & drawers	Gloves	Stockings & socks	Total incl. others
1927.....	3,666	25,857	40,456,247	3,472,509	12,631,308	67,603,392
1928.....	4,178	29,482	36,819,462	3,696,924	14,032,602	65,752,893
1929.....	4,641	31,765	37,877,712	5,009,363	13,934,980	65,978,590
1930.....	4,542	31,718	37,771,751	4,226,721	11,975,895	61,601,997
1931.....	4,487	30,650	30,272,133	3,913,652	11,504,951	54,304,792

Exports (in 1,000)

Year	Shirts & drawers		Gloves		Stockings & socks		Total incl. others	
	Doz.	Yen	Doz.	Yen	Doz.	Yen	Doz.	Yen
	1928.....	8,225	27,389	252	468	2,769	4,818	12,328
1929.....	8,855	29,673	323	602	2,955	5,810	11,400	33,301
1930.....	8,575	23,846	458	644	3,612	5,218	12,912	30,462
1931.....	6,709	16,478	255	296	3,438	3,899	10,575	21,176
1932.....	8,883	20,733	187	224	4,353	5,222	13,721	26,935

MATS

It was after 1886 when a loom for mat-weaving with patterns shown equally on both sides was invented that a real progress began in export business. One grave drawback in this industry is the tedious labor required in

preparing the warp which consists of rushes interlaced with yarns.

The weaving of fancy matting is generally a side line of farmers even in Okayama prefecture that boasts the greater half of the total output. There are only a few factories doing

business on any large scale. For coloring the rushes natural dyes alone were formerly used, but now artificial dyes are common. The printing of design began to prevail from about 1921. Nearly two-thirds of the output of printed mats come from Okayama, Hiroshima,

and Fukuoka.

The Government Mat Conditioning House exists in Kobe to enforce inspection on mats for export, the inspection being carried out on weight, texture, raw materials used, edging, dyeing, etc.

Year	Mats for "Tatami"			Others		
	No. of factories	No. of operatives	Production	No. of factories	No. of operatives	Production
1927	84,239	121,779	¥14,718,188	19,938	30,661	¥7,751,586
1928	82,628	120,421	15,949,179	20,403	30,541	8,133,581
1929	80,983	119,844	13,617,141	20,053	30,310	8,825,685
1930	78,053	116,542	8,785,237	18,712	27,782	5,359,378
1931	78,551	117,229	9,707,970	19,200	27,489	4,964,700

BRUSHES

Hair-brushes, nail-brushes and tooth-brushes are produced principally in Osaka and vicinity. The total output in 1930 was ¥3,417,107. Export to U.S.A. and Great Britain has declined due to the slump and encroachment of German and French goods and also to the embargo on Japanese shaving brushes in England, Australia and India. Raw materials with exception of some kinds of wood used for inferior sockets, come from abroad, bristles from China and Europe, bones for sockets from America and Australia, and hard wood from Siam. For tooth-brushes, foreign raw materials alone are used.

Year	No. of factories	No. of operatives	Production
1927	734	2,978	¥5,102,330
1928	747	3,265	5,107,126
1929	763	3,251	4,881,406
1930	744	2,949	3,417,107
1931	741	2,920	3,605,738

BUTTONS

The output of buttons in 1931 was ¥2,830,330 of which shell buttons amounted to ¥2,306,576. Buttons exported during 1930 reached ¥5,619,346, then decreased to ¥4,674,918 in 1931, but increased to ¥5,862,824 in 1932, the bulk being represented by shell buttons. England, India, and U.S.A. are principal customers. The manufacturing center is Osaka which turns out about 50 per cent. The production in the last five years is as follows:—

Year	Shell (Yen)	Ivory (Yen)	Bone & others (Yen)	Total (Yen)
1927	2,314,324	139,501	169,487	2,623,312
1928	1,982,991	215,051	202,644	2,400,686
1929	3,941,094	243,242	383,365	2,567,701
1930	1,900,040	156,997	410,173	2,467,210
1931	2,306,576	146,881	376,872	2,830,330

STATISTICS ON MINOR MANUFACTURES

Wood Manufactures

Year	No. of factories	No. of operatives	Production	Year	Export
1927	97,787	181,620	¥199,732,678	1928	¥3,314,674
1928	97,757	188,779	203,082,476	1929	3,592,843
1929	100,807	196,405	192,011,854	1930	3,196,842
1930	101,027	194,819	166,715,146	1931	2,500,426
1931	101,385	195,502	152,196,126	1932	2,544,153

Bamboo Wares

Year	No. of factories	No. of operatives	Production	Year	Export
1927	49,592	74,758	¥13,789,416	1928	¥558,481
1928	48,813	76,750	14,026,021	1929	491,104

Year	No. of factories	No. of operatives	Production	Year	Export
1929	48,802	76,477	13,281,772	1930	430,397
1930	47,023	74,473	10,843,167	1931	367,769
1931	45,520	73,303	9,989,587	1932	385,750

Leather Goods

Year	No. of factories	No. of operatives	Production	Year	Export
1927	6,445	15,245	¥32,076,425	1928	¥603,739
1928	6,802	16,099	32,095,926	1929	568,810
1929	7,182	16,625	30,902,273	1930	949,396
1930	7,541	17,387	28,849,673	1931	311,602
1931	7,911	18,276	27,916,023	1932	747,943

Wicker Works

Year	No. of factories	No. of operatives	Production	Year	Export
1927	3,399	8,450	¥4,626,945	1928	¥258,757
1928	3,216	8,126	4,232,128	1929	328,782
1929	2,835	7,539	3,936,371	1930	213,313
1930	2,508	6,680	3,475,252	1931	100,605
1931	2,543	6,639	1,378,865	1932	64,307

Enamelled Hard Ware

Enamelled Hard Ware		Enamelled Hard Ware	
Year	Production	Year	Export
1927	¥7,097,221	1928	¥6,444,177
1928	8,814,871	1929	6,707,272
1929	8,624,677	1930	4,044,779
1930	6,538,696	1931	2,698,303
1931	5,343,842	1932	4,113,869

Insulated Electric Wires

Insulated Electric Wires		Insulated Electric Wires	
Year	Production	Year	Export
1927	¥77,612,000	1928	¥2,758,974
1928	92,808,000	1929	3,529,114
1929	57,966,000	1930	3,626,814
1930	45,195,000	1931	2,366,469
1931	31,863,000	1932	1,997,389

CHAPTER XXXV

TRADE

FORMATION OF COMPANIES

Prior to 1875 Japan had no company in the modern sense of the word. Some commercial establishments that had previously existed, as the Mitsui-gumi and the Mitsubishi-gumi, respectively forerunners of the present Mitsui Gomei Kaisha and Mitsubishi Gomei Kaisha, were each a sort of family establishments. In the year mentioned the First National Bank (now simply called the First Bank) was created as a regular joint stock concern after the Western model, this pioneer commercial concern being followed, though rather tardily, by the creation of similar other banks and companies devoted to shipping, railway, insurance, and so on.

In 1894, when the Japan-China war broke out, the total investment in various enterprises still stood at the modest sum of about ¥249,762,000 (paid up) of which banking represented ¥101,409,000, followed by transport business (¥82,650,000), industries (¥44,580,000), trade (¥20,014,000) and agriculture (¥1,188,000). After the close of the Russo-Japanese war (1904-5), to be precise by the end of 1907, the total investment had swollen to ¥1,114,227,000, consisting of ¥444,204,000 for banking, ¥150,891,000 for transport, ¥381,815,000 for industries, ¥125,282,000 for trade and ¥12,035,000 for agriculture (latest expansion is shown else-

where). Another striking feature as shown lately is the tendency to increase capital and the combine of smaller concerns. Formerly a company with capital in eight figures was an exception but of late many have enlarged their capital to over a hundred million yen.

Companies Classified

Commercial companies are divided into the following four kinds:—

- (1) Ordinary partnership (gomei-kaisha)—Formed by two or more partners, each being unlimitedly liable for the debts of the firm.
- (2) Limited partnership (goshi-kaisha)—Formed by one or more partners with limited liability.
- (3) Joint-stock company (kabushiki-kaisha)—Resembling that in England and formed by not less than seven persons.
- (4) Joint-stock limited company (kabushiki-gomei-kaisha)—A limited partnership in which part of the capital is represented by transferable shares.

Foreign companies may be recognized by Japanese law and allowed to do business in Japan, subject to the same registration as is required for Japanese companies.

BUSINESS PROMOTION

Deflation in Recent Years

The following statistics compiled by the Japan Industrial Bank will serve to show the situation of deflation tendency in business enterprises during the twelve years from 1921 when the economic circles entered the peri-

Year	New promotion	Expansion	Loans	Capital reduced	Dissolved business
1921	1,615,925	1,744,723	516,043	125,269	648,745
1922	1,092,596	742,634	347,905	372,913	681,175
1923	548,941	307,850	248,482	128,575	325,268
1924	737,747	743,942	793,591	418,651	927,729
1925	484,901	352,100	525,416	210,920	348,177
1926	591,633	287,105	515,353	144,749	345,884

od of the reactionary depression that followed the period of post-war boom to the end of 1932, the data giving the amount of capital invested, loans raised, reduced capitalization and capital of dissolved business (for joint stock companies only and figures in unit of ¥1,000):—

Year	New promotion	Expansion	Loans	Capital reduced	Dissolved business
1927	771,502	748,756	626,344	155,296	458,125
1928	679,915	670,936	1,584,411	208,774	619,061
1929	596,170	438,590	933,967	258,126	331,398
1930	414,177	345,624	446,993	133,581	401,867
1931	430,114	219,360	617,051	175,973	430,937
1932	264,885	294,948	430,594	199,169	275,131

The following figures show the details of new promotion, expansion, loans raised, reduced capitalization, etc., as classified according to nature of enterprises for the year 1932 (figures in unit of ¥1,000):—

	New promotion		Expansion		Loans		Capital reduced		Dissolved business	
	No. of cos.	Amount of capital	No. of cos.	Amount of capital	No. of cos.	Amount of capital	No. of cos.	Amount of capital	No. of cos.	Amount of capital
Chemical Industry:										
Sugar	0	—	1	200	0	—	2	5,150	0	—
Paper	6	388	3	155	3	17,500	3	1,075	4	617
Brewery	23	1,643	7	255	1	23	20	4,115	29	6,321
Pottery	7	2,079	2	2,000	1	5,000	7	3,900	8	1,059
Medicine	16	812	12	2,140	0	—	2	280	9	1,920
Others	39	24,236	12	58,970	1	10,000	15	17,826	26	7,204
Total	89	29,159	37	63,720	6	32,523	49	32,346	76	17,121
Manufacturing Industry:										
Spinning and weaving	50	15,598	15	21,173	3	9,050	19	12,030	35	7,111
Machine and tools	56	20,990	9	3,007	0	—	4	10,338	13	4,210
Mechanic	21	3,521	7	1,842	1	4,000	14	28,699	12	1,120
Flour mills	3	1,300	0	—	1	2,400	1	500	0	—
Wood	3	205	0	—	0	—	6	1,125	10	1,676
Comestibles and drinks	46	3,007	3	240	0	—	12	3,664	25	4,150
Others	83	8,929	17	1,249	1	10	28	7,932	42	3,485
Total	262	53,619	52	27,511	6	15,460	84	64,288	137	21,750
Transportation:										
Railways and tramways	1	150	8	7,880	4	66,700	3	2,190	9	3,220
Marine transportation	159	9,162	62	10,094	1	4,000	54	12,137	83	10,918
Total	160	9,312	70	17,974	5	70,700	57	14,327	92	14,138
Electric	2	1,775	9	68,955	6	28,640	3	3,600	14	67,400
Gas	4	1,100	2	17,600	0	—	0	—	0	—
Natural Products:										
Mining	15	5,940	4	12,200	3	3,080	5	13,200	10	6,610
Fishery	15	7,064	9	34,868	0	—	5	810	9	1,950
Agr. & Forestry	6	277	0	—	0	—	2	800	4	988
Live-stock	2	533	0	—	0	—	1	10	5	600
Total	38	13,816	13	47,068	0	3,080	13	14,820	28	10,148
Insurance	0	—	2	1,850	0	—	2	6,850	0	—
Warehouse	7	293	3	750	0	—	3	473	6	650
Trust business	117	11,530	13	5,598	0	—	12	4,757	23	32,950
Banks	16	28,675	31	15,179	243	270,812	10	5,048	84	47,839
Other enterprises	864	115,607	82	28,743	11	9,397	122	52,662	275	63,136
Grand total	1,559	264,885	314	294,948	280	430,595	355	199,170	735	275,131
Comparison with 1931	-181	-165,230	+12	+75,588	-57	-186,457	-26	+23,233	+74	+155,806

N. B.—(+) increase; (-) decrease.

GENERAL STATISTICS ON ECONOMIC CORPORATIONS

Companies Classified by Organization

Number and capital of economic corporations turned by the Department of Commerce and as classified by nature of enterprises are re- Industry as follows:—

Year	No. of Companies						
	Agriculture	Fishery	Mining	Industry	Trade	Transportation	Total
1927	758	246	363	14,382	19,586	3,181	38,516
1928	761	251	371	15,271	21,427	3,621	41,702
1929	813	269	394	16,623	24,481	4,112	46,692
1930	867	283	376	18,205	27,691	4,488	51,910
1931	1,005	294	383	19,969	30,794	4,781	57,226

Amount of Capital, Authorized (¥1,000)

Year	Amount of Capital, Authorized (¥1,000)						
	Agriculture	Fishery	Mining	Industry	Trade	Transportation	Total
1927	115,186	84,707	791,425	4,956,837	5,412,185	1,274,114	12,634,462
1928	116,848	90,254	711,475	5,192,142	5,667,445	1,382,334	13,161,496
1929	125,475	105,730	773,304	5,398,568	5,909,693	1,477,989	13,790,759
1930	128,578	89,418	711,836	5,515,745	6,009,142	1,488,730	13,746,641
1931	120,314	83,780	712,460	5,604,244	5,937,028	1,502,560	13,960,385

The above figures for 1931 as classified according to the amount of paid-up capital and kinds of organizations are tabulated as follows (amount of capital in ¥1,000):—

		Under					Over
		¥50,000	¥100,000	¥500,000	¥1,000,000	¥5,000,000	¥5,000,000
Joint stock companies	No.	5,225	3,387	6,565	1,781	1,999	692
	Cap.	102,688	190,831	1,129,690	966,722	3,278,287	11,770,896
Limited partnerships	No.	25,157	1,475	1,049	95	70	9
	Cap.	199,435	85,552	166,022	54,279	112,359	322,700
Unlimited partnerships	No.	7,264	1,166	1,025	102	91	25
	Cap.	92,584	67,614	172,852	59,960	151,185	613,000
Total incl. other	No.	37,667	6,034	8,650	1,985	2,164	726
	Cap.	395,077	344,339	1,471,390	1,084,761	3,549,381	22,706,696

Business Results in Recent Years

The following data summarizing the business results of leading companies are based on the investigations of the Oriental Economist. The

figures given in the table are for the past five years (ended 1932) and for the 2nd half of each year, money being in ¥1,000:—

Spinning Mills (11 cos.):	P. u. cap. (¥1,000)	Reserves (¥1,000)	Profit (¥1,000)	Ratio to p. u. cap. (%)		P. u. cap. (¥1,000)	Reserves (¥1,000)	Profit (¥1,000)	Ratio to p. u. cap. (%)
1928	227,207	213,555	35,468	31.2	1930	14,340	4,719	1,084	15.1
1929	230,382	222,315	33,792	20.0	1931	14,356	5,116	1,104	15.4
1930	230,382	219,599	12,715	11.0	1932	15,072	5,135	1,750	23.2
1931	224,757	210,984	25,971	23.1	Mining (9 cos.):				
1932	229,007	214,267	29,909	26.1	1928	264,650	82,819	16,141	12.8
Paper mills (4 cos.):					1929	376,650	65,119	16,577	12.8
1928	165,274	35,272	14,070	17.2	1930	376,650	67,287	8,066	6.2
1929	165,274	37,608	13,489	16.3	1931	376,650	65,298	5,943	4.6
1930	170,494	38,934	9,795	11.6	1932	376,650	64,732	9,246	7.2
1931	170,733	36,724	6,711	7.9	Gas (5 cos.):				
1932	170,733	36,274	9,118	10.7	1928	133,821	9,114	10,119	16.2
Flour mills (3 cos.):					1929	155,750	10,673	12,163	17.0
1928	14,340	4,034	1,217	17.0	1930	160,000	11,906	12,293	15.4
1929	14,340	4,359	1,443	20.1	1931	166,250	11,364	12,440	15.4

	P. u. cap. (¥1,000)	Reserves (¥1,000)	Profit (¥1,000)	Ratio to p. u. cap. (%)		P. u. cap. (¥1,000)	Reserves (¥1,000)	Profit (¥1,000)	Ratio to p. u. cap. (%)
1932	166,250	12,202	12,385	14.9	Railway (15 cos.):				
Beer breweries (3 cos.):					1928	309,564	36,990	21,857	14.2
1928	72,292	16,508	7,374	20.4	1929	341,606	39,961	22,648	13.3
1929	72,294	22,506	7,676	21.2	1930	351,556	42,695	22,716	13.0
1930	72,294	24,598	6,519	18.0	1931	368,872	41,973	18,791	10.3
1931	72,629	25,294	5,190	14.4	1932	376,027	43,378	14,464	7.7
1932	72,295	26,578	5,585	15.5	Exchanges (9 cos.):				
Electric power and light (10 cos.):					1928	88,200	10,514	4,463	10.1
1928	937,305	57,031	57,024	11.8	1929	88,825	11,313	3,370	7.6
1929	1,007,217	63,615	59,800	11.9	1930	87,575	11,745	3,697	8.4
1930	1,025,036	68,961	52,839	10.4	1931	87,575	12,134	3,716	8.5
1931	1,060,372	73,359	48,715	9.2	1932	94,325	12,529	4,628	9.8
1932	1,081,856	77,257	41,546	7.7	Sugar (6 cos.):				
Shipbuilding (4 cos.):					1928	166,774	51,592	-4,975	—
1928	90,690	20,908	-29,077	—	1929	166,774	50,510	13,341	16.0
1929	95,000	12,398	1,487	3.1	1930	154,217	53,234	6,658	8.6
1930	95,000	12,422	-4,940	—	1931	159,710	54,026	7,113	8.9
1931	110,750	10,291	-4,602	—	1932	160,608	55,316	16,617	20.8
1932	110,750	8,194	-3,065	—	Total incl. other business (141 cos.):				
Chemical industry (6 cos.):					1928	3,286,697	759,722	199,794	12.3
1928	87,400	9,510	6,825	15.6	1929	3,408,935	746,763	231,272	13.6
1929	87,650	10,963	6,768	15.4	1930	3,420,338	751,761	171,990	10.1
1930	99,149	11,972	4,462	9.4	1931	3,516,084	737,176	170,960	9.8
1931	116,150	12,700	1,952	3.6	1932	3,478,225	751,010	199,585	11.2
1932	116,150	12,715	6,082	10.5	N.B.—Total figures exclude those of exchange business; — Loss.				

CHAMBERS OF COMMERCE & INDUSTRY

In accordance with the Chamber of Commerce and Industry Law that came into force in January 1928 and superseded the Chamber of Commerce Law enacted in 1890, the Japan Chamber of Commerce and Industry was created in Tokyo in April the same year. Meanwhile 77 Chambers of Commerce in Tokyo and forty other prefectures and Hokkaido established under the former regulations were reorganized as Chambers of Commerce and Industry under the new law, and became

members of the Japan Chamber of Commerce & Industry. In 1929, six new chambers were created at Kurashiki and five other cities. The data for the five years ended 1931 are as follows:—

Year	No. of Chambers	Members	Councillors	Annual expenses (Yen)
1927	77	2,339	669	2,218,980
1928	77	2,305	494	2,683,618
1929	89	3,040	503	2,760,957
1930	90	3,141	532	2,909,288
1931	92	3,258	—	2,552,759

EXCHANGES

Exchanges in Japan are of three kinds, i.e., stock, rice, and commodities other than rice. There are at present throughout the country thirty-seven exchanges of which eleven are devoted to dealing in securities, either exclusively or in combination with other commodities. The exchanges are mostly of limited liability system, five of them being modelled after the association plan. They are therefore more on the continental plan than that

of England or America, and are subject to strict control of the supervising authorities who are authorized to interfere at their own discretion when they judge that an exchange abuses its privileges and acts in an irregular way. From the nature of their organization exchanges have to stand security, within the limit of their authorized capital, for the fulfilment of all the contracts duly booked by them. Whenever, therefore, a registered

broker, who has to deposit ¥50,000 with the stock exchange in Tokyo, is guilty of default for bargains duly entered in his name, the exchange has to make good any loss entailed.

The Tokyo Sugar Exchange, the first establishment in the line exclusively devoted to transactions in sugar, was established in October 1928 on the basis of bourse system. Later a similar exchange was established in Osaka. A new exchange exclusively devoted to dealings in rayon was established at Fukui city, a center of rayon industry, in May 1932.

The Exchange Law

The revision of the Exchange Law put in force in 1922 is intended to reform exchanges on the model of the New York exchange, to change the present joint stock company system into bourse system, to make the brokers (members) of the exchange jointly and severally responsible for transactions on the market, etc.

Time Transactions.—Transactions in time bargains as recognized on the floor under the revised law are of two kinds, viz., short (next

day) and long time delivery. In the former the contract is to be fulfilled within a week including the day of contract, while the latter is divided into 3 terms of 20 days each. Then the limit is 3 months for rice and wheat, 5 months for bean cakes, 6 months for silk yarns, and 12 months for raw cotton, cotton yarns and cotton cloth.

The time-limit for delivery of negotiable securities at the Tokyo Stock Exchange, formerly fixed at two months, was extended to three months from May 1, 1929.

Tokyo Stock Exchange

Brokers.—A person desirous to become a broker must deposit a cash security of ¥50,000. There is no legal provision limiting the number of brokers, but usage fixes it at 30 or thereabout.

Inaugurated in 1878, this is the oldest and largest establishment of the kind, with a subscribed capital of ¥47,000,000 (¥40,250,000 p.u.). It is a joint stock concern and bound by law to guarantee the good faith of all parties concerned in transactions.

Stock, Rice and Merchandise Exchanges

Year	No. of Exchanges	No. of brokers	Capital		Receipts (¥1,000)	Expenses (¥1,000)	Profits (¥1,000)	Dividend (¥1,000)
			Authorized (¥1,000)	Paid-up (¥1,000)				
1927	34	1,089	137,852	97,121	18,665	7,401	11,294	9,136
1928	34	937	137,852	97,678	17,892	7,938	9,954	8,452
1929	34	923	138,902	98,203	15,178	7,227	7,951	6,462
1930	32	863	138,902	98,103	15,032	6,948	8,088	6,428
1931	32	840	138,902	98,103	17,418	8,206	9,231	6,642

Amount of Shares, Bonds and Principal Commodities Transacted

Shares	Commodities Transacted				
	1927	1928	1929	1930	1931
Long term:					
Sales (volume)	51,162,160	37,159,940	27,983,480	36,512,680	30,360,080
Deliveries (")	7,946,110	7,332,900	5,473,340	4,219,690	4,013,940
Short term:					
Sales (volume)	76,998,030	66,810,640	82,303,490	96,078,300	139,008,640
Deliveries (")	1,195,310	9,617,310	12,811,520	14,773,330	16,941,130
Bonds (Long term)					
Sales { yen	126,774,000	448,051,000	349,410,000	295,620,000	793,835,009
{ franc	44,200,000	145,975,000	107,185,000	45,980,000	289,770,000
Deliveries { yen	16,335,000	108,247,000	76,305,000	33,410,000	166,950,000
{ franc	11,475,000	48,810,000	23,920,000	11,070,000	84,620,000
Rice					
Sales (koku)	176,077,400	177,599,100	180,152,200	220,953,800	203,818,100
Deliveries (koku)	906,700	1,246,200	974,500	896,000	1,206,300
Raw Silk					
Sales (kin)	31,221,900	25,861,400	19,929,900	49,402,660	73,383,700
Deliveries (kin)	475,000	1,249,000	538,090	800,000	3,880,000

TRADE

	1927	1928	1929	1930	1931
Cotton Yarn					
Sales (bales)	12,103,260	10,878,320	7,817,150	10,048,140	8,162,960
Deliveries (bales)	79,015	61,430	47,900	54,530	20,870
Sugar					
Sales (bags)	14,244,500	10,058,900	14,251,600	9,115,800	7,780,300
Deliveries (bags)	941,500	598,750	558,906	330,900	482,400
Cotton					
Sales (bales)	1,798,500	2,645,630	1,717,100	2,068,750	2,093,090
Deliveries (bales)	19,690	41,220	25,690	14,710	34,820

Volume of Shares, Bonds and Principal Commodities Transacted and Delivered at Various Places

		Shares					
		1929		1930		1931	
		Transacted	Delivered	Transacted	Delivered	Transacted	Delivered
Tokyo	Long term	21,267,250	4,331,310	31,442,870	3,601,460	25,471,280	3,466,310
	Short	25,087,110	6,053,290	30,167,080	7,582,410	45,683,290	8,168,410
Osaka	Long	4,321,940	809,480	4,118,310	483,720	4,093,230	437,270
	Short	27,049,740	2,908,840	30,995,390	2,992,290	44,366,260	3,824,100
Nagoya	Long	1,470,970	210,600	357,590	53,020	281,400	49,040
	Short	11,527,100	2,057,990	12,810,710	2,349,830	17,408,080	2,671,270
Kobe	Long	38,640	5,760	22,260	4,770	18,650	730
	Short	5,707,940	487,610	4,500,910	420,190	5,859,530	573,280
Kyoto	Long	530,610	85,300	323,250	51,680	163,420	31,090
	Short	5,744,430	650,720	6,513,280	709,710	9,641,500	961,710
Yokohama (Long term)		35,160	3,480	7,060	1,000	4,750	510
Total incl. others	Long	27,983,480	5,473,340	36,512,680	4,219,690	30,360,080	4,013,940
	Short	82,303,490	12,811,520	96,078,300	14,773,330	139,008,640	16,941,130

Bonds (Long Term)

		Bonds (Long Term)					
		1929		1930		1931	
		Transacted	Delivered	Transacted	Delivered	Transacted	Delivered
Tokyo	yen	306,805,000	76,295,000	270,920,000	33,340,000	766,630,000	166,550,000
	fr.	104,585,000	23,920,000	45,440,000	11,070,000	283,520,000	84,610,000
Osaka	yen	42,605,000	10,000	24,700,000	70,000	27,205,000	600,000
	fr.	2,600,000	0	540,000	0	6,250,000	10,000
Total	yen	349,410,000	76,305,000	295,620,000	33,410,000	793,835,000	166,950,000
	fr.	107,185,000	23,920,000	45,980,000	11,070,000	289,770,000	84,620,000

Rice (in koku)

	Rice (in koku)					
	1929		1930		1931	
	Transacted	Delivered	Transacted	Delivered	Transacted	Delivered
Tokyo	39,750,600	196,100	49,668,400	139,500	47,179,000	180,900
Osaka	63,009,400	158,600	76,520,200	261,000	70,029,000	338,500
Nagoya	12,947,100	137,600	14,018,800	150,200	11,037,200	83,200
Kobe	12,413,200	79,700	15,846,300	62,600	13,917,300	90,100
Kyoto	15,869,809	34,300	23,186,400	51,800	21,774,300	131,600
Total incl. others	180,152,200	974,500	220,953,800	896,000	203,818,100	1,206,300

Raw Silk (in kin)

	Raw Silk (in kin)					
	1929		1930		1931	
	Transacted	Delivered	Transacted	Delivered	Transacted	Delivered
Yokohama	18,650,500	514,000	38,441,660	730,000	53,642,200	2,890,000
Kobe	1,279,400	24,000	10,961,000	70,000	19,741,500	990,000
Total	19,292,900	538,000	49,402,660	800,000	73,383,700	3,880,000

Cotton Yarn (in bales)

	1929		1930		1931	
	Transacted	Delivered	Transacted	Delivered	Transacted	Delivered
Tokyo	939,100	5,950	1,436,210	11,530	1,089,970	3,490
Nagoya	766,680	38,530	1,043,370	10,420	1,037,350	3,540
Osaka	6,111,370	3,420	7,568,560	32,580	6,035,640	13,840
Total	7,817,150	47,900	10,048,140	54,530	8,162,960	20,870

Sugar (in bags)

	1929		1930		1931	
	Transacted	Delivered	Transacted	Delivered	Transacted	Delivered
Tokyo	10,013,200	287,600	5,997,200	185,500	5,073,400	231,000
Osaka	4,238,400	271,306	3,118,600	145,400	2,706,900	251,400
Total	14,251,600	558,906	9,115,800	330,900	7,780,300	482,400

Cotton (in bales)

	1929		1930		1931	
	Transacted	Delivered	Transacted	Delivered	Transacted	Delivered
Osaka Sampin	1,717,100	25,690	2,068,750	14,710	2,093,090	34,820

Business Results of Principal Exchanges

(At the end of 2nd half, 1932)

	Paid-up capital (¥1,000)	Reserves (¥1,000)	Profits (¥1,000)	Ratio to p.u. capital (%)
Tokyo Stock Exchange	40,250	6,858	2,078	10.3
Yokohama Stock Exchange	6,500	285	236	7.3
Osaka Stock Exchange	29,500	1,197	1,004	6.8
Osaka Dojima Rice Exchange	4,750	1,569	373	15.7
Kobe Exchange	3,125	374	194	12.4
Tokyo Rice & Merchandise Exchange	5,375	813	262	9.7
Hakata Stock Exchange	825	162	138	33.4
Dairen Stock Exchange	1,250	—	10	1.6

Quotations of Leading Stocks at Tokyo & Osaka (1932-33)

Shares (time delivery)	Paid-up per share (Yen)	1932		Rate of dividend (10 per cent)		1933 1st half
		Highest (Yen)	Lowest (Yen)	1932		
		1st half	2nd half	1st half	2nd half	
At Tokyo:						
Nippon Yusen Kaisha	50.0	59.9	28.5	nil	nil	nil
Ditto (new)	12.5	22.1	7.6	"	"	"
Toyo Cotton Spinning Co.	50.0	88.0	125.0	1.80	1.80	1.80
Dai Nippon Sugar Mfg. Co.	50.0	93.0	40.6	0.80	0.80	0.80
Ditto (new)	25.0	57.6	18.8	"	"	"
Meiji Sugar Mfg. Co.	50.0	115.0	55.5	1.00	1.00	1.00
Dai Nippon Art. Fertilizer	50.0	46.5	13.9	nil	nil	0.50
Dai Nippon Seihyo (Ice) Co.	50.0	29.9	16.5	—	nil	—
Nisshin Flour Milling Co.	50.0	98.7	73.8	0.80	0.80	0.80
Hokkaido Colliery & S.S. Co.	50.0	49.4	19.0	0.30	0.30	0.40
Asano Cement Co.	50.0	71.9	36.6	0.50	0.60	0.70
Tokyo Electric Light Co.	50.0	25.0	12.3	0.30	0.20	nil
Oji Paper Mill Co.	50.0	113.1	68.4	0.80	1.00	1.00
Fuji Gassed Yarn Co.	50.0	73.6	41.6	0.70	0.80	0.80
Nippon Oil Co.	50.0	61.6	39.1	0.50	0.30	0.60
Tokyo Stock Exchange	50.0	216.0	129.6	0.88	0.84	1.20
Ditto (new)	37.5	223.0	129.3	"	"	"
Dai-Nippon Beer Brewery Co.	50.0	120.8	76.5	1.20	1.20	1.20
Ditto (new)	12.5	53.4	22.6	"	"	"

Shares (Time delivery)	Paid-up per share (Yen)	1931		Rate of dividend (10 per cent)		1933 1st half
		Highest (Yen)	Lowest (Yen)	1932		
		1st half	2nd half	1st half	2nd half	
South Manchuria Railway Co.	50.0	67.6	48.2	0.60	—	0.80
Nichiro Fishery Co.	50.0	75.5	30.0	0.60	0.80	0.80
Toho Hydro-Electric Co.	50.0	38.9	25.0	0.70	0.50	0.50
Katakura Filature	25.0	39.0	15.5	0.50	—	0.80
Kanegafuchi Cotton Spinning Co.	50.0	271.5	173.1	2.50	2.50	2.50
Ditto (new)	12.5	142.5	78.6	"	"	"
Toyo Spinning Co.	50.0	88.0	125.0	1.80	1.80	1.80
Osaka Shosen Kaisha	50.0	48.7	20.0	nil	nil	nil
At Osaka:						
Hanshin Electric Railway Co.	50.0	62.9	46.9	0.90	0.90	0.90
Ujigawa Hydro-Electric Co.	50.0	45.5	22.8	0.65	0.50	0.50
Daido Electric Power Co.	50.0	31.4	15.9	0.60	0.40	nil
Dai Nippon Cotton Spinning Co.	50.0	112.0	60.0	1.00	1.00	1.00
Kanegafuchi Spinning Co.	50.0	269.7	174.5	2.50	2.50	2.50
Dojima Rice Exchange	50.0	79.0	54.1	1.00	1.00	1.80
Osaka Stock Exchange	50.0	121.4	65.3	0.50	0.50	0.80
Osaka Sampin Exchange	50.0	123.0	88.9	1.00	1.00	1.00
Nippon Keori Co.	50.0	141.0	93.0	1.20	1.20	1.20
Osaka Estate Co.	50.0	41.1	26.5	0.70	0.60	0.60
Osaka Shosen Co.	50.0	57.3	20.1	nil	nil	nil
Ditto (new)	12.5	15.9	5.1	nil	nil	nil

Monthly Movement of Quotations for Forward Delivery in 1933 (1st half)

The following table shows the monthly movements of quotations (forward delivery) of leading shares at Tokyo for the first half of 1933:—

		Tokyo Exchange						1933 Jan.—June (Aver.)	1932 (Aver.)
		Jan.	Feb.	Mar.	April	May	June		
Old	High	225.4	188.0	174.9	182.5	190.9	204.2	225.4	216.0
	Low	190.0	143.0	152.6	168.1	175.0	188.1	143.0	129.0
New	High	232.8	194.3	184.9	188.7	198.5	214.6	232.8	223.0
	Low	199.1	149.1	157.6	173.3	181.6	196.8	149.1	129.3
Kanegafuchi Spinning									
Old	High	272.7	232.0	219.8	235.0	230.5	242.5	272.7	271.5
	Low	240.1	173.5	185.8	207.0	214.6	225.0	173.5	173.1
New	High	140.0	114.5	107.8	112.4	110.8	117.5	140.1	142.5
	Low	116.5	78.9	85.5	88.7	102.2	104.6	78.9	78.6
Dai Nippon Beer									
Old	High	123.0	112.0	110.6	112.1	118.0	119.8	123.0	120.8
	Low	110.7	97.8	101.0	108.3	111.4	113.9	97.8	76.5
New	High	59.9	45.0	44.2	46.6	49.3	48.7	59.9	53.4
	Low	44.0	33.2	36.6	43.7	46.2	45.9	33.2	22.6
Dai Nippon Sugar									
Old	High	97.9	84.0	86.5	120.7	86.8	87.2	97.9	93.0
	Low	83.5	71.9	74.0	107.1	82.6	81.0	71.9	40.4
New	High	62.5	52.2	51.9	66.4	52.7	66.8	66.8	57.6
	Low	50.2	41.1	40.9	56.9	49.3	62.2	40.9	18.8
Asano Cement									
Old	High	76.0	68.1	66.9	72.7	75.4	77.2	77.2	71.9
	Low	68.7	52.7	59.8	67.1	71.9	69.5	52.7	36.6

		Jan.	Feb.	Mar.	April	May	June	1933	1932
								Jan.-June (Aver.)	(Aver.)
New	High	42.8	37.6	35.0	38.7	38.2	38.8	42.8	37.9
	Low	36.8	28.5	31.8	36.1	37.0	35.9	28.5	15.3
Nippon Sangyo									
Old	High	126.4	99.5	84.0	89.5	84.0	93.5	126.4	96.9
	Low	91.0	77.0	64.8	74.1	79.0	85.3	64.8	23.3
New	High	58.4	49.9	43.3	51.7	66.2	69.9	69.9	42.6
	Low	38.8	39.0	32.4	42.0	62.1	64.7	32.4	7.9

WAREHOUSING

Warehousing business has attained a marked development recently, the volume of merchandise stored in principal warehouses in Tokyo, Osaka and other commercial centers being returned as ¥356,833,000 in 1930 (99 warehouses),

¥410,988,000 in 1931 (96 warehouses) and ¥486,144,000 in 1932 (98 warehouses), at the end of December of each year. The value of principal items of warehoused goods in recent years is tabulated as follows (¥1,000):—

Item	1930		1931		1932	
	June	Dec.	June	Dec.	June	Dec.
Rice	61,645	24,510	41,220	61,836	71,806	49,806
Rice, imported	9,348	4,513	6,230	15,446	30,796	36,989
Flour	1,049	1,049	689	1,161	5,771	5,231
Sugar, refined	16,356	3,449	14,027	4,142	16,066	7,496
Sugar, crude	2,948	217	2,768	311	4,668	1,097
Silk fabrics	1,782	1,028	748	1,044	896	1,916
Cotton fabrics	21,548	10,933	11,354	14,976	16,060	7,498
Woolen fabrics	17,166	8,143	8,997	5,231	8,339	8,068
American cotton	26,654	12,916	33,169	8,033	72,002	40,793
Indian cotton	13,406	781	12,719	1,060	9,102	3,560
Silk yarn	178,007	99,665	106,289	111,554	77,297	116,829
Cotton yarn	7,908	1,054	1,535	2,217	4,229	3,544
Woolen yarn	2,428	1,165	2,701	3,623	6,766	5,290
Wool	10,311	3,834	11,491	7,910	23,298	21,560
Hemp	1,545	1,803	1,326	1,293	935	1,466
Leather & leather goods	860	675	836	549	817	563
Foreign paper	30,752	32,941	32,253	30,731	27,334	24,172
Artificial fertilizer	13,941	12,086	11,445	13,354	11,587	8,620
Iron materials	8,005	5,385	3,784	2,588	5,114	2,382
Hard ware	10,291	10,038	5,371	5,488	5,570	4,729
Drugs & dyes	9,972	6,443	6,386	5,891	5,811	5,167
Total incl. others	603,941	336,844	458,918	410,988	546,683	486,144

PRICE OF COMMODITIES

According to the investigation carried out by the Oriental Economist the average index figure of the wholesale prices in Tokyo in 1932 stood higher than in the same period of 1931, January figure standing at 130 against

126 of the previous year, taking the average at the end of January, 1913, as 100. The monthly movement of the prices in the past five years is as follows:—

	January	March	May	July	September	December	Average
Rice & cereals	160.6	163.8	168.5	165.0	170.6	168.7	163.5
(6 articles)	165.9	169.6	170.9	162.8	162.2	149.1	162.9
	151.5	146.5	139.1	138.7	129.2	107.5	133.5
	105.2	105.8	105.8	104.7	94.6	112.7	103.2
	125.1	125.0	114.7	120.5	137.5	150.7	130.2

	January	March	May	July	September	December	Average
Foodstuffs & others (16 articles)	1928	215.3	204.7	201.8	203.8	212.7	209.1
	1929	198.6	201.0	204.1	200.7	203.2	203.8
	1930	197.0	179.5	172.3	171.3	161.3	163.2
	1931	162.1	154.5	158.3	154.8	160.4	152.7
	1932	154.2	149.2	143.8	150.0	152.7	159.8
Fabrics & raw materials thereof (16 articles)	1928	176.8	177.3	178.1	178.0	175.0	177.3
	1929	177.2	176.1	173.2	170.2	168.7	170.3
	1930	150.9	146.3	142.8	125.3	121.8	123.6
	1931	123.9	126.3	112.5	117.7	105.1	115.5
	1932	119.8	116.5	110.0	113.0	148.1	172.2
Metals & Metal manufacture (8 articles)	1928	120.9	117.2	120.6	118.8	121.9	120.5
	1929	121.5	132.7	121.4	114.3	112.5	103.3
	1930	101.7	95.4	89.3	83.4	82.9	78.2
	1931	77.2	77.2	71.2	71.6	72.3	81.7
	1932	86.8	87.7	82.8	81.3	107.6	124.8
Building materials (7 articles)	1928	202.9	203.9	203.3	206.0	211.7	208.3
	1929	218.6	215.6	215.8	210.4	202.6	194.3
	1930	187.9	185.1	183.9	176.2	173.1	172.0
	1931	168.1	169.0	170.0	167.4	166.6	172.7
	1932	179.3	180.1	167.9	166.0	180.9	208.0
Fuel (5 articles)	1928	240.2	234.4	225.0	218.6	208.9	213.1
	1929	213.4	209.6	206.1	197.6	192.2	196.8
	1930	189.8	186.9	177.5	161.9	163.1	171.3
	1931	171.4	168.8	168.8	168.5	170.8	171.3
	1932	166.3	164.1	162.6	152.1	159.9	169.3
Material for indus- trial use (6 articles)	1928	202.9	203.9	203.3	206.0	211.7	208.3
	1929	218.6	215.6	215.8	210.4	202.6	194.3
	1930	187.9	185.1	183.9	176.2	173.1	172.0
	1931	168.1	169.0	170.0	167.4	166.6	172.7
	1932	179.3	180.1	167.9	166.0	180.9	208.0
Fertilizer (2 articles)	1928	119.9	125.1	130.3	126.1	130.6	121.3
	1929	125.0	144.2	145.1	140.3	139.4	131.1
	1930	129.7	126.4	116.4	99.0	91.4	76.5
	1931	77.7	81.8	80.3	77.7	69.4	81.8
	1932	90.1	85.4	79.7	75.6	90.1	110.0
Total average incl. others (67 articles)	1928	176.7	174.4	175.5	174.7	177.5	178.4
	1929	175.0	177.7	175.7	170.5	169.3	192.7
	1930	158.6	151.3	145.5	138.9	133.5	127.9
	1931	126.4	125.4	121.8	121.5	117.5	125.0
	1932	130.1	128.6	121.8	124.3	144.0	160.7

Wholesale Quotations of Staple Commodities

(Average in December)

	1930	1931	1932	1931	1932
Kyushu Coal (per 10,000 "kin," 1st class)	87.00	93.60	82.80	2.40	2.75
Petroleum (per case)	4.70	4.45	4.80	2.75	3.60
Muslin (No. 100, Red; per yard)	0.37	0.44	0.50	40.00	32.00
Sugar (refined, B.H.; per 100 "kin")	20.30	18.00	22.70	3.65	4.45
Wheat	5.00	4.70	7.00	4.25	4.25
Flour (one bag)				0.15	0.15
Pig iron (per ton)				0.15	0.20
Asano cement (per barrel)				17.70	20.40
Cryptomeria timber				23.80	23.80
Rice (staple per "koku")				650.00	640.00
Raw silk (best; per 100 kin)				925.00	925.00

GUILDS OF STAPLE COMMODITIES

The first legislative measure for encouraging the combination and harmonious working of those engaged in industry and trade was enacted in 1884. This was expanded in scope

by the issue in 1897 of the Law relating to the Staple Export Guilds, and in 1900 of the Law relating to the Staple Produce Guilds. At the end of December 1931 the guilds existing throughout Japan numbered 831. The principal production guilds as classified according to the kind of commodities handled were as follows:—

	1929	1930	1931
Rice & cereal	57	57	58
Fertilizer	22	21	21
Paper & paper ware	29	29	27

	1929	1930	1931
Porcelain	23	22	22
Medicine	23	23	24
Weaving	131	129	128
Dyeing	16	16	16
Timber	45	46	46
Coal, coke, charcoal & firewood	38	38	38
Soy & "miso"	40	39	39
Metal manufactures	29	30	30
Matting	24	23	23
Total incl. others	850	841	831

COMMERCIAL MUSEUMS

Over fifty commercial museums exist throughout the country, and of these those that are worthy of mention are the Tokyo Shoko Shorei-kan (Tokyo Commercial & Industrial Museum), the Osaka Commercial Museum, the Nagoya Commercial Museum, etc. These museums are mostly official establishments maintained by prefectural or municipal offices and are under control of the Depart-

ment of Commerce and Industry. The Government Commercial Museum founded in 1896 and attached to the then Department of Agriculture and Commerce was discontinued in 1926. The Chosen Commercial Museum at Seoul established in 1931 by the Chosen Government-General is the latest addition to the list of the official establishments of the kind. Leading commercial museums are as follows:—

Name	Location	When established
Tokyo Shoko Shorei-kan	Tokyo Prefectural Office	1921
Osaka Prefectural Commercial Museum	Higashi-ku, Osaka	1890
Niigata " " "	Niigata city	1882
Saitama " " "	Urawa, Saitama pref.	1914
Gumma " " "	Mayebashi, Gumma pref.	1898
Ibaraki " " "	Mito city, Ibaraki pref.	1915
Nara " " "	Kasugano, Nara	1892
Miye " " "	Tsu, Miye pref.	1907
Aichi " " "	Nakaku, Nagoya	1910
Shiga " " "	Otsu city, Shiga pref.	1898
Gifu-ken Bussan-kan	Gifu city, Gifu pref.	1901
Miyagi Prefectural Commercial Museum	Sendai city, Miyagi pref.	1899
Fukushima Prefectural Commercial Museum	Fukushima city	1911
Iwate Shoko-kan	Morioka city, Iwate pref.	1891
Aomori-ken Bussan-kan	Sapporo city, Hokkaido	1918
Yamagata Prefectural Commercial Museum	Yamagata city, Yamagata pref.	1901
Akita " " "	Akita city, Akita pref.	1896
Fukui " " "	Fukui city, Fukui pref.	1911
Ishikawa " " "	Kanazawa city, Ishikawa pref.	1900
Tottori " " "	Tottori city, Tottori pref.	1892
Shimane " " "	Matsuye city, Shimane pref.	1880
Okayama " " "	Okayama city, Okayama pref.	1921
Hiroshima " " "	Hiroshima city, Hiroshima pref.	1915
Yamaguchi " " "	Shimonoseki city, Yamaguchi pref.	1921
Wakayama " " "	Wakayama city, Wakayama pref.	1915
Tokushima " " "	Tokushima city, Tokushima pref.	1908
Kagawa " " "	Takamatsu city, Kagawa pref.	1899
Ehime " " "	Matsuyama city, Ehime pref.	1914
Kochi " " "	Kochi city, Kochi pref.	1898
Fukuoka " " "	Fukuoka city, Fukuoka pref.	—
Oita " " "	Beppu-machi, Oita pref.	1907

Name	Location	When established
Saga Prefectural Commercial Museum	Saga city, Saga pref.	1914
Kumamoto " " "	Kumamoto city, Kumamoto pref.	1895
Miyazaki " " "	Miyazaki-machi, Miyazaki pref.	1885
Kagoshima " " "	Kagoshima city, Kagoshima pref.	1883
Hokkaido Staple Products Museum	Sapporo city, Hokkaido	1892
Sakai Municipal Commercial Museum	Sakai city, Osaka pref.	1915
Nagasaki Municipal Commercial Museum	Nagasaki city, Nagasaki pref.	1908
Okazaki Staple Products Museum	Okazaki city, Aichi pref.	1916
Shizuoka Commercial Museum	Shizuoka city, Shizuoka pref.	1906
Toyama Staple Products Museum	Toyama city, Toyama pref.	1915
Takaoka Staple Products Museum	Takaoka city, Niigata pref.	1891
Chosen Gov't. Commercial Museum	Seoul, Chosen	1931

Free Trade Movement

As the organs upholding the cause of free trade the Associations for Liberty of Trading were created in January 1928, each in Tokyo, Osaka, Kobe and Kyoto, and later in Moji, Dairen, Aomori, Nagoya and Yokohama. These nine associations formed themselves into a national federation under the title of the Japan Federation of the Associations for Liberty of Trading, with Mr. Tetsujiro Shidachi as chairman of the Board of Directors Executive. The

chief aim of the movement is the promotion of universal free trade and the cause of the world peace. The members include the prominent citizens representing the press, industry, import and export trade, shipping, education, banking, etc. A monthly publication named "The Jiyutsusho" or "Free Trade" printed in Japanese and also in English is the organ of the federated associations and is being distributed among members and similar bodies abroad.

CHAPTER XXXVI

FOREIGN TRADE

INTRODUCTORY REMARKS

The publication of Japan's customs reports in statistical form dates from 1868. In those days Japan was an agricultural country and her manufacturing industry was little more than a fireside industry intended to meet only the domestic demands. Consequently, farm produce such as rice, vegetable, leaf tobacco and tea, and sericultural and marine products, and minerals such as coal and copper made up all the staple exports of the country, while for the supply of wheat flour, sugar, leather, medicines, dyes, paints, drapery, hardware, clocks, arms, and other manufactured articles the country had to import from abroad. Such being the case, for the succeeding fourteen years (1868-1881), imports exceeded exports every year, except in two of them, so that the balance of trade continued unfavorable.

In the meantime, however, the awakening of the nation and the encouragement of industry by the authorities joined in causing manufacturing enterprises of a new type to spring up in different parts of the country. The establishment of cotton-mills, among the rest, marked a turn of the tide. The period from 1882 to 1895 saw the import of cotton yarns and stuff gradually falling off and the export of those of coarser description increasing. Raw silk woven into "habutaye" and also matches, china, lacquer-ware and other industrial products, and coal and copper began to find their way to foreign markets, but as the imports remained relatively stationary the balance was in favor of exports during this period of fourteen years (two years excepted, when imports were in excess.) After the Sino-Japanese war (1894-95) the tradal movement again took an adverse turn, for the success which attended our arms relaxed the spirit of self-restraint that had been so conspicuous during the war; it now gave way and was followed by a wave of extravagance. This visibly affected the balance of trade in 1896, and so another period of excess imports set in and lasted till 1914, the year of the outbreak of the World War.

Meanwhile, in 1899, the enforcement of the revised commercial treaty doubled or trebled the tariff to what it was before and consequently affected the prices of commodities in Japan. This condition of affairs after all served to encourage the importation of foreign goods. On the other hand, the protection afforded by the high tariff wall stimulated the rise of new manufacturing enterprises, which, with the aid of useful machinery introduced from Europe and America, progressed with long strides. In manufacturing, however, Japan, as she is still today, was seriously handicapped, for raw materials are scarce in this country, and they have to be imported, especially fibre, rubber, skin and bone, pulp, ores and other metal materials. The Russo-Japanese war (1904-5) occasioned enormous purchase of military supplies. All these facts help to account for the fact that for 19 years from 1896 to 1914 (excepting two of them) the customs reports recorded adverse results almost without a break.

The World War had, on the whole, a beneficial effect on the industrial development of Japan, for England, France, Italy, America and Germany, drawn into the vortex of the catastrophe, could no longer play a predominant part in the manufacturing industry of the world. The consequence was that Japan was left the only producer to supply the shortage of goods in Far Eastern market, even to fill orders from the Allies. Then to encourage production at home and its shipment to foreign markets, the authorities did their best to extend banking facilities. In these circumstances, during the 4 years from 1915 to 1918, a favorable balance of trade was realized to the extent of over ¥1,400,000,000 (\$700,000,000), which, however, is only 1/18 of that of America, whose excess exports during the period from July, 1915, to June, 1919, totalled \$12,800,000,000. With the restoration of peace Japan's trade relapsed into its ante-bellum condition, imports continuing to exceed exports every year, and this one-sided trade was aggravated

by the great earthquake in Tokyo and outlying districts of 1923.

Heavy Excess of Imports.—From 1915 till 1918 the trade balance was in Japan's favor, but from 1919 the relation was reversed. The adverse balance for 14 years from 1919 to 1932 has reached an enormous figure of over 3,470 million yen. The figures for the respective years are shown below (in ¥1,000,000):—

Year	Exports	Imports	Total	Excess of imports
1919.....	2,180	2,225	4,406	45
1920.....	2,040	2,379	4,419	339
1921.....	1,309	1,677	2,986	368

1922.....	1,683	1,954	3,637	271
1923.....	1,448	1,982	3,430	534
1924.....	1,807	2,453	2,260	646
1925.....	2,306	2,573	4,897	267
1926.....	2,045	2,377	4,422	333
1927.....	1,992	2,179	4,171	189
1928.....	1,972	2,196	4,168	224
1929.....	2,149	2,216	4,365	67
1930.....	1,470	1,546	3,015	76
1931.....	1,147	1,236	2,382	89
1932.....	1,410	1,431	2,840	21
1933 (1st half)...	830	1,016	1,846	186
Total excess of imports				3,655

THE IMPORT TARIFF OF JAPAN

It was in 1859, when most of the early commercial treaties between Japan and the Western powers had been concluded, that custom-houses were for the first time established and customs duties levied at a few open ports selected for the purpose in this country. The custom tariff of that time was entirely determined by treaty; but the term of its operation was rather short, for the whole tariff was revised by treaty in 1866. This revised tariff remained in force for thirty-three years, and the customs duties were unchanged until 1899 when the new treaties of commerce and navigation with foreign powers came into operation.

The operation of the revised commercial treaties with foreign powers in 1899 made it possible to bring into operation the statutory tariff which, combined with the conventional tariffs newly arranged, formed the customs tariff of this country. At the same time the export duties were entirely abolished.

In 1904 the urgent needs of the extraordinary fund in connection with the war with Russia led to the imposition of a special surtax on the customs duties as well as on other taxes, and soon after the restoration of peace the entire customs tariff was revised and the new tariff came into operation on October 1, 1906.

Tariff Revision in 1910.—The post-bellum development of manufacturing industries in this country necessitated another tariff revision in 1910, and a tariff revision bill framed after a careful study of the changed condition of manufacturing industries was presented to and approved by the Diet the same year, the new tariff taking effect on July 17, 1911. The articles enumerated in the new tariff, which was several times revised afterward, numbered 672, classified into seventeen groups, these be-

ing further subdivided, and the duties thereon were converted as far as possible into specific duties. Raw materials were made mostly duty free and upon half-manufactured materials light duties were levied; the rates for manufactured goods varied from 15% to 40%, but on many of manufactured goods low rates were imposed, those manufactures on which a duty of 40% was imposed being far between and their import rather limited in quantity. Upon some articles of luxury was levied a duty of 50%, but their importation was also very small.

As the Tariff Conventions with Great Britain and Germany were to terminate on the 16th July, 1911, and that with France on the 3rd of August, same year, negotiations for their revision were opened with these countries prior to the termination of the existing treaties. A new Tariff Convention was concluded first with Great Britain, by which upon the guarantee that ten principal articles of export from Japan to Great Britain should be exempted from customs-duties upon importation into that country, concessions were made in the Japanese tariff upon principal British merchandise, such as paints, linen yarns, cotton tissues, woollen tissues, mixed tissues of wool and cotton, and iron sheets; and next, a similar convention was concluded with Germany, by which, in consideration of concessions made by Japan in the customs-duties upon principal Japanese products, reductions were made by Japan in the customs-duties upon principal German products, such as leather, salicylic acid, quinine, artificial indigo, coal-tar dyes, woollen yarns, mixed tissues of wool and cotton, packing paper, zinc plates and sheets, and gas, petroleum and hot-air engines (whether combined with motive machinery or not). Al-

though the new Tariff Conventions with Great Britain and Germany came into force simultaneously with the expiration of the old convention, the new Convention with France could not be established before the expiration of the old one, and accordingly a provisional Convention was concluded pending the establishment of a new Convention, which was put in operation on the 29th of February, 1912. By this Convention, in consideration of the application of the French minimum tariff rates to principal Japanese products, reductions were made in the customs-duties to be levied by Japan upon principal French products, i.e. yarns, woollen tissues, binoculars, automobiles and parts thereof, and knitting machines. Both countries were at liberty to raise or reduce their customs tariffs, and in the event of their being raised, the party which did not alter its tariff may, after three months' notice, abrogate the convention relating to customs-duties. A tariff convention with Italy was also concluded with Italy in June, 1913.

On the outbreak of war between Japan and Germany on August 23, 1914, consequent upon the World War, the aforementioned tariff convention with Germany came to an end, though the same rates of duty as arranged in the convention were applied until the end of March 1915.

The section relating to tariff agreement in the said Franco-Japanese Treaty of Commerce and Navigation and the whole of the similar treaty between Japan and Italy were to terminate in 1919, but it was temporarily arranged at the time between the Governments concerned that until new agreements were concluded or either party made declaration denouncing the agreements affected, the said section and treaty should remain in force.

In conformity with the Imperial Declaration concerning the Annexation of Chosen in 1910, the tariff system of the former Korean Empire was left in force in the territory for ten years after the event. On the expiration of the term of ten years on August 28th, 1920, the tariff in force in Japan proper was applied to Chosen, and the tariff rates as adopted for trade between Japan proper and Chosen were abolished, with the exception of customs-duties on certain imports from Japan proper to Chosen. The latter had to be retained from considerations of economic and other requirements of Chosen.

Higher Duties on Luxuries. Under Law No. 24, enacted and promulgated on July 31st, 1924,

which regulates import duties on certain luxuries, a 100 per cent ad valorem duty was imposed for the time being on about 120 kinds of goods designated as luxuries. The object of the measure was not only to check luxurious habits and to cultivate a habit of economy but to help in diminishing adverse balance of trade by checking the importation of such articles by means of higher tariff barrier.

Abrogation of Conventional Tariff with Great Britain. The Anglo-Japanese Treaty of Commerce and Navigation concluded in 1911 was to terminate on July 16, 1923, but remained in force pending conclusion of a new treaty to replace it. The tariff convention arranged between the two countries at the time of the conclusion of the treaty was, however, abrogated in March, 1925, and in consequence thereof all specified merchandise imported to this country from Great Britain and the British colonies had come to be subject to the statutory tariff and taxed about three times the amount of the former conventional rates. Some of the Japanese exports formerly admitted free to Great Britain and the British colonies were also affected by the change, these consisting of silk (gray), copper (ingots and slabs) and 8 other articles. To mitigate the undesirable effect arising from the sudden change of such magnitude in the customs duties, the Government provided a special tariff for iron plates and sheets imported to this country from Great Britain and her colonies as provisional measure after the abrogation of the said tariff convention. The temporary measure was, however, abolished in 1926, but the rates specified in the measure were adopted in the new tariff revised the same year and made general tariff applicable to similar imports coming from all foreign countries. Meanwhile a supplementary agreement to the time-expired treaty was arranged between Japan and Britain in July, 1925, by which Article 21 of the old treaty was abolished and substituted by a new clause. The supplementary agreement was formally ratified in June 1927, and took effect on the date of exchange of ratification to remain in force for 5 years from that date.

Amendments in 1925. A partial amendment of import duties on luxuries was made on April 1st, 1925, by which articles imported for industrial purpose, materials for the manufacture of goods to be exported and several other articles were excluded from the list of the articles subject to the 100 per cent ad valorem duty on

luxuries. Then, again, with the object of encouraging the industries in Kwantung leased territory and of promoting the export of the produce of that territory to the home country, portland cement and 29 other articles produced in Kwantung Province were exempted from import duties by the Act of June 18th, same year.

Tariff Revision in 1926. Although several amendments in minor details had been made from time to time, the customs tariff remained practically unchanged after 1910 and was not adapted to the great change in economic condition at home and abroad. The Government, therefore, introduced into the Imperial Diet in 1926 a Bill proposing a general amendment embodying the following principles:—

- (a) Raw materials such as are not produced or are scarce in this country should be made duty-free.
- (b) Necessary protection is to be given to staple industries that have bright prospects for the future.
- (c) Import duties should be left untouched or be reduced with respect to foreign articles with which home produce is able to compete.
- (d) Duties on the necessaries of daily life should be reduced.
- (e) In order to discourage consumption, high duties should be imposed upon articles other than necessaries of daily life.
- (f) The number of specific duties should be increased and more minute classification of articles be made for convenience in the imposition of duties.

The measure was passed by the Diet, and was put to force on March 29, 1926. Although not the direct object of the amendment, an increase in the customs revenue was expected as a result of the change in the rates of duties and the adjustment of the relation between specific duties and ad valorem duties in accordance with the rise of prices of commodities.

Amendments in 1927. The rates of import duties on sugar were amended in April, 1927, to cope with the changes in the rates of sugar excise made at the same time, and duties on corn starch, butter, oxidized cobalt, oleine, etc. were also altered at the same time. Changes were also made to the articles exempted from import duties under the preference given to the produce of Kwantung leased territory, soyabean oil and certain kinds of manufactured

clothings being included in the free list. Besides, several staple produce of the territory have had the rates of duties thereon lowered. Partial revision of the Customs Law, the amendment or revision of the Bonded Warehouse Law, the Bonded Factory Law and other regulations were also among the new measures enacted the same year.

New Treaties with Germany & Other Countries. To replace the old treaty which was nullified on account of the outbreak of the World War, a new treaty of commerce and navigation was concluded between Germany and Japan in July 1927, and was duly ratified on April 5th, 1928, the new pact taking effect after two weeks from the date of the exchange of ratification thereof. A provisional commercial treaty relating to the commercial and other rights of Japanese subjects in French Indo-China was newly concluded between Japan and France in August, 1927. Following the enforcement of the new German-Japanese commercial treaty a provisional agreement assuring the most favoured nation treatment on the basis of mutual reciprocity was also arranged between Japan and New Zealand in July, 1928, the measure taking effect on August 8th. Japan also arranged treaties of commerce or of amity with Bulgaria, Persia, Egypt, Ethiopia and Latvia Republic, the commercial treaty with the last named country having been concluded in August 1928 and taken effect on the date. As the result of the establishment of formal commercial relations, Bulgaria, Germany, New Zealand and Latvia were added to the list of the countries entitled to the benefit of conventional tariff.

Tariff Revision in 1929 and thereafter. Partial revision of import duties, approved by the Diet, was promulgated on March 29, 1929, and enforced the same day. The change affected 26 articles enumerated in the tariff schedule, the duties thereon being subject to more or less Tariff No. 245) being made duty-free. Of 120 items subject to the 100% ad valorem duty or luxury tariff according to Law No. 24 promulgated in 1924, 15 articles were excluded from the luxury tariff schedule and restored to the former rates (statutory tariff). At the same time the rates of the statutory tariff on some of those articles were increased, the rates for other items remaining unchanged. Six articles, also placed on the 100% ad valorem schedule, were subject to slight changes in their classification.

The exceptions in the import duties applicable to Chosen (Korea) provided for in Law No. 53 of 1920, according to which five articles imported to the territory was given special treatment or subject to import duties specially provided for, were abolished and those articles imported to the territory were after March 29, 1929, subject to the same duties as imposed on similar commodities imported to Japan proper, excepting a few items for which special rates were provided.

Slight amendments or additions were made to the list of those commodities imported to Kwantung leased territory, which were either exempted from import duties or accorded special treatment of reduction in the rates.

CUSTOMS TARIFF LAW

Art. 1.—Customs duties shall be imposed according to the annexed tariff upon articles imported from foreign countries.

Art. 2.—Duty upon an article subject to ad valorem duty shall be levied according to the value on arrival thereof at the time of importation.

Art. 3.—With regard to the articles, produce or manufacture of the regions which do not enjoy the benefit of special conventional arrangements, a benefit not exceeding the limits provided for in those arrangements may, by Imperial Ordinance designating the regions and articles, be extended to such articles, if necessary.

Art. 4.—With regard to the produce or manufacture or exports of, or articles coming through, a country where Japanese vessels, or produce or manufactures or exports, or articles passing through Japan are subject to less favourable treatment than those of other countries, duties not exceeding in amount the value of such articles may be imposed upon them in addition to the duties specified in the annexed tariff, such articles to be designated by Imperial Ordinance.

Art. 5.—With regard to such articles as enjoying the benefit of export bounty in foreign countries, duties corresponding in amount to such bounty may be imposed on them by Imperial Ordinance, in addition to the duties specified in the annexed tariff.

Art. 5.-B.—When any important industry in this country is in the danger of being injuriously affected by the importation of articles for

The provisional treaty of commerce between Japan and Persia arranged in 1927 was ratified in April, 1929, and took effect the same day. In accordance with the stipulation of the pact commodities imported to Japan from Persia came to be accorded the most favoured nation treatment on the same status as the goods coming from other countries entitled to the benefit of conventional tariff.

Tariff revisions were repeatedly made in 1930, 1931, 1932 and 1933, but the amendments made to the rates of duties were rather limited in scope each time. It suffices to say that the 100 per cent ad valorem duty on luxuries created in 1924 as a temporary measure has been made a permanent one.

the purpose of dumping or the dumping of imported articles, such articles may be designated in accordance with provisions of Imperial Ordinance after submitting the matter to the investigation of the Dumping Investigation Committee, and duties not exceeding in amount their proper value may be imposed upon them in addition to the duties specified in the annexed tariff, during a certain fixed period of time.

In case the articles designated in accordance with the provisions of the foregoing paragraph have been already imported and are in possession of a dumper or his agent, the additional duties mentioned in the said paragraph may be collected from such dumper or his agent according to the provisions of the preceding paragraph.

The collection of additional duties to be levied according to the foregoing paragraph shall be conducted according to the regulations governing the collection of national taxes.

Art. 6.—The import duty on rice and paddy may, in case of failure of crops, be reduced by Imperial Ordinance to a rate not falling below forty sen per hundred kin for a period to be fixed by an Ordinance.

Art. 7.—The following articles shall be exempt from import duty:—

1. Articles for the use of the Imperial Household;
2. Articles belonging to sovereigns or rulers of foreign States, their families, and suites, visiting Japan;
3. Arms, ammunition, and explosives import-

- ed by the Army or the Navy;
4. Mineral oils for fuel imported by the Government;
- 4.-b. Mineral oils for direct use as fuel, with a specific gravity exceeding 0.904 at 15° C. (Centigrade), imported under permission of the Government according to the provisions of an Ordinance;
5. Warships;
6. Articles for the personal use of foreign Ambassadors and Ministers and other envoys of similar status accredited to Japan, and articles for the official use of foreign Embassies and Legations in Japan. With respect to countries which enforce restrictions on the free entry of articles for the personal use of Japanese Ambassadors and Ministers and other envoys of similar status accredited to those countries, or articles for the official use of the Japanese Embassies or Legations, reciprocal conditions shall be attached;
7. Articles for the personal use of the members of the Embassies and Legations in Japan of those countries which admit free entry of articles for the personal use of the members of the Japanese Embassies and Legations in such countries, and articles for the official use of the Consulates in Japan of those countries which admit free entry of articles for the official use of the Japanese Consulates in such countries;
8. Orders, decorations, medals, and badges conferred upon persons resident in this country;
9. Records, documents, and other papers;
10. Articles imported for use as specimens or objects of reference in Government or public schools, or other institutions such as museums, commercial museums, etc. or in private schools designated by an Ordinance, for which permission of the Ministers of Finance has been obtained;
11. Articles donated for the purpose of charity or relief and articles contributed to charity organizations such as orphanages, homes for the aged, and charity hospitals, which are used for bona fide charitable purposes.
- 11.-b. Articles for ritual and purposes of worship, which are donated to shrine, temples, churches or chapels;
12. Articles of Government monopoly imported by the Government;
13. Samples of merchandise which are only fit for use as such;
14. Personal effects of travellers and tools and instruments of professional necessity to travellers, in so far as they correspond to the social status of such travellers and are recognized as reasonable by the Customs;
15. Articles sent home by Japanese military or naval forces, warships and government offices abroad;
16. Personal effects and household articles belonging to persons changing their residences, provided that such effects and articles have already been used;
17. Exported articles which are re-imported within five years retaining the same character and form as at the time of exportation, excepting, however, alcohol, alcoholic liquors, sugar, and articles exempted from import duty or granted a drawback thereof under the provisions of Art. 8 or Art. 9;
18. Receptacles of export goods designated by ordinance, which are re-imported, excepting, however, those which were exempted from import duty under the provisions of Art. 8;
19. Fish, shell-fish, mollusca, sea-animals, seaweeds, and other aquatic products caught or gathered by vessels which set out for the purpose from Japan, and their manufactures of simple process, provided that they are imported by the same vessels or vessels attached thereto;
20. Articles to be delivered to warships and vessels bound for foreign countries for use on board, excluding those articles mentioned in Art. 10;
21. Wreckages and equipment of shipwrecked Japanese vessels;
22. Exported goods shipped by vessels which cleared Japanese ports, and brought back on account of the shipwreck of such vessels, excluding such articles as having been exempted from the import duty or having had the same refunded under the provisions of Art. 8 or Art. 9;
23. Animals for breeding, and protective serum of vaccine against animal plague, imported by the States, prefectures and

other public bodies, or by industrial juridical persons such as designated by the Government or by persons specially permitted by the Government.

Art. 8.—The following articles are exempted from import duty in case they are to be re-exported within one year from the date of their importation, but the deposit of security corresponding to the amount of duty may be required at the time of importation of such articles;

1. Articles imported for the purpose of having work done thereon, which are designated by ordinance;
2. Receptacles of imported goods, designated by ordinance;
- 2-b. Articles to be used as receptacles of export goods and designed by ordinance;
3. Articles imported for repair;
4. Articles imported for the purpose of scientific research;
5. Articles imported for trial;
6. Samples imported for the purpose of procuring orders;
- 6-b. Articles imported as samples of workmanship;
7. Articles for use in public performances, imported by travelling public entertainers visiting this country;
8. Articles imported for the purpose of exhibiting at exhibitions, competitive or prize shows, etc.

Art. 9.—Import duties on materials to be used for the manufacture of export articles designated by ordinance may be exempted or refunded, wholly or partly, according to the provisions of ordinance.

With regard to articles imported as materials for manufacturing "tea" lead or lead foil for packing tea, zinc sheets not exceeding 0.17 millimetre in thickness, which are imported as raw material, oil or oil cake designated by ordinance, the import duties on such articles may be either exempted or refunded wholly or partly, according to the provisions of ordinance.

In case import duties exempted according to the provisions of the two preceding paragraphs, the deposit of security corresponding to the amount of duties may be required at the time of importation.

Any person who obtains or attempts to obtain by fraud or other illegal means the refund-

ment mentioned in Paragraph 1 or 2 of this Article shall be dealt with according to the provisions of Art. 75 of the Customs Law.

Art. 10.—Iron or steel materials, equipments, parts of equipments, engines or parts of engines, which are to be used for shipbuilding or repair of vessels, and which are designated by ordinance may be exempted from import duties according to the provisions of ordinance.

Art. 11.—The importation of the articles specified hereunder is prohibited;

1. Opium and utensils for smoking opium excepting those imported by the Government;
2. Counterfeit, altered, or imitation coins, paper money, banknotes and negotiable papers;
3. Books, pictures, carvings, and other articles, liable to injure public security or morals;
4. Articles which infringe rights in patents utility models designs and trade-marks, and copyrights.

Import Duties on Luxuries

Those articles in the Import Tariff which are included in the table attached to the present Law shall for the present be subject to an ad valorem duty of 100 per cent irrespective of the duties specified in the said Import Tariff.

As shall be determined by order, part of the import duties under the present Law may be waived in respect of uncut or unpolished precious stones or semi-precious stones, or unworked amber, for use in the manufacture of articles used in machinery or in manufacturing industry.

In case import duties are to be remitted in accordance with the provisions of the preceding clause, the deposit of a security equivalent to the duty to be waived may be required at the time of importation.

Import Tariff (Extract)

Showing only important articles subject to import duty under the import tariff law amended in 1926 and the general duty levied upon each article. The items marked with asterisks* are subject to the 100 per cent. ad valorem duty or "Luxury Tariff" in the place of the general or statutory tariff in accordance with Law No. 24 promulgated July 31, 1924, which still remains in force.

Group I. Plants and Animals (living)

Articles	Unit	General Tariff	
		Rate of Duty	
Saccharifying fungi, known as "Koji"	ad val.	20%	
Horses	"	5%	
Bulls, Oxen and Cows	"	10%	
Swines	"	20%	
Poultry	"	free	

Group II. Grains, Flours, Starches and Seeds

Rice and Paddy	100 kin	Y 1.00	
Barley	"	0.60	
Wheat	"	1.50	
Buckwheat	"	0.50	
Soya beans	"	0.70	
Red or white beans, small (<i>Phaseolus aubtrilobata</i>)	"	0.55	
Peas (<i>Pisum sativum</i>)	"	0.65	
Wheat flour	"	2.90	
Oat meal	"	9.55	
Corn starch	"	2.30	
Sesame seeds	"	0.50	
Rape-seeds and Mustard-seeds	"	0.85	
Paulownia seeds	ad val.	10%	
Seeds of clover and other pasture grasses	"	free	

Group III. Beverages, Comestibles and Tobacco

*Vegetables, Fruits and Nuts	100 kin	Y 12.70-	1.95
Cocoa nuts	"	2.10	
Black tea	"	88.10	
Coffee	"	25.10-	15.10
Cocoa (not sugared)	"	26.00-	6.00
Sugar	"	5.30-	2.50
Rock candy sugar, Cube sugar, Loaf sugar, and similar sugar	"	7.40	
*Confectioneries and Cakes	"	32.00	
Meats, Poultry, Game (preserved in tin, bottle or jar)	ad val.	25%	
Fish, Shell-fish and Mollusca (preserved in tin, bottle or jar)	{ 100 kin	28.20	
Butter, Artificial butter and Ghee	{ ad val.	20%	
Condensed milk	100 kin	36.90	
Eggs, fresh	"	13.40-	8.30
Egg-albumen and Egg-powder	"	6.00	
Saké, and Chinese liquors, fermented	{ 100 kin	5.65-	3.55
Beer, ale, porter and stout	{ ad val.	10%	
Wines, including Port, Sherry, Vermouth, Madeira, Marsala, St. Raphael, etc.	100 litres	28.10-	24.20
Champagne and other sparkling wines	"	16.40	
Cigars, Cigarettes and Cut tobacco	"	81.90-	26.70
	"	170.00	
	ad val.	355%	

Group IV. Skins, Hairs, Bones, Horns, Teeth, Tusks, Shells, and Manufactures thereof

Sole leather	100 kin	Y 27.10-	15.20
*Leather of chamois, incl. imitation chamois leather	"	74.40	
*Leather of alligators and crocodiles	"	207.00-	113.00
Manufactures of elephant ivory	ad val.	50%	
*Pearls	"	5%	

Group V. Oils, Fats, Waxes, and Manufactures thereof

Articles	Unit	General Tariff	
		Rate of Duty	
Castor oil (in can, barrel, or jar).....	100 kin	¥ 2.20	
Cod-liver oil.....	ad val.	20%	
Lard	100 kin	9.00	
Mineral oils.....	{ 100 American gallons	3.45- 1.70 free	
Carnauba wax.....			
*Soaps	100 kin	28.60- 5.70	
*Oils, Fats and Waxes, perfumed, and preparations of oil, fat or wax, perfumed	"	78.00	
*Perfumed waters	"	90.00	

Group VI. Drugs, Chemicals, Medicines, Compounds or Preparations thereof, and Explosives

Chaulmoogra seeds (Hydnocarpae), Cardamoms (Elettaria cardamomum white et matton), Nutmeg, Macis, Cubebs, Colocynth, Colchicum seeds, Tonka beans, Vanilla beans, Anise seeds, Star-anise seeds, Strophantus seeds and Ajowan seeds.....		free	
Chinese senega		"	
Iris root, Columba root, Squill, Jalap root and Veiver		"	
Condurango bark, Cascara Sagrada, Linaloe, Rose-wood, and Sassafras wood		"	
Benzoin, Asafoetida, Aloe and Myrrh.....		"	
Gelatin	100 kin	¥16.30	
Sulphur	ad val.	20%	
Carbolic acid	100 kin	15.70	
Gallic acid.....	ad val.	30%	
Ammonia anhydride		free	
Caustic soda and Caustic potash	100 kin	12.80 1.50	
Bicarbonate of soda	"	0.95	
Nitrate of soda (refined)	ad val.	20%	
Chlorate of soda.....	100 kin	5.80	
Iodide of potash.....	"	122.00	
Chloride of barium	"	3.33	
Subgallate of bismuth	"	135.00	
Sulphate of nickel and Sulphuric nickel ammonium.....	"	5.35	
Rhodium salts.....		free	
Formalin	"	5.10	
Urotropin	"	35.20	
Glycerin.....	"	18.00	
Rhongalite, Brankit, Dechlorin and similar reducing agents.....	"	23.70	
Saccharin and similar sweet substances	1 kin	60.00	
Salol	100 kin	23.40	
Benzol, Toluol, Xylol, Solvent naphtha, Anthracene, Carbazol, Creosote oil and other coal-tar distillates, not otherwise provided for.....		free	
Pyramidon	"	161.00	
Phenacetine	"	61.80	
Salvarsan and the like.....	1 gram.	0.75	
Ethylcarbonate of quinine	ad val.	20%	
Hydrochlorate of and sulphate of morphine.....	1 kin	13.50	
Phosphate of codein	"	21.40	
Ecgonine	ad val.	5%	
Caseine		free	
*Tooth powders, Tooth washes, Toilet powders and other prepared perfumeries not otherwise provided for.....	"	50%	
Gunpowder	100 kin	29.50	

Articles	Unit	General Tariff	
		Rate of Duty	
Dynamite	"	11.00	
Projectiles, loaded with explosives	ad val.	30%	

Group VII. Dyes, Pigments, Coatings and Filling Matters

Artificial indigo	100 kin	¥40.00	
Sulphate of barium	"	0.80	
Lythopone.....	"	2.35	
Oxide of titanium	ad val.	10%	
Vermillion or cinnabar.....	100 kin	26.80	
Varnishes	"	19.40	
Shoe polishes	100 kin	13.60	
Pencils	{ ad val. 1 gross	25-20% 1.45	
Inks for copying or writing	100 kin	8.35	
Inks for printing.....	{ ad val.	111.00- 3.45 25%	

Group VIII. Yarns, Threads, Twines, Cordages, and Materials thereof

Cotton yarns (excluding two-fold yarns, mule cop yarns and yarns over No. 100 English)	100 kin	¥41.20- 5.80	
Hemp yarns.....	ad val.	10%	
Woollen or worsted yarns	100 kin	33.10- 22.50	
Floss silk and peignee		free	
Silk threads	ad val.	30%	
Artificial silk	100 kin	125.00	

Group IX. Tissues and Manufactures thereof

Tissues of cotton	{ 100 kin ad val.	¥ 83.10- 11.00 20%	
Tissues of flax, China grass, Ramie, Hemp, or Jute, pure or mixed with one another, incl. those mixed with cotton	{ 100 kin ad val.	80.00- 2.50 20- 10%	
Tissues of wool, and mixed tissues of wool and cotton, of wool and cotton, of wool and silk, or of wool, cotton and silk	{ 100 kin ad val.	188.00- 32.60 40%	
*Silk tissues and Silk mixed tissues	{ 100 kin ad val.	520.00- 55.70 15%	
*Stockinet and similar knitted tissues, raised or not	{ 100 kin ad val.	133.00- 55.70 45%	
Felts	{ 100 kin ad val.	90.50 25%	
Bookbinders cloth	100 kin	34.00	
Artists canvas	ad val.	25%	
*Waterproof tissues coated or inserted with India-rubber.....	{ 100 kin ad val.	58.20 40%	
*Elastic webbing and elastic cords, elastic braids or the like	{ 100 kin ad val.	148.00-118.00 40-25%	
*Handkerchiefs, single.....	{ 100 doz. ad val.	83.70- 48.70 50-25%	
Blankets, single	100 kin	49.20	
*Travelling rugs, single	100 kin	232.00-139.00	
*Carpets and Carpetings	{ 100 kin ad val.	44.50- 17.10 30-25%	
*Table cloths, single	{ 100 kin ad val.	192.00- 80.00 50-35%	
*Curtains and Window blinds	{ 100 kin ad val.	39.50 50-35%	
Mosquito nets	ad val.	35%	

Group X. Clothing and Accessories thereof

Articles	General Tariff	
	Unit	Rate of Duty
*Rain coats, wholly or partly of silk.....	ad val.	50%
Rain coats, (others).....	100 kin	¥312.00
*Shirts, fronts, collars, and cuffs	"	134.00
*Undershirts and Drawers	{ 100 kin ad val.	{ 166.00 50-25%
*Gloves.....	{ 100 kid ad val.	{ 949.00-179.00 40-25%
*Shawls, Comforters and Mufflers	{ 100 kin ad val.	{ 853.00-159.00 50-40%
*Hats and Hat bodies, caps, bonnets and hoods	ad val.	50%
*Silk hats and Opera hats.....	1 doz.	28.80
Felt hats	{ 1 doz. ad val.	{ 15.80- 0.95 20%
*Hats of straw or wood shaving, pure or mixed with one another ...	1 doz.	6.25
*Hats of panama straw or similar vegetable fibres	"	35.60
Helmet hats	"	20.90
*Boots, Shoes, Slippers, Sandals, Clogs, and the like	{ 100 kin ad val.	{ 135.00- 57.80 50-35%
Buttons for duffs or shirts excluding those made of precious metals, precious stones, etc.	{ 100 kin ad val.	{ 137.00- 54.50 35%

Group XI. Pulp for Paper Making, Papers, Paper Manufactures, Books and Pictures

Pulp for paper making.....	100 kin	¥ 0.27- 0.22
Printing paper.....	"	6.60-100
Drawing paper.....	"	4.55
Writing paper	"	7.50
Blotting paper	"	4.90
Pasteboard or cardboard.....	"	1.75
Glass paper for window panes	"	107.00
Note paper in box.....	"	30.30
Envelopes in box	"	31.60
Blank books	"	53.60- 19.70
*Albums	{ 100 kin ad val.	{ 48.90- 15.30 50-40%
Baryta paper, Albuminized paper and Sensitized papers for photograph	{ 100 kin ad val.	{ 134.00- 8.55 40%
Wall board	"	30%
*Plying cards	100 kin	113.00
*Picture post-cards	"	52.40

Group XII. Minerals and Manufactures thereof

*Precious stones	ad val.	5%
*Semi-precious stones and manufactures thereof, not otherwise provided for	"	50- 5%
Cement manufactures	"	35-30%

Group XIII. Potteries, Glass and Glass Manufactures

Bricks excluding cement bricks... ..	{ 100 kin ad val.	{ ¥ 0.45 20-15%
Alundum and the like	"	20%
Glass rods and Glass tubes	{ 100 kin ad val.	{ 18.00 15%
Plate or sheet glass	{ 100 sq. metres ad val.	{ 220.00- 11.80 20%

Articles	General Tariff	
	Unit	Rate of Duty
Plate glass having inlaid metal wire or net.....	100 sq. metres	55.20
Spectacle glass, cast or cut	ad val.	30%
Dry plates for photographs, undeveloped	100 kin	33.00
*Spectacles and Eye-glasses, Looking glasses or Mirrors	ad val.	50-53%

Group XIV. Ores and Metals

Gold and silver, (tubes and wires)	ad val.	20%
Gold and silver foils	"	25%
Pig iron	100 kin	¥ 0.10
Iron, bars or rods, including those having such a shape as T, angle, etc.	"	1.10
Wire rods, (in coil)	ad val.	18%
Tinned iron sheets and steel sheets	100 kin	0.70
Iron wires	ad val.	18%
Iron pipes and tubes.....	{ 100 kin ad val.	{ 1.00 20-15%
Special steel	ad val.	18%
Aluminium	{ 100 kin ad val.	{ 18.50- 3.20 20-5%
Copper	{ 100 kin ad val.	{ 21.20- 7.00 30%
Lead (ingots, and slabs)	100 kin	0.40
Tin (ingots and slabs)	"	3.75
Zinc (ingots, slabs and grains)	"	3.00
Brass and bronze (ingots and slabs)	"	7.00

Group XV. Metal Manufactures

Iron nails	100 kin	¥ 3.80- 2.40
Iron rivets.....	"	3.65
Wood screws (of brass or bronze)	"	31.80
Bearing balls	"	20.80
Metal nets and Nettings	{ 100 kin ad val.	{ 74.90- 5.85 25%
Material for railway construction	{ 100 kin ad val.	{ 2.15 25%
Posts and other materials for suspending electric lines	{ 100 kin ad val.	{ 29.20- 12.40 18%
Materials for construction of buildings, bridges, vessels, docks, etc., not otherwise provided for	{ 100 kin ad val.	{ 3.60 25%
Metal plates and sheets for ceiling, walls, etc. (enamelled, or coated with enamel paints, varnish, lacquer, etc.)	ad val.	30%
*Chains for watches, spectacles, eye-glasses or other personal adornments	{ 1 kin ad val.	{ 18.00 50%
Platinum crucibles or dishes	1 kin	208.00
Mechanics, tools, Agricultural implements and parts thereof.....	{ 100 kin ad val.	{ 44.30- 4.65 20%
*Cutlery... ..	{ 100 pieces ad val.	{ 47.40- 15.10 50- 35%
*Table forks and Spoons	{ 100 kin 100 pieces ad val.	{ 158.00 12.90 50%
Electric stoves, Electric irons and similar electric heaters	ad val.	35%
Safes and Cash boxes	"	35%
Manufactures of copper, brass or bronze, not otherwise provided for	{ 100 kin ad val.	{ 127.00 35%
Iron manufactures not otherwise provided for	{ 100 kin ad val.	{ 45.10- 7.80 35%

Group XVI. Clocks, Watches, Scientific Instruments, Fire-Arms,
Vehicles, Vessels and Machinery

Articles	General Tariff	
	Unit	Rate of Duty
*Watches.....	1 piece	¥ 15.90- 1.05
*Standing or Hanging clocks.....	ad val.	40%
*Binoculars and Monoculars.....	1 kin	15.00- 3.00
Telescopes.....	{ 1 kin ad val.	{ 3.10 20%
Microscopes and parts thereof.....	ad val.	20%
Balances, with weight or not.....	ad val.	20-15%
Thermometers.....	{ 1 kin ad val.	{ 6.60- 2.30 20%
Barometers.....	{ 100 kin ad val.	{ 107.00 20%
Magic lanterns, Cinematographs or Kinetoscopes and parts thereof.....	ad val.	40%
*Phonographs, Gramophones and other talking machines.....	"	50%
Musical instruments.....	{ 100 kin 100 pieces ad val.	{ 60.90- 57.40 25.00 40%
Automobiles.....	ad val.	50%
Cycles.....	1 piece	93.60- 25.80
Vessels (not excluding 20 years of ship's age).....	1 gross ton	15.00
Vessels (others).....	{ 1 gross ton ad val.	{ 20.00 15%
Steam boilers.....	100 kin	8.00- 5.00
Locomotives and tenders, running on rails.....	{ 100 kin ad val.	{ 15.90- 12.00 20%
Steam turbines.....	ad val.	20%
Steam engines.....	{ 100 kin ad val.	{ 23.10- 8.20 15%
Gas engines and Petroleum engines.....	{ 100 kin ad val.	{ 30.00- 13.70 20%
Dynamos, Electric motors, Rotary converters, Frequency changers, Rotary phase converters and Armatures.....	100 kin	42.40- 15.80
Transformers.....	"	26.00- 7.00
Sewing machines.....	"	16.30- 11.10
Spinning machines, Preparatory machines for spinning or weaving, and yarn finishing or twisting machines, incl. ginning machines, scouring machines, bundling machines, etc.....	100 kin	6.90
Weaving looms.....	{ 100 kin ad val.	{ 5.85 15%
Knitting machines.....	100 kin	43.80- 25.60
Printing machines.....	{ 100 kin ad val.	{ 16.50 20%

Group XVII. Miscellaneous Articles

*"Tagayasan" (Baryxylum rufum, Lour), Red or rose wood, Red sandal wood and Ebony wood (excluding ebony wood with white streaks).....	100 kin	¥ 0.50
Mahogany.....	ad val.	5%
Oak.....	"	5%
Boards fitted into packing cases, casks, etc.....	ad val.	25-15%
Fire-wood.....		free
Charcoal.....	{ 100 kin ad val.	{ 0.55 20%
Straw plaits.....	{ 100 kin ad val.	{ 21.70- 10.90 30-25%
*Umbrellas and Parasols, Umbrella sticks, Walking sticks, Whips and their Handles.....	{ 100 pieces ad val.	{ 12.20 50-35%

Articles	General Tariff	
	Unit	Rate of Duty
Celluloid and manufactures thereof.....	{ 100 kin ad val.	{ 355.00- 56.00 35%
*Films for photograph (Sensitized).....	1 kin	1.00
*Films for photograph (Developed).....	"	8.25
Articles for billiards, tennis, cricket, chess and other games, and accessories thereof.....	ad val.	50-25%
*Toys.....	"	50%

The uniform ad valorem duty of 100 per cent popularly known as "Luxury" Tariff, passed in the 49th session of the Diet (1924) and in force since July 31, the same year, was created as a provisional measure to check the growth of luxurious habit. The measure originally intended for a temporary legislation to remain in force pending a thorough revision of the import tariff, shall continue effective for the time being in view of still uneven balance between exports and imports. At first, 123 articles were covered under the measure, but the number was reduced to 106

by the revision twice made to the law in 1927 and 1929, the articles specified in the law being subject to an ad valorem duty at the uniform rate of 100 percent instead of the specific duty provided for each article in the statutory tariff schedule, the imposition of the "Luxury" tariff virtually meaning an increase of 3 to 5 times the statutory tariff for those goods placed under the system. A comparison of the statutory tariff and "Luxury Tariff" and the ratio of increase only for principal items is given hereunder:—

Articles	Statutory tariff per cent	Luxury tariff per cent	Ratio of increase per cent
Fur manufactures.....	50	100	200
Leather manufactures not otherwise provided for; also those combined with precious metals, metals coated with precious metals, precious stones, semi-precious stones, pearls, coral, elephant's ivory or tortoise shell:			
(A).....	50	100	200
(B).....	40	100	250
Feathers and downs for ornament.....	40	100	250
Manufactures of feathers or birds' skins with feathers, not otherwise provided for.....	50	100	200
Manufactures of tortoise shell, not otherwise provided for.....	50	100	200
Corals.....	40	100	250
Manufactures of coral, not otherwise provided for.....	50	100	200
Pearls.....	5	100	2,000
Manufactures of skin, hair, bone, teeth, tusk, shell, etc. except hide power for chemical experimental use, not otherwise provided for.....	40	100	250
Volatile oils, vegetable, aromatic.....	—	100	—
Vanilline, coumarin, heliotropin and similar aromatic chemicals not otherwise provided for.....	10	100	1,000
Tooth powders, tooth washes, toilet powders, and other prepared perfumeries not otherwise provided for.....	50	100	200
Artificial perfumes, excluding linalyl acetate, benzyl acetate, amylsalicylate, ionone, turbinol, and benzyl-alcohol.....	20	100	500
Yarns, not otherwise provided for, partly of silk, artificial silk, or metal.....	30	100	330
Stockinet and similar knitted tissues, raised or not, wholly or partly of silk.....	45	100	220
Lace tissues and netted tissues.....			
1. Curtainings and other.....	30	100	330
2. Mosquito nettings and other.....	30	100	330
3. Veilings and other.....	30	100	330

Articles	Statutory tariff per cent	Luxury tariff per cent	Ratio of increase per cent
4. Others, wholly or partly of silk.....	45	100	250
Embroidered tissues	40	100	250
Waterproof tissues, coated or inserted with india-rubber, wholly or partly of silk	40	100	250
Elastic webbings and elastic cords, elastic braids and the like:			
1. Woven, partly of silk.....	40	100	250
2. Woven, others	40	100	250
Handkerchiefs, single, wholly or partly of silk	50	100	200
Curtains and window blinds:			
1. Wholly or partly of silk, combined with metal threads or embroidered	50	100	200
2. Others	35	100	350
Trimmings.....	30-50	100	200-330
Bed quilts and cushions, wholly or partly of silk	50	100	200
Manufactures of tissues not otherwise provided for, wholly or partly of silk, or combined with precious metals, metals coated with precious metals, precious stones, semi-precious stones, pearls, coral, elephant's ivory or tortoise shell, or embroidered...	50	100	200

Amendment to Luxury Tariff Law

By an amendment made to the Luxury Tariff Law in 1927 a part of import duties is to be waived in respect of uncut or unpolished precious and semi-precious stones or unworked amber, for use in the manufacture of articles used in machinery or manufacturing industries, the deposit of a security equivalent to the duty to be waived being required at the time of import. The amount of duty to be waived in accordance with the said provisions is as follows:—

Precious stones: 95 per cent of the duty thereon.

Semi-precious stones: 80 per cent of the duty thereon.

Preferential Tariff for Kwantung Products

In July, 1925, a law was gazetted for removing import duties on some of the staples produced in the leased territory of Kwantung.

Export Guilds Laws

The enactment is dual, that is the establishment of exporters guilds and staple exports manufacturers guilds. Both are to be juridical persons. The former are to attend to

the exploitation and development of markets abroad for the merchandise handled by the members, their sale, selection, inspection, etc. The function of the latter chiefly consists in inspecting the goods manufactured by the members, controlling the process of manufactures, touching up manufactured goods, supplying raw materials and finding markets for the manufactured goods. One thing that is of special importance is that the two guilds are allowed certain credit facilities by the Government.

Staple export goods coming under the law are as follows:—

Cotton textile fabrics (including cotton mixed goods); Silk textile fabrics (including silk mixed goods); Woolen fabrics (including Wollen mixed goods); Manufactures of cloth; Stockinet and manufactures thereof; Clocks and Watches; Metal manufactures; Porcelain and Earthenware; Enamelled iron ware; Glass manufactures; Celluloid manufactures; Matches; Rubber manufactures; Lacquer wares; Toys; Braids and Plaits; Tsurihimo; Brushes; Caps, hats and other headgears; Pencils; Artificial pearls; Fancy mattings and wild grass mattings.

MOVEMENT OF FOREIGN TRADE

	Exports			
	1930	1931	1932	1933*
Semi-finished provision.....	42,020	37,663	26,767	12,674
Manufactured provision	86,760	64,634	77,561	57,131

	1930	1931	1932	1933*
Raw materials.....	64,497	44,802	51,008	29,644
Finished raw materials	524,099	422,844	486,196	228,691
Finished goods	691,190	532,930	700,509	468,623
Miscellaneous	26,038	18,707	23,771	15,989
Total	1,434,644	1,121,580	1,365,812	812,752
Re-exports.....	35,208	25,401	44,180	17,121
Grand total	1,469,852	1,146,981	1,409,992	829,873

Imports

	1930	1931	1932	1933*
Semi-finished provision.....	147,578	111,205	130,640	74,447
Manufactured provision	60,718	47,407	30,031	91,763
Raw materials.....	828,572	684,338	838,800	618,043
Finished raw materials	236,427	181,136	201,231	187,070
Finished goods	255,009	197,533	219,619	113,564
Miscellaneous	13,790	10,116	7,137	4,433
Total	1,542,094	1,231,735	1,427,457	1,014,873
Re-imports	3,977	3,938	4,004	1,468
Grand total	1,546,071	1,235,673	1,431,461	1,016,341

Trade between Japan Proper and Dependencies

The trade of Japan with Taiwan and Chosen shows this record (in ¥1,000) for the last three years, "Japan" here including Karafuto.

	Taiwan			Chosen		
	1930	1931	1932	1930	1931	1932
Exports.....	218,633	201,424	222,683	240,695	249,027	282,144
Imports.....	123,127	114,763	133,457	278,194	217,770	258,670
Total	341,760	316,187	356,140	518,889	466,797	540,814

Exports and Imports of Commodities (¥1,000)

Classified by kinds and origin the above figures of exports and imports are analyzed as follows:—

	1930	1931	1932	1933*
Exports (Home origin).....	1,434,645	1,121,580	1,365,812	812,752
Re-exports (Foreign origin).....	35,208	25,401	44,180	17,121
Total	1,469,852	1,146,981	1,409,992	829,873
Imports (Foreign origin).....	1,542,094	1,231,735	1,427,458	1,014,873
Re-imports (Home origin)	3,977	3,938	4,003	1,468
Total	1,546,071	1,235,673	1,431,461	1,016,341
Grand total of exports and imports...	3,015,923	2,382,654	2,841,453	1,846,214
Excess of exports	—	—	—	—
Excess of imports	76,219	88,691	21,469	186,468

* For first half only

Exports and Imports of Specie and Bullion (¥1,000)

	Exports				Imports			
	1930	1931	1932	1933*	1930	1931	1932	1933*
Gold	308,634	416,835	112,701	11,185	9,043	9,055	6	—
Silver	2,373	1,565	8,677	3,126	644	2,122	134	113
Total	311,008	421,400	121,378	14,311	9,687	11,177	140	113

Exports and Imports of Specie and Bullion
by Countries (¥1,000)

	Exports				Imports			
	1930	1931	1932	1933*	1930	1931	1932	1933*
Kwantung Province.....	1	208	3	0	974	5,842	21	00
China	2,373	1,309	53	0	8,656	3,507	5	0
Hongkong	—	—	—	0	—	1,596	—	0
British India	—	—	—	0	—	97	—	0
Great Britain	—	48	8,391	0	—	—	—	0
United States.....	308,633	419,832	112,931	0	29	135	140	0
Total incl. other countries.	331,008	421,400	121,378	000,000	9,687	11,117	114	000
		1930	1931	1932	1933*			
Grand total of exports and imports...		320,694	432,577	121,517	14,424			
Excess of exports over imports.....		301,321	410,223	121,238	14,198			
Excess of imports over exports.....		—	—	—	—			

* For first half only

Trade Returns at Leading Ports (¥1,000)

	Exports				Imports			
	1930	1931	1932	1933*	1930	1931	1932	1933*
Yokohama.....	449,838	370,662	400,659	214,854	392,838	305,637	455,358	245,360
Kobe	523,172	409,011	499,302	297,920	563,669	457,738	535,647	346,615
Osaka.....	299,319	218,914	334,212	206,994	231,346	215,836	267,987	230,565
Nagasaki	9,684	8,740	5,717	2,761	17,406	10,310	10,044	6,330
Moji	43,753	39,512	40,972	23,417	60,923	43,031	44,433	31,434
Hakodate	21,741	9,404	10,376	7,027	19,002	14,304	14,683	2,708
Niigata	548	369	40	102	10,715	6,706	7,323	5,961
Shimizu	12,666	9,779	11,624	6,431	16,324	11,573	11,784	9,303
Taketoyo	—	3	35	85	9,215	9,166	12,343	6,406
Nagoya	47,311	37,911	64,459	42,256	71,846	64,999	69,553	53,642
Yokkaichi.....	9,600	7,040	3,433	1,484	23,609	16,464	15,605	23,934
Onomichi-Itozaki	200	214	328	185	12,673	8,450	7,836	3,382
Imaharu	189	189	237	96	1,655	963	1,178	1,044
Tokuyama	90	—	16	—	21,047	16,400	17,530	9,552
Shimonoseki.....	1,808	1,012	1,363	1,264	519	532	420	172
Wakamatsu	12,686	4,231	7,780	9,505	41,439	19,710	23,475	16,424
Hakata	142	65	524	789	5,222	4,452	5,033	1,912
Karatsu	1,673	640	446	234	761	430	644	523
Miike	9,125	8,132	6,633	3,603	4,445	2,848	2,145	2,609
Tsuruga.....	2,907	3,080	1,839	1,122	3,492	1,943	1,893	2,005
Aomori	2,305	1,833	2,569	666	5,809	3,742	4,301	1,852
Muroran	2,559	2,132	1,688	1,343	1,811	647	1,031	1,007
Kushiro	1,586	872	888	358	—	—	2	3
Nemuro.....	777	231	409	7	—	42	160	—
Otaru	12,773	9,624	12,566	6,149	5,892	2,386	3,014	3,122
Total incl. others.....	1,469,852	1,146,981	1,409,992	829,373	1,546,071	1,235,673	1,431,461	1,016,341

* For first half only

SUMMARY OF PRINCIPAL IMPORTS AND EXPORTS

Exports (in ¥1,000)

	1930	1931	1932	1933*
Food: (a) Raw				
Rice and paddy	6,571	15,879	4,786	1,461
Beans and peas	7,225	5,080	5,905	2,357
Aquatic products.....	18,080	10,177	7,757	3,723

	1930	1931	1932	1933*
Food: (b) Finished				
Wheat flour	14,480	9,517	20,539	19,347
Tea	3,387	8,232	8,173	2,542
Refined sugar	26,735	14,863	7,797	5,849
Beer	3,440	3,035	4,835	4,634
Comestibles in tin and bottle	21,763	18,948	22,774	17,612
Raw Materials				
Waste and floss silk	6,578	2,393	1,242	397
Coal.....	21,783	15,009	13,451	8,127
Wood	14,622	9,544	11,329	7,679
Worked Materials				
Vegetable fatty oil.....	11,331	5,226	5,297	3,629
Camphor	3,109	2,945	3,541	2,495
Menthol crystal	3,475	2,987	3,690	2,037
Raw silk	416,647	355,394	382,366	167,499
Cotton yarns	15,033	8,511	21,547	7,990
Iron.....	9,059	7,410	12,278	13,002
Plaits	3,467	1,821	3,228	2,741
Finished Articles				
Soap	1,410	693	1,197	1,301
Matches.....	2,965	1,409	938	1,091
Silk fabrics	100,700	85,376	110,827	63,429
Cotton fabrics	272,117	198,752	228,713	183,885
Woollen fabrics	2,758	1,396	4,481	4,046
Cotton blankets	3,490	1,471	1,709	1,522
Silk handkerchiefs	2,357	1,631	1,403	910
Knitted goods	30,462	31,176	26,935	18,192
Hats, etc.	9,364	10,531	7,713	5,286
Buttons	5,619	4,675	5,863	3,467
Paper	27,560	20,995	14,022	8,006
Cement	10,067	9,090	8,546	3,671
Potteries	27,172	19,307	22,937	15,010
Glass and glass manufactures	9,609	6,534	9,282	7,047
Iron manufactures	14,095	10,246	14,193	11,051
Rubber tyres	5,274	3,858	4,378	4,083
Machines and parts thereof	13,956	13,641	10,943	9,360
Umbrellas	1,195	366	568	709
Brushes	2,965	2,279	2,928	2,017
Lamps and parts thereof.....	8,127	7,784	12,754	7,644
Toys	11,699	9,824	15,119	12,025

* For first half only

Imports (in ¥1,000)

	1930	1931	1932	1933*
Food				
Rice and paddy	19,581	6,971	12,165	6,106
Wheat.....	41,509	32,936	49,572	27,278
Beans and peas	49,784	37,349	42,070	31,479
Bird's eggs	2,817	2,960	43	4
Sugar	25,973	15,603	3,332	4,581
Beer.....	8,340	8,764	4,480	2,402
Raw Materials				
Oil yielding materials	19,969	14,549	14,772	11,854
India-rubber	17,931	13,183	15,989	12,529
Nitrate of soda, crude	3,084	2,691	2,049	3,424
Sulphate of ammonium	29,624	15,861	7,035	2,032
Phosphorite	12,012	7,213	11,097	8,855

	1930	1931	1932	1933*
Oil cake	66,417	44,349	34,599	30,806
Cotton, raw	362,047	296,273	447,401	327,639
Wool	73,610	86,146	87,559	82,723
Coal	34,204	28,269	27,358	15,267
Ores	23,906	14,571	16,479	10,585
Wood	53,084	43,380	35,029	20,629
Worked Materials				
Skin, hide, etc.	8,715	7,260	7,897	5,933
Leather	4,989	4,348	3,618	1,839
Caustic soda and soda-ash	8,981	8,150	6,385	2,904
Synthetic colors	5,809	7,283	9,066	5,327
Woollen or worsted yarns	14,149	12,429	5,113	1,644
Pulp for paper making	12,084	11,840	15,329	14,161
Iron (lump, ingots, slabs, bars, rods, etc.)	76,611	36,263	52,027	60,113
Leads (ingots and slabs)	11,117	8,128	9,973	7,916
Zinc (lump, slabs and grains)	4,995	3,094	4,624	4,694
Finished Articles				
Volatile oil	986	794	370	24
Kerosene oil	37,867	1,108	36,533	17,123
Cotton fabrics	4,999	4,375	4,131	2,488
Woollen fabrics	11,434	9,993	10,488	3,969
Printing paper	4,524	5,361	5,531	1,925
Automobiles and parts	20,774	16,329	14,821	6,378
Machines and parts	81,821	48,748	58,818	34,793

* For first half only

STAPLE ARTICLES; WHERE THEY GO OR COME FROM

Exports (in ¥1,000)

	1930	1931	1932		1930	1931	1932
Rice & Paddy				Rice & Paddy			
Kwantung Province	1,015	1,120	175	Kwantung Province	2,500	1,959	4,417
Asiatic Russia	743	382	457	China	22,772	11,442	2,853
United States	93	233	77	Asiatic Russia	229	339	104
Canada	411	459	398	Others	1,233	1,123	287
Hawaii	81	107	56	Total	26,735	14,863	7,797
Others	4,227	13,578	3,623	Tea			
Total	6,579	15,879	4,786	Kwantung Province	165	138	165
Beans and Peas				United States	6,366	5,275	4,752
Great Britain	2,335	2,874	4,521	Canada	803	675	672
United States	3,238	831	132	Hawaii	64	57	48
Canada	271	32	31	Others	992	2,088	2,536
Hawaii	241	146	116	Total	8,387	8,233	8,173
Others	1,139	1,196	1,105	Aquatic Products			
Total	7,225	5,080	5,905	Manchoukuo	—	—	119
Wheat flour				Kwantung Province	1,600	896	1,977
Manchoukuo	—	—	1,994	China	5,975	2,654	2,545
Kwantung Province	2,589	1,923	9,435	Hongkong	5,417	2,753	574
China	9,907	7,280	8,918	Straits Settlements	974	562	193
Straits Settlements	35	6	—	United States	2,210	1,926	975
Dutch India	163	57	30	Hawaii	854	723	721
Others	1,786	251	163	Others	1,049	663	652
Total	14,480	9,517	20,539	Total	18,080	10,177	7,756
Sugar, refined				Colle or isinglass, Vegetable			
Manchoukuo	—	—	136	China	256	139	94

	1930	1931	1932		1930	1931	1932
Hongkong	210	158	10	United States	2,018	1,669	2,015
Straits Settlements	244	135	93	Canada	117	45	83
Dutch India	267	402	448	Others	777	728	556
Great Britain	212	199	275	Total	3,475	2,984	3,690
France	310	251	306	Matches			
Germany	496	522	532	Manchoukuo	—	—	4
United States	583	724	537	Kwantung Province	44	33	27
Others	954	887	869	China	34	15	2
Total	3,833	3,416	3,166	Hongkong	1,715	693	13
Comestibles in tin & bottle				British India	12	4	77
Manchoukuo	—	—	24	Straits Settlements	216	185	119
Kwantung Province	632	468	943	Dutch India	145	111	67
Hongkong	351	180	224	Philippine Is.	418	205	99
Asiatic Russia	223	168	35	African countries	27	48	48
Great Britain	68	75	97	Others	351	113	483
United States	4,875	4,636	6,157	Total	2,965	1,409	938
Australia	9,266	7,810	8,053	Cotton yarns			
Hawaii	810	44	215	Manchoukuo	—	—	500
Others	633	636	869	Kwantung Province	454	293	670
Total	21,763	18,948	22,774	China	2,580	489	692
Beer				Hongkong	2,595	449	1,337
Manchoukuo	—	—	58	British India	6,576	5,592	14,343
Kwantung Province	1,027	736	1,509	Dutch India	447	358	1,445
China	718	628	1,497	Philippine Is.	403	332	250
Hongkong	274	177	121	Siam	51	20	105
British India	643	650	694	Egypt	663	44	326
Straits Settlements	157	118	96	Others	1,263	933	1,879
Dutch India	351	234	535	Total	15,033	8,511	21,547
Others	271	492	325	Waste silk, Floss silk & Doupion, etc.			
Total	3,440	3,035	4,835	Great Britain	89	32	42
Vegetable fatty oil				France	1,976	695	427
Kwantung Province	120	112	148	Italy	1,053	86	120
British India	64	42	49	United States	2,560	1,583	141
Great Britain	3,550	846	770	Others	886	196	511
France	223	124	234	Total	6,578	2,393	1,242
Germany	944	247	275	Silk, raw			
United States	2,439	2,594	2,503	Great Britain	2,914	6,161	9,257
Australia	232	68	59	France	8,040	1,879	7,107
Others	3,759	1,190	1,759	Switzerland	176	115	117
Total	11,331	5,226	5,297	United States	398,715	342,479	360,149
Camphor				Canada	3,559	2,596	1,165
British India	685	617	973	Australia	2,783	1,929	3,165
Great Britain	89	126	242	Others	459	234	1,406
France	84	89	228	Total	419,647	355,394	382,366
Germany	87	39	21	Cotton tissues			
United States	1,169	1,349	1,218	Manchoukuo	—	—	2,193
Australia	113	71	119	Kwantung Province	9,187	6,173	16,108
Others	853	627	704	China	86,915	43,073	38,229
Total	3,109	2,945	3,541	Hongkong	18,252	9,765	3,755
Menthol crystal				British India	61,216	49,866	80,653
British India	260	318	256	Straits Settlements	6,284	5,213	11,229
Great Britain	59	54	63	Dutch India	28,284	28,279	50,229
France	213	131	503	Philippine Is.	5,438	4,162	2,769
Germany	30	37	115	Siam	2,581	796	3,339

	1930	1931	1932		1930	1931	1932
Turkey	3,726	2,507	5,574	Silk handkerchiefs			
United States	64	64	264	British India.....	413	263	364
Chile	1,495	372	193	Great Britain	112	206	300
Argentina	1,442	1,408	3,300	United States	623	546	201
Egypt	20,526	14,957	27,069	Canada	110	81	57
Federation of South				Argentina	41	148	99
Africa.....	3,754	5,451	5,339	Uruguay	480	114	22
Australia	2,442	2,857	4,875	Egypt	6	6	4
New Zealand	142	94	181	Federation of South			
Hawaii	165	143	169	Africa.....	71	29	20
Others	20,204	22,552	33,244	Australia	7	1	4
Total	272,117	198,732	288,713	Others	492	236	332
				Total	2,357	1,631	1,402
Woolen tissues				Knitted goods			
Manchoukuo.....	—	—	150	Manchoukuo	—	—	9
Kwantung Province	1,183	737	2,926	Kwantung Province	350	325	547
China	1,150	280	452	China	1,635	847	244
British India.....	188	63	592	Hongkong	464	179	23
Hawaii	27	27	24	British India.....	7,949	3,901	6,699
Others	209	288	336	Straits Settlements.....	209	86	233
Total	2,758	1,396	4,480	Dutch India	1,720	1,570	2,525
				Philippine Is.	3,097	1,959	3,745
Silk tissues				Great Britain	6,920	5,489	3,837
Manchoukuo.....	—	—	15	France	507	226	61
Kwantung Province	704	590	1,170	United States	517	450	510
China	2,111	849	160	Egypt	1,183	1,305	1,818
Hongkong	2,574	1,663	339	Federation of South			
British India.....	16,784	21,525	32,956	Africa.....	1,444	1,293	1,314
Straits Settlements.....	4,492	2,654	2,928	Australia	51	15	29
Dutch India	8,883	8,910	14,366	Others	4,415	3,529	5,341
Philippine Is.	6,234	3,064	1,911	Total	30,462	21,176	26,935
Great Britain	6,263	4,213	4,761	Hats, Caps, and Bonnets			
France	4,403	1,966	2,064	Manchoukuo.....	—	—	4
Germany	690	286	258	Kwantung Province	185	110	202
United States	6,527	4,626	4,244	China	798	469	196
Canada	5,314	3,531	548	Hongkong	336	98	55
Argentina	1,457	1,907	2,170	British India.....	507	497	899
Uruguay	3,320	778	233	Dutch India	576	373	729
Egypt	2,966	3,954	9,184	Great Britain	1,168	700	458
Federation of South				United States	3,689	6,136	3,034
Africa.....	5,314	6,955	5,657	Argentina	35	23	9
Australia	13,797	9,330	16,623	Australia	32	506	521
New Zealand	1,869	610	864	Others	2,033	1,619	1,606
Others	6,909	5,356	10,376	Total	9,364	10,531	7,713
Total	100,710	82,766	110,828	Buttons			
				Manchoukuo.....	—	—	11
Cotton blankets				Kwantung Province	138	46	73
Manchoukuo.....	—	—	23	China	700	527	263
China	318	133	49	British India.....	413	319	635
Hongkong	939	281	43	Dutch India	151	104	229
British India.....	410	212	314	Great Britain	961	937	1,315
Straits Settlements.....	343	110	120	France	324	158	164
Dutch India	494	250	370	Germany	564	630	805
Philippine Is.	123	54	113	Spain	224	200	246
Siam	366	129	306	United States	120	128	158
Others	496	302	372				
Total	3,490	1,471	1,709				

	1930	1931	1932		1930	1931	1932
Canada	232	157	122	United States	10,821	6,634	6,441
Argentina	208	188	270	Canada	1,392	1,139	1,317
Brazil	125	114	154	Argentina	249	174	150
Australia	181	70	284	Brazil	141	80	118
Others	1,277	1,086	1,132	Egypt	119	146	408
Total	5,619	4,675	5,863	Australia	770	666	1,768
Paper				Others	2,080	1,960	1,998
Manchoukuo.....	—	—	212	Total	27,171	19,307	22,937
Kwantung Province	3,220	2,088	3,610	Glass and Glass manufactures			
China	18,496	13,825	5,272	Manchoukuo.....	—	—	82
Hongkong	1,543	1,496	525	Kwantung Province	388	175	336
British India.....	925	983	1,161	China	1,958	1,046	828
Straits Settlements.....	134	140	236	Hongkong	613	423	127
Dutch India	149	129	643	British India.....	2,888	2,239	4,106
Asiatic Russia	49	15	20	Straits Settlements.....	481	220	202
Philippine Is.	218	250	195	Dutch India	1,095	1,149	1,070
Great Britain	596	358	387	Philippine Is.	691	520	503
Germany	172	168	112	Siam	360	114	132
United States	1,333	918	735	Great Britain	40	37	101
Others	723	624	912	United States	137	100	492
Total	28,560	20,995	14,022	Federation of South			
Coal				Africa.....	138	110	159
China	12,521	7,456	3,791	Australia	304	81	358
Hongkong	3,881	3,125	4,347	Others	515	319	784
Straits Settlements.....	2,538	1,849	2,432	Total	9,609	6,534	9,282
Dutch India	144	124	196	Iron			
French-Indo-China	269	241	158	Manchoukuo.....	—	—	46
Philippine Is.	1,701	1,584	1,569	Kwantung Province	5,695	2,606	8,415
Others	729	631	957	China	1,757	2,284	1,737
Total	21,782	15,009	13,451	Hongkong	121	247	25
Cement				British India.....	15	22	252
Kwantung Province	186	113	299	Straits Settlements.....	49	41	49
China	844	484	594	Asiatic Russia	824	420	311
Hongkong	2,008	2,554	2,047	Others	599	1,789	1,444
British India.....	746	1,039	1,037	Total	9,059	7,410	12,278
Straits Settlements.....	1,510	1,800	824	Iron manufactures			
Dutch India	3,264	2,198	2,600	Manchoukuo.....	—	—	181
Philippine Is.	953	322	259	Kwantung Province	2,510	1,397	2,663
Others	555	578	616	China	2,006	1,632	1,473
Total	10,067	9,090	8,548	Hongkong	584	405	126
Potteries				British India.....	1,713	1,762	3,322
Manchoukuo.....	—	—	72	Straits Settlements.....	409	227	345
Kwantung Province	841	560	257	Dutch India	1,023	842	2,575
China	1,697	617	554	Asiatic Russia	4,212	2,392	1,497
Hongkong	526	244	142	Philippine Is.	624	650	469
British India.....	1,867	1,392	3,463	Siam	506	380	569
Straits Settlements.....	400	211	375	Egypt	141	95	197
Dutch India	2,266	1,712	2,414	Australia	52	46	179
Philippine Is.	680	400	635	Others	316	419	590
Great Britain	720	697	825	Total	14,095	10,246	14,193
France	884	1,079	312	Rubber tyres			
Germany	318	200	100	Manchoukuo.....	—	—	7
Italy	242	195	237	Kwantung Province	175	160	437
Holland	1,157	1,200	848	China	1,895	1,319	1,360

	1930	1931	1932		1930	1931	1932
Straits Settlements.....	757	525	233	Total	1,195	366	568
Dutch India	1,980	1,266	1,224	Brushes			
Others	465	588	1,117	Manchoukuo.....	—	—	3
Total	5,274	3,858	4,378	China	173	76	30
Machinery and parts thereof				British India.....	100	62	173
Manchoukuo.....	—	—	347	Dutch India	70	42	108
Kwantung Province	5,080	4,230	3,954	Great Britain	655	471	506
China	5,365	6,822	3,896	United States	1,329	1,122	1,256
Hongkong	115	178	108	Canada	150	139	148
British India.....	729	470	900	Australia	59	5	19
Dutch India	150	81	124	Others	429	361	689
Asiatic Russia	1,811	1,365	1,180	Total	2,964	2,279	2,928
Brazil	54	35	73	Lamps and parts thereof			
Australia	5	3	42	Manchoukuo.....	—	—	44
Others	645	398	320	Kwantung Province	804	721	568
Total	13,956	13,641	10,943	China	851	631	643
Wood				Hongkong	553	479	496
Manchoukuo.....	—	—	15	British India.....	481	309	909
Kwantung Province	828	529	729	Straits Settlements.....	214	138	123
China	2,752	2,322	2,375	Dutch India	650	590	767
Hongkong	801	840	354	Philippine Is.	295	210	202
British India.....	2,519	1,763	1,530	Siam	76	43	107
Straits Settlements.....	1,384	206	275	United States	2,785	3,009	4,668
Dutch India	920	1,008	894	Canada	100	90	162
Great Britain	2,036	1,381	2,866	Australia	125	160	433
United States	470	274	239	Others	1,192	1,403	3,632
Federation of South				Total	8,127	7,784	12,754
Africa	469	293	292	Toys			
Australia	1,816	70	162	Manchoukuo.....	—	—	14
Others	625	1,278	1,597	China	436	205	146
Total	14,622	9,954	11,329	Hongkong	242	117	91
Plaits for hat making				British India.....	1,069	711	1,466
Great Britain	847	266	486	Straits Settlements.....	233	186	446
France	503	256	832	Dutch India	665	594	804
Germany	522	252	477	Philippine Is.	235	213	399
Italy	158	61	98	Great Britain	1,678	2,100	2,288
United States	875	623	633	Germany	268	264	348
Australia	79	33	221	Italy	244	156	205
Others	482	330	481	Holland	163	313	598
Total	3,467	1,821	3,228	United States	3,470	2,922	4,987
Umbrellas & Parasols (European)				Canada	400	406	508
China	313	60	1	Argentina	202	120	96
British India.....	29	45	265	Brazil	143	70	92
Straits Settlements.....	18	7	3	Federation of South			
Dutch India	448	128	125	Africa	131	89	116
Siam	144	16	36	Australia	350	208	861
Others	243	111	138	Others	1,769	1,149	1,655
				Total	11,699	9,824	15,119

Imports (in ¥1,000)

	1930	1931	1932		1930	1931	1932
Rice and Paddy				Siam	17,240	5,695	10,128
China	3	—	—	United States	2,333	1,275	1,734
British India.....	1	—	181	Others	—	—	—
French-Indo-China	2	—	20	Total	19,583	6,971	12,165

	1930	1931	1932		1930	1931	1932
Wheat				Gasoline oil			
United States	17,962	2,523	751	Dutch India	730	619	354
Canada	14,857	7,938	8,762	United States	256	174	5
Australia	8,690	22,466	40,058	Others.....	1	—	10
Others	—	9	—	Total	986	793	370
Total	41,509	32,936	49,572	Kerosene oil			
Beans and Peas				Dutch India	12,645	12,636	14,512
Manchoukuo.....	—	—	10,434	United States	21,206	19,522	18,703
Kwantung Province	35,100	21,742	16,464	Others	4,016	3,836	3,319
China	12,897	14,528	13,547	Total	37,867	35,993	36,533
British India.....	1,336	811	1,301	Beef tarrow			
Asiatic Russia	4	8	—	Manchoukuo.....	—	—	2
Others.....	477	231	324	China	411	66	5
Total	49,784	37,349	42,070	Australia	3,469	2,383	2,437
Oil yielding materials				Others.....	15	33	9
Manchoukuo.....	—	—	1,492	Total	3,895	2,481	2,454
Kwantung Province	4,794	2,541	2,773	India-rubber and Gutta-percha, crude			
China	13,059	9,514	6,873	British India.....	3,757	343	294
British India.....	755	582	781	Straits Settlements.....	11,615	9,273	10,060
Straits Settlements.....	38	14	15	Dutch India	2,173	3,207	4,996
Dutch India	937	1,406	2,327	Great Britain	59	39	45
Others.....	835	492	511	Others	327	321	595
Total	19,969	14,549	14,772	Total	17,930	13,183	15,989
Sugar				Caustic soda (crude), Soda ash & Natural soda			
Dutch India	25,932	15,588	3,133	Manchoukuo.....	—	—	2
Cuba	4	—	185	China	601	292	116
Others.....	19	15	13	Great Britain	3,045	2,372	3,873
Total	25,973	15,603	3,332	United States	2,841	2,884	1,013
Beef (fresh)				African countries	1,723	1,628	1,155
Manchoukuo.....	—	—	42	Others.....	771	973	225
Kwantung Province	738	917	1,441	Total	8,981	8,150	6,385
China	6,791	7,441	2,549	Nitrate of soda (crude)			
Australia	806	379	448	Chile	2,891	2,686	706
Others.....	3	23	—	Others	193	6	1,343
Total	8,340	8,764	4,480	Total	3,084	2,691	2,049
Eggs (fresh)				Sulphate of ammonium			
China	2,817	2,956	43	Kwantung Province	116	440	181
Others.....	—	4	—	Great Britain	8,381	3,788	2,386
Total	2,817	2,960	43	Germany	16,922	10,984	4,188
Hides and Skins				United States	3,917	297	130
Manchoukuo.....	—	—	169	Australia	95	—	—
Kwantung Province	649	878	422	Others	142	351	150
China	3,655	3,031	2,364	Total	29,624	15,861	7,035
British India.....	12	7	97	Synthetic colours			
Great Britain	450	86	110	Great Britain	31	25	35
United States	2,470	2,218	3,396	France	199	524	631
Australia	302	319	193	Germany	2,587	4,083	4,959
Others.....	1,174	721	1,144	Switzerland	1,526	1,432	2,025
Total	8,715	7,260	7,897	United States	1,301	1,025	1,157
Leather				Others	165	195	258
British India.....	1,965	1,761	1,484	Total	5,809	7,283	9,066
Great Britain	672	407	342	Cotton, raw			
Germany	542	583	625	China	21,985	17,366	18,886
United States	1,615	1,469	982	British India.....	147,688	113,262	91,747
Others.....	156	128	185	Straits Settlements.....	8	12	117
Total	4,989	4,348	3,618				

	1930	1931	1932		1930	1931	1932
Dutch India	221	196	258	Sweden	921	1,220	1,792
French-Indo-China	507	19	28	Norway	3,608	2,014	4,115
United States	176,801	153,701	320,752	United States	833	2,419	3,952
Egypt	12,592	11,619	15,301	Canada	5,460	5,200	3,144
Others	2,244	98	313	Others	437	739	949
Total	362,047	296,273	447,401	Total	12,084	11,840	13,329
Vegetable fibre				Printing paper			
Manchoukuo	—	—	43	Great Britain	1,152	841	757
China	4,550	4,798	5,941	Germany	1,045	376	170
British India	2,968	1,955	3,669	Holland	64	66	50
Philippine Is.	8,628	6,525	7,056	Sweden	1,160	1,610	633
Others	303	420	392	Norway	613	898	284
Total	16,449	13,698	17,102	United States	106	137	98
Wool				Canada	—	1,154	3,499
Manchoukuo	—	—	14	Others	383	379	37
Kwantung Province	4	6	1	Total	4,524	5,361	5,531
China	54	67	67	Phosphorite			
Great Britain	340	157	376	United States	4,363	2,994	2,996
Chile	194	230	22	Egypt	3,152	1,391	3,664
Argentina	621	874	481	Others	4,498	2,828	4,437
Federation of South Africa	19	65	1,032	Total	12,012	7,213	11,097
Australia	72,336	83,295	84,246	Coal			
Others	42	1,452	1,321	Manchoukuo	—	—	4,755
Total	73,610	86,146	87,559	Kwantung Province	21,261	17,982	12,903
Woollen or Worsted yarns				China	5,349	3,903	4,242
Great Britain	1,226	2,264	3,133	French-Indo-China	5,950	5,107	4,296
France	752	376	66	Asiatic Russia	1,509	1,246	1,144
Germany	4,585	3,220	156	Others	134	30	19
Italy	62	1	—	Total	34,204	28,269	27,358
Australia	102	—	—	Ores			
Czecho-slovakia	1,329	1,690	239	Manchoukuo	—	—	72
Poland	5,378	4,868	1,512	China	8,450	4,871	4,585
Others	12	10	8	British India	418	108	1,107
Total	14,149	12,429	5,113	Straits Settlements	11,459	8,433	7,284
Cotton tissues				Dutch India	276	24	79
Great Britain	3,743	296	2,080	French-Indo-China	9	—	106
France	143	66	56	Others	3,293	1,135	3,245
Germany	161	129	53	Total	23,906	14,571	16,478
Switzerland	663	1,500	1,797	Pig iron			
United States	214	319	70	Manchoukuo	—	—	2,242
Others	75	65	76	Kwantung Province	5,928	4,924	4,707
Total	4,999	4,375	4,131	China	1,482	2,357	1,934
Woollen tissues				British India	7,667	3,626	3,028
Great Britain	8,916	7,885	8,598	Great Britain	214	148	167
France	268	195	157	Germany	341	64	30
Germany	2,010	1,700	1,542	Sweden	111	70	36
Italy	24	12	8	United States	85	39	30
United States	6	11	18	Others	18	—	—
Others	209	192	165	Total	15,846	11,229	12,174
Total	11,434	9,993	10,488	Rail and fish-plates			
Pulp for paper making				Great Britain	43	1	—
Great Britain	180	3	83	Germany	454	175	454
Germany	645	245	1,293	United States	648	333	411

	1930	1931	1932		1930	1931	1932
Others	5	26	10	Automobiles & parts thereof	1930	1931	1932
Total	1,152	535	875	Great Britain	251	162	469
Iron, other				France	246	210	56
Great Britain	12,614	7,790	13,219	Germany	67	74	394
Germany	18,781	9,718	11,228	Italy	96	34	3
Belgium	3,889	2,143	3,021	United States	19,868	15,817	13,838
Australia	984	514	910	Canada	189	21	36
Sweden	1,648	974	1,830	Others	59	12	23
United States	28,334	8,174	11,240	Total	20,774	16,329	14,821
Others	11,361	6,951	10,578	Dynamos, Transformers, etc.			
Total	76,611	36,263	52,027	Great Britain	879	606	166
Aluminium (ingots, slabs and grains)				France	30	127	46
Great Britain	367	70	353	Germany	869	553	723
France	500	64	269	Switzerland	406	75	197
Germany	748	544	378	United States	1,446	766	593
Belgium	133	—	13	Others	264	35	31
Switzerland	2,074	720	589	Total	3,894	2,162	1,755
United States	1,956	107	676	Machinery and parts thereof			
Others	3,780	677	2,766	Great Britain	22,947	11,662	12,419
Total	9,559	2,181	5,044	France	3,518	1,663	4,448
Lead (ingots and slabs)				Germany	15,653	10,416	9,700
British India	1,280	1,132	1,867	Belgium	64	16	9
Great Britain	11	19	7	Switzerland	3,694	1,568	2,140
United States	4,112	2,511	3,275	Sweden	1,650	1,249	1,862
Canada	5,049	2,241	4,298	United States	24,479	15,486	17,176
Australia	582	195	323	Canada	165	176	287
Others	82	29	203	Others	9,650	6,513	10,777
Total	11,116	8,128	9,973	Total	81,821	48,748	58,818
Copper (ingots and slabs)				Wood			
United States	297	70	123	Manchoukuo	—	—	25
Others	323	18	19	Kwantung Province	632	286	80
Total	620	78	142	China	300	297	47
Tin (ingots and slabs)				Dutch India	601	760	681
China	1,701	787	908	Asiatic Russia	8,922	5,279	3,351
Hongkong	211	259	674	Siam	1,219	988	1,000
British India	9	1	248	United States	32,620	26,177	20,226
Straits Settlements	2,728	2,085	3,794	Canada	6,732	7,777	7,347
Dutch India	142	392	287	Others	2,062	1,815	2,092
United States	8	2	—	Total	53,084	43,380	35,029
Others	47	1	45	Wheat bran			
Total	4,847	3,528	5,956	Manchoukuo	—	—	13
Zinc (ingots, slabs and grains)				Kwantung Province	2,611	563	855
United States	567	148	388	China	8,282	7,364	5,263
Canada	2,011	1,506	2,618	Others	5	—	—
Australia	1,983	1,199	1,595	Total	10,899	7,927	6,132
Others	426	241	23	Oil cake			
Total	4,995	3,094	4,624	Manchoukuo	—	—	3,030
Watches and parts thereof				Kwantung Province	30,022	18,414	16,862
Switzerland	3,923	2,154	2,684	China	35,132	24,681	11,822
United States	322	289	131	British India	809	789	2,048
Others	145	30	41	Asiatic Russia	65	—	13
Total	4,390	2,473	2,856	Others	388	465	824
				Total	66,417	44,349	34,599

DISTRIBUTION OF TRADE

In Japan's foreign trade Great Britain, the U.S.A., their dependencies and China occupy the foremost position, and 76.9 and 76.6 per cent of the total exports in 1928 and 1929 respectively going to those markets. Imports from them in 1928 and 1929 occupied 66.6 and 48.2 per cent respectively of the total imports. Japan gets her supply of raw materials such as

raw cotton, jute, China grass, and other kinds of vegetable fibres, wool and other animal fibres, gum, furs and hides, metals and metal ores, etc., chiefly from those countries while the bulk of raw silk and cotton yarns and piece goods, which are the foremost items of her export trade, find their market in the U.S.A. and China respectively.

	Exports (in ¥1,000)				Imports (in ¥1,000)			
	1930	1931	1932	1933*	1930	1931	1932	1933*
Asia								
Manchoukuo.....	—	—	14,247	35,903	—	—	25,999	87,611
Kwantung Province ...	86,814	65,542	120,583	96,527	121,405	90,165	76,719	9,409
China	260,826	155,750	141,178	56,310	161,701	145,697	102,746	46,823
Hongkong	55,646	36,754	18,041	11,449	547	499	977	1,092
British India.....	129,262	110,367	192,492	103,737	180,425	133,165	116,865	138,763
Straits Settlements.....	26,931	19,120	25,422	18,058	28,919	21,860	25,338	16,380
British Borneo.....	92	54	51	45	4,501	3,096	3,623	2,962
Dutch India.....	66,048	63,450	100,251	64,384	59,984	46,081	40,409	25,963
French Indo-China.....	2,412	1,710	2,344	1,629	7,888	6,381	5,692	4,540
Asiatic Russia.....	26,973	14,941	13,065	9,200	37,233	30,881	31,079	3,420
Philippine Islands.....	28,369	20,425	22,362	9,290	10,760	8,988	9,764	7,031
Siam	9,476	4,722	8,581	8,235	18,843	6,792	11,198	6,127
Aden	6,136	4,809	8,307	-3,443	71	22	1	—
Others	5,043	7,373	10,560	9,178	227	328	501	328
Total	704,030	505,018	677,613	427,389	632,503	493,952	450,910	350,450
Europe								
Great Britain	61,794	53,166	59,658	35,025	92,557	63,335	78,760	47,153
France	27,258	16,100	21,358	11,981	16,636	12,399	21,094	13,220
Germany	11,388	8,424	9,098	4,750	106,180	73,255	71,742	53,982
Belgium	1,985	2,452	4,064	3,571	8,024	4,726	6,133	8,872
Italy	6,154	3,216	5,660	2,063	4,272	4,262	3,972	4,581
Switzerland	678	473	311	94	15,232	10,411	12,105	5,043
Austria	204	85	54	31	1,424	934	1,549	1,209
Czechoslovakia.....	23	56	31	11	2,274	2,948	1,454	963
Holland	8,172	10,136	12,445	6,029	2,938	2,885	3,879	2,152
Sweden	939	1,240	1,610	1,416	8,634	8,581	9,827	8,583
Norway	912	309	465	537	5,503	3,293	5,957	5,787
Russia.....	1,345	2,135	1,379	539	2,524	3,771	1,357	1,453
Poland	11	16	19	24	5,388	4,999	1,638	923
Spain	880	683	910	834	828	925	2,273	2,740
Denmark	1,508	1,115	1,412	721	5,384	536	313	308
Greece	277	359	330	468	80	68	119	110
Turkey	3,950	3,790	5,965	1,411	54	374	138	5
Portugal.....	69	59	344	315	853	873	1,303	1,051
Others	408	297	636	997	934	1,179	1,649	1,930
Total	127,954	104,111	125,748	70,818	279,720	199,749	225,261	160,077
North America								
United States	506,220	425,330	445,965	216,546	442,883	342,290	509,874	315,977
Canada	17,903	13,067	8,562	2,542	46,260	35,673	39,505	25,665
Others	383	468	256	111	4	39	22	4
Total	524,507	438,865	453,965	219,199	489,150	378,002	549,401	341,646
Central America								
Mexico	1,033	666	638	588	327	90	319	91
Cuba	1,249	641	962	1,016	21	17	196	15

	Exports (in ¥1,000)				Imports (in ¥1,000)			
	1930	1931	1932	1933*	1930	1931	1932	1933*
Salvador.....	484	385	394	257	6	—	—	—
Panama Canal Zone ...	376	450	551	455	22	9	35	9
Others	1,133	1,160	2,585	3,144	11	73	106	26
Total	4,275	3,302	5,131	5,461	387	188	656	141
South America								
Peru	2,235	800	841	1,858	254	17	41	631
Chile	2,472	805	287	517	3,100	2,943	761	2,484
Argentina	4,449	4,701	7,559	6,297	2,812	2,901	2,719	3,427
Brazil	955	642	1,330	1,386	306	453	754	426
Uruguay.....	4,115	1,151	423	607	316	687	174	155
Others	2,190	2,126	2,700	3,338	47	97	231	169
Total	16,415	10,225	13,133	14,002	6,835	7,098	4,680	7,283
Africa								
Egypt	28,997	22,830	41,877	26,815	16,223	13,568	19,788	14,123
Federation of South Africa.....	14,196	19,283	16,418	12,457	1,615	1,333	2,636	2,324
Eastern Africa.....	10,663	10,868	15,760	11,858	4,468	2,263	3,414	7,947
Others	3,182	5,888	11,640	12,188	1,671	1,671	1,613	2,279
Total	57,040	58,868	85,695	63,318	23,978	18,227	27,450	26,673
Oceania								
Australia	25,486	18,406	36,895	23,155	94,215	113,337	134,277	107,977
New Zealand	3,227	1,967	2,993	2,551	389	1,440	1,471	1,523
Hawaii	6,393	5,624	6,676	3,544	74	269	533	50
Other countries	526	595	713	436	3,435	2,436	3,640	2,107
Total	35,632	26,591	47,278	29,686	98,114	117,483	139,922	111,657
Grand Total.....	1,469,852	1,146,981	1,409,992	829,873	1,546,071	1,235,673	1,431,461	1,016,341

* For first half only.

PRINCIPAL EXPORTS AND IMPORTS BY COUNTRIES

Classified according to countries the volume of principal exports and imports for three years ending 1932 was as follows:—

	Exports (in ¥1,000)				Imports (in ¥1,000)		
	1930	1931	1932		1930	1931	1932
ASIA				Manchoukuo			
Wheat flour	—	—	1,994	Cotton yarns	454	294	670
Aquatic products	—	—	119	Iron	5,695	2,006	8,415
Soap	—	—	168	Cotton tissues	9,187	6,173	16,108
Cotton yarns	—	—	500	Paper.....	3,220	2,089	3,610
Cotton tissues.....	—	—	2,193	Machinery and parts thereof	5,080	4,230	3,954
Woolen tissues	—	—	150	Total incl. others	86,814	65,542	120,584
Iron manufactures.....	—	—	181	Hongkong			
Machinery and parts thereof	—	—	347	Aquatic products	5,416	2,753	574
Total incl. others	—	—	14,248	Coal	3,881	3,125	4,347
China				Cotton yarns	2,595	449	1,337
Aquatic products	5,975	2,654	2,545	Matches	1,716	694	13
Sugar, refined.....	22,772	11,442	2,853	Cotton tissues.....	18,252	9,765	3,755
Coal	12,521	7,456	3,791	Total incl. others	55,646	36,754	18,041
Cotton yarns	2,579	489	692	British India			
Cotton tissues.....	86,915	43,073	38,229	Cotton yarns	6,576	5,592	14,343
Paper	18,496	13,826	5,272	Cotton tissues.....	61,216	49,866	80,654
Total incl. others	260,826	155,751	141,178	Silk tissues	16,782	21,525	32,957
				Knitted goods.....	7,949	3,901	6,699
				Potteries	1,867	1,392	3,463
				Total incl. others	129,262	110,367	192,492

	1930	1931	1932	Sweden	1930	1931	1932
Woolen or worsted yarns	1,929	2,264	3,133	Pulp for paper-making.....	921	1,220	1,792
Pig iron.....	214	148	167	Pig iron	111	70	36
Automobiles and parts thereof	251	162	470	Iron, other	1,648	975	1,830
Dynamos, transformers, etc.	879	606	166	Printing paper	1,161	1,610	133
Iron, other	12,614	7,790	13,220	Machinery and parts thereof	1,650	1,649	1,862
Cotton tissues.....	3,743	2,296	2,080	Total incl. others	8,634	8,581	9,827
Woolen tissues	8,916	7,885	8,598	Norway			
Machinery and parts thereof	22,821	11,662	12,419	Pulp for paper-making.....	3,609	2,014	4,115
Total incl. others	92,557	63,335	78,760	Printing paper	613	898	284
France				Total incl. others	5,503	3,293	5,957
Synthetic colors.....	199	524	631	Poland			
Woolen and worsted yarns	752	376	66	Woolen or worsted yarns	5,378	4,868	1,512
Automobiles and parts thereof	245	210	56	Total incl. others	5,388	4,999	1,638
Machinery and parts thereof	3,518	1,663	4,448	Grand total incl. other countries	279,720	199,748	225,261
Total incl. others	16,636	12,399	21,094	NORTH AMERICA			
Germany				United States			
Sulphate of ammonium, crude	16,922	10,985	2,578	Wheat	17,962	2,523	751
Woolen and worsted yarns	4,585	3,220	156	Phosphorite	4,363	2,994	2,995
Dynamos, transformers, etc.	869	553	723	Sulphate of ammonium, crude	3,917	297	130
Synthetic colors	2,587	4,083	4,759	Cotton, raw.....	176,801	153,701	320,752
Pig iron	341	64	30	Wood.....	32,620	26,177	20,226
Rail and fish-plates	454	175	454	Leather.....	1,615	1,469	982
Iron, other	17,781	9,718	11,228	Pig iron.....	85	40	31
Woolen tissues	2,010	1,700	1,542	Rail and fish-plates	648	333	341
Machinery and parts thereof	15,653	10,416	9,700	Iron, other	28,334	8,172	11,240
Total incl. others	106,180	73,255	71,741	Caustic soda and soda-ash	2,841	2,884	1,013
Belgium				Kerosene oil	21,206	19,522	18,703
Iron, other	3,889	2,143	3,020	Automobiles and parts thereof	19,868	15,817	13,838
Aluminium (ingots, slabs and grains)	133	—	13	Watches and parts thereof	322	289	131
Machinery and parts thereof	64	16	9	Dynamos, transformers, etc.	1,446	766	593
Total incl. others	8,024	4,726	6,133	Machinery and parts thereof	24,479	15,486	17,176
Italy				Total incl. others	442,883	342,290	509,874
Woolen tissues	24	12	8	Canada			
Automobiles and parts thereof	96	34	3	Wheat	14,857	7,938	8,762
Total incl. others	4,272	4,262	3,972	Wood.....	6,732	7,777	7,347
Switzerland				Pulp for paper-making.....	5,460	5,200	3,144
Synthetic colors.....	1,526	1,432	2,025	Lead (ingots and slabs) ...	5,049	4,241	4,298
Watches and parts	3,923	2,154	2,684	Zinc (ingots, slabs, grains)	2,011	1,506	2,618
Dynamos, transformers, etc.	406	75	197	Total incl. others	46,146	35,673	39,506
Machinery and parts thereof	3,694	1,568	2,140	Grand total incl. other countries	489,147	378,002	549,401
Total incl. others	15,232	10,411	12,105	SOUTH AMERICA			
Holland				Chile			
Printing paper	64	66	50	Nitrate of soda, crude.....	2,891	2,686	706
Rail and fish-plates	—	6	4	Wool	194	230	22
Total incl. others	2,938	2,884	3,879	Total incl. others	3,100	2,943	761
				Argentina			
				Wool	621	874	481
				Total incl. others	2,812	2,901	2,719

	1930	1931	1932	Grand total incl. other countries	1930	1931	1932
Grand total incl. other countries	6,834	7,098	4,681	Grand total incl. other countries	23,978	18,227	27,450
AFRICAN COUNTRIES				OTHER STATES			
Egypt				Australia			
Cotton, raw	12,592	11,619	15,301	Wheat	8,690	22,466	40,058
Phosphorite	3,152	1,391	3,664	Wool	72,336	83,295	84,246
Total incl. others	16,223	13,568	19,788	Beef tallow	3,469	2,383	2,437
Federation of South Africa				Zinc (ingots, slabs, and grains)	1,983	1,199	1,595
Wool	19	65	1,032	Total incl. others	94,215	113,337	134,277
Total incl. others	1,615	1,333	2,636	Grand total incl. other countries	98,114	117,483	139,922

CUSTOMS REVENUE

The average rate on dutiable goods stood in 1913 at 20% yielding ¥73,000,000. Since then, with marked advance of price of commodities specific tariffs have gradually fallen and in 1920 the average came to 8% yielding ¥74,000,000. The sudden increase of the revenue in 1922 to ¥117,000,000 with the average rate rising to about 13% despite trade depression is accounted for by the protective tariff on iron and dyes, raised consequent on the great slump in 1920. Again the marked increase of the revenue and consequent rise of the average rate in 1926 and later years is accounted

for by the levying of luxury tariff since 1924 and the general increase of the statutory tariff in 1926.

Year	Total exports (¥1,000)	Total imports (¥1,000)	Dutiable goods (¥1,000)	Customs revenue (¥1,000)	Aver. percent-
1927.....	1,992,317	2,179,154	827,956	144,776	17.48
1928.....	1,971,955	2,196,314	876,691	155,148	17.67
1929.....	2,148,619	2,216,240	854,320	147,336	17.25
1930.....	1,469,852	1,546,051	584,139	113,173	19.37
1931.....	1,146,981	1,235,673	463,974	111,760	24.09
1932.....	1,409,992	1,431,461	476,538	108,357	22.74
1933 (1st half)...	829,872	1,016,341	291,804	59,068	20.03

JAPAN'S INVISIBLE TRADE

Though anything like exact figures of the balance of international account outside ordinary trade can hardly be obtained, the approximate estimate prepared by the responsible authorities showing the balance of receipts and payment of the invisible trade gives the figures for 1930 as ¥956 millions of the former and ¥578 millions of the latter, leaving a balance of 377 millions due to this

country. Figures for the past five years are as follows (in ¥1,000):—

Year	Receipts	Payment	Balance of Receipts
1927.....	723,539	662,083	61,456
1928.....	893,448	707,185	187,263
1929.....	976,371	881,542	94,829
1930.....	955,591	970,494	*14,903
1931.....	886,338	1,035,382	*149,044

*Excess of payment.

STEAM VESSELS ENTERED FROM AND CLEARED TO FOREIGN COUNTRIES

Nationality	1930		1931		1932		1933*	
	No. of ships	Tonnage (1,000 tons)	No. of ships	Tonnage (1,000 tons)	No. of ships	Tonnage (1,000 tons)	No. of ships	Tonnage (1,000 tons)
Japan	13,247	35,943	13,172	37,019	12,714	36,406	6,456	19,160
Manchoukuo	—	—	—	—	6	7	23	27
Kwantung	1,485	4,113	1,287	3,355	1,303	3,176	707	1,782
China	68	155	51	97	57	531	45	93
Hongkong	154	490	107	348	87	264	54	186
Dutch India	252	943	225	907	179	713	100	487
Great Britain	1,646	7,865	1,390	7,093	1,470	7,482	835	4,060
France	108	704	115	752	70	552	—	—

Nationality	1930		1931		1932		1933*	
	No. of ships	Tonnage (1,000 tons)	No. of ships	Tonnage (1,000 tons)	No. of ships	Tonnage (1,000 tons)	No. of ships	Tonnage (1,000 tons)
Germany.....	367	1,580	245	1,078	212	945	173	765
Italy.....	63	272	43	191	28	107	18	57
Netherlands.....	72	316	64	297	75	332	38	165
Sweden.....	61	216	62	227	47	191	35	125
Norway.....	320	952	294	929	341	1,131	204	675
Soviet Russia.....	10	23	37	84	15	42	14	38
Denmark.....	80	313	71	274	87	335	47	187
U. S. A.....	628	3,592	530	3,215	511	3,364	260	1,650
Canada.....	81	698	89	724	89	744	40	324
Total incl. others	18,757	58,477	17,887	56,808	17,370	56,035	9,099	29,913
Cleared								
Japan.....	13,272	35,820	13,049	36,567	12,643	36,141	6,402	18,845
Manchoukuo.....	—	—	—	—	—	7	19	23
Kwantung.....	1,490	4,143	1,253	3,279	1,294	3,164	686	1,738
China.....	69	154	51	97	55	50	46	94
Hongkong.....	152	481	105	338	87	263	54	186
Dutch India.....	251	939	210	854	169	670	96	466
Great Britain.....	1,637	7,827	1,384	7,137	1,469	7,477	835	4,069
France.....	108	702	116	759	70	550	—	—
Germany.....	364	1,569	243	1,069	211	941	174	767
Italy.....	63	272	43	191	27	102	18	57
Netherlands.....	72	316	64	294	75	331	38	165
Sweden.....	61	216	62	227	48	188	35	125
Norway.....	319	948	290	931	346	1,147	200	666
Soviet Russia.....	9	21	37	84	15	42	14	38
Denmark.....	81	317	71	274	87	335	47	187
U. S. A.....	632	3,621	532	3,232	511	3,371	263	1,664
Canada.....	78	677	90	721	89	744	40	324
Total incl. others	18,779	58,341	17,706	56,283	17,281	55,716	9,016	29,553

* For first half only.

CHAPTER XXXVII

KOREA (CHOSEN)

GEOGRAPHY

POSITION, AREA, CLIMATE, ETC.

Position—33° 6' 40"—43° 00' 36" N.L.; 124° 11'—130° 56' 23" E.L.
 Area—85,228 sq. m. Coastline—9,324 nautical miles.

Northern Chosen is mountainous and rich in timber, and southern Chosen fertile and well-cultivated; the Rivers Tumen and Yalu separate Chosen from Manchoukuo. Principal rivers flowing about 400 km. are Oryok-ko (Yalu), 790 km.; Daido-ko (Tadong), 397 km.; Kanko (Han), 470 km. and Tomanko (Tumen), 521 km.

METEOROLOGICAL OBSERVATION

(for 1931)

Temperature (Celsius)

	Fusan	Jinsen	Gensan	Keijo	Heijo
Highest.....	33.3	34.4	34.3	36.0	32.1
Lowest.....	(-) 12.4	(-) 21.0	(-) 21.6	(-) 22.5	(-) 23.0

Weather Condition

	Fusan	Jinsen	Gensan	Keijo	Heijo
Clear days.....	62	67	87	54	76
Rainy or snowy days.....	112	117	122	112	116
Early frost.....	Nov. 10	Nov. 7	Oct. 23	Oct. 15	Oct. 14
Late frost.....	Mar. 25	Apr. 6	Apr. 14	Apr. 21	Apr. 23
Early snow.....	Dec. 25	Nov. 17	Nov. 17	Nov. 16	Nov. 16
Late snow.....	Mar. 7	Mar. 23	Apr. 5	Mar. 27	Mar. 28

POPULATION

Area, Population and Households (1931)

	Area sq. ri	Households				Population			
		Japanese	Natives	Foreigners	Total	Japanese	Natives	Foreigners	Total
Kyongki.....	831	30,840	369,493	1,533	401,866	129,924	1,923,648	6,588	2,066,160
North Choongchong	482	2,098	159,822	177	162,097	7,915	855,507	474	863,896
South Choongchong	525	6,127	246,713	464	253,304	23,543	1,337,818	1,549	1,362,910
North Chonla.....	553	8,184	275,368	539	284,091	33,378	1,420,775	2,118	1,456,271
South Chonla.....	900	9,851	341,054	293	441,198	42,083	2,199,110	1,142	2,242,335
North Kyongsang...	1,231	11,015	430,513	484	442,012	46,993	2,267,620	1,441	2,316,054
South Kyongsang...	798	20,423	385,313	315	405,051	83,793	1,991,282	900	2,075,975
Whanghai.....	1,085	4,925	284,682	557	290,164	17,734	1,464,799	2,552	1,485,085
South Pyong-an...	968	8,841	236,914	480	246,235	33,328	1,271,272	1,897	1,306,497
North Pyong-an...	1,844	5,821	261,298	2,587	269,697	19,352	1,467,111	10,055	1,496,518
Kwan-won.....	1,703	3,327	251,402	207	254,936	11,079	1,386,565	581	1,398,225
South Hamkyong...	2,073	10,833	241,292	960	253,085	36,643	1,426,226	3,467	1,466,336
North Hamkyong...	1,319	8,073	116,795	1,575	126,443	28,901	698,435	5,360	732,696
Total.....	14,312	130,349	3,690,659	10,171	3,831,179	514,666	19,710,168	38,124	20,262,958

No. of Households Classified by Calling

	Agriculture, Forestry, Fishery, etc.	Industry	Commerce and Communication	Public service or free	Others	Without occupation	Total
Japanese	12,138	19,457	34,880	50,097	8,258	5,519	130,349
Natives	2,905,753	87,808	260,359	114,978	241,107	80,654	3,690,659
Foreigners ...	2,488	1,093	4,410	618	1,392	170	10,171

No. of Population Classified by Calling

	Agriculture, Forestry, Fishery, etc.	Industry	Commerce and Communication	Public service or free	Others	Without occupation	Total
Japanese	54,251	74,151	148,182	182,660	32,832	22,590	514,666
Natives	16,047,149	434,880	1,247,619	547,541	1,082,978	350,001	19,710,168
Foreigners ...	9,235	5,136	16,245	1,660	5,067	781	38,124

The number of households, of birth, of still-birth, of death, etc. of natives in the last five years are tabulated as follows:—

Natives (Koreans)

	1926	1927	1928	1929	1930
No. of households	3,483,779	3,484,461	3,489,344	3,518,094	3,679,463
Population:					
Male	9,509,323	9,512,491	9,521,317	9,569,706	10,003,042
Female	9,105,710	9,119,003	9,146,017	9,214,731	9,682,545
Total	18,615,033	18,631,494	18,667,334	18,784,437	19,685,587
Birth.....					
Male	361,122	371,675	383,315	386,700	406,538
Female	315,054	326,514	338,279	343,479	365,832
Total	676,176	698,189	720,594	730,179	772,370
Still-birth					
Male	2,142	2,057	1,997	1,997	2,885
Female	1,684	1,607	1,623	1,600	1,945
Total	3,826	3,664	3,620	3,597	4,830
Death ...					
Male	206,090	218,725	230,219	244,808	205,164
Female	181,653	192,290	203,156	216,921	176,713
Total	387,743	411,015	433,375	461,729	381,877
Marriage	168,598	175,953	193,165	194,265	199,281
Divorce	7,103	7,112	8,351	8,184	9,077

Though no exact data are available as to the number of Koreans, mostly laborers, in Japan proper, the latest police returns put the figure at 238,000 and say that some 6,600 are newly arriving yearly. Till about 1914 the number of these Korean laborers did not exceed 3,630. This large presence of Korean laborers is considered problematical in view of the intensified unemployment question in Japan proper.

Population in Principal Cities
(At end of 1931)

Keijo (Seoul).....	355,426
Jinsen (Chemulpo)	63,658
Gunsan	25,961
Taiku	101,078
Fusan	130,397
Heijo (Pyongyang)	136,927
Chin-nan-po	37,401

Gen-san (Wonsan)	43,060
Mokpo.....	31,817
Shingishu(Wiju)	44,398

Foreigners in Chosen

Year	Male	Female	Total
1926	40,452	6,089	46,541
1927	43,829	7,494	51,325
1928	44,494	8,828	53,322
1929	47,962	10,184	58,146
1930	56,634	12,475	69,109

ADMINISTRATION

THE GOVERNMENT-GENERAL

Chosen is under the rule of the Governor-General who is appointed by the Emperor. By the revision effected in 1919 in the organization of the administrative machinery of the Peninsula, the former military govern-

FINANCE

With the annexation a Special Account was established for the Government-General, the expenditure to be met with the revenue of Chosen and the deficit filled up with aids from the home Government. All public utility items as road-making, harbors, railways, etc. are defrayed with proceeds from public loans, or borrowed money chargeable to the Special Account, while military and naval outlays are payable out of the General Account of the Imperial Government. The latter totalled ¥125,626,000 from 1910 to 1923. In 1919 the Government-General could for the first time dispense with financial help from the Imperial Government, but the reforms in the police system and other administrative organs carried out that year required help again from the Imperial Treasury.

The budget for 1932-33 was presented to the Diet in the 60th session, but failed to pass on account of the dissolution of the House of Representatives in January, 1932. The Government, compelled by the provisions of the Imperial Constitution to adopt the budget of the preceding year with its provisions for 238,923,617 yen of revenue and 241,691,961 yen of expenditure, compiled a working budget within the limits of this formal budget. The working budget, as first compiled, was as follows:—

Revenue:	
Ordinary	¥178,285,974
Extraordinary.....	28,626,076
Total.....	206,912,050
Expenditure:	
Ordinary	161,723,178
Extraordinary.....	44,885,150
Total.....	206,608,328

The Government then presented to the Diet in the 62nd session the supplementary budget which was balanced at 8,055,250 yen. In this budget were included, with the exception of certain requirements, the appropriations made in the budget that failed to pass the Diet. The principal items of this budget were as follows:—

1. Expenditure in connection with the Manchurian Incident.....	¥337,710
2. Expenditure for the development of Northern Chosen	1,300,000
3. Expenditure for the construction and improvement of railways.....	2,955,153

This supplementary budget includes not

ment was replaced with one in which the civil factor should be predominant. Thus the Governor-Generalship is now open to either a civilian or a military man though formerly it was restricted to a General or an Admiral.

For the Government-General Office is appointed an Inspector-General of Political Affairs whose function is to assist the Governor-General and to inspect the official business of the local governments and various other affiliated offices. The Government-General is divided into the Government-General's Secretariat and the Bureaux of Internal Affairs, Finance, Justice, Industry, Education, Police, Communications, Railway and Monopoly.

The Central Council:—This is in effect a Privy Council and considers matters submitted to it by the Governor-General. The members of the Council consist of one President, one Vice-President, five Advisers and 65 Councillors, all Koreans.

LOCAL ADMINISTRATION

The entire territory is divided into thirteen "do" or provinces which are ruled over by Governors.

Province	Seat of Office
Keiki-do (Kyongki)	Keijo
Chusei Hoku-do (N. Choongchong)...	Chongju
Chusei Nan-do (S. Choongchong) ...	Kongju
Zenra Hoku-do (N. Chonla)	Chonju
Zenra Nan-do (S. Chonla).....	Kwanju
Keisho Hoku-do (N. Kyongsang).....	Taiku
Keisho Nan-do (S. Kyongsang)	Fusan
Kokai-do (Whanghai)	Haiju
Heian Nan-do (S. Pyong-an).....	Shingishu
Heian Hoku-do (S. Pyong-an)	Heijo
Kogen-do (Kwan-won).....	Choonchon
Kankyo Hoku-do (N. Hamkyong) ...	Ranan
Kankyo Nan-do (S. Hamkyong)	Hambeung

There are, besides, twelve "fu" corresponding to the city in Japan proper. The names of the principal cities are mentioned elsewhere in this chapter.

Local Councils.—As a preliminary step towards self-government, local advisory bodies were created in October 1920. They are essentially consultative bodies and are of three kinds: (1) Provincial Councils, (2) Municipal Councils and (3) Village Councils.

only the items, not entirely covered by the appropriations made in the formal budget, but also the requirements for the deficit in the items partially covered by the appropriations in the formal budget. The requirements in the latter case added, upon the approval by the Diet, to the working budget reached 489,107 yen in revenue and 792,829 yen in expenditure.

The Government again presented to the Diet in the 63rd session the supplementary budget specially compiled for remedying the situation. In this budget which was balanced at 1,504,443 yen, the following appropriations were made:—

1. Grants for public works	¥ 18,551
2. Expenditure for the completion of the Keijo Aviation Field.....	200,000
3. Expenditure for the construction and improvement of railways.....	1,000,000
4. Expenditure for embankment works	285,892

There were also an addition to the working budget amounting to 2,171,821 yen, and the figures of the working budget for 1932-33 were as follows:—

Revenue:	
• Ordinary	¥179,556,988
Extraordinary.....	39,575,683
Total.....	219,132,671
Expenditure:	
Ordinary	163,558,402
Extraordinary.....	55,574,269
Total.....	219,132,671

ANNUAL REVENUE AND EXPENDITURE

	Revenue (in yen)		
	1930-31 (Settled)	1931-32 (Budget)	1932-33 (Budget)
Ordinary:			
Taxes.....	43,478,718	42,735,020	40,981,716
Stamp receipts	10,233,174	11,398,815	11,236,757
Receipts from Government undertakings and properties	114,403,530	149,126,971	124,670,973
Miscellaneous receipts	2,585,987	3,060,731	2,667,542
Total	207,701,411	206,321,537	179,556,988
Extraordinary:			
Proceeds of sale of State property	1,388,973	577,731	537,651
Transferred from general account	800,000	421,121	—
Receipts from the issue of public loans or borrowings	11,505,565	13,500,000	22,928,912
National treasury grants.....	15,473,914	15,473,914	12,913,914
Transfer of the surplus from preceding year.....	15,838,962	1,715,909	2,960,897
Other receipts.....	2,501,526	913,405	234,309
Total	47,508,941	32,602,080	39,575,683
Total Revenue	218,210,352	238,923,617	219,132,671

	Expenditure (in yen)		
	1930-31 (Settled)	1931-32 (Budget)	1932-33 (Budget)
Ordinary:			
Royal Household of Li.....	1,800,000	1,800,000	1,800,000
Government-General	4,084,131	3,820,457	3,597,745
Judicial courts, prisons and office consignment	8,058,334	7,816,864	7,391,196
Local governments	30,697,550	30,172,090	28,427,212
Educational institutions and libraries	3,336,089	3,481,947	3,052,452
Customs-houses	1,184,292	1,237,748	1,102,576
Railways	44,667,192	60,270,538	47,948,676
Communications	12,827,570	13,483,205	12,701,989
Transferred to National debt consolidation fund special account.....	23,349,125	24,707,697	23,089,698
Forestry management	3,767,690	4,189,369	3,516,541
Monopoly Bureau	20,114,517	27,642,599	22,049,008
Contribution under the Pension Law	—	—	3,355,054
Other expenses	2,730,247	8,005,969	5,526,255
Total	156,616,743	186,628,482	163,558,402

Extraordinary:	1930-31 (Settled)	1931-32 (Budget)	1932-33 (Budget)
Subsidies	16,849,972	17,021,197	16,649,290
Expenses for repairs and construction	3,180,430	2,884,895	2,469,278
Expenses for public works	9,271,701	8,182,553	6,975,030
Railway construction and improvement	12,052,344	13,500,000	18,940,202
Other expenses	10,753,256	10,706,489	10,540,469
Total	52,107,705	52,295,134	55,574,269
Total Expenditure	208,724,448	238,923,617	219,132,671

PUBLIC DEBTS

Government Loans Outstanding (March 31, 1932)

Kinds of Loans	Amount outstanding (yen)	Years of issue or borrowing	Rate of interest %	Unredeemable period	Redeemable in
4% loan (1st series).....	1,052,650	1913	4	8 years	Feb., 1969
5% loan	109,068,923	1912-1930	5	5 years	1975-1985
5% Exchequer bonds	238,549,777	1924-1930	5	—	1931-1953
Second undertaking funding loan... ..	12,693,920	1908-1909	6.598	10 years	Dec., 1933
Public undertaking loan	34,471,210	1929	5.5	—	1932
Drought relief loan	8,750,000	1922-1926	5.5	—	1933
Chosen peers relief fund loan	2,140,000	1929	5.5	—	1931-1944
Total	406,996,480				

EDUCATION

Under the new educational ordinance and regulations of 1922, the ordinary and higher common schools for Korean boys and girls are placed on the same status as elementary and secondary (i.e. middle and girls' high) schools, while according to circumstances Korean children may be admitted to the

latter schools and Japanese to the former. The schools of secondary and higher grade for vocational training are controlled in practice by the regulations covering the corresponding institutions in Japan proper. Both Japanese and Korean students are co-educated in those schools. The statistics on schools as at the end of March 1932 is given below:—

		No. of schools	Teaching staff	Enrolment
Elementary schools	Government	2	19	611
	Public	473	2,189	25,404
Common schools	Government	2	19	746
	Public	1,841	9,492	489,063
	Private	81	507	24,511
Middle schools	Public	11	287	6,170
Higher common schools	Public	15	363	7,031
	Private	11	230	6,245
Girls' high schools	Public	24	374	8,863
	Private	1	10	262
Girls' higher com. schools	Public	7	93	1,822
	Private	10	168	2,948
Agricultural schools.....	Public	24	297	5,296
Commercial schools	Public	17	293	5,421
	Private	4	69	1,741
Supplementary technical schools	Government	1	3	25
	Public	91	414	3,887
	Private	2	7	77
Collegiate Schools.....	Government	5	200	1,191
	Private	8	277	1,892
Fishery Schools.....	Public	3	32	238
Normal schools	Government	3	95	1,772
Technical schools	Government	1	38	176
	Public	2	33	527
Other schools	Public	3	28	536
	Private	3	28	536

Government schools of higher grade:—

	Director	Teaching staff	Enrolment
Keijo Law School	R. Takamatsu	14	198
Keijo Medical School	G. Sato	66	347
Keijo Technical School.....	E. Yamamura	55	180
Suigen Agr. and Forestry School.....	M. Yukawa	47	168
Keijo Higher Commercial School.....	J. Iwasa	24	261

Besides, there were five private special schools managed by Koreans or foreign missionaries and 550 private schools (enrolment 47,742) of lower status including 223 religious institutions. Private elementary schools of old system mostly teaching only writing and reading number 15,069 and take in about 190,000 children.

The Keijo Imperial University was established in May 1923 as the highest seat of learning in Chosen. It consists of two departments, (1) medicine, and (2) law and literature, with two years preparatory course attached. At the end of May 1932, the university staff consisted of 517, students numbering 579, while the staff of the preparatory course consisted of 26, and students 324.

Korean students studying in Japan proper are increasing year after year in number. At the end of 1931 they numbered 3,601 of whom 15 were studying at official expenses.

RELIGION

All religious faiths enjoy equal opportunity and protection from the Government, there being no State religion in Chosen. The Confucian cult is spread more among the higher classes, and Buddhism among the lower. The latter, however, is not so prosperous as in Japan proper. Standing between the two, Christianity has gained a great vogue among all classes.

There are also some adherents of such Shinto sects as Tenrikyo, Shinrikyo, Shinshukyo, Taishakyo, Shintoism, Konkokyo, etc. In December 1931, Shinto shrines and Buddhist temples established by Japanese numbered 47 and 110 respectively. Besides, there existed 1,344 Buddhist temples under Korean management with 5,594 priests, 1,044 nuns, and over 141,800 adherents. Other figures for the same period are as follows:—

	Missions	Mis-sionaries	Adherents	
			Japanese	Native
Shinto.....	193	351	67,451	11,264
Buddhist	Japanese...	597	256,332	7,217
	Native.....	1,344	6,620	70

Christian	3,913	2,747	6,160	308,374
Total	6,278	10,270	330,013	466,263
Do. for 1929	6,252	10,128	330,044	491,696
Do. for 1928	6,146	10,158	320,772	467,423

The number of Shinto shrines is returned as 231.

JUDICATURE

The Law Courts in Chosen comprise 11 District Courts with 51 branches, three Courts of Appeal, and one Supreme Court.

Latest statistics on new cases of civil and criminal preliminary affairs, etc. are as follows:—

	Civil suits	Criminal suits	Pre-liminary	Pro'ratons visits
First instance.....	57,715	47,419	915	113,092
Appeal	3,926	2,122	—	—
Supreme	976	187	—	—
Total	57,620	49,541	915	113,095
Do. for 1929	60,087	44,115	950	114,983
Do. for 1928	62,725	37,844	950	105,688

There are 16 prisons with 10 branches, the number of their inmates for the five years ending 1930 (at end of the year) being as follows:—

Year	Male	Female	Total
1926	16,041	675	16,716
1927	14,481	620	15,101
1928	13,158	568	13,726
1929	12,432	401	12,833
1930	12,700	419	13,119

GARRISON AND POLICE

The troops in the Peninsula represent two Divisions, one being quartered at Heijo and the other at Ryusan near Keijo, besides the 6th air regiment established in 1921-22. Prior to the "independence" agitation the policing force consisted of gendarmes and police. With the reorganization of the administrative system in 1919 the gendarmes were mostly converted into police at their own option. The police force proper at the end of December 1930 consisted of 7,413 native policemen and 11,398 Japanese policemen. The police stations numbered 250, with about

2,320 sub-stations under them. The gendarmes are now on their own proper duty only. Below are given the data on police offences and arrests for the last five years:—

Year	No. of police offences	No. of cases prosecuted	No. of persons arrested
1927.....	148,342	137,975	158,068
1928.....	159,056	153,738	172,218
1929.....	140,433	132,607	143,876
1930.....	178,013	169,095	187,531
1931.....	175,273	164,963	192,119

PUBLIC WORKS

Roads.—The Government-General laid out a complete system of roads consisting of 515 lines of various classes with a total length of 24,000 kilometers. The construction or improvement of the roads has been carried out since 1911 as a continuing work of 6 or 7 year period. Altogether 9,600 kms. of 1st and 2nd class roads have been completed at State expenses and 7,700 kms. of 3rd class roads by the local governments. In connection with road-making, a number of bridges has been constructed. The total outlay on roads amounts

to ¥43,000,000, including the estimates for the works to be finished by 1935.

Rivers.—Almost all the rivers were in neglected condition before the annexation, the damage due to floods reaching over 10 million yen in some years. In 1915 the Government-General started investigations into the Rakuto-ko and 13 other rivers with a view to systematic control. As a result of the investigations a riparian work is now under way on the Bankei-ko and Sainei-ko, taken in hand in 1925 as a six year work at an estimated cost of ¥9,300,000, and also on the Rakuto-ko, Daido-ko, etc. started in the following year, as a ten year work, for which ¥39,100,000 is to be appropriated.

Harbor Works were commenced with Fusan, where all the terminal facilities for the Fusan-Seoul Rly. have been completed. At Jinsen a spacious lockgate dock has been constructed to accommodate 2 ships of 4,500 gross tons and under, by taking advantage of the great tidal range (22-23 ft.) of the locality. The work of improvement is now going on at Gensan, Gunsan, Mokpo and two other harbors.

BANKING AND OTHER FINANCIAL ORGANIZATIONS

BANKS

The Bank of Chosen (formerly called the Bank of Korea).—Established in October, 1909, as the central bank of Chosen with a capital of 10,000,000 yen by special charter of the Imperial Japanese Government. Its capital was increased three times, but was decreased in 1926 to 40,000,000 yen, of which 25,000,000 yen has been paid up. The law providing for the Bank as promulgated in

1911 (revised in 1918) provides that: (1) The Bank be authorized to issue convertible notes and carry on general banking business and also trust business as the central financial organ of Chosen; (2) Japanese subjects exclusively shall be allowed to hold shares in the Bank of Chosen; (3) the Government shall guarantee a dividend at the rate of 6 per cent per annum on shares held by others than the Government for the first five years. Recent data are as follows (in unit of ¥1,000):—

	1927	1928	1929	1930	1931
Nominal capital	40,000	40,000	40,000	40,000	40,000
Capital (paid-up)	25,000	25,000	25,000	25,000	25,000
Reserves	1,001	1,201	2,101	2,901	3,701
Loans	6,150,759	6,584,727	6,907,672	6,355,288	5,623,736
Bills discounted	1,748,242	1,523,914	1,460,093	1,333,305	1,440,507
Deposits	762,429	527,460	360,926	286,038	258,950
Earnings	25,328	28,128	26,128	23,492	24,366
Expenses	23,946	26,543	24,321	21,664	22,531
Net profit	1,382	1,585	1,865	1,828	1,835
Dividend.....	940	940	940	940	940
Rate of dividend (%).....	4.0	4.0	4.0	4.0	4.0

Chosen Industrial Bank (Chosen Shokusan Ginko).—Established in 1906, it is authorized to issue debentures to the amount not

exceeding 15 times the paid-up capital, and to furnish long-period loans at a low rate of interest to promote the development of agri-

culture, industry, fishery, etc. The Bank is authorised to act as agent for other banks or the Oriental Development Co., Ltd. and as treasurer for public bodies; and may, with the approval of the Governor-General of

	1927 (¥1,000)	1928 (¥1,000)	1929 (¥1,000)	1930 (¥1,400)	1931 (¥1,000)
Nominal capital	30,000	30,000	30,000	30,000	30,000
Capital (paid-up)	15,000	15,000	20,000	20,000	20,000
Reserves	4,953	6,003	7,043	8,083	9,123
Deposits	979,855	1,126,864	1,230,513	995,670	984,353
Loans	994,155	527,710	806,130	1,000,995	1,264,696
Bills discounted	191,929	192,538	180,954	139,647	150,130
Balances of debentures issued	173,445	177,223	199,685	242,158	247,558
Earnings	28,905	27,598	26,377	25,860	27,496
Expenses	26,486	25,123	23,552	22,837	24,475
Net profit	2,418	2,475	2,824	3,023	3,020
Dividend	1,172	1,320	1,609	1,770	1,770
Rate of dividend (%)	9.0	8.0	9.0	9.0	9.0

Ordinary Banks.—The establishment of a branch office of the First Bank (Dai-ichi Ginko) at Fusan was soon followed by the creation of similar agencies at various treaty-ports by the same bank, and the Juhachi, Gojuhachi and several other banks. In 1899 the Dai Kan Ten-ichi Ginko was established as the first banking institution formed by Korean capitalists, and in 1903 another Korean bank (Kanjo

Ginko) appeared. All those banks on the whole made sound development with extended sphere of operation under the Banking Regulations enacted in 1912 (revised in 1920; amended in 1928 and in force since January 1, 1929.) At the end of 1931, there existed 12 banks including head offices, 82 branches and 16 branches of banks having their head offices in Japan proper.

	1927 (¥1,000)	1928 (¥1,000)	1929 (¥1,000)	1930 (¥1,000)	1931 (¥1,000)
No. of banks	16	14	14	13	12
Nominal capital	32,275	29,025	28,425	26,425	26,425
Capital (paid-up)	16,950	15,056	15,221	14,721	14,721
Reserves	3,727	3,370	3,220	3,457	3,513
Deposits	1,272,990	1,629,253	1,678,476	1,251,474	1,109,769
Loans	618,762	740,614	790,614	722,979	664,969
Bills discounted	326,483	324,395	291,524	206,453	168,053
Earnings	16,238	18,372	15,570	14,997	16,034
Expenses	14,375	16,856	13,572	13,610	14,840
Net profit	1,863	1,515	1,997	1,387	1,194
Dividend	854	724	773	731	609

Savings Banks.—Formerly savings deposits in Chosen were handled by banks, credit associations and post offices till the Government-General issued the Savings Banks Regulations on December 24, 1928. Next year the Chosen Savings Bank was established. The business carried on by the Chosen Industrial Bank was thus taken over by the newly created bank. The head office of the Bank is situated in Keijo, and a branch and a sub-branch were established on October 1, 1931. The recent data are shown below (in ¥1,000):—

	1929	1930	1931
No. of banks	1	1	1
Nominal capital	5,000	5,000	5,000
Capital (paid-up)	1,250	1,250	1,250
Reserves	0	20	40
Deposits	28,931	44,361	52,027
Advances	8,463	10,522	14,136
Earnings	1,031	2,186	2,443
Expenses	961	2,043	2,298
Net Profit	69	142	144
Dividend	50	100	100
Rate of dividend(%)	8.0	8.0	8.0

OTHER FINANCIAL ORGANIZATIONS

Trust Companies.—Companies transacting business under the title of trust companies at the end of September, 1931, numbered 21, of which 5 companies have been authorized to transact trust business under the provisions of the ordinance relating to trust business in Chosen issued by the Government-General on December 1, 1931.

Credit Associations.—The business of the associations is to make loans to the members, to keep in custody industrial products, to issue warehouse receipts for them, to receive deposits from either the members or non-members, and to act as agents, with the sanction of the Governor-General, for other credit associations or banking establishments. For a village association there is, besides, a Government grant as stock fund of not more than 10,000 yen. City associations operating in urban districts are allowed to engage in bill-discounting business. At the end of January, 1932, there existed 61 city associations and 592 village associations, with the membership roll counting over 738,074 persons. Below is given their business results as at the end of

January 31, 1932 (in ¥1,000):—

	Associations	
	Village	City
No. of associations	592	61
No. of members	703,477	35,197
Amount of contribution	9,112	3,598
Government grants	3,892	—
Reserves	11,154	2,477
Deposits	59,835	29,347
Loans	53,996	4,768
Advances	101,996	22,446
Advances through Chosen Industrial Bank	11,616	—

Mutual Loan Companies (Mujin Kaisha).—The number of these companies amounted to 33 at the end of 1931 and the business is now making sound development. The following are the results of the mutual loan business at the end of 1931 (in ¥1,000):—

No. of companies	33
Capital	3,840
Reserves	918
Payment contracts	69,301
Instalment contracts	77,757
Payments outstanding	1,267
Borrowings	171
Cash and deposits	608
Advances	3,422

FOREIGN TRADE

With the development of industrial enterprises the volume of foreign trade has markedly increased since the annexation, and especially during and after the World War. The financial unrest in 1920 dealt a temporary setback to the trade, but it has gradually been

restored to the normal state. Naturally the trade with Japan proper forms the bulk of the total volume, amounting to 90 per cent in exports and 70 per cent in imports. Below is given statistics on export and import (figures in unit of yen):—

EXPORT AND IMPORT OF COMMODITIES

With Foreign Countries					With Japan Proper				
Year	Exports	Imports	Total	Excess of imports	Year	Exports	Imports	Total	Excess of imports or exports
1928...	32,149,187	118,151,022	150,300,209	86,001,835	1928...	333,829,337	295,399,921	629,669,258	+37,989,416
1929...	35,773,033	107,767,710	143,540,743	71,994,677	1929...	309,891,023	315,325,841	625,216,864	-5,434,818
1930...	25,852,353	88,854,562	114,706,915	63,002,209	1930...	240,694,825	278,194,196	518,889,021	-37,499,371
1931...	12,771,572	52,695,966	65,467,538	39,924,394	1931...	249,716,697	217,770,365	466,737,062	+31,256,332
1932...	29,209,754	61,685,953	80,895,707	32,476,199	1932...	282,144,296	258,670,063	540,814,359	+23,474,334

— excess of imports; + excess of exports.

EXPORT AND IMPORT OF GOLD SPECIE & BULLION

With Foreign Countries					With Japan Proper				
Year	Exports	Imports	Total	Excess of imports	Year	Exports	Imports	Total	Excess of exports
1928...	—	110,838	110,838	110,838	1928...	3,667,777	4,705,3	4,096,830	3,241,724
1929...	—	246,297	246,297	246,297	1929...	6,096,811	639,908	6,736,719	5,456,903
1930...	2,450	11,594,311	11,596,761	11,591,861	1930...	26,801,109	137,178	26,938,287	26,661,931
1931...	22,486	21,903,782	21,926,268	21,881,296	1931...	39,525,530	53,479	39,579,009	39,472,051
1932...	30,301	753,627	783,927	723,326	1932...	28,284,905	9,850,993	38,135,898	18,433,912

STAPLE EXPORTS

To Japan Proper			To Foreign Countries		
Items	1931	1932	Items	1931	1932
Rice	138,428,409	144,796,809	Rice	48,946	540,416
Soya beans	13,778,412	20,484,007	Soya beans	29,410	55,322
Fresh fish	4,426,650	4,649,938	Fresh fish	575,820	822,387
Dried fish	4,029,455	4,336,565	Dried fish	128,864	233,609
Sugar	828,368	1,097,991	Sugar	1,821,129	2,350,498
Ginned cotton	2,608,654	3,504,100	Apple	154,024	413,143
Cocoon	1,533,073	1,267,177	Cow hide	162,173	107,024
Raw silk	12,015,054	11,666,127	Ginseng	1,870	23,340
Wild silk yarn	6,984,593	7,763,413	Cotton yarn	331,952	1,242,997
Coal	3,061,053	3,841,351	Cement	144,573	168,143
Pig iron	3,027,030	9,178,657	Chosen paper	36,187	48,199
Cows	2,787,611	3,238,022	Timber	1,018,947	1,614,656
Fertilizer	8,346,449	18,433,506	Total incl. others	12,771,572	29,209,734
Total incl. others	249,026,967	282,144,296			

STAPLE IMPORTS

From Japan Proper			From Foreign Countries		
Items	1931	1932	Items	1931	1932
Rice	809,761	1,528,288	Rice and paddy	120,620	242,721
Flour	3,791,010	3,766,052	Millet	7,931,104	16,025,129
Wheat	157,026	220,355	Soya bean	2,429,283	1,814,741
Sugar	4,518,389	7,423,539	Sugar	1,122,171	218,741
Saké	1,119,075	1,160,586	Salt	1,278,523	2,091,686
Beer	1,727,007	1,730,031	Leaf tobacco	1,319,953	980,213
Ginned cotton	4,317,070	6,488,242	Crude oil and heavy oil	1,187,118	1,444,662
Cotton yarn	4,069,201	5,884,614	Volatile oil	1,545,502	1,891,470
Jeans, etc.	1,395,614	1,899,467	Fuel oil	1,045,027	4,036,884
Cotton tissues	4,318,013	5,863,424	Chinese linen	2,353,368	1,204,369
Silk tissues	10,606,884	3,327,765	Gunny bags	21,461	20,962
Gunny bags	370,242	645,735	Coal	4,344,897	3,788,658
Paper	5,491,006	6,547,846	Timber	3,222,646	2,033,567
Coal	4,176,808	4,084,593	Bean cake	2,846,243	2,529,555
Cement	1,725,749	2,306,593	Total incl. others	52,695,966	61,685,953
Railway building materials	2,816,149	4,253,402			
Machineries	7,907,967	8,273,700			
Total incl. others	217,770,365	258,670,063			

Classified by Countries (in yen)

	Export		Import	
	1931	1932	1931	1932
Asia :				
China	12,085,984	947,840	39,509,056	3,772,679
Manchoukuo	—	22,867,847	—	39,723,227
Hongkong	21,721	108,034	21,334	8,625
British India	8,588	20,353	357,696	220,017
Straits Settlements	153,279	114,097	184,200	259,862
Dutch India	64,891	48,595	1,487,943	616,537
French Indo-China	33,397	4,355	25,027	197,996
Russia	22,458	67,016	262,633	1,020,730
Total incl. others	12,487,060	28,601,327	42,089,469	48,940,786
Europe :				
Great Britain	3,967	2,693	1,313,419	1,545,949

	Export		Import	
	1931	1932	1931	1932
Germany	4,053	3,282	1,312,121	819,286
Total incl. others	11,044	7,102	2,892,126	2,570,430
American Countries :				
U. S. A.	121,704	399,897	4,550,470	5,079,175
Canada	1,680	1,228	32,912	56,343
Total incl. others	123,547	401,186	4,627,948	5,162,511
Other States	149,921	200,139	33,294	1,471,177
Grand total incl.	12,771,572	29,209,754	52,695,966	61,685,953

MONOPOLY

Ginseng.—Ginseng, a medical root highly valued by Chinese and Koreans, is famous for its quality throughout the world, and the greater part of the manufactured products is exported to China. Owing, however to the spread of disease among ginseng and the ravages of thieves, this industry was almost ruined for a time. In 1908, therefore, a special Government office was established, where various curative and preventative measures were studied with great care and efforts, and strict control over theft was exercised. On the other hand, cultivators' associations were organized with a view to promoting the common interest, and these associations, supported by Government measures, lent impetus to the improvement of this industry. In 1908, the area under cultivation was 140,691 tsubo, and the production about 4,000 kin (2,400 kg.). These increased to 2,110,000 tsubo and 29,000 kin (17,400 kg.) respectively in 1920. Annual production is about 38,000 kin (22,800 kg), valued at about 2,318,000 yen.

Salt.—Owing to its geographical features, Chosen is suitable for salt manufacture by natural process. In 1907, however, from the financial and economic point of view experiments were made in the manufacture of salt by spontaneous evaporation at Shuan in Keikido. The result turned out to be very successful and the quality of the products was as good as the first or second class salt produced in Japan proper. Thereupon the construction of salt fields at Koryo Bay and Tokudo in Heian-nando was commenced in 1908, the area being 1,205 cho or 1,195 hectares. The output is at present hardly sufficient to meet the demand in the Peninsula, but with the completion of the expansion program extending over seven years beginning in 1920, the area of salt-fields increased to about 2,446 cho or 2,426 hectares, producing about 320 million kin or 138,000 metric tons. The ex-

emption of salt from import duties resultant from the abolition of exceptions in the case of import duties in Chosen enforced on and after April 1, 1930, however, has had a severe effect upon salt manufacture and caused competition in the market. As there was further fear of speculative dealing in salt, the Government-General promulgated in March, 1930, an Ordinance providing for the import of salt from Japan proper and abroad to stabilize its price and facilitate its supply.

Year	Salt fields (cho)	Production (1,000 kin)	Import	
			(1,000 kin)	(10.0 yen)
1926	2,446	155,094	290,043	2,754
1927	2,446	182,949	280,128	2,405
1928	2,446	253,756	268,090	2,099
1929	2,446	309,638	226,906	1,458
1930	2,446	242,167	221,071	1,146

Tobacco.—The manufacture of tobacco was undertaken exclusively by the Government-General under Chosen Tobacco Monopoly Ordinance promulgated in April, 1921. Exceptions were made, however, with respect to the cultivation of tobacco for personal use, the private manufacture and sale of cut tobacco and the sale of leaf tobacco by the Government, etc.

The supply of the Government manufactured cut tobacco that was received in 1923 with favor by the consumers and the improvement in economic conditions of the people caused the above exceptions to be unnecessary. Thus, the sale of leaf tobacco by the Government-General was discontinued in January, 1927, and the cultivation of tobacco for personal use and the private manufacture of cut tobacco were all abolished at the end of 1929. Area under tobacco and the amount of sale in recent years are as follows:—

Year	Area under cultivation (Cho)	Amount of sale (kwan)
1926	16,513	27,682
1927	19,044	30,274
1928	21,870	32,318
1929	19,613	33,909
1930	14,229	31,816

Opium.—After the annexation of the peninsular territory the Chosen Government frequently issued ordinances regulating opium, setting limits to the area under cultivation of poppies, receiving manufactured opium and selling it to pharmacutists specially authorized by the Government. These measures resulted in the eradication of the evils of opium smoking, but there were many persons poisoned by morphine throughout the country. In order to root out the evils, the Government-General entered the names of smokers on a register and gave them medical treatment, while at the same time it gave an authority to control the receiving of opium and the manufacture and sale of morphine to the Monopoly Bureau which commenced the work from March, 1930.

AGRICULTURE

Chosen is a wholly agricultural country, and farming is its most important industry. The fields of Chosen are almost cultivated on a small scale and are owned by the Yan-pan and wealthy classes. Rice is the staple agricultural product, followed by barley, Italian millet, soya beans, wheat and red beans. There are also such special products as cotton, tobacco, hemp, and ginseng. The cultivation of fruit-trees has of late produced very good

results; and the area of plantations is gradually extending. Sericulture which had hitherto been in a very poor condition, is now, in consequence of official encouragement, being carried on everywhere. Both these are conducted as subsidiary industries by the agricultural class. Live-stock is also raised as a by-product of agriculture, and cattle, horses, goats and pigs are found everywhere in the country; but stock-farming is not pursued as an independent enterprise. The cattle are well known for their great size and good quality; and a large number of them is annually exported to Japan proper and Asiatic Russia.

According to the official returns the arable land in Chosen totals 4,466 cho (1 cho—2.545 acres). The area, farming population and production in recent years are shown below:—

Arable Land under Cultivation (in 1,000 cho)

Year	Free holders		Tenants		Total
	Paddy	Dry	Paddy	Dry	
1926.....	549	1,607	1,024	1,197	4,378
1927.....	589	1,493	997	1,307	4,387
1928.....	550	1,463	1,048	1,329	4,391
1929.....	547	1,422	1,061	1,360	4,392
1930.....	549	1,435	1,093	1,336	4,466

Farming Population

Year	Japanese		Natives		*Total	
	Farming-households	Population	Farming-households	Population	Farming-households	Population
1927.....	10,300	44,177	2,768,744	14,844,540	2,781,000	14,896,000
1928.....	10,883	44,321	2,786,226	15,014,529	2,790,000	15,068,000
1929.....	10,390	45,364	2,801,827	15,153,707	2,815,277	15,210,204
1930.....	10,505	45,903	2,856,102	15,562,089	2,869,957	15,621,534
1931.....	10,827	46,258	2,868,539	15,581,611	2,881,689	15,636,024

* Includes Chinese and Foreigners.

Production of Principal Crops (koku)

Year	Barley	Wheat	Naked-barley	Soya beans	Red beans	Millet
1929	7,211,636	1,725,216	450,753	3,990,965	809,896	5,244,271
1930	7,567,948	1,863,151	532,940	4,490,048	898,590	5,573,256
1931	7,812,127	1,729,487	665,923	4,131,795	862,726	3,950,364

Special Crops

Year	Cotton (1,000 kin)	Hemp (1,000 kwan)	Ramie (1,000 kwan)	Tobacco (1,000 kwan)	Sesame seeds (Koku)
1928	170,837	5,468	139	6,029	38,286
1929	158,238	5,333	127	6,916	39,506
1930	163,770	5,586	178	4,027	40,049

As to the cotton the authorities encouraged the cultivation of the American upland variety which was judged best suited to the soil and climate of the southern half of Chosen. Satisfactory results were obtained and the yield has steadily gone on increasing as the following figures show:—

Year	Area (Cho)	Harvest (1,000 kin)		
		Upland	Native	Export (¥1,000)
1927.....	205,079	107,717	44,315	4,699
1928.....	205,377	121,771	49,095	6,020
1929.....	186,220	113,522	44,716	6,577
1930.....	192,873	127,329	41,441	—
1931.....	192,545	78,721	37,191	—

Stock-farming.—Cattle reared in Kankyo-do (Hamkyong), Northern Chosen, are famous for strong build and perfect flesh development. Every house there keeps a head or two, and as the region is excellently suited for pasture, the preserved meat business in Northern Chosen has a great future. The cattle largely goes to Japan proper.

At the end of 1930, the number of cattles, horses, etc. was as follows:—

	No.
Cattle	1,611,585
Horses	55,544
Swine	1,386,891
Sheep	1,561
Goats	13,813
Fowls	6,146,000

Sericulture.—The climate of Chosen is suitable for sericulture owing to the scarcity of rainfall in the rearing season, just the contrary of Japan proper. The latest figures are:—

Year	No. of Rearing households	Output of Cocoons (koku)	No. of Reeling households	Output of Raw silk (kwan)
1927 ...	572,927	355,192	155,430	193,394
1928 ...	594,209	386,113	172,110	236,769
1929 ...	648,079	484,802	188,355	280,090
1930 ...	720,813	555,232	245,857	352,948
1931 ...	747,084	578,261	261,270	382,107

FISHERY

Bounded by sea on three sides, Chosen has coast-line extending over 9,000 nautical miles and is rich in fish, shell-fish and sea-weeds. Mackerel, sardine, Alaska pollack, Sciaena Sp., herring, sea-bream, cod, yellow tail, whale, and ear-shell are the principal catches. The encouragement by the Government and the improved methods introduced have brought about the rapid development of the industry of late. The recent situation of the business, excepting whaling, is as under:—

Year	No. of fishermen	Value of catches (¥1,000)	Marine products (¥1,000)	Agriculture
1928	Japanese ...	17,804	33,119	17,231
	Koreans ...	460,132	32,994	27,654
	Total ...	477,936	66,113	44,885

1929	Japanese ...	17,021	30,514	17,095	2,724
	Koreans ...	456,891	34,823	27,720	
	Total ...	473,912	65,387	44,815	
1930	Japanese ...	17,976	23,585	19,742	2,369
	Koreans ...	469,612	26,543	19,646	
	Total ...	487,588	50,128	30,388	

The coast from the River Tumen downward is noted for Myng-tai, Alaska pollack and cod fishing, the western sea for the Guchi, Sciaena Sp. fishing and the southern sea near Fusan for cods, herrings, etc.

Whaling.—Whaling is solely undertaken by Japanese. Boats numbered 12 in 1931 and the catches for that year totalled ¥1,158,525.

MINING

The total value of mineral products has been quadrupled from ¥6 to over ¥24 millions in the past twenty years. The slump after the World War affected the industry. For instance the work was reduced at many iron mines, while tungsten ceased to be operated. Most branches of the industry, however, have since been, or are being, restored to the normal condition.

Year	No. of mining lots		Production (Yen)
	Total	Of which worked	
1926	2,132	358	24,130,350
1927	2,175	362	24,169,229
1928	2,151	365	26,434,972
1929	2,173	385	26,488,266
1930	2,262	456	24,654,463

Gold.—The Unsan Mine (North Pyong-an) leased by the Oriental Consolidated Mining Co. and Suisan Mine (Whang-hai) of the Kunjo Mining Co., both American interests, produce the bulk of the gold output in the Peninsula. There are, besides, Shokusan, Shojo (French Concession), Rakusan (Kobayashi), Toeki (Nuhara) and Rippo (Taniguchi) gold mines now under operation. Alluvial mines are found at Shokusan and Jun-an.

Iron.—Whang-hai is the center of iron mining in Chosen. Limonite is especially active in the districts between Kenjiho and Kosu (Wang-ju) to the east. Sainei and Inritsu Mines and also the mines in South Pyong-an all belong to the same category. Hematite is operated at Angaku Mine (Chosen Iron Mining Co., Whang-hai), while magnesite is found all over the Peninsula, though it is still left in neglect. Sainei and Inritsu, most important of all, operated at first by the former Korean Government were transferred to the Japanese

Government in 1910. These with two other Korean mines, Angaku and Rigen, furnish the ores to the Government Yawata Iron Works. Penchiu and Wanishi Iron Foundries get their supply from Kaisen (of Nippon Steel Foundry) and Rigen Mines. Mitsubishi's Kenjiho Iron Foundry runs its own mines in Chosen but the shortage comes from Angaku Mine.

Coal.—The Pyong-yang Colliery, a Govern-

ment enterprise, is famous as working the only rich anthracite mine in Japanese territory. Its full working capacity has lately been increased to 30,000 tons, the bulk of the output being supplied to the Naval Briquette Factory at Tokuyama (Yamaguchi prefecture). Prospecting is going on in other districts of South Pyong-an and also in Kwan-won. Lignite, though inferior in quality, is found in various places.

Quantity and Value of Mineral Products

Kind	Unit	1927	1928	1929	1930	1931
Gold	Gram.	5,642,592	5,172,236	5,552,719	6,186,451	9,031,083
	Yen	6,133,931	5,692,786	5,874,658	6,618,656	9,583,950
Silver	Gram.	1,600,189	1,744,445	1,702,155	2,101,065	11,404,022
	Yen	54,288	59,645	59,820	58,207	206,600
Gold & silver ore	Kg.	11,474	13,220	16,793	13,411	12,858
	Yen	1,056,344	1,440,870	1,353,133	1,070,439	553,545
Copper ore	Kg.	2,087	3,980	3,935	5,647	6,156
	Yen	24,766	47,401	62,717	45,886	35,485
Crude copper	Kg.	1,004,132	607,459	546,857	589,342	698,446
	Yen	890,737	1,027,319	1,348,686	1,398,225	224,921
Iron ore	Kg.	483,996	504,375	551,814	532,497	164,712
	Yen	2,889,544	3,042,979	3,153,988	2,808,178	824,063
Pig iron	Ton	129,022	148,652	155,514	151,378	147,855
	Yen	6,523,350	7,652,924	6,795,334	5,923,071	4,588,887
Graphite	Kin	17,942,407	22,479,888	25,148,496	20,073,511	14,049,717
	Yen	403,951	440,738	511,159	423,314	231,975
Coal	Ton	709,578	815,817	937,902	884,138	936,382
	Yen	5,286,318	5,769,289	6,316,485	5,327,966	5,190,064
Zinc	Kwan	3,684	5,322	5,109	3,832	—
	Yen	79,829	104,041	85,004	5,200	—
Silica	1,000 kin	93,111	77,766	84,679	47,346	40,659
	Yen	117,763	123,125	56,623	42,582	38,993

FORESTRY

The total area of forests and plains in Chosen is believed to be about 16,400,000 cho (16,200,000 hectares), of which 9,400,000 cho (9,300,000 hectares) is occupied by the area with trees growing densely, the rest being hilly districts with young trees, or bare of trees. As a large part of these forests and plains was in a state of utter desolation at the time of annexation, the Government has since then made every effort for the afforestation, so that forestry enterprises have sprung up in various localities and the number of trees already planted has reached 440,000,000 per annum. The principal species recently planted are the Akamatsu (*Pinus Thunbergii*), the Chosen-karamatsu (*Larix dahurica*, var. *coreana*), the Chosen-matsu (*Pinus koraiensis*), the Kuromatsu (*Pinus densiflora*), the Manshu-kuromatsu (*Pinus funebris* Komar.), the Rigida-

matsu (*Pinus rigida* Mill.), the Kunugi (*Quercus serrata*), the Niseakashiya (*Robinia pseudoacacia*), and the Haunoki (*Alnus japonica*).

The principal state forests lie in the districts forming the sources of the Rivers Yalu, Tumen, Taidong, Han and other main rivers. The annual cutting of these forests amounts to about 4,670,000 shakujime or 1,570,000 cubic meters, and the principal trees used for various purposes are the Akamatsu, Chosen-matsu, Chosen-karamatsu, Ezomatsu (*Picea ajanensis*, Fisch.), fir trees, and varieties of deciduous oak. The Akamatsu and other acerose trees are used chiefly for buildings, telegraph poles, bridges and ship-building, and the Onoorekanbe (*Betula Schimidtii*) called Danboku is valued as timber for vehicles.

Total forest area classified according to localities for the year 1930 is as follows (in 1,000 cho):—

Localities	Area with young trees	Area with or bare of trees	Area with-out trees	Total
Kyongki	222	309	228	779
North Choongchong	306	113	127	546
South Choongchong	313	95	91	499
North Chonla	372	80	105	557
South Chonla	479	171	246	896
North Kyongsang	908	372	372	1,380
South Kyongsang	607	100	120	852
Whanghai	513	324	171	1,008
South Pyong-an	601	100	298	999
North Pyong-an	1,349	526	474	2,349
Kwan-won	1,193	572	458	2,222
South Hamkyong	1,475	606	598	2,680
North Hamkyong	838	544	322	1,704
Total	9,177	3,685	3,610	16,472

Area planted and Number of trees

Year	Area (Cho)	No. of trees (1,000 pieces)
1926	70,398	276,299
1927	82,837	312,823
1928	92,418	342,621
1929	87,948	300,679
1930	80,029	271,488

Production (¥1,000)

	1926	1927	1928	1929	1930
Timber	6,530	7,734	7,232	10,752	8,389
Fagots	10,253	14,456	14,210	17,860	12,208
Charcoal	2,784	2,658	2,332	3,128	2,124
Bamboo	419	520	629	650	547
Branches and leaves	21,179	17,813	18,795	19,666	19,022
Vines and ferns	16,487	18,196	18,210	19,373	18,055
By-products	2,295	2,929	3,544	2,987	2,925
Total	59,946	64,306	64,952	74,416	63,360

INDUSTRY

The Koreans are a deft race and their mats and similar wares are by no means despicable. As investigated by the responsible authorities, the industries that offer bright prospect in the Peninsula are fabric, spinning, paper, ceramics, hides and leathers, tobacco, liquors, bamboo-work, metal work, and knit-work. Preserved meat, especially beef, fancy matings and chemicals from sea weeds are also promising. A rapid growth has been witnessed in the textile industry with the introduction of improved machinery. The production in all lines of industry has made rapid strides of late, the value exceeding ¥351,452,000 at the end of 1930.

To encourage industry the Government has

established a printing office, a higher technical school, technical training schools, brick factory, etc. The last is regarded as especially important, not merely because it is full of promise owing to abundance of clay everywhere but chiefly because the natives, who are dwelling in wretched hovels inductive of indolent habits, should be encouraged to rebuild them with brick, wood being scarce and costly.

The following data taken from the official reports show the development of manufacturing industry in recent years:—

Year	No. of factories	No. of workers	Value mfrs. (¥1.00.)
1926	4,293	83,450	365,849
1927	4,914	89,142	369,639
1928	5,342	99,547	392,533
1929	4,010	92,566	327,007
1930	4,025	93,765	351,451

Industries started by Japanese.—These have made a rapid development of late, comprising chiefly rice-cleaning, iron works, tobacco, bricks and tiles, electric enterprise, lumbering, brewing and tanning.

Electric Enterprise.—At the end of March 1932, 92 electric companies existed with a combined paid-up capital of ¥99,361,888. The Keijo Electric Co. is the largest and commands a capital of ¥15,000,000. It undertakes lighting, electric car business and supply of current.

RAILWAYS

STATE LINES

The first railway enterprise in Chosen dates back to 1890 when a railway linking Keijo (Seoul) with Jinsen (Chemulpo), 29,485 kilometers in length, was laid and opened to traffic by the Kei-jin Railway Company. The outbreak of the Russo-Japanese war caused the Army Department (of Japan) to build Keijo-Fusan, Keijo-Shingishu and Masan lines which were respectively opened to traffic in 1904 and 1905. In 1906 the Imperial Government of Japan nationalized the Keijo-Fusan line and also took over the Keijo-Shingishu and the Masan lines from the Army Department, placing all those lines under the control of the Railway Bureau of the Chosen Resident-General. Meanwhile the work of construction was steadily pushed on and in 1910 the Heijo-Chinnampo line was completed. On the spanning of the River Yalu with an iron bridge in 1911 the peninsular

railway was brought into connection with the South Manchuria Railway line. In 1914 the Taiden-Moppo and Keijo-Gensan lines were completed while in 1915 part of the Gensan-Kwainei line was opened. At the end of the fiscal year 1932 the total length of the State-owned lines in operation in Chosen was 3,008.5 millimeters consisting of 2,800.1 kilometers of 1.435 meter gauge lines and 208.4 kilometers of 0.762 meter gauge.

From the economic consideration and to promote communication facilities the management of railways in Chosen was once entrusted to the South Manchuria Railway Company on August 1, 1917, in accordance with the Imperial Ordinance of July 31, 1917.

At present, all the Government Railways in Chosen are under the control of the Railway Bureau, a department of the Chosen Government-General which started its business on April 1, 1925, the day when the new railway administration was organized in accordance with Imperial Ordinance No. 84.

The State lines in Chosen open to business on March 31, 1932, totalled 3,008.5 km. as against 2,792.5 km. in 1931 showing an increase of 216 km., as shown in the following table:—

Keifu Line.....	481.5 km.
Keigi ".....	610.3 "
Konan ".....	285.8 "
Keizen ".....	252.9 "
Tokai ".....	209.8 "
Keigen ".....	223.7 "
West Heizen Line.....	96.5 "
Kankyo Line.....	658.9 "
Tomon ".....	189.1 "
Total.....	3,008.5 "

Lines under construction are as follows:

Keizen Line.....	187.9 km.
Tokai ".....	487.8 "
Heigen ".....	117.2 "
Mampo ".....	286.7 "
Keizan ".....	141.7 "
Tomon ".....	33.2 "
Total.....	1,254.5 "

Working Results.—The average kilometers operated during the fiscal year 1931-32 was 2,940.3 as against 2,771.4 in 1930, while the train kilometers, passenger car kilometers and goods wagon kilometers were 15,827,587, 56,909,456, and 101,498,817 kilometers respectively. The number of passengers carried aggregated 19,673,704 as against 1,065,197,205 of the number

of passengers carried one kilometer, while the weight of goods hauled was 6,025,150 metric tons as against 1,296,877,728 ton-kilometers. The coaching receipts amounted to 16,655,960 yen and goods receipts to 19,644,552 yen, or a total of 36,300,512 yen.

Locomotive Working.—The total locomotive kilometers run during the year 1931-32 was 15,601,466 km. as against 15,284,841 km. in 1930-31 while the car kilometers reduced on four wheel basis aggregated 121,202,974 km. Coal consumed amounted to 305,783 metric tons while oil consumed came to 228,822 litres. Compared with the previous year the locomotive kilometers increased by 2 per cent, the car kilometers also by 2 per cent, while the coal consumed decreased by 4 per cent. Coal consumed per loco per kilometer was 19.60 kg.

Capital Investment.—The capital investment during the same year amounted to 22,085,348 yen consisting of 21,829,325 yen for construction and improvement, 256,023 yen for additional work expenditure. On the other hand, 95,429 yen was written off the inventory on account of land sold, leaving a balance of 21,989,919 yen as addition to the capital investment during the same year. The total capital investment from the inception of the railway operation up to Mar. 31, 1932, aggregated 406,236,104 yen.

PRIVATE RAILWAYS AND TRAMWAYS

For the encouragement of private railway and tramway enterprises, the Government-General promulgated the Chosen Light Railway Regulation in 1912, making provisions for their supervision and protection, and since then it has annually sent officials to investigate the projected private railway lines.

The aggregate length of private railways open to traffic on March 31, 1932, aggregated 1,142.2 kilometers, the length of lines under construction 60 kilometers, lines granted charters 18.5 kilometers and lines contemplated but not yet granted charters 259.2 kilometers, the total length of all these 1,479.9 kilometers. The number of private companies with open lines was 8 and those with lines under construction 1. These are Chosen Railway Company, Chosen Keinan Railway Company, Kongosan Railway Company, Minami Chosen Railway Company, Chosen Keito Railway Company, Shinko Railway Company, Kasen Railway Company, Chosen Gas and Electric

Company, and Chosen Cable Railway Company. Of these the last mentioned has not yet started business, though granted charter. The aggregate capital of the first 7 companies was 100,000,130 yen of which 46,380,000 yen is paid up. Besides, there were 3 electric

tramway companies and 4 minor companies with gasoline, human power or oxen as motive power. The total length of these tramways was 72 kilometers, a decrease of 202.2 kilometers as compared with the previous year.

COMMUNICATIONS

STATISTICS ON POST, TELEGRAPH AND TELEPHONE

Year	Ordinary			Parcels	
	No. of offices open to public	Postal routes (km.)	No. of mails	No. of offices open to public	No. of parcels
1927-28.....	680	43,225	423,779,939	679	5,375,057
1928-29.....	700	43,651	468,906,654	699	5,614,716
1929-30.....	721	41,714	502,481,413	720	5,632,755
1930-31.....	747	41,918	492,913,547	746	5,389,064
1931-32.....	762	41,045	493,770,648	761	5,026,233

Telegraph

Year	No. of offices open to public	Length of Lines (Km.)	Length of Wires (Km.)	No. of Messages
1927-28.....	739	8,511	35,646	10,996,482
1928-29.....	744	8,532	36,521	11,485,684
1929-30.....	762	8,638	37,752	12,050,040
1930-31.....	787	8,633	39,281	11,332,115
1931-32.....	797	8,638	39,752	11,194,658

Telephone

Year	No. of offices open to public	Length of Lines (Km.)	Length of Wires (Km.)	No. of Messages
1927-28.....	632	8,266	113,584	150,069,013
1928-29.....	644	8,661	120,471	161,790,098
1929-30.....	662	8,833	128,337	175,613,290
1930-31.....	682	9,015	137,941	176,455,929
1931-32.....	699	9,144	144,168	189,408,731

Postal Money Orders and Post Office Savings Banks

Year	Domestic Money Orders		Foreign Money Orders		Savings Banks	
	Issued (Yen)	Paid (Yen)	Issued (Yen)	Paid (Yen)	No. of depositors	Amount (Yen)
1927-28.....	113,725,372	101,000,693	470,216	469,364	1,910,289	26,961,217
1928-29.....	112,591,762	103,315,534	501,817	432,281	2,023,977	30,787,502
1929-30.....	111,188,655	102,144,896	489,487	369,540	2,078,602	36,286,417
1930-31.....	92,966,350	82,627,090	366,357	274,827	2,118,178	38,852,866
1931-32.....	87,125,628	77,217,215	240,660	237,322	2,284,871	41,432,670

THE ORIENTAL DEVELOPMENT COMPANY

The first joint undertaking started by Japanese and Koreans for exploiting the resources of Chosen, it was organized in the fall of 1908. The capital was ¥20,000,000, increased in 1919 to ¥50,000,000 of which ¥35,000,000 is paid up. The Company's line of business embraces clear-

ing wild land and making loans to Japanese settlers and Koreans redeemable in 5-25 years, and also temporary loans both to Japanese and Koreans. It is allowed to finance enterprises in Manchoukuo. The term of the Company is 100 years. The Company is authorized to issue debentures ten times its paid-up capital, and the issue amounted by October 1932 to ¥459,012,000 of which ¥198,256,000 was outstanding, the

figure including \$33,965,000 American loan. President and two Vice-Presidents are nominated by the Japanese Government, one Vice-President to be Korean. It has sustained a rude

Year	Cap. p.u. (¥1,000)	Reserves (¥1,000)	Profits (¥1,000)	Loss (¥1,000)	Net profits (¥1,000)	Dividend (¥1,000)
1928	35,000	1,229	13,053	17,110	1,943	5.0
1929	35,000	1,469	13,359	11,931	1,428	5.0
1930	35,000	1,704	8,498	8,222	276	3.0
1931	35,000	1,796	9,105	8,295	810	3.0
1932	35,000	1,878	9,200	8,991	209	—

The land exploited by the Company that was 13,015 cho in 1911 increased in 1930 to over 1,940,000 cho. Settlers invited from homeland during the 17 years beginning 1911 total about

shock from the recent economic crisis in the homeland.

Statistics for the last few years are given below:—

4,000 families with 20,000 people, and these are working on the Company's land throughout the Peninsula, to be made free-holders in time.

CHAPTER XXXVIII

TAIWAN (FORMOSA)

GEOGRAPHY

Position—21° 45'—25° 38' N.L.; 119° 18'—122° 6' E. L.

Area—Main island 13,423 sq. miles. Hoko-to (Pescadores) 48 sq. miles.

The island formerly belonged to China, but was ceded to Japan as the result of the Sino-Japanese war (1894-5) by virtue of the Shimomoseki Treaty.

The total area of this insular territory almost equals that of Kyushu. The seaboard extends nearly 290 "ri", but with no good indentation except the ports of Keelung and

Tamsui in the north and that of Takao in the South.

The main island is traversed from north to south by the Taiwan range, the eastern half thus formed being steep and craggy, but the western half flat and fertile. Highest peaks are Mt. Niitaka (14,500 ft.) and Mt. Sylvia (nearly 13,000 ft.) The rivers are short with swift current.

METEOROLOGICAL OBSERVATIONS

Temperature (1931)

	Jan. c.	Mar. c.	May c.	July c.	Sept. c.	Nov. c.	Dec. c.	Aver. c.
Taihoku	15.3	17.0	23.9	28.1	26.1	19.7	16.7	21.6
Taichu	15.8	18.1	25.0	27.6	26.3	20.2	17.2	22.1
Tainan	17.0	19.6	26.0	27.8	26.9	21.3	18.4	23.0
Taito	19.0	20.7	25.1	27.4	26.3	22.0	19.9	23.4
Koshun	29.4	22.2	26.3	27.5	26.6	23.2	21.3	24.3
Hokoto (Pescadores)	16.3	18.2	24.9	27.9	26.9	21.4	18.2	22.6

Rainfall (1931)

	Jan. mm.	Mar. mm.	May mm.	July mm.	Sept. mm.	Nov. mm.	Dec. mm.	Total mm.
Taihoku	90	174	233	227	250	88	72	2,123
Taichu	36	103	247	292	151	19	23	1,261
Tainan	23	43	180	349	164	19	15	1,709
Taito	42	57	176	374	263	50	39	1,284
Koshun	24	22	186	466	267	35	17	2,162
Hokoto (Pescadores)	24	59	117	169	104	22	18	989

INHABITANTS AND POPULATION

The inhabitants or population of the island is mainly classified into three, i.e. Japanese, natives and foreigners. The first named, namely, Japanese are those who came over from Japan proper and settled in the island after its occupation by Japan; the bulk of the foreign population is Chinese, the number of European and American residents being very limited. The native inhabitants are classified into the Han race and the aboriginal race.

The former is again divided into those settlers from Fukien and neighborhood and those from Canton and neighborhood, and occupy about 93 per cent of the total number of the native inhabitants. The natives, the original and oldest inhabitants of the island, are again divided into uncivilized and civilized. In the accompanying statistics which give the number of population at the end of 1931, the figure of aborigines is the estimate of those

residing in the aboriginal districts while the number of aborigines residing in the districts

1931	Total
Total population	4,803,976
Japanese.....	243,872
Natives	4,426,122
Aborigines.....	88,698
Foreigners.....	45,284

The total number of population (excluding the aborigines dwelling in the aboriginal districts) at the end of 1932 is returned as 4,715,278, which figure, when compared with the similar figure at the end of 1905 when the first census in the island was taken soon after the island became Japanese territory, indicates an increase of 1,668,419, this being an annual increase of 64,169 on average.

	Male	Female	Total
1905			
Japanese	35,923	23,675	59,618
Natives	1,570,239	1,408,799	2,979,018
Foreigners ...	7,719	507	8,223
Total	1,613,881	1,432,978	3,046,359
1910			
Japanese.....	58,580	39,468	98,048
Natives	1,626,338	1,479,885	3,106,223
Foreigners ...	13,396	1,444	14,840
Total	1,698,314	1,520,799	3,219,111

Year	Birth	Still-birth	Death	Marriage	Divorce	Per 1,000 population					
						Death	Still birth	Death	Marriage	Divorce	
1926	183,360	7,270	93,720	46,778	4,812	44.1	1.7	22.6	11.3	1.2	
1927	185,195	7,068	94,843	45,572	4,554	43.6	1.7	22.3	10.7	1.1	
1928	191,839	7,463	96,310	42,679	4,506	44.1	1.7	22.1	9.8	1.0	
1929	197,967	7,559	96,870	46,816	4,463	44.4	1.7	21.7	10.5	1.0	
1930	206,732	7,351	89,654	46,364	4,300	45.0	1.6	19.5	10.1	0.9	
1931	217,136	7,692	101,077	42,468	4,889	46.0	1.6	21.4	9.0	0.8	

Population in Principal Cities (based on the census taken on October 1, 1930)

Taihoku.....	230,490
Keelung.....	75,070
Tamsui.....	23,293
Giran.....	23,388
Shinchiku.....	45,014
Taichu.....	54,188
Kako.....	35,455
Tainan.....	94,546
Kagi.....	57,880
Takao.....	62,722
Mako.....	21,150
Toroku.....	31,173

within the jurisdiction of the insular administration is included in the number of natives.

	Male	Female	Rate
2,458,387	2,345,589	100.0	
131,563	112,309	5.1	
2,251,354	2,174,768	92.2	
44,762	43,935	1.8	
30,707	14,577	0.9	

1912			
Japanese	82,319	59,516	141,835
Natives	1,718,835	1,588,467	3,307,302
Foreigners ...	16,902	2,680	19,582
Total	1,818,056	1,650,663	3,468,719
1929			
Japanese	119,041	101,689	220,730
Natives	2,137,970	2,060,813	4,198,783
Foreigners ...	29,736	13,380	43,118
Total	2,286,749	2,175,882	4,462,631
1930			
Japanese	125,238	107,061	232,299
Natives	2,195,472	2,118,450	4,313,923
Foreigners ...	32,495	14,196	46,691
Total	2,353,205	2,239,707	4,592,912
1931			
Japanese	131,563	112,309	243,872
Natives	2,251,354	2,174,768	4,426,122
Foreigners ...	30,707	14,577	45,284
Total	2,413,624	2,301,654	4,715,278

The number of births, of deaths, of marriages, etc., and their rate per 1,000 population are as follows, excluding aborigines:—

THE ABORIGINES

There are nine different tribes, ethnologically all more or less allied to the Malay race. At the end of 1931 there were 689 communities, 23,954 households with a population of about 142,436 (71,529 males and 70,907 females), broadly classified into Northern and Southern aborigines. The former are savage head-hunters, the latter more submissive and civilized. The Northern aborigines almost exclusively belong to the Taiyol tribe and occupy a little under half the whole extent of the unexplored regions. The Southern tribes are Tsaissetto, Vonum, Tsco, Tsarien, Taiwan, Puyuma, Amis, Peipo and Yami (this on Botel Tobago island alone), and they are about four times as numerous as the other. These together occupy the

regions covering about one half the total area of the island, where natural resources abound.

Subjugation and Pacification.—The program of subjugation and pacification at the cost of ¥15,000,000 was completed in about five years ending 1915. The tribesmen were made as mark of allegiance to surrender their firearms, and the number thus captured amounted to 31,523 pieces till the end of 1927. The victims of violence by the savages markedly fell off. The total till the end of 1927 reached 6,918.

The heaviest toll was 761 in 1912 as against 41 in 1918, 2 each in 1925 and 1926 and 9 in 1927.

There remain one or two communities to be accounted for, and the peaceful policy of subjugating them by clearing up the wild land is being pursued.

The tribesmen have begun to recognize the importance of education and there existed about 176 teaching places with over 5,000 attendants.

ADMINISTRATION

The New Local Administration

In August 1920 5 prefectures, Taihoku, Shinchiku, Taichu, etc. were created much on the same lines of local administration as in Japan proper, each under a civil governor, and with it the municipal and village self-government has come into existence. The prefecture, municipality, and village conduct their respective affairs regarding taxation, revenue, management of enterprises, etc., as assigned each by

the new legislation. Advisory councils, prefectural, municipal and village, have also been created to deliberate on the financial and legislative affairs, taxation, etc., in their respective commissions. The members of the prefectural council are appointed by the Governor-General, and those of the municipal and village members by the governor of the prefecture to which they belong, each for a term of two years and as gratuitous duty.

FINANCE

REVENUE AND EXPENDITURE

Year	Revenue (1,000 yen)			Expenditure (1,000 yen)		
	Ordinary	Extraordinary	Total	Revenue	Extraordinary	Total
1927-28	93,216	45,411	138,627	71,024	30,509	101,533
1928-29	104,378	43,146	147,524	76,922	32,189	109,109
1929-30	107,582	42,659	150,241	82,804	39,492	122,295
1930-31	98,517	31,241	129,758	78,363	31,608	109,971
1931-32	93,352	22,620	115,972	77,647	22,414	99,060
1932-33 (working budget)	87,677	10,414	98,091	77,173	20,917	98,091

Revenue (yen)

	1931-32 (Budget)	1932-33 (Working Budget)
Ordinary:		
Taxes & Duties	17,572,989	15,410,884
State Undertakings and Property	81,000,261	67,788,979
Stamp Receipts	3,625,057	3,325,316
Miscellaneous Receipts	1,300,762	1,151,999
Total	103,499,069	87,677,178
Extraordinary:		
Proceeds from Sale of State Property.....	483,517	546,833
Receipts from Loans.....	500,000	3,000,000
Miscellaneous Receipts.....	235,356	235,257
Surplus of preceding year transferred	8,428,225	3,437,685
Grants from General Account.....	1,571,507	895,131

Borrowings for Undertakings	652,446	633,294
Total	11,871,051	8,748,200
Total Revenue.....	115,370,120	96,425,378

Expenditure (yen)

	1931-32	1932-33
Ordinary:		
Administration Office.....	2,474,623	2,210,019
Local Governments	13,786,258	13,292,751
Custom-houses.....	515,354	478,457
Judicial Courts.....	1,220,133	1,139,027
Prisons	1,120,812	1,051,445
Police	204,432	173,263
Hospitals	1,199,924	1,089,131
Research Institute	758,296	680,259
Education	5,007,997	4,411,432
Communication	18,579,337	16,300,328
Monopoly Bureau	25,594,096	20,014,856

	1931-32	1932-33		1931-32	1932-33
Forestry.....	3,746,629	2,846,614	Repair.....	2,312,658	2,194,895
Transferred to Special Account.....	7,030,564	7,159,439	Inspection.....	1,267,857	889,930
Total incl. others.....	88,311,338	77,151,897	Subsidies.....	5,003,435	4,381,860
Extraordinary:			Encouragement of Industry.....	1,532,752	1,283,562
Government Undertakings.....	15,866,119	9,656,431	Total incl. others.....	27,058,782	19,273,481
			Total expenditure.....	115,370,120	96,425,378

EDUCATION

By the regulations promulgated in 1922 both Japanese and natives were placed under a uniform system of education. In the primary grade, however, the native children mostly attend the public schools which formerly admitted only natives to teach them Japanese.

With the creation of the normal schools in 1919 the Language School, which consisted of two departments, Japanese and native, was abolished. The High School established in April 1922 is under the same regulation as that in Japan proper. Number of schools, teachers and students at the end of Mar. 1932 is shown below:—

	No. of schools	No. of teachers	No. of students
Elementary Schools.....	133	930	38,388
*Public Schools.....	762	5,614	238,844
Middle Schools.....	10	249	5,302
Girls' High Schools.....	13	274	5,413

	1931-32	1932-33	1931-32	1932-33
Normal Schools.....	4	144	1,299	
Agriculture & Forestry Schools.....	3	81	1,309	
Technical School.....	1	65	700	
Commercial Schools.....	2	57	1,137	
Medical School.....	1	64	430	
Higher Commercial School.....	1	41	239	
Higher Technical School.....	1	51	108	
Private Schools.....	20	3,686	283	
Family Institutions kept by native teachers.....	162	234	6,146	
Kindergartens.....	62	136	3,771	
Blind, Deaf & Dumb Schools.....	2	23	278	

* Includes aborigines.

Taihoku Imperial University.

This was inaugurated in April 1928 and consists of Literary and Science Departments, 20 chairs in each. Faculty 160 and student roll 117.

JUSTICE

The law courts as they exist now in Taiwan are the High Court, with the two Departments of Final Appeal and Revision, and three Local Courts with three branches.

Civil Cases

Year	1st instance		2nd instance		3rd instance		Total	
	No. of cases	Cases disposed of	No. of cases	Cases disposed of	No. of cases	Cases disposed of	No. of cases	Cases disposed of
1926.....	7,801	7,933	1,100	1,118	240	238	9,141	9,289
1927.....	8,295	7,658	1,166	1,035	211	211	9,661	8,904
1928.....	8,522	8,266	1,145	955	204	204	9,871	9,425
1929.....	8,623	8,427	1,529	1,152	186	186	10,370	9,765
1930.....	9,475	8,782	1,669	1,458	294	294	11,439	10,534

Criminal Cases

Year	Search carried out		Preliminary Trial		*1st instance	*2nd instance	*3rd instance
	No. of cases	Cases disposed of	No. of cases	Cases disposed of			
1926.....	24,581	14,187	393	362	4,077	507	113
1927.....	24,681	13,611	353	313	4,213	532	100
1928.....	26,389	26,717	284	303	4,243	482	93
1929.....	27,517	27,939	221	250	4,202	499	74
1930.....	27,197	26,629	207	198	2,962	358	70

* No. of cases disposed of.

There are 4 prisons with 2 branches, the inmates numbering 4,153 and prison officers 589 at the end of June 1932.

FORESTRY

The forest area is roughly put at 8,000,000 "ko" (1 "ko"—2.4 acres), including wilderness that occupies 70% of the total area. More than one half of it is in the aborigine district noted for vast primeval forests. Reckless felling has devastated the other half. So the authorities have instituted protection forests and are encouraging reforestation. Afforestation area from the beginning to the end of 1931 totalled 183,427 "ko", of which 32,755 "ko" was conducted by the Government and 150,672 "ko" as private undertaking.

Lumbering Work—Arisan

Several lumbering enterprises have already been started, principally for utilizing the dense "hinoki" (*Chamaecyparis obtusa*) forests that exist here and there.

Arisan Forest.—Arisan is a chain of hills rising 2,800 to 8,700 ft. above the sea-level and lies to the east of Kagi city. It is sheltered on the east by Mt. Nitaka. Arisan proper extends 15 miles from east to west and 20 miles from north to south, and covers 12,032 hectares. The contents of the forest are estimated as follows:—

Conifers 374,230 stamps yielding 2,948,590 cubic meters and broad leaved 1,112,186 stamps yielding 3,125,380 cubic meters.

As the Government utilization program is to fell every year from 1915-'16 year 250,000 "shakujime" (12 cubic feet) of conifers and

100,000 "shakujime" of the others, their supply is to last 25 and 186 years respectively. By properly filling up the space of felling, permanent supply may be kept up.

Lumbering rails run for 41 miles from Kagi to Nimampe, on the slope of Arisan, the work being completed by the Government-General in January, 1913, at the cost of ¥4,900,000, after the failure of the Fujita Firm which undertook the work but gave it up after laying only 9 miles. The gauge is 30 inches with a maximum slope of 1 in 20. Along the line 68 tunnels exist and also three spiral sections and two switchbacks. The conversion work is done at Kagi where an extensive saw yard has been constructed.

Hassenzan Forest.—The mountain, 7,824 ft. above the sea-level and lying east of Taichu, harbors a primeval forest. The area to be exploited covers 16,057 hectares and is connected with the main traversing railway by a light line. It contains 889,000 cubic meters of conifers and 1,602,000 cubic meters of broad leaf trees. The lumbering work was started in 1915.

Taiheizan Forest.—The forest area covers 63,177 hectares and is estimated to contain about 14,159,000 cubic meters of trees twice as great a sylvan richness as Arisan, producing 39,991 cubic meters of cut trees as in 1931. The trouble is that the area is still infested by head-hunters.

AGRICULTURE

The low land of western Taiwan is fertile and yields two crops of rice a year, the quality of which has been much improved by using the seeds from Japan proper. As "Horai" rice it is now extensively shipped to the home land. The total output of the cereal, including upland variety, reaches now over six million "koku", of which about 15% goes to Japan

proper. Next to rice, sweet potato is a principal agricultural product, it being a staple food-stuff of natives, and is grown all the year round. Other farm crops raised in the island are sugar-cane, tea, ramie, jute, indigo, etc.

The area and production of various crops in recent years are shown below:—

Area under Cultivation (in 1,000 "ko")

Total Area			
Year	Paddy	Upland	Total
1927.....	399,151	422,322	821,473
1928.....	403,862	425,492	829,354
1929.....	406,030	423,980	830,010

Year	Paddy	Upland	Total
1930.....	408,972	428,330	837,302
1931.....	411,073	424,330	835,406

Area under Rice

Year	1st crop		2nd crop		Total	
	Area (Ko)	Production (Koku)	Area (Ko)	Production (Koku)	Area (Ko)	Production (Koku)
1927	266,513	3,254,514	336,640	3,644,159	603,153	6,898,672
1928	269,528	3,196,891	333,530	3,598,094	603,058	6,795,005
1929	239,451	2,852,547	339,823	3,628,215	579,274	6,480,762
1930	275,317	3,482,637	358,127	3,887,879	633,444	7,370,516
1931	282,861	3,628,445	370,520	3,851,401	653,380	7,479,846

Area under Sweet Potatoes

Year	Area under cultivation (Ko)		Year	Area under cultivation (Ko)	
	Area (Ko)	Production (1,000 kin)		Area (Ko)	Production (1,000 kin)
1927	128,710	2,125,079	1930	129,062	2,216,504
1928	126,625	2,154,803	1931	133,241	2,404,688
1929	127,356	1,968,097			

Production of Principal Crops

Year	Ground nuts (Koku)	Tobacco (Kin)	Beans, peas, etc. (Koku)	Jute (1,000 kin)	Ramie (1,000 kin)
1927	470,000	—	90,000	6,083	1,932
1928	470,582	2,502,299	82,732	7,302	2,004
1929	383,955	2,514,162	65,618	6,230	1,916
1930	465,208	2,506,626	72,952	6,482	1,965
1931	503,792	2,113,871	79,546	6,498	1,518

Fruits

With its abundant sunshine and warmth, Taiwan is adapted for the growth of fruits. The production of bananas, pineapples and oranges in particular has recently attained considerable proportions. The export of bananas during 1931 was 202,994,000 kin (121,796,400 kg.), valued at ¥11,143,000. The production of fragrant and delicious pineapples, which may be called the king of fruits, has increased in recent years. The export of pineapples dur-

ing 1931 reached 2 million dozens, representing in value 4.2 million yen. Oranges of superior quality are also produced in the island. In particular, Ponkan with the attractive color and delicious flavor peculiar to southern countries is known as Ponkan of Taiwan to all fruit markets at home and abroad. The other principal varieties of oranges are Tankan, Sekkan, Buntan and Zabon. All these varieties are produced during the period from autumn to spring. The production of fruits in recent years is shown below (in unit of 1,000):—

Year	Oranges (Kin)	Bananas (Kin)	Longan (Kin)	Pine-apples (Ton)
1926	24,097	277,970	7,882	16,052
1927	28,608	223,902	4,185	20,912
1928	31,651	223,776	7,836	36,034
1929	34,266	197,664	24,788	46,626
1930	36,014	216,780	24,788	69,034

Live-Stock (1930)

	Production		Slaughtered	
	No.	(1,000 yen)	No.	(1,000 yen)
Cattle	390,859	32,477	18,572	650
Swine	1,750,464	1,428,676	1,007,791	28,673
Goats	83,875	45,830	45,282	294
Others	1,740	312	3	1
Total	2,226,938	1,507,295	1,071,648	29,618
„ for 1929	2,233,776	1,461,498	1,125,589	31,996
„ for 1928	2,094,193	1,328,519	1,116,588	32,570

FISHERY AND MARINE PRODUCTS

The fishing industry, long left in a backward state, has recently made a marked improvement under official encouragement. The principal branches of the industry carried on at Keelung, Takao and Suo are bonito angling and trawl-line fishing of tunny and sword fish. Coral-reefs are found off the port of Keelung, and whale-fishing is carried on in the southern seas. The total catch of fish during 1931 amounted in value to ¥8,482,776, a decrease of about ¥3,288,368 compared with the previous year.

Aquiculture in the island is under favorable circumstances owing to the warm climate

which helps the rapid breeding of fish, and the method of rearing has also improved. The culture of fresh water fish is carried on on a large scale in the western coast of the island, and the area of the hatcheries all over the island is approximately 29,002 "ko".

The manufacture of marine products in the island has recently improved with the progress of bonito fishing. Of the total manufactures of marine products amounting to ¥1,524,869 in 1931, dried bonito contributed ¥556,150. The fishing vessels now in operation numbered 10,736 of which 826 are motor boats, 3,568 wooden boats and 6,342 bamboo rafts.

Value of Catches and Products (in yen)

Year	Catches	Manufacture	Aquiculture	Total
1927	10,822,119	2,505,311	3,920,590	17,248,021
1928	12,670,180	2,706,623	3,401,779	18,778,582
1929	14,446,265	2,775,420	3,734,684	20,956,369
1930	11,771,144	1,793,273	3,142,981	16,707,398
1931	8,482,776	1,524,869	3,047,254	13,054,899

Trade Returns (in yen)

Year	Export to foreign countries	Export to Japan proper	Import from foreign countries	Import from Japan proper	Total
1930	2,324,061	565,920	3,284,148	8,763,509	14,943,638
1931	847,287	312,961	2,279,757	6,873,639	10,313,644
Decrease	1,476,774	252,959	1,004,391	1,895,870	4,629,994

MINING

The chief production is gold, silver, alluvial gold, copper, coal, petroleum, sulphur, phosphorus, etc., mostly found in the northeastern districts. The total mining lots at the end of 1931 numbered 628 (168,149,828 tsubo). The total production in 1931 amounted in value to ¥13,337,790, a decrease of ¥1,803,408 compared with the previous year. The production of petroleum shows a tendency to increase year by year as big oil-wells have been found one after another since the end of 1925, amounting in 1930 to 173,199 hectolitres. Coal mining,

the principal mineral industry of the island, has attained a sound development, but internal disturbances in China and the fall of value of silver resulted in 1931 in a decrease in the export of coal. Difficulty in financing for coal mining resultant from economic depression caused the product to decline by ¥2,448,818 against that of 1930, the total product for 1931 being in value ¥7,164,598. Classified by kind of item the value of mineral production in recent year is tabulated as follows (in unit of yen):—

	1927	1928	1929	1930	1931
Gold	610,808	377,362	625,422	636,485	722,733
Gold copper ore	1,269,786	1,489,899	3,136,877	3,457,187	3,027,732
Alluvial gold	11,088	10,497	11,047	9,421	11,611
Silver	20,235	13,879	12,997	10,790	10,003
Copper	171,500	88,398	67,655	154,799	174,419
Gold ore	—	—	69,551	81,401	70,750
Quick-silver ore	—	—	7,572	—	2,488

	1927	1928	1929	1930	1931
Coal	16,933,170	13,547,784	10,064,568	9,613,416	7,164,598
Sulphur	49,014	54,221	33,670	33,217	51,290
Phosphorus.....	—	—	—	2,448	648
Crude oil.....	—	—	434,735	381,304	263,631
Volatile oil.....	1,936,374	730,021	382,598	760,729	1,784,275
Carbon black.....	100,699	201,240	—	—	43,552
Total	21,102,674	16,513,301	15,030,613	15,141,198	13,337,790

SUGAR INDUSTRY

The new rulers endeavored to improve the industry from the highly neglected state in which they found it. First they introduced the Hawaiian Rose Bamboo and Rahina varieties, but afterward these were replaced by the Japanese variety. Stimulated by the Government encouragement the industry has so far advanced that its output, inclusive of that outside Taiwan, reaches 11 million piculs as against the total consumption of roughly 12 million piculs. The Formosan industry, however, is

still seriously handicapped as compared with the Javanese product which is favored by lower wages and other advantages, the latter costing about ¥7 per picul as against ¥11-12 of the Formosan. The customs tariff of ¥3.95 is, it is said, not an effective barrier to protect the home industry.

The following statistics shows the recent development of modern-styled sugar companies (at the end of 1931-32):—

Names of companies	Capital subscribed (¥1,000)	Capital paid up (¥1,000)	No. of Refineries	Capacity (metric ton)	Raw material used (1,000 kin)	Output of sugar (1,000 kin)	By-product (molasses) (1,000 kin)
Taiwan Seito Co.	63,000	43,080	13	11,814	3,229,844	471,140	75,215
Shinko " "	1,200	1,200	1	560	159,201	20,911	5,087
Meiji " "	48,000	34,800	7	8,520	2,463,585	320,188	47,272
Dai Nippon " "	51,417	40,142	6	7,638	2,492,099	307,809	63,792
Ensuiko " "	29,250	17,438	6	5,880	1,589,131	313,133	37,424
Niitaka " "	28,000	10,750	3	3,284	659,540	85,122	16,546
Teikoku " "	18,000	13,500	5	3,234	1,155,344	139,095	33,915
Showa " "	3,260	3,260	2	1,310	311,019	28,643	8,968
Daito " "	1,750	1,750	1	392	98,965	13,162	2,879
Shinchiku " "	1,200	1,200	1	560	101,376	12,159	3,366
Saroku " "	700	700	1	336	71,552	7,377	2,948
Total.....	245,777	167,819	46	43,523	12,431,655	1,628,738	307,412

In addition to the above production, 19,708,317 kin was turned out at the old-styled and improved factories in the same year, the amount of raw material consumed being 169,301,326 kin.

Taiwan v. Java.—Though the progress made recently has been marked, Taiwan is still far behind Java in essential particulars. For instance, the yield of canes and of centrifugals is about three times per same area in Java, about 1,500 piculs against 450 of Taiwan, though the percentage of centrifugals is nearly the same. The fact is the Javanese cane-fields are better irrigated and left in fallow systematically while in Taiwan the productive capacity is too frequently abused and irrigation is defective. Wages are only 23 or 24 "sen" in Java against 40 in Taiwan, though the former is less efficient. On the other hand, Taiwan has the ad-

vantage of improved plants and the protective tariff of ¥3.95 per picul.

TEA

Oolong Tea.—As a beverage possessing a specially high flavor, Oolong tea is a great favorite in and about Boston and New York, about 18,000,000 "kin" valued at ¥5,700,000 being consumed there. It also goes to England where it is used to improve the flavor of black tea. The Oolong is admittedly superior in quality to black tea, and there is a good hope of its consumption abroad being increased when the taste of foreigners for tea becomes more refined. At present the yearly production amounts nearly to 18,000,000 "kin" and forms one of the principal items of export. The export in 1931 to foreign countries amounted to 5,779,557 kin (3,467,734 kg.), valued at ¥2,350,845, showing an

increase of 503,973 kin (302,384 kg.) in quantity, but a decrease of ¥257,794 in value as compared with the previous year.

Pouchong Tea.—Such factors as the decline in the purchasing power in Southern China and Java and the unfavorable diplomatic relations between Japan and China caused the Pouchong tea market to be abnormally dull. The export during the same year totalled 6,230,673 kin (3,738,404 kg.), valued at ¥4,489,261, a decline of 1,265,457 kin (759,274 kg.) in quantity and of ¥1,296,664 in value as compared with the previous year.

Black Tea.—The manufacturing technique of black tea has recently made rapid progress. The export in 1931 amounted to 940,811 kin (564,487 kg.), valued at ¥436,127.

The Mitsui Firm has obtained a lease of about 50,000 acres in an aborigine district about 30 miles east of Taihoku. Some 5,000 acres of the hill sides are to be converted into tea plantations and already greater portion of the whole area has received planting.

The area and production of coarse tea are shown below:—

Year	Area "ko"	Production (Kin)
1927	47,301	19,894,506
1928	46,623	18,342,688
1929	47,458	18,340,166
1930	47,068	17,302,953
1931	45,948	14,959,584

Production of refined tea in the past five years is tabulated as follows (in kin):—

	1927	1928	1929	1930	1931
Oolong	8,051,963	7,964,536	7,700,876	6,168,150	6,722,554
Pouchong	9,107,512	7,521,369	8,036,453	8,001,398	7,102,776
Green	38,135	31,800	9,410	132,672	33,160
Black	67,430	63,200	256,000	725,438	1,101,094
Total	17,265,040	15,580,905	16,002,739	15,027,659	14,959,584

The total export during 1931 amounted to 13,894,983 kin representing in value ¥7,588,711.

MONOPOLY

The monopoly system was first instituted in Taiwan in regard to opium in 1896 and was subsequently extended to salt and camphor in 1899 and tobacco in 1905. Further, the monopoly of sake was established in July, 1922. The monopolizing of these industries was due not only to financial necessity, but also from consideration that it would be beneficial to public health and to promoting social welfare and productive industries.

Opium.—At the beginning of the Japanese possession of Taiwan, the question which attracted most attention at home and abroad in the administration of Taiwan was the prohibition of opium-smoking. In February, 1896, with the prohibition of the importation of opium by private persons, an opium-dose factory was established. In January, 1897, was issued the Taiwan Opium Ordinance, by which opium-smoking and dose-manufacture were strictly prohibited; smoking licenses were granted only to such as the Government deemed to be confirmed smokers, who were permitted to purchase and smoke as medicines the doses manufactured by the Government. The Government permission was required in all cases for the sale of opium doses, open-

ing of opium dens, and the manufacture and sale of opium-smoking utensils. The Ordinance was put in operation in April of the same year. The number of licensed smokers and output of opium have in recent years decreased gradually, but the price does not show any decrease because of the increasing output of 1st grade opium in place of 3rd grade which has been prohibited sale since August 1927. Statistics is as follows:—

Year	Output	
	(Momme)	(Yen)
1913-14	27,239,000	5,289,495
1918-19	20,845,700	6,650,764
1923-24	13,820,800	5,449,345
1926-27	10,632,600	4,193,487
1930-31	10,158,700	4,010,655
1931-32	8,409,500	3,320,071

Year	Amount of Raw Opium used	
	Quantity (Kg.)	Value (1,000 yen)
1926	80,127	2,983
1927	58,355	1,959
1928	44,287	1,414
1929	45,251	1,344
1930	46,474	1,121

No. of Licensed Opium-smokers

Year	Natives		Chinese		Total
	Male	Female	Male	Female	
1926	26,983	4,451	496	52	31,982
1927	24,912	4,131	452	41	29,536
1928	23,091	3,851	399	37	27,378
1929	21,057	3,569	361	35	25,022
1930	19,395	3,842	208	23	23,468

Salt.—The Government has given great encouragement to the improvement and increase of salt-fields and the raising of the quality of salt with good results since 1899, when the pre-

Year	Demand in island (1,000 kg.)	Sale to Japan proper (1,000 kg.)	To other countries (1,000 kg.)	Total (1,000 kg.)	Total value (Yen)
1927-28	44,940	46,518	13,727	105,215	2,215,720
1928-29	42,131	45,216	—	87,346	2,093,192
1929-30	44,402	63,982	14,460	122,844	2,419,151
1930-31	45,953	76,375	15,772	138,100	2,331,121
1931-32	48,864	105,660	26,450	180,975	2,459,629

Camphor.—Before the establishment of monopoly systems in 1899 when Taiwan became a Japanese possession, the manufacture of camphor in the island was maintained by reckless felling of the trees which were abundant and by crude manufacture. Since then, with the adoption of various measures for the promotion of the industry, the monopoly has been placed on a firm basis. The annual yield is about 3,000,000 kilograms claiming about 7% of the total output of natural camphor. The value of sale amounts to about 6,000,000 annually, chief customers being America, England and France. The article is chiefly used as raw materials for manufacture of refined camphor and celluloid. Statistics on camphor since 1926 is not available.

Tobacco.—At the time of the creation of the monopoly system, raw material was for the most part brought from China, and its manufacture was carried on by private contract up to 1912, when it was taken over by the Government. The climate of Taiwan is very suitable for the cultivation of tobacco, and as the result of the improvement and development of tobacco cultivation due to the encouragement of the Government since the introduction of the monopoly system, Taiwan now produces excellent leaf tobacco which may be used for cut tobacco. The species cultivated at present is the

	1927	1928	1929	1930	1931
Output	537,101	625,308	640,896	522,284	479,566
Import from Japan proper.....	16,279	22,626	24,769	20,772	22,951
Import from foreign countries.	2,100	1,951	2,701	2,022	989

sent system was brought into operation in order to regulate the abandoned salt-fields and the price of salt which were left in quite neglect. The price of salt in the island was made uniform, its supply became abundant, and the surplus is now exported to Japan proper, Chosen, Karafuto, the Russian Maritime Province and other places. The total area of salt-fields is now over 2,144 "ko" and the quality of salt has decidedly improved. The production in 1931 amounted to 199,049 metric tons. The demand in island and sale to Japan proper are shown in the following table:—

Chinese, the yellow and the cigar tobacco.

Year	Production			Total value of sale (Yen)
	Cut (Kwan)	Both-ends cut (1,000 pieces)	Leaf (1,000 pieces)	
1927	329,280	182,559	295	14,945,625
1928	331,558	195,280	344	15,872,356
1929	328,766	2,383,4	463	16,275,916
1930	315,083	246,279	441	15,711,310
1931	286,792	280,308	384	14,465,962

Sake.—There are but few countries in the world where alcoholic liquors are controlled as a government monopoly, and as this was a novel attempt in Japan and its working was to furnish an important example, the utmost efforts were made to carry it to success. In view of the present condition of the island the brewing of alcohol and beer and the sale of the latter are left to private management. But, as for all other alcoholic beverages, their manufacture and sale are managed directly by the Taiwan Government-General. The sale of alcoholic beverages in 1931 amounted to 143,889 koku (259,563 hectolitres), of which distilled liquor occupies the largest percentage, remanufactured beverages coming next to it. Below is given statistics showing the figures of output, import from Japan proper and from foreign countries (in hectolitres):—

The brewing factories numbered 11 at the end of 1931.

FOREIGN TRADE

Overseas trade of Taiwan in 1932 totalled in value ¥405,226,000, showing a gain of about ¥38,731 as compared with the previous year. Exports to foreign countries amounted to ¥18,045,000 and imports to ¥31,041,000, while exports to Japan proper were valued at ¥222,683,000 and imports at ¥133,457,000. The trade with foreign countries has been on the decline since 1928. Such adverse factors as the prolonged world-wide depression, the decline in the purchasing power, the Chinese boycott of Japanese goods resulting from the aggravation of the conflict between Japan and China, the adoption of a seclusive economic policy consequent upon high tariff walls throughout the world, and inactivity in foreign trade caused

by the suspension of the gold standard by Great Britain combined to affect the external trade of the island. Such items of export as cotton tissues, dried and salted fish, pouching tea, coal, alcoholic liquors, etc. declined in value mainly due to the boycott of Japanese goods in China and Dutch East Indies. Sugar and camphor were exported in large quantities to North America and Europe, but the increase was unable to prevent the decline in the total value of exports. With respect to the commodities of import, only two or three items indicated a slight increase in value. All other items showed a heavy decline due to the decrease in the purchasing power in the island and the decline of commodity prices.

Commodities

With Foreign Countries (¥1,000)

	1928	1929	1930	1931	1932
Export	33,886	33,188	22,809	19,449	18,045
Import	58,336	64,541	45,131	30,859	31,104
Total	92,231	97,729	67,940	50,308	49,086
Excess of import	24,440	31,353	22,322	11,410	12,996

With Foreign Countries (Yen)

	1928	1929	1930	1931	1932
Export	214,522	238,705	218,633	201,424	222,683
Import	132,318	140,370	123,127	114,763	133,457
Total	346,840	379,075	341,760	316,187	356,140
Excess of export	82,203	98,336	95,506	86,661	89,226

Bullion

With Foreign Countries (Yen)

	1928	1929	1930	1931	1932
Export	—	—	—	—	—
Import	49	42	1,571,857	1,060,676	10,100
Total	49	42	1,571,857	1,060,676	10,100
Excess of import	49	42	1,571,857	1,060,676	10,100

With Japan Proper (Yen)

	1928	1929	1930	1931	1932
Export	19,000	37,000	195,740	221,000	—
Import	—	—	—	—	—
Total	19,000	37,000	195,740	221,000	—
Excess of export	19,000	37,000	195,740	221,000	—

Principal Exports (Yen)

Year	Rice	Sugar	Salt	Camphor	Camphor oil	Alcohol	Bananas
1927	62,885,705	96,430,734	601,782	1,078,360	1,887,136	3,616,195	8,616,464
1928	53,229,101	121,413,629	646,129	1,572,185	1,757,281	3,602,253	8,614,837
1929	49,320,566	142,601,812	708,716	2,612,885	3,040,273	3,505,152	8,419,100
1930	38,695,385	141,865,177	837,529	1,255,781	2,422,303	2,592,076	8,369,850
1931	41,097,219	120,475,129	1,118,046	766,281	1,824,697	3,054,427	8,329,152

Principal Imports (Yen)

Year	Rice	Dried fish & salted fish	Sake	Cotton & silk tissues	Paper	Timber	Fertilizer
1927	592,087	6,135,878	1,628,348	14,942,528	2,989,719	4,044,600	4,138,983
1928	534,374	5,498,007	2,161,757	15,077,816	3,237,372	4,822,301	4,692,020
1929	350,526	6,547,543	2,239,176	16,873,504	3,567,133	5,807,264	5,170,114
1930	220,174	4,032,289	2,114,080	13,394,284	3,254,545	4,535,246	5,832,475
1931	161,848	3,412,154	2,031,989	13,596,402	3,233,513	4,216,650	4,319,832

Wheat flour, sugar, soy, canned comestibles, beer, tobacco, matches, cement, porcelain, iron manufactures, etc. are also principal articles of import. In this table is included the import

with Chosen.

Classified according to nationalities the exports and imports in recent years are shown below (¥1,000):—

Nationalities	Export			Import		
	1930	1931	1932	1930	1931	1932
Asia:						
China	10,104	8,222	6,534	22,666	16,189	15,612
Manchoukuo	—	—	27	—	—	4,020
Kwantung	610	309	1,973	821	889	913
Hongkong	3,032	2,587	2,670	70	52	31
Dutch Indies	4,175	3,262	1,601	1,212	1,025	1,622
French India	2	89	4	299	124	—
Siam	43	133	115	1,031	170	1,390
Total incl. others	18,410	14,936	13,272	29,585	21,052	26,199
Europe:						
British	1,250	866	605	2,663	2,345	598
France	254	127	290	59	55	24
Germany	2	2	23	7,079	4,024	1,941
Total incl. others	1,542	1,044	991	10,073	6,833	2,587
American Countries:						
U.S.A.	2,803	3,456	3,456	4,260	2,370	1,548
Canada	20	6	5	717	374	270
Total incl. others	2,829	3,462	3,759	5,013	2,744	1,821
Other States	28	6	23	447	230	431
Grand Total	22,809	19,449	18,045	45,131	30,859	31,041

PUBLIC WORKS

When China was in possession of the island, any roads that were found in the island were built by wealthy individuals. The progress of road-making in recent years is tabulated below:—

Year	Roads (ri)	Bridges (ken)
1914	3,073	33,584
1919	3,117	35,835
1923	3,663	29,973
1927	3,767	44,354
1928	3,850	45,699
1929	3,784	50,878
1930	3,844	48,607
1931	3,782	53,359

Of the harbor-works in hand more important are those at Keelung, Takao, and Suwo, the first having been completed by 1930 at the

cost of over ¥25 millions, the 2nd to be completed by 1935 at the cost of about ¥27 millions, while the 3rd which is a minor fishing-pond was completed some years ago at the cost of under ¥700,000.

Water-works, large and small, supply potable water at about 50 places, besides 8 under construction.

Irrigation is costing great deal of money to the Government-General and Islanders among whom the idea of supplying water to cane-fields and farms subject to drought existed from olden time. The Government-General started the 16 years irrigation work at the estimate of ¥30 millions, but as it was decided to help the private Taiwan irrigation with ¥12 millions out of the fund the scope of the Government undertaking has been reduced accordingly. The

Government is repairing and improving the existing irrigation works with the fund and also to generate water-power. Already 32,756 "ko"

of farms have got irrigated and some 7,200 h.p. water-power been secured by utilizing the head-water.

COMMUNICATIONS

Post, Telegraph and Telephone

Postal service was for the first time opened in April, 1895, when, prior to the restoration of peace between Japan and China, the Japanese army occupied Hokoto (Pescadores) and established there a military field post office; but when the civil administration was set up in April, 1896, the postal service for the general public was also opened under the control of the Minister of Communications, and the handling of foreign mails was begun from August, 1896. In October, 1900, the Postal Law, the Railway and Marine Postal Law, the Postal Money Orders Law, the Postal Savings Law and the Telegraph Law, all in force in Japan proper, were brought into operation in the island. The Wireless Telegraph Law was effected in November, 1915. With respect to the telephone service, the Taiwan Telephone Exchange Law was promulgated in April, 1900. The service was first opened between Taihoku and Tainan in July of the same year. Since then the system has been put in complete working order. The radio broadcasting was also started in 1928.

Statistics

Year	Ordinary mail matters (L. 00)		Percels (L.000)	
	Accepted	Delivered	Accepted	Delivered
1921-22	60,058	67,888	784	1,169
1926-27	52,089	64,193	653	1,103
1927-28	60,053	72,625	661	1,153
1928-29	66,325	73,265	679	1,219
1929-30	66,345	76,877	695	1,256
1930-31	66,753	78,453	677	1,247
1931-32	67,169	81,555	649	1,212

Year	Telegrams (L.000)			No. of telephone subscribers
	Despatched	Delivered	Total	
1921-22	1,398	1,400	2,798	8,948
1926-27	1,378	1,437	2,814	11,147
1927-28	1,423	1,476	2,899	11,345
1928-29	1,475	1,501	3,976	11,640
1929-30	1,513	1,530	3,043	12,122
1930-31	1,491	1,533	3,024	12,746
1931-32	1,384	1,547	2,931	13,645

Year	Domestic money orders (Issued)		Savings Bank	
	No.	Value (Yen)	No. of depositors	Amount (Yen)
1927-28	908,435	28,138,650	469,507	12,223,113
1928-29	940,943	28,497,437	483,253	13,343,016
1929-30	975,367	29,344,762	499,427	15,063,929
1930-31	976,257	26,937,014	516,041	15,074,388
1931-32	992,073	25,990,089	484,072	17,855,759

RAILWAYS

Government Railways.—It was not until the cession of the Island of Taiwan from China to Japan that the island began to enjoy railway facilities, for, prior to that time, the only railroad existing in the island was a small light railway between Keelung and Shinchiku built at the time of the Shin dynasty of China. Soon after the cession, the Governor-General of Taiwan brought forward a plan, with the approval of the Diet, to build a railway connecting Takao with Keelung at the expense of 28,800,000 yen. The work of construction was started in 1889 from both termini and finished in April 1908. This line now forms the trunk line in the insular railway system. The construction of that pioneer railway line was soon followed by the building of other lines, that is, the Kyukyokudo-Heito section (Choshu line)

completed in 1912, the Taito line in 1917 and the Giran line in 1924, while many others have been built in a rapid succession since then, so that the total length of Government lines operated at present reaches 549 miles. The mileage of lines open to traffic on March, 1932, was 549 miles, being the same as in the preceding year.

Private Railways.—Most of the private railways existing in Taiwan were originally constructed by sugar refining companies for transporting sugar canes and other materials, transportation business being conducted only as a side work. The exception to this were the Taihoku Railway Company, which operated the Manka-Shinten railway of 6.5 miles, and the Taichu Light Railway line of 8.1 miles. The total working mileage of private lines open to business on March 31, 1932, was 329.8 miles.

The number of passengers carried was 2,884,009 and the tonnage of goods hauled 638,054 tons, being a decrease of 760,345 for the former and 54,768 tons for the latter. The total working revenue aggregated 1,141,268 yen or 345,502 yen less than that of the preceding year.

Tramways.—The tramways, which form an important factor in the insular communication

system, have made a marked development in recent years, the total length of lines in operation at the end of March 1932, being 849.8 miles with 5,321 carriages in all, the number of passengers carried 3,498,504, and goods hauled 932,453.877 pieces, the total receipts reaching 1,658,548 yen.

STATISTICS ON RAILWAYS

Government Railways					
	1927	1928	1929	1930	1931
Mileage open to traffic (mile).....	537.1	537.1	549.0	549.0	549.0
No. of locomotives	197	204	210	215	208
No. of passenger carriages.....	466	459	476	491	499
No. of wagons	3,279	3,511	3,759	3,930	3,964
No. of passengers (1,000)	20,348	20,668	20,336	18,316	16,453
Goods hauled (1,000 tons)	4,728	4,949	5,164	4,960	4,767
Parcels (to.)	10,683	11,241	10,257	9,295	8,295
Receipts (¥1,000) { Passenger.....	8,002	8,277	8,349	7,721	6,897
{ Wagons.....	10,644	11,420	11,916	11,332	11,367
Private Railways					
	1927	1928	1929	1930	1931
Mileage open to traffic (mile)	1,327.1	1,339.9	1,351.4	1,368.7	1,383.1
No. of locomotives	225	234	242	232	251
No. of passenger carriages.....	253	265	258	272	244
No. of wagons	13,806	14,441	14,906	15,102	15,768
No. of passengers (1,000).....	4,226	4,423	3,362	3,644	2,884
Goods hauled (1,000 tons)	3,091	3,656	4,605	4,258	4,173
Receipts (¥1,000) { Passenger.....	880	934	929	775	545
{ Wagons	2,020	2,303	2,346	2,186	1,753
{ Others	26	29	34	57	35
Tramways					
	1927	1928	1929	1930	1931
Mileage open to traffic (mile)	668.4	722.6	770.5	824.9	849.8
No. of cars	5,603	5,749	5,645	5,568	5,321
No. of passengers (1,000)	5,284	5,306	5,251	4,006	3,499
Goods hauled (1,000 tons)	1,401,145	1,357,419	1,338,793	1,156,702	932,454
Receipts (¥1,000) { Passenger.....	956	945	868	688	562
{ Wagons.....	1,671	1,652	1,551	1,358	1,096

BANKS AND OTHER FINANCIAL INSTITUTIONS

Banks.—The necessity of establishing a special bank was recognized for the development of industry and commerce after the island became Japanese territory and in 1899 the Bank of Taiwan came into existence. The Nippon Churitsu Bank had already established its sub-branch offices in the island. In 1899, the Bank was amalgamated with the Thirty-fourth Bank and became a branch office of the latter. The Taiwan Savings Bank was established in the same year, it being followed by the establish-

ment of the Kagi Bank in 1904, the Shoka Bank in 1905 and the Taiwan Commercial and Industrial Bank. In 1920, the joint stock company Kagi Bank was established to take over the business of the Kagi Bank Ltd. Partnership, which, in consequence, had been dissolved. In 1921 the Taiwan Savings Bank was established.

In 1922 the Hypothec Bank of Japan established a branch office at Taihoku to carry on a business of giving credit on real estate and of

making loans to public corporations or co-operative societies, thereby facilitating agricultural finance.

The aggregate authorized capital of the banks in the island amounted to 28,300,000 yen, the aggregate paid-up capital 20,679,850 yen, reserves 1,721,000 yen, deposits 104,598,000 yen and the loans amounting to 180,000,000 yen at the end of 1931.

The Bank of Taiwan (Taiwan Ginko).—Established under special charter in 1899; Capital subscribed ¥15,000,000 (¥13,125,000 p.u.); it acts as the central bank in Taiwan with the privilege of issuing bank notes convertible into gold coins, firstly against the reserve of gold and silver coins and bullions; secondly, against securities of Government bonds and notes, bank notes and other commercial papers up to the limit of ¥20,000,000; thirdly, against such securities as mentioned above, but only with the approval of the Minister of Finance.

Besides general banking business it also conducts foreign exchange business, with many branches in principal places and correspondents in all parts of the world. Head Office—Taihoku (Taipeh), Formosa.

Credit Societies.—This form of monetary organs promises to spread and to make greater development in the future, and to contribute much towards the industrial progress of the middle and lower classes. At the end of 1931, these societies numbered 336 (including those conducted as subsidiary business), with the subscribed capital aggregating 15,146,268 yen, of which 13,371,198 yen was paid up. The savings totalled 38,016,769 yen, reserve funds

6,919,351 yen, other reserves 3,471,865 yen, borrowings 7,755,182 yen, and loans accommodated 57,194,106 yen.

Mujin (Mutual Loan Societies).—The legislation on "mujin" was put into force in March, 1916. At present there are three companies, Taiwan Industrial Mujin Co. Ltd., East Taiwan Mujin Co. Ltd., and South Taiwan Mujin Co. Ltd. having 9 branches, and 5 agencies in various parts of the island. Their aggregate subscribed capital was 850,000 yen including paid-up capital 385,000 yen.

Public Pawn Shops.—By Imperial Ordinance No. 485, November, 1919, the local governments were authorized to establish pawn shops subject to the sanction of the Governor-General. At the end of March 1932, the aggregate loans of each public pawn shop amounted to over 2,572,893 yen, repayment to over 2,320,444 yen, pawns forfeited to over 389,210 yen, and loans outstanding at the end of the year to over 782,847 yen.

Insurances.—At the end of 1931, life insurance concerns numbered 23, and property insurance concerns 31 including one foreign concern, all of which were branches or sub-branches of home companies. Statistics on insurance business for the year 1931 is as follows:—

	No. of contracts	Amount of contracts (Yen)	Premiums (Yen)	Claims paid (Yen)
Life	84,758	131,353,513	4,749,836	1,158,128
Property	39	104,990	873	960
Fire	42,493	284,553,406	760,569	299,716
Marine.....	1,291	3,635,223	226,085	110,738
Transportation...	31	99,734	425	—

CHAPTER XXXIX

KARAFUTO (SOUTHERN OR JAPANESE SAGHALIEN)

GEOGRAPHY, POPULATION, ETC.

Position—141° 51' and 144° 55' E.L.; 45° 54' N.L.

Area—36,000 square kilometers. Separated from the northern tip of Hokkaido by Soya Strait.

The Island of Karafuto was occupied by the Japanese forces during the Russo-Japanese war in August, 1905, and the acquisition by Japan of the Island south of the fiftieth parallel was confirmed by the Treaty of Portsmouth concluded between Japan and Russia in October of the same year.

	Area (Sq. km.)	Ratio
Sikka	12,416.36	344.04
Tomarii	6,902.68	191.26
Otomari	4,842.86	134.19
Toyohara	4,750.45	131.63
Motodomari	3,120.88	86.48
Maoka	2,490.01	68.99
Honto	1,566.53	43.41
Total	36,089.77	1,000.00

Climate

	Temperature (C.)			No. of clear days	No. of rainy or snow days
	Average	Maximum	Minimum		
Yasubetsu ...	-0.4	26.0	-29.1	29	166
Sikka	-1.7	31.2	-38.5	70	155
Ochiai	0.2	29.6	-33.6	37	212
Maoka	2.7	25.1	-23.0	23	215
Honto	3.2	25.2	-24.5	23	212
Otomari	1.3	26.0	-29.1	40	159

Population

The native inhabitants consist of various tribes, i.e. Ainus, Gilyaks, Orochones and Tungues. These are gradually dwindling in number. At the end of 1931 the total population of the territory numbered 287,377. Statistics on population for the past five years follows:—

End of December	Total		Japanese		Natives		Foreigners		Pop. per household	Male per 1.0 females
	Male	Female	Male	Female	Male	Female	Male	Female		
1926	117,269	86,304	116,231	85,308	903	911	135	85	4.94	135.9
1927	127,042	94,201	125,916	93,100	964	1,005	162	96	4.99	134.9
1928	134,561	105,941	133,418	104,817	965	1,028	178	96	4.95	127.0
1929	139,501	111,812	138,404	110,724	929	992	168	96	4.90	124.8
1930	159,919	125,011	158,710	123,929	960	973	249	109	4.96	127.9

Population in Principal Towns (1930)

	No. of households	Population		
		Male	Female	Total
Toyohara	12,559	34,955	28,249	63,204
Otomari	13,753	37,610	31,464	69,074
Honto	3,538	9,241	8,174	17,415
Maoka	7,879	21,682	17,982	39,664
Tomarii	9,766	26,949	19,667	46,616
Motodomari	5,356	14,769	11,131	25,900
Sikka	4,620	14,713	8,344	23,057
Total	57,471	159,919	125,011	284,930

Population Classified by Calling (1930)

Agriculture	54,809
Fishery	32,884
Mining	8,352
Industry	35,671
Commerce	48,209
Communications	13,540
Total incl. others	284,930

Marriage, divorce, birth, death, etc. are listed below:—

Year	Marriage	Divorce	Birth		Still-birth		Death	
			Male	Female	Male	Female	Male	Female
1926	1,173	74	3,543	3,240	278	209	2,206	1,654
1927	1,305	100	3,930	3,775	248	247	3,493	2,311
1928	1,492	137	4,557	4,308	301	253	2,963	2,154
1929	1,644	152	4,855	4,527	313	267	3,268	2,213
1930	1,794	168	5,407	5,245	331	270	3,330	2,464

FINANCE

As regards the finance of Karafuto since the establishment of the Special Account for the territory in April, 1907, it may be noted that a fixed grant has been made annually by the Na-

tional Treasury, and that this grant, together with the taxes and other sources of revenue of territory, is used in defraying the expenses of colonization and general administration.

REVENUE AND EXPENDITURE

Year	Revenue			Expenditure			Surplus
	Ordinary	Extraordinary	Total	Ordinary	Extraordinary	Total	
1928-29	18,056,310	14,590,059	32,646,370	12,672,476	13,018,793	25,691,270	6,955,100
1929-30	18,611,501	13,728,326	32,339,827	16,640,071	11,947,287	28,587,359	3,752,400
1930-31	21,028,918	5,515,613	26,544,532	15,626,775	9,002,516	24,629,292	1,915,200
1931-32	22,630,137	3,493,799	26,123,936	18,588,532	7,535,404	26,123,936	—
1932-33	18,861,425	4,231,203	23,092,628	16,375,245	6,717,383	23,092,628	—

Note.—Figures for 1931-32 and 1932-33 are budget and others settled.

Budget for the Year 1932-33 (in yen)

Revenue		Expenditure	
Ordinary:		Ordinary:	
Taxes	1,401,871	The Karafuto Shrine	13,000
Receipts from Government undertakings and properties	15,249,549	Karafuto Administration Office	1,333,894
Stamp receipts	285,243	Education	2,020,598
Profits of tobacco monopoly	1,413,179	Police service	844,372
Miscellaneous receipts	511,587	Forestry management	1,458,545
Total	18,861,425	Government undertakings	7,891,778
Extraordinary:		Reserve fund	180,000
Proceeds of sale of State property	138,180	Transferred to national debt consolidation fund special account	1,909,486
Miscellaneous receipts	2,004	Central experimental station	346,057
National Treasury grant	1,600,000	Contributions under pension law	156,356
Receipts from the issue of public loans	1,655,728	Other expenses	220,856
Previous years' surplus transferred	835,291	Extraordinary:	
Total	4,231,203	Government undertakings	3,037,007
Total revenue	23,092,628	Subsidies	2,452,642
		Special undertakings	1,583,224
		Railway improvement	456,650
		Expenses for census-taking (1930)	38,598
		Other expenses	149,262
		Total	6,717,383
		Total expenditure	23,092,628

SANITATION, EDUCATION, RELIGION

Sanitation

The Government keeps under its direct management 3 medical offices at Toyohara, Otomari and Maoka. At the end of 1931 there were 76 public and 191 private practitioners, 50 dentists, 36 pharmacists, 100 acupuncturists, 246 midwives and 62 nurses.

Education

The number of schools, of teachers and of pupils at the end of March 1932 figured as follows:—

Schools	No. of schools	No. of teacher	No. of pupils
Public private schools ...	209	1,046	43,495
Middle schools	3	88	1,927
Girls' high schools	4	66	1,362
Supplementary schools ...	8	16	327
Institutions for natives ...	5	6	154
Others	8	49	687

Religion

Statistics on Shinto shrines, Buddhist temples, etc. at the end of 1931 is as follows:—

	No. of shrines, temples or missions	No. of priests or missionaries	No. of adherents		No. of shrines, temples or missions	No. of priests or missionaries	No. of adherents
Shintoism	105	25	—	Christianity	9	9	1,021
Buddhism	40	40	16,267	Total	318	236	62,220

AGRICULTURE AND IMMIGRANTS

As the soil and climate of Karafuto are suited to cultivation and pasturage, the authorities have encouraged the coming of settlers since 1906 by extending to them liberal protection and suitable help. A small sum of money is granted to those peasants who settle down within 6 months of their coming over to the insular territory.

At the end of 1931 the number of these persons reached 9,953 families with 48,339 persons, the cultivated acreage being 29,328 hectares and pastures 24,493 hectares. Oats, rye, various kinds of tubers and vegetables, legumins, and also fibre plants such as flax and hemp are grown in the island, the total agricultural products amounting to ¥3,306,000 in 1929 and ¥2,999,000 in 1930. Farmers are also engaged in stock breeding. A few years ago fox-farming was started.

The number of those peasant settlers in recent years is shown below:—

Year	Oat, barley, wheat, etc.	Beans & peas	Buckwheat	Potatoes	Grasses	Vegetables & others
1927	5,583	591	663	1,892	2,916	1,945
1928	7,600	692	692	2,274	3,422	2,941
1929	6,425	789	710	2,078	3,526	2,925
1930	9,168	813	753	3,154	3,698	2,830
1931	8,669	1,071	1,146	2,981	4,025	2,579

(1 hectare=1.0083333 cho; 1 cho=0.99174 hectare)

Production is as follows:—

Year	Oat, barley, wheat, etc. (Hectolitre)	Beans & peas (Hectolitre)	Buckwheat (Hectolitre)	Potatoes (M. ton)	Grasses (M. ton)	Vegetables & others (M. ton)
1927	159,700	11,510	11,906	12,631	10,308	13,914
1928	278,500	13,948	17,352	27,022	13,246	25,206
1929	250,439	12,546	11,651	17,992	14,413	23,691
1930	295,769	12,372	14,819	33,002	17,300	25,327
1931	228,608	7,976	13,802	24,035	15,976	19,046

FISHERY

Fishery is the oldest industry and by far the most important resources in Karafuto. The principal fish caught are herring, trout, salmon and cod. The right for fishing them is granted under three kinds of licence, the special, ordinary and drift-net fishing. The first is limited to bodies of fishermen on specific grounds, while the second is permitted only

to those living in Karafuto. The last-named was formerly issued by public tender, but now it is restricted to certain persons. The annual catch of herrings amounts to more than 546,834,004 kilograms, the greater part of which is manufactured into fertilizer. With regard to the trout and salmon fisheries it is to be noted that the authorities concerned have lately at-

Year	Families	Population
1926	1,787	7,227
1927	1,100	4,751
1928	1,420	5,897
1929	1,242	4,332
1930	1,132	4,997
1931	932	4,169

The total production in recent years has increased about three times compared with ten years before, but recent figures show a slight decline, as indicated below:—

Year	Total production
1926	¥2,941,036
1927	3,542,592
1928	4,206,000
1929	3,306,000
1930	2,999,000
1931	2,105,978

Area under various crops, classified according to kind is as follows (in hectares):—

tempted artificial fecundation to ensure the multiplication of these varieties, and as a result, the catch of these fish amounts, at present, to 10,953,428 kilograms, entirely used for food. The production of cod-fish reaches 20,002,016 kilograms and the by-product, cod-liver oil, amounts to 292,646 kilograms. The production of tinned crabs, which are mainly exported to Europe and America, amounts to 1,028,016 kilograms. The annual production of kelp, the most important item among the marine plants, amounts to 3,061,752 kilograms.

Item	1927	1928	1929	1930	1931
Herrings	9,905,976	13,716,714	14,676,736	9,811,698	8,020,723
Trouts	1,034,193	2,647,635	1,219,258	1,161,910	609,279
Salmons	348,924	384,397	232,904	328,340	194,625
Cods	2,109,853	1,755,939	1,568,439	1,220,662	916,877
Crabs	1,040,046	198,971	1,310,395	1,661,553	1,749,480
Laminaria	355,573	798,899	642,398	645,251	689,600
Others	910,375	1,104,817	1,304,480	979,661	569,835
Total	15,705,310	20,557,432	20,880,610	15,909,075	12,750,419

FORESTRY

Karafuto abounds in primeval forests that occupy about 47% of the total area of the island and at present supply the territory with the most important natural products. Acerose trees, growing in the forests, are chiefly Ezo-matsu (*Picea ajanensis*, Fisch.), Todo-matsu (*Abies sachalinensis*, Fr. Schm.) and Karafuto-rakuyosho (*Larix dahurica*, Turcz.). They grow in mixed stands, through pure forests of the larch are found in some places. The broad-leaved trees, among which birches, willows, elms and alders are prominent, occupy the low lying places such as the river banks. On more elevated land acerose trees (most of which are Todo-matsu and Ezo-matsu, but the larch is very scarce) form pure forests, though birches are often found growing mixed with them on the mountain side. The Haimatsu (*Pinus pumila*) grows densely on the tops of high mountains, while pure forests of birches are found on the tops of low mountains. The larch usually grows in low land. Generally speaking, the Todo-matsu and the Ezo-matsu are most plentiful, forming about 80% of the whole

Recent data are as follow:—

Year	No. of fishing craft	No. of fishermen	Catches (¥1,000)	Manufacture (¥1,000)
1926	8,629	16,431	—	19,199
1927	10,013	20,037	—	15,735
1928	11,255	18,516	20,557	19,482
1929	12,363	20,636	20,880	18,828
1930	12,266	23,527	7,058	13,090
1931	14,111	24,764	4,257	10,497

The amount of catches in recent years is as follows (in yen):—

Year	1927	1928	1929	1930	1931
Timber (¥1,000)	7,762	84	3,000	7,850	7,850
Fagots (¥1,000)	7,947	136	2,000	8,085	8,085
By-products (yen)	11,593	142	4,268	11,737	11,737
Total (¥1,000)	10,798	127	6,741	10,933	10,933
	9,580	108	2,134	9,630	9,630
	8,090	107	2,282	8,199	8,199

stock. Being very durable, the larch is in great demand for telegraph-poles, railway sleepers, and for other engineering purposes, but the larch not adapted for these purposes, is used for heating and cooking. Apart from use as timber and packing material these acerose trees are utilized in far greater quantities as pulp wood. At present, pulp factories exist at Otomari, Toyohara, Maoka, Noda, Ochiai, Shiritori, Tomarioru and Estori, and their annual output being estimated in round numbers at 175,135 tons of pulp and 132,341,384 kilograms of paper.

The total area of forest land at the end of 1931 was 2,909,000 hectares of which the area planted with trees occupied 2,164,000 hectares.

The yield of forest products in recent years is as follows:—

Year	Timber (¥1,000)	Fagots (¥1,000)	By-products (yen)	Total (¥1,000)
1926	7,762	84	3,000	7,850
1927	7,947	136	2,000	8,085
1928	11,593	142	4,268	11,737
1929	10,798	127	6,741	10,933
1930	9,580	108	2,134	9,630
1931	8,090	107	2,282	8,199

MINING

The strata in the island are generally of Tertiary formations and hold rich veins of coal. The coal bed consists of three measures, upper, middle and lower. The upper measure,

which has a close connection with the oil-bearing strata, pertains to the Pliocene, and the middle and the lower to the Eocene. Each of these measures exists on the both sides of a

Cretaceous mountain range running from north to south, forming many important coal-fields in the island. There are three great coal-fields, namely, the Northern, the Middle and the Southern. The Middle coal-field, which runs about 100 kilometers from north to south and has a breadth of from 2 to 5 kilometers, is the largest and belongs to the lower measure. A part of the Southern coal-field following the western coast and the greater parts of the Northern and Eastern coal-fields belong to the upper measure. In the northern part of the western coast there are also important coal-fields belonging to the middle measure. Each of these contains at least 3 to 13 coal-seams with a thickness of from 1 to 10 meters. Investigations up to date have discovered reserves of coal amounting to approximately 1,399 million tons; and it is believed that there are reserves of more than 2,000 million tons in the island. The coal of the middle and lower measure is bituminous and that of the upper measure lignite.

As to the oil-fields a survey made since 1927 discovered some promising fields along the western coast and the Poronai-Suzuya basin. A trial boring was attempted in July, 1929, in the southern part of the western coast but as it was impossible to find oil exuding, the attempt was abandoned after a maximum depth of 1,132 meters had been reached in September, 1930. Further trial boring was started in December

the same year and 732 meters had been reached by May, 1932. In the western part of the Poronai-Suzuya basin, a trial boring was attempted in October, 1931 and 1,110 meters had been reached by May, 1932. Further trials on the oil-bearing strata in the Poronai-Suzuya basin and the central part of the western coast were made during 1932.

Production of coal in recent years is as follows:—

Year	
1927.....	357,046 tons
1928.....	539,481 "
1929.....	635,515 "
1930.....	644,974 "
1931.....	637,962 "

Japanese Concessions in Russian Saghalien

For convenience of reference the Japanese concessions of coal and petroleum fields in Russian Saghalien may be described here. The Japanese have obtained license for five coal measures, all on the western coast, with available resources of 907½ million tons. Only one is now worked extracting about 100,000 tons a year. Then license for 1,000 sq. versts of oil-bearing section has been secured. In one year ending September 1927, one of the concession yielded 70,000 ton crude oil, with prospect of supplying 150,000 tons in the next.

RAILWAYS

Government Railways

The first railway in Karafuto was constructed by the Army Department in 1906 between Otomori (formerly Korsakovka) and Toyohara (formerly Vladimolovka), 41.8 km. in length. It was a light railway with a gauge of 2 ft. and exclusively used for military purpose. With the withdrawal of the military government in April, 1907, the railway was transferred to the control of the Karafuto Administration and opened to public traffic in August the same year.

As traffic went on increasing since then the gauge was widened to 3 ft. 6 in. in 1910, while the construction of sections further north of Toyohara was started. The work on the Toyohara-Sakaehama section having been completed late in 1911, the Otomori-Sakaehama section, 94.1 km., which now forms the trunk line of the insular railway connection, was opened to

traffic. The work of construction was pushed on and the branch line linking the Kawakami line with Konuma and the Honto-Noda section on the west coast were completed and opened to business respectively in 1914 and 1920. Besides, the construction of a branch line which connects Toyohara, the capital of the territory, with Maoka on the west coast was started in 1921 and opened to traffic in 1928.

The lines in operation at present covers a total length of 342.9 kilometers, the details being as follows:—

Main Line:	
Otomari—Toyohara—Sakaehama.....	96.9 km.
Kawakami Line:	
Konuma—Kawakami Colliery	21.9 "
Hoshin Line:	
Toyohara—Tei	83.8 "
West Coast Line:	
Honto—Noda	140.3 "
Total	342.9 "

Traffic Returns.—The total working length of the Karafuto Government Railways for the year 1930 was 342.9 km., train kilometer 1,163,702 km., vehicle kilometer 16,186,633 km. consisting of 184,712 km. of passenger cars, 208,494 km. of goods wagons, and 770,495 km. of mixed cars. The number of passengers carried aggregated 1,592,500, passengers carried one kilometer 39,587,292, volume of goods hauled 872,682 metric tons, and volume of goods carried one kilometer 38,819,397 metric tons. Compared with the preceding year the number of passengers carried decreased by 244,997, while goods volume increased by 25,430 metric tons.

Private Railways

There are two local railway companies that have obtained charter to lay railway lines in Karafuto. The one is the Karafuto Joint Stock

Railway Co. and the other the South Karafuto Joint Stock Railway Co. The former with a capital of 10,000,000 yen contemplates to build a line of over 238 km. from Ochiai on the Government trunk line to Shikka along the east coast of the Island. At present the Ochiai-Shiritori section (distance 170.5 km.) is in operation. The latter operates a line of 18.5 km. from Shimada to Rukata with a capital of 1,200,000 yen. The two companies are subsidized by the Government under the Local Railway Law. The train kilometer run by these two local railways during 1930 aggregated 390,496 km. consisting of 366,564 km. for passenger and 23,932 km. for goods train. The number of passengers carried was 344,826 and the volume of goods hauled 325,883 metric tons.

In winter the trains make seven or eight hundred runnings a month, and in summer about two thousands.

CHAPTER XL

THE SOUTH SEA ISLANDS

GEOGRAPHY

Position and Area

Japan has acquired through the Treaty of Peace concluded after the World War the mandatory right over the former German South Sea Islands north of the Equator. The archipelago had been occupied by a Japanese squadron in the beginning of the World War. It consists of three groups of Mariana, Marshall, and Caroline, comprising 1,458 islands, islets and reefs, scattered over a vast expanse of water extending for about 1,200 miles south to north and about 2,500 miles east to west. In other words, the territory stretches on the one hand between 130° to 175° E.L. and on the other between 0° and 22° N.L. and is situated to the south of Japan, with Hawaii far away to the east, and adjacent to the Philippines and the Dutch Celebes to the west, while to the south there lie the Island of New

Guinea and the Bismarck Group and to the north the Bonin and Iwo Islands which form the southern extremity of the Japanese Empire. The area of the Islands is very small, the total being 960 square miles (2,149 square kilometers) and the population mostly consists of about 50,000 natives.

The number and area of the islands are as follows:—

Group	No. of Islands	Area (sq. km.)
Mariana	14	639 (41.43 sq. ri)
Caroline	549	1,320 (85.59 ")
Marshall	60	190 (12.30 ")
Total	623	2,149 (139.32 ")

The number and area of the islands classified according to the jurisdiction of the different branch bureaus of the South Seas Office are as follows:—

Branch Bureau	No. of Islands	Area (sq. km.)	Position
Saipan (Mariana Group)	14	639 (41.43 sq. ri)	145°40' E.L.—15°5' S.L.
Yap (Caroline Group)	85	226 (14.64 ")	137°58' " — 9°25' "
Palau " "	109	478 (31.00 ")	143°10' " — 6°50' "
Truk " "	245	132 (8.55 ")	151°22' " — 6°57' "
Ponape " "	138	504 (32.65 ")	158°10' " — 6°45' "
Jaluit (Marshall Group)	32	170 (11.05 ")	169°42' " — 5°48' "
Total	623	2,149 (139.32 ")	

N.B.—The 32 islands under the jurisdiction of the Jaluit branch bureau consist of 867 reefs.

The principal islands and their areas are as follows:—

Islands	Area (sq. km.)
Saipan (Mariana Group).....	185 (12.00 sq. ri)
Tinian " "	98 (6.35 ")
Rota " "	125 (8.10 ")
Yap (West Caroline Group)	216 (14.00 ")
Palau Proper or Baob:iaob " "	370 (24.00 ")
Angaur (West Caroline Group).....	8 (0.50 ")
Spring Island (East Caroline Group)	22 (1.43 ")
Summer Island " "	9 (0.58 ")
Wednesday Island " "	23 (1.51 ")
Ponape " "	375 (24.34 ")
Kusaie " "	116 (7.50 ")
Jaluit (Marshall Group)	8 (0.51 ")

Weather and Climate

The Islands being situated in low altitudes, atmospheric pressure is generally low and undergoes no great change throughout the year. Broadly speaking, it is comparatively low in Truk and Ponape Islands. In the western part of the Caroline Group and Mariana Group it is high in February and March, but low in October and November.

Direction of Winds.—As the Islands lie scattered over a vast expanse of water, the direction of winds varies according to the different islands, so that no accurate description can be given. Usually, however, a north-easterly wind or easterly wind prevails from Nov-

ember till April of the following year, while between May and October the direction of the wind varies according to different localities. Thus in the western part of the Caroline Group a westerly or southerly wind prevails, and in other localities it blows diversely from the east and from the south. There is no wind for some time when changes take place in the direction of wind.

Wind Velocity.—In the Mariana Group the wind is somewhat strong, developing a mean velocity of 4.6 m/s. for the year. It is weak in April and during August and September, but is strong from October till February of the following year. In other islands the wind is generally weak, the mean velocity registered being 2.1 m/s. In the western part of the Caroline Group, it is weak between April and June and also in September, but is strong from October till March of the following year. In the eastern part of the same group, it is weak between August and September, but is strong between January and March. There is seldom a really high wind in any of the islands.

Temperature.—Throughout the Islands, except Saipan, temperature is fairly uniform, the mean temperature registering from 26 to 28 degrees with the mean maximum of 29 or 30 degrees and the mean minimum of 24 or 25 degrees. The thermometer seldom rises above 32 degrees or falls below 20 degrees. Throughout the year the variations in temperature are

very narrow. It has been observed that the difference between the highest and the lowest on a normal day is about 3 degrees.

Humidity.—All the Islands are humid, the mean relative humidity registered throughout the year being 82%, though in the western part of the Caroline Group it is a little less. In the Mariana Group humidity is greater between September and October and less in March. In the western part of the Caroline Group it is greater between June and July and less between March and April, while in the eastern part it is greater between September and October and less between January and March. There is no great change throughout the year and the minimum of less than 60% is but rarely registered.

Rainfall.—In all the Islands, the rainfall is extremely abundant, the total quantity of rainfall in a year varying between 2,000 and 4,000 millimeters and the average reaching as much as above 3,000 millimeters. Saipan is the least visited by rain, while Ponape and Palau are most plentifully favoured by it. It is no rare occurrence in the latter two islands that the total quantity of rainfall exceeds 4,000 millimeters a year. As to the rainfall in different seasons, there are places where no clear distinction can be made between the dry and wet seasons, but July-September is generally considered as wet and January-March as dry. Nevertheless it is by no means the same in every year.

RACE, LANGUAGE, MANNERS AND CUSTOMS

Race.—The natives of the Islands as a whole may be divided into two great tribes of Kanakas and Chamorros.

Chamorros.—The principal places inhabited by Chamorro tribesmen are the Mariana Group and Yap and Palau Islands in the West Caroline Group, only a few migrated Chamorros living in other islands. The ancestors of the Chamorros are said to have lived in Guam. The fact that they live mostly in the islands around and nearest to that island is probably due to the migration of their forefathers therefrom. Guam was in early days the center of the Mariana Group, and geographically it is quite natural that Chamorro tribesmen should have crossed to Rota from that island and then to Tinian and Saipan. It seems that a great many Chamorro immigrants came to Saipan and Tinian during the Spanish regime,

and those two islands were fairly densely populated by them. Owing, however, to internal strifes and massacres following on rebellions, the Chamorro population has greatly dwindled and at present taking both Saipan and Rota together they total only a little more than 2,600, and even adding those living in Yap and Palau they do not much exceed 3,000. The Chamorros living in Saipan, which contains a majority of the Chamorros in the South Sea Islands, are said to have greatly altered through intermarriages with the Tagala tribesmen of characteristic physiognomical features, with yellowish brown skin and black hair.

Kanakas.—The Kanaka is the general appellation for the people living in Hawaii and other Pacific islands. A great majority of the natives of the South Sea Islands belong to this race but when close observations are made, it

is found that those inhabiting the western islands seem to have much affinity with the Malay race and those inhabiting the eastern islands resemble the Polynesian race, while as one goes further south the more one comes across those similar in racial type to the Melanesian race. Though there is more or less difference between these three groups of Kanakas, they are generally dark-brown skinned and commonly have black hair, in some cases curled. Their eyebrows are thick and the space between the eyebrows and eyes is rather narrow, while their eyes are deeply sunken. Further, the alar cavities of the nose are wide, the mouth large and lips thick. They have not much beard and are generally artless and mild in their expression. In stature they are of medium height, but sometimes very big and tall men are found among them, such men being especially numerous in the southern islands.

Tribal Relations of Natives.—It is a fact that Chamorros are generally more advanced in civilization than Kanakas, but this is only relatively true, even Chamorros being very backward as compared with the civilized peoples. Chamorros and Kanakas differ in language, manners and customs, and not only do not intermarry but even in daily life rarely associate with each other. Considering themselves as superior, Chamorros dislike to have any connection with Kanakas in any matter. In fact the two live quite apart and no instance of rivalry, strife or enmity between them has occurred. Nearly all the Islands except Saipan are mainly inhabited by Kanakas, Chamorros being few in number. The two groups of people have always formed separate communities and have never been in the relation of conqueror and conquered, nor will be in the future. As a matter of course, both from the administrative and legal points of view, the Japanese Government treats them equally and without any discrimination.

Anthropological Investigation.—Dr. K. Hasebe, Professor at the Tohoku Imperial University of Japan, is engaged in anthropological investigations among the natives. He was despatched for investigation to the East Caroline Group and Marshall Group in 1915 by order of the Government, and then visited Palau and Yap Islands in 1927, Ponape and Truk in 1928, and Saipan, Ponape, Kusaie and Jaluit in 1929 under the commission from the South Seas Office to continue his research work. It is hoped that some day in the future

an opportunity will present itself for the publication of the results of his research work.

Language.—Different dialects are spoken in different islands, there being no language common to all. Even in one and the same group of islands, the dialects of the principal islands are different and there are not a few cases where in adjacent islands dialects different from those of the principal islands are spoken. For instance, the natives of Yap and those of the adjacent islands speak different dialects. It is same with the natives of Ponape and Kusaie. All this is due to the difficulty of communications between the islands which are separated by great distances, which is also a cause of great inconvenience in administration. Since the Islands were placed under the mandate rule of Japan, the authorities have established schools at important centers, and even in distant islands schools have been established at places inhabited by Japanese. As a result of the efforts made at those schools for spreading the knowledge of Japanese the number of natives able to speak the language is steadily on the increase, so that in most of the Islands Japanese language has become the medium of communication at least in matters of daily life.

In regard to the natives who can speak English, German or Spanish, no investigation has as yet been made, but there are a number of such natives. This is due to the fact that before Japan undertook the mandatory rule of the Islands, there were not a few natives, who had been educated at mission schools or were employed by Germans, Americans or Spaniards. Those natives who are above 25 years of age and were educated at mission schools or were employed by foreigners, speak more or less one or other of the three languages above mentioned. Among such natives, there are more Kanakas than Chamorros, as the former are more numerous, but in the point of ratio to their number Chamorros probably rank above Kanakas.

Manners and Customs.—As all the islands lie within the torrid zone, the natives have little need of clothes. Originally they used to go naked and bare-footed, both men and women wearing only a loin cloth. After frequently coming in contact with foreigners, however, many of them began to wear some kind of clothes. At present men mostly have their hair cut short and their faces shaved, and wear shirts and trousers, some even full

suits, while women are generally dressed in a garment resembling the night-gown worn by European women.

As the islands lie scattered over great distances, the manners in one island are naturally different from those of another, so that no generalization can be made in this respect. But in Saipan Island and the Marshall Group, which were the earliest to come in contact with civilization, the natives imitate Europeans and wear hats and shoes, and look smart like civilized people at least in appearance. In regard to dress, things get gradually worse as one goes from the middle part of Ponape to Truk, Yap and Palau. Especially is the condition unsatisfactory in Yap, the natives of which still wear no clothes. A curious sight to be seen there is the waist-cloth worn by women. It is made of the fibres of trees or of trees or of grass and the wearer makes a rustling sound as she walks.

Ornaments.—Having little need of clothes, the natives have not been accustomed to wear ornaments. Nevertheless, they have more or less sense of beauty, and both men and women adorn themselves with something or other, each island having its own custom in this respect. The most common of decorative devices resorted to is tattooing. Simple patterns or letters of the Roman alphabet are tattooed on the limbs or on the breast, and some natives are tattooed all over their hands and feet, it being their pride to have their skin marked as extensively as possible with complicated patterns. Another way of ornamenting the body is to make scars on the arms, thighs or breast. This device is adopted for the dual purpose of decoration and the expression of courage, and is most widely practised in Ponape.

In Truk Island, holes are bored through the ear-lobes and gradually enlarged, and rings made of shells or wood are suspended from them. Ear-rings and armlets are also used by natives for decorative purposes.

The above-mentioned customs are practised both by men and women, but are generally confined to people above middle age, and thanks to the spread of education, they are disappearing among the rising generation.

Diet.—The natives live chiefly on wild fruits and vegetables, occasionally taking fish and meat. Relying on nature's bounty, practically none engages in labor for the purpose of obtaining food. A few people sow seeds, but leave them entirely unattended.

When the harvest comes, however, they gather more than they can consume, a state of affairs entirely due to the abundance of Nature's favor. The staple food of the natives is breadfruits, taro potatoes, yam potatoes, and palm fruits, and besides, "hooe" and tapioca are consumed as subsidiary food. Breadfruits and potatoes are most plentifully obtained. Breadfruits, which ripen between May and November, are as large as the head of a child, and when roasted or boiled taste like bread. One is enough for two meals. Yam potatoes grow in mountainous districts and taro potatoes in low-lying land. Both are very large in size. Yams are particularly so, specimens measuring 3 feet by one foot being found. Unripe palm fruits yield juice, which makes a good drink. Ripe palm fruits contain fatty flesh, which is white in color and has very agreeable flavor. "Hooe" is consumed in Yap, and tapioca in Palau. The former is a large-sized chestnut and the latter is a sort of starch. Both are favorite food-stuffs of the natives. Bananas, pine-apples, mangoes, papayas, lemons and oranges are obtainable everywhere and in large quantities, but are only taken as a relish. Fish are rich in kind and quantity but the method of fishing being very primitive, the catches taken by natives do not amount to much.

The supply of meat is fairly abundant as oxen, pigs and chickens are kept everywhere. Intoxicating liquors and tobacco are coveted by the natives, but under the restrictions placed on the consumption of the former by the terms of the Mandate, the natives are not permitted to drink them except on ceremonial occasions and for medical purposes. In certain localities, some natives abstain from drinking and smoking for religious reasons.

The habit of chewing the betel-nut is widespread both in Yap and Palau, nearly all the people being addicted to it, without discrimination between men and women. Many boys and girls contract the habit at an early age.

In Ponape Island, a custom has been prevalent from early times to drink the juice extracted from a perennial herb called Shakao or Sakao by pounding its roots. This drink is taken only on such occasions as marriages, funerals, the construction of new houses, the first use of fishing nets, the repairing of roads and the clearing of the undergrowth in palm forests, when people assemble and take meals together, but it is seldom indulged in at private homes. It causes a slight excitement to

the drinker and gradually makes him sleepy. The natives call it Kawakawa or Kava wine. It is not a kind of alcoholic beverage, and contains no alkaloid similar to that found in morphine or cocaine. But inasmuch as it causes such effect, and if it is abused too often it may make the drinker indolent, its consumption is permitted, following the precedent established under the German regime, only when there is good justification and when it is not indulged in more than once a week.

Dwelling Houses.—The native houses are very simple in construction and poor in appearance. As the stage of civilization attained in various Islands there is naturally a difference in the building material and in the style of construction among them. The Charmorros in Saipan, who were the earliest to come to contact with civilization, are comparatively advanced in architecture. The houses in Gapan street inhabited by them are mostly built of wood, and stand adjoining each other with stone buildings between them, so that the street has quite a European appearance. The houses in Yap are low and gloomy, giving an impression of primitiveness. Some have foundations made of stone and built of large timber, but in construction they are not much advanced beyond temporary sheds, with a sharp-pitched roof and a few windows and doors, while inside they are damp, gloomy and dark even

during the daytime. In Palau, nearly all the houses have floors and are tolerably well provided with windows and doors. In Ponape the situation is roughly the same as in Palau, but in Truk and Jaluit the houses are very bad having no floors and are no better than temporary sheds. Occasionally, however, houses of European style are found, they belonging to wealthy men or to those who have come under European influence.

Throughout the Islands there are buildings which go by the name of "all men houses." These are used on the occasion of meetings of villagers or for lodging visitors from other villages. Each village has one or two such houses, and a community of several villages another. All have been built by co-operation and are used for the common benefit. It is said that they are relics of by-gone fighting ages. Those in Yap are famous for their extraordinary size. In the same island, houses exclusively for women are to be found, each village having one or two of them. They are occupied by women during their monthly sickness and no man is allowed access to them. This custom is peculiar to Yap.

In 1925 the Government commissioned Mr. S. Matsuoka to study the manners and customs of the islanders. His work was published in 1927 under the title "On the Micronesian Race."

ADMINISTRATION

In December, 1914, the South Seas Defence Corps was set up to garrison and administer the South Sea Islands. The regulations for the defence corps were revised in July, 1918, and a Civil Administration Department was established which was put under the direction of the Commander of the Defence Corps to take charge of the administration, while the Corps was charged with local defence.

On the adoption by the Council of the League of Nations on December 17, 1920, of the terms of the Mandate for the German possessions in the Pacific Ocean lying north of the Equator, the Japanese Government steadily pushed on preparations for carrying out the duties entrusted to it and after 1921 gradually withdrew the garrisons stationed in the Islands. On April 1, 1922, the Government abolished the system of the South Seas Defence Corps and effected the withdrawal of the garrison, and at the same time created the South

Seas Office to carry on the administration of the territory in place of the defence corps.

The South Seas Office has its headquarters in Korror, one of the Palau Islands in the West Caroline Group. The Director of the Office or Governor of South Sea Islands, under the direction and superintendence of the Minister of Overseas Affairs, manages the various administrative affairs of the mandate territory. With regard, however, to matters relating to post and telegraph he is under the superintendence of the Minister of Communications; in matters of currency, banking and customs duties, of the Minister of Finance, and in regard to weights and measures, of the Minister of Commerce & Industry.

The Director (Governor) is entrusted with the management of the general administrative affairs of the Islands and the issue of necessary regulations with penal clauses imposing penal servitude, imprisonment of detention for a

period not exceeding one year, or fines or minor fines not exceeding 200 yen in amount. In cases of emergency and for the purpose of maintaining peace and order he may issue regulations with penal clauses heavier than those above mentioned. In such cases, however, he has to ask for Imperial sanction through the Minister of Overseas Affairs immediately after the issue of the regulations, and, if Imperial sanction is not obtained he has to proclaim their invalidity for the future.

Legally, the Director (Governor) is thus authorized to issue regulations concerning matters for the management of the administrative affairs of the mandate territory. In practice, however, all important matters are decided by Imperial Ordinances.

If and when it is necessary, in the judgment of the Director, for the preservation of peace and order in the territory under his jurisdiction, he may apply to the commander of a naval port or the senior officer in command of the naval forces in the neighborhood to employ naval force.

The Director may also cancel or suspend rules and instructions issued or measures taken by officials under his jurisdiction, if he considers such to be at variance with laws and regulations, to be injurious to the public welfare or to exceed the competence of the said officials.

ORGANIZATION OF THE SOUTH SEAS OFFICE

The South Seas Office contains the Director's secretariat and five sections, namely, the General Section, the Financial Section, the Police Section, the Economic Development Section and the Communications Section. The Director's secretariat is in charge principally of confidential matters; the General Section, of affairs relating to local administration and public works; the Police Section, of those relating to police, hygiene and prisons; the Financial Section, of those relating to budgets and accounts; the Economic Development Section, of those relating to industry; the Communications Section, of those relating to post, telegraph, shipping and nautical marks.

Besides these six sections, there are the Saipan Harbor Works Office and the Products Museum, respectively entrusted with the construction works at the harbor of Saipan and the exhibition of products of the territory.

LOCAL ADMINISTRATION

Until the Regulations for the South Seas Islands Defence Corps were revised in July, 1918, the Islands were divided into six districts, and the commander of the garrison in each district, assisted by a civil secretary, dealt with civil administrative affairs in that district. But after the Regulations were revised, a civil administration office was established in each of the above-mentioned six districts, and civil officials were appointed to take charge of local administrative and judicial affairs. The head of such an office was empowered either ex-officio or by special authorization to issue regulations with penal clause imposing detention or fines.

On the establishment of the South Seas Office in April, 1922, the civil administration offices were abolished, and six branch bureaus were established in their place, the sphere of their jurisdiction being the same as that of their predecessors. A branch bureau is an ordinary local administrative organ having charge of all affairs relating to census, registration, charity and relief, police, prison, hygiene, collection of taxes, education, religion, industry, civil engineering works, harbors, and other matters which do not come under the competence of any specially established office.

A branch bureau has a head, who, under the direction and superintendence of the Governor or Director of the South Seas Office puts into effect laws and regulations and manages administrative affairs in the district under his jurisdiction.

With regard to administrative affairs in the district under his jurisdiction, the head of a branch bureau is empowered ex-officio or by special authorization to issue rules. He is not authorized, however, to attach thereto any penal clauses. In case the Director of the South Seas Office finds such rules to be at variance with existing laws and regulations, or injurious to public welfare, or to exceed the competence of the authority, he may cancel or suspend them.

The head of a branch bureau is authorized to arbitrate in civil disputes and to pass summary judgment with regard to certain offences. In respect of the detection of offenders, as a judicial police officer, he has the same power as the public procurator of a local court.

The names, sites and sphere of jurisdiction of the branch bureaus are as follows:—

Name	Site	Sphere of Jurisdiction
Saipan Branch Bureau	Saipan Island of Mariana Group.	Whole of Mariana Group
Yap Branch Bureau	Yap Island of West Caroline Group.	Whole of West Caroline Group (east of 137°E. L.)
Palau Branch Bureau	Morrer Island of the Palau Islands of West Caroline Group.	Whole of West Caroline Group (west of 137°E. L.)
Truk Branch Bureau	Summer Island of Truk Islands in the East Caroline Group.	Whole of East Caroline Group (west of 154°E. L.)
Ponape Branch Bureau	Ponape Island of East Caroline Group.	Whole of East Caroline Group (east of 154°E. L.) and whole of Marshal Group (west of 164°E. L.)
Jaluit Branch Bureau	Jaluit Island of Marshall Group.	Whole of Marshall Group (east of 164°E. L.)

Village Officials

In order to admit the appointment of natives as village officials and enable them to participate in the local administration, the offices of village chiefs and assistant village chiefs have been instituted in the district under the jurisdiction of each branch bureau. Those village officials are appointed and dismissed by the head of the branch bureau with the sanction of the Director of the South Seas Office. In conformity with old usage, assistant village chiefs assist village chiefs in the discharge of their duties or may carry out some portion of them.

The sphere of jurisdiction of a native official is determined in accordance with usage, but it may be changed by the head of a branch bureau after inviting and considering the opinions of interested officials and obtaining the approval of the Director of the South Seas Office.

A village chief or an assistant village chief shall, under the direction of the head of the branch bureau, execute his functions defined by laws, regulations and local conventions, and at the same time shall execute the following activities which concern native inhabitants.

- (1) Bringing laws and regulations to the notice of villagers.
- (2) Forwarding to the authorities of applications, reports, etc. sent in by villagers.
- (3) Transmission to villagers and the due execution of instructions issued by the head of the branch bureau.

In addition to the above-mentioned matters, a village chief or an assistant village chief is required to make a report at least twice a year to the head of the branch bureau or to the proper police officer concerning the conditions, changes in population, etc. of the village under his jurisdiction. In case epidemics break out, natural calamities happen, injurious insects appear, or any other important occurrences take place, he must immediately report it to the authorities.

A village chief may submit to the head of the competent branch bureau his opinion concerning the administration of the village under his jurisdiction.

A village chief is accorded a monthly allowance not exceeding 35 yen in amount and an assistant village chief an allowance not exceeding 20 yen in amount.

POPULATION

The total number of population as shown in the census returns taken on October 1, 1930, stood at 69,626 against 59,294 in 1925 and 52,222 in 1920. The largest percentage of Japanese inhabitants, i.e. 12,587 souls out of the total of 19,835, is in Saipan Island where they are engaged in sugar cane cultivation or sugar

manufacture conducted by the Nanyo Kohatsu (South Sea Exploitation Co.) which is doing an extensive business in the line. Below are given the results of the quinquennial census taken in 1920, 1925, and 1930 (simultaneously with Japan proper) and the annual census taken in 1932:—

	Year	Japanese		Natives		Foreigners		Total	
		Male	Female	Male	Female	Male	Female	Male	Female
Saipan	1920	1,328	430	1,681	1,717	—	3	3,009	2,150
	1925	3,587	1,712	1,772	1,721	8	—	5,367	3,433
	1930	9,537	6,119	1,945	1,884	7	4	11,489	8,007
	1932	12,033	7,828	2,110	1,970	9	4	14,152	9,802
Yap	1920	86	11	4,074	4,263	3	1	4,163	4,276
	1925	95	61	3,515	3,851	12	1	3,623	3,912
	1930	149	92	3,146	3,340	4	4	3,299	3,436
	1932	165	101	3,071	3,250	5	4	3,241	3,355
Palau	1920	556	36	3,143	2,611	15	—	3,714	2,647
	1925	708	346	3,315	2,642	19	—	4,042	2,988
	1930	1,266	812	3,305	2,704	13	1	4,584	3,517
	1932	2,009	994	3,293	2,738	12	1	5,314	3,733
Truk	1920	540	61	7,555	7,233	4	1	8,099	7,295
	1925	233	114	7,501	7,460	9	—	7,743	7,574
	1930	540	209	7,690	7,510	16	—	8,246	7,726
	1932	717	321	7,925	7,484	17	7	8,659	7,812
Ponape	1920	397	28	3,428	3,210	4	2	3,829	3,240
	1925	271	86	4,014	3,585	10	2	4,295	3,673
	1930	450	239	4,343	3,858	13	7	4,806	4,104
	1932	757	384	4,383	3,951	13	11	5,153	4,346
Jaluit	1920	190	8	4,996	4,593	10	3	5,196	4,604
	1925	180	37	4,846	4,576	4	—	5,030	4,614
	1930	320	102	5,167	4,803	18	2	5,505	4,907
	1932	322	135	5,100	4,770	12	3	5,434	4,908
Total	1920	3,097	574	24,877	23,628	36	10	28,010	24,212
	1925	5,074	2,356	24,964	23,834	62	4	30,100	26,194
	1930	12,262	7,573	25,596	24,099	71	25	37,929	31,697
	1932	16,003	9,763	25,882	24,163	68	30	41,953	33,956

N.B.—Figures for 1932 are those at the beginning of April.

The number of population and households, and density of population per square kilometer as at the beginning of April 1932 are tabulated as follows:—

Branch bureau	Population	Area sq. "ri"	Density per sq. km.	No. of households	Branch bureau	Population	Area sq. "ri"	Density per square km.	No. of households
Saipan	23,954	41.43	578.2	5,382	Ponape	9,499	32.65	290.9	1,812
Yap	6,596	14.64	450.5	1,817	Jaluit	10,349	11.05	935.9	1,966
Palau	9,047	31.00	291.8	2,616	Total	75,909	139.32	544.9	16,711
Truk	16,471	8.55	1,926.4	3,118					

The number of births, deaths, and the death rate to 100 births for the last five years ended 1931 are returned as follows:—

Year	Total			Japanese & Foreigners			Natives			
	Births	Deaths	Rate	Births	Deaths	Rate	Births	Deaths	Rate	
Saipan	1927	527	182	34.5	378	90	23.8	149	92	61.7
	1928	569	299	52.5	422	191	45.3	147	108	73.5
	1929	954	442	46.3	779	285	36.6	175	157	89.7
	1930	1,035	285	27.5	859	221	25.7	176	64	36.4
	1931	1,178	434	36.8	1,001	309	30.8	177	125	70.6
Yap	1927	156	323	207.1	6	2	33.3	150	321	214.0
	1928	101	207	205.0	9	2	22.2	92	205	222.8
	1929	95	205	215.8	8	2	25.0	87	203	233.3
	1930	139	228	164.0	19	1	5.3	120	227	189.2
	1931	119	201	168.9	9	3	33.3	110	198	180.0

Year	Total			Japanese & Foreigners			Natives		
	Births	Deaths	Rate	Births	Deaths	Rate	Births	Deaths	Rate
Palau									
1927	217	138	63.6	73	26	35.6	144	112	77.8
1928	201	120	59.7	55	13	23.6	146	107	73.3
1929	255	144	56.5	73	28	38.4	182	116	63.7
1930	229	142	62.0	89	30	33.7	140	112	80.0
1931	278	166	59.7	97	45	46.4	181	121	66.8
Truk									
1927	447	368	82.3	16	5	31.3	431	363	84.2
1928	396	392	99.0	14	10	71.4	382	382	100.0
1929	374	638	170.6	16	16	100.0	358	622	173.7
1930	564	292	51.8	18	4	22.2	546	288	52.7
1931	358	332	92.7	42	17	40.4	316	315	99.7
Ponape									
1927	188	193	102.7	19	7	36.8	169	186	110.1
1928	231	165	71.4	26	8	30.8	205	157	76.6
1929	213	201	94.4	19	7	36.8	194	194	100.0
1930	297	120	40.4	38	8	21.1	259	112	43.2
1931	279	140	50.1	24	8	33.3	255	132	51.7
Jaluit									
1927	164	216	131.7	7	4	57.1	157	212	135.0
1928	197	163	82.7	11	8	72.7	186	155	83.3
1929	184	111	60.3	13	2	15.4	171	109	63.7
1930	253	130	51.4	17	2	11.8	236	128	54.2
1931	204	177	86.7	14	4	28.5	190	173	91.0
Total									
1927	1,699	1,420	83.6	499	134	26.9	1,200	1,286	107.2
1928	1,695	1,346	79.4	537	232	43.2	1,153	1,114	96.2
1929	2,075	1,741	83.9	98	340	37.4	1,167	1,401	120.1
1930	2,517	1,197	47.6	1,040	266	25.6	1,477	931	63.0
1931	2,416	1,450	60.0	1,187	386	32.5	1,229	1,064	86.5

FINANCE

The Budget estimates for the South Seas Office, like the general budget of the Japanese Government, must annually obtain the approval of the Imperial Diet as required by the Constitution. The Financial Law of Japan as well as the special financial law for the South Seas Office applies to the estimates (revenue and expenditure).

The accounts of the South Seas Office are independent of the general account of the Japanese Government, and are dealt with as special accounts. The expenditure of the

South Seas Office is met from the revenue collected by the Office plus a subsidy from the general accounts of the Japanese Government. The Government should draw up estimates of the revenue and expenditure under the special accounts of the South Seas Office and submit them to the Imperial Diet together with the general budget of its revenue and expenditure.

The revenue and expenditure for the seven years from 1926 to 1932 inclusive are shown below (in yen):—

Year	Revenue			Expenditure		
	Ordinary	Extraordinary	Total	Ordinary	Extraordinary	Total
1926	2,399,369	4,608,958	7,008,328	2,310,110	1,638,464	3,948,574
1927	2,731,313	4,867,667	7,598,981	2,322,138	2,295,431	4,617,569
1928	2,834,212	4,794,669	7,628,882	2,444,201	2,089,909	4,534,110
1929	2,839,480	4,606,636	7,446,116	2,410,638	2,091,361	4,501,999
1930	3,402,321	3,965,091	7,367,412	2,364,381	2,294,463	4,658,845
1931	4,699,058	2,999,531	7,698,589	2,432,547	2,143,889	4,576,436
1932	4,589,251	425,168	5,014,419	2,665,336	2,347,083	5,014,419

Taxes:	Revenue				
	1928-29	1929-30	1930-31	1931-32	1932-33 (Budget)
Poll tax	78,790	93,273	87,874	95,509	86,731
Port clearance dues	1,007,139	891,925	1,761,691	3,074,433	2,998,750
Customs duties	36,530	80,379	24,288	18,918	24,288
Mining tax	76	—	—	143	143
Total	1,122,536	1,065,577	1,873,853	3,189,004	3,109,912
Revenues other than taxes:					
Income from Government undertakings and property	1,694,940	1,751,065	1,493,595	1,475,581	1,443,985
Stamp receipts	8,726	15,987	19,410	15,126	14,708
Miscellaneous receipts	8,010	6,848	15,460	19,346	20,646
Sale of Government property	13,257	11,864	20,974	18,504	15,366
Subsidies	1,800,000	1,500,000	1,000,000	272,459	—
Surplus brought over from previous year	2,981,411	3,094,771	2,944,117	2,708,567	409,892
Total	6,506,346	6,380,538	5,493,559	4,509,585	1,904,507
Expenditure					
Ordinary:	1931-32	1932-33 (Budget)	Extraordinary:	1931-32	1932-33 (Budget)
Salaries	776,320	789,644	Public and Repair works	539,776	556,432
Office expenses	904,839	938,393	Improvement of Saipan harbour	109,625	56,585
Expenses for improvement	629,506	754,590	Construction of passage for team-launches in Palau	17,175	29,880
Education	50,648	58,237	Industry	102,922	162,184
Sanitation	5,312	7,823	Encouragement and subsidy	1,312,575	1,446,052
Police and prison	6,185	4,890	Land inspection	41,101	47,950
Other expenses	33,251	36,930	Investigation expenses	14,291	—
National debt sinking fund & share in pensions	26,483	24,829	Damages	6,430	—
Reserves	—	50,000	Total incl. others	2,143,889	2,349,083
Total	2,432,547	2,665,336			

RELIGION

In the mandate territory the propagation of and belief in any religion is entirely free, and no restriction whatever is placed thereon, no matter whether the persons concerned are Japanese, foreigners or natives, as long as it does not prejudice the public peace or good morals. As a matter of fact, since the inauguration of the mandatory administration no instance of any prohibition or restriction on account of prejudice to the public peace or good morals has occurred in the territory.

During the Spanish and German regimes, owing to the zealous evangelistic work carried on by Christian missionaries, many natives embraced Christianity, with the result that it is no exaggeration to say that today the religion

believed by the natives is exclusively Christianity. The East Hongwanji of Kyoto established a mission station in Saipan in 1919 and another in Palau in 1926 for the benefit of Japanese believers. Then Tenri-kyo, a denomination of Shinto, established a church at Palau and commenced the propagation of its creed in 1929. At the end of April, 1932, churches numbered 32 (composed of Christianity 26, Buddhist 4, and Tenri-kyo 2), preaching stations 116, missionaries 42, believers 34,826 composed of 30,893 Christians, 3,830 Buddhists and 103 Shintoists (Tenri-kyo). At the same period Christian schools numbered 15, staff 34, pupils 1,183 including 629 males.

EDUCATION

In December, 1915, the Regulations for Primary Schools in the South Sea Islands were

promulgated and primary schools were established in Saipan and five other places, to

commence the education of native children. In July, 1918, the Regulations for Native Schools in the South Sea Islands were enacted and the primary schools were thereafter re-named native schools. The teaching staff was also augmented in force and additional schools were established.

In April, 1919, the Regulations for Primary Schools in the South Sea Islands were enacted for the education of Japanese children, and primary schools were established in Saipan and Truk, and later in Palau, Yap and Ponape.

On the establishment of the South Seas Office, the Regulations for the Organization of the South Seas Primary Schools and the Regulations for the Organization of the South Seas Office Public Schools were promulgated, defining the organization and sphere of these schools. The native schools were thereby re-named public schools, and the regulations governing primary and public schools were revised.

Further, for the vocational education of natives the Apprentice Woodworkers Training School was established in April, 1926, attached to the Korrer Public School under the jurisdiction of the Palau Branch Office.

To this school are admitted boys from all districts selected from among those who have completed the course of instruction at public schools and have gone through the supplementary course, and there they are given instruction in building and carpentry.

JUDICATURE

Simultaneously with the establishment of the South Seas Office in 1922, the Courts of Justice theretofore forming part of the machinery of the Civil Administration Department were abolished, and Local Courts and a Higher Court were established in their place, judicial officials independent of the executive being appointed thereto to deal with civil and criminal cases. All judicial affairs in the mandate territory are to be dealt with at these courts, except in such a place where there is no courts of justice, and the head of the branch bureau is authorized to deal with certain civil cases and also to render summary judgment in criminal cases of comparatively minor gravity.

Courts of Justice.—The Courts of Justice are organized on a double instance system. A

Primary Schools.—The primary school is principally intended for the primary education of Japanese children and is divided into two courses, ordinary and higher. The primary schools existing in the territory were 7 in number, but the Chatcha Primary School and the Tinian Primary School having been established in April, 1929, their number has increased to 9 in three of which higher courses are provided.

Public Schools.—There are 24 public schools in the territory including 1 private school. As a rule, children eligible to attend a public school are those of natives, above eight years of age. The institution gives primary education to native children, its fundamental object being the imparting of moral senses as well as of such knowledge and capacity as are indispensable to the advancement of the living of the native population, with due regard, at the same time, to their physical development.

Private Educational Institutions.—The educational institutions established by private bodies were hitherto confined to mission schools belonging to Christian churches. In 1927, however, two kindergartens and one private public school were established. At the end of April, 1932, there existed 15 mission schools (3 in Saipan, 1 in Palau, 6 in Truk, 2 in Ponape, and 3 in Jaluit), and 4 kindergartens (1 in Saipan, 1 in Yap, 1 in Palau and 1 in Ponape) besides which, there was a private public school in Jaluit.

court of first instance is called Local Court, and a single judge system is adopted in such courts. A court of second instance is called Higher Court, and a bench system is here adopted, three judges constituting the bench.

The Local Court gives decisions in the first instance in civil and criminal cases, besides dealing with non-contentious cases. It also has jurisdiction over judicial reconciliation, summary procedure, compulsory execution against immovable property and vessels, the procedure for public summons, bankruptcy proceedings, reconciliation proceedings, summary proceedings for taking up entrusted criminal cases, etc.

The Judge of a Local Court deals with the drawing up of notarial deeds, the authentication of private documents and other matters

comprised in the functions of notary in Japan, and the clerks of a Local Court deal with the delivery of documents, notifications, summons, compulsory execution against movable property and voluntary sales by auction of movable property, the drawing up of protests for non-acceptance, the collection of fines, the disposal of confiscated articles, the execution of warrants and other matters comprised in the functions of a bailiff in Japan.

The Higher Court reviews cases on appeal from the judgments of the Local Courts, the decisions given being in the second instance and final.

A Public Procurator's Office is attached to each of the Courts of Justice, its sphere of jurisdiction being the same as that of the Court to which it belongs.

The Public Procurator directs and superintends the judicial police in the detection of the offenders, bring judicial proceedings before the Court of Justice and directs and superintends the execution of judgments rendered.

One Public Procurator in regular employment is appointed for all the Public Procura-

tor's Offices and is stationed ordinarily in Palau Island. The function of the Public Procurator is entrusted to Police Inspectors at the Public Procurator's Offices attached to the Local Courts at Ponape and at Saipan but grave cases are usually reserved for the direct action of the Public Procurator. The Public Procurator is the central organ of detective service, and Police Inspectors and Police Sergeants, who are administrative police officers, assist the Public Procurator and engage in detective service under his direction in the capacity of judicial police officers. The head of a branch bureau and the Police Superintendent in the capacity of judicial police officers have the same competence as the Public Procurator in regard to detective service. The Local Courts are established in three places, namely Palau, Saipan and Ponape, and the Higher Court in Palau.

At the end of 1931 the number of criminal cases tried at the courts of justice numbered 214, persons punished numbered 80 (43 Japanese), those fined being 343 including 163 Japanese and 1 foreigner, total guilty being 514. Those acquitted numbered 6 including 3 Japanese.

POLICE

After the complete withdrawal of the naval forces from the Islands in April, 1922, the maintenance of peace and order in the territory was placed exclusively in the hands of the police.

This necessitated an augmentation of the police force. Accordingly, for the management of affairs concerning police, sanitation and the execution of sentences, a police superinten-

dent, police inspectors, police sergeants and policemen have been appointed to the South Seas Office, and police inspectors, police sergeants, policemen and native policemen to each branch bureau. The number of police offices including branches and the personnel of the police at the end of August 1932 were as follows:—

	No. of police incl. branches	Police superintendent	Police inspectors	Police sergeants	Policemen	Chief policemen	Native policemen
South Seas Office	—	1	1	—	1	2	—
Saipan Branch Bureau	8	—	2	4	20	3	9
Yap " "	2	—	1	1	4	1	5
Palau " "	5	—	1	2	11	1	8
Truk " "	3	—	1	1	5	1	5
Ponape " "	5	—	1	1	8	1	8
Jaluit " "	3	—	2	1	4	1	4
Total	26	1	9	10	39	10	39

AGRICULTURE

Agricultural industry carried on by natives is in a very primitive state. They have no system of cultivation, growing extensively only a few crops such as tapioca, taro potatoes and

yam potatoes by rotation. Though the most part of the best situated and really fertile tracts of land belong to natives, the greater portion of such land still remains undeveloped. If

they were more enlightened in agricultural knowledge and taught advanced methods of cultivation, their prosperity would be remarkably advanced. With this in view, since the Islands came under Japanese administration, the authorities have been endeavouring in various ways to instruct and lead them in this respect, but their efforts so far have been rewarded with lamentably poor success. This is due to the bounty of nature, which frees them from the necessity of making any great efforts to obtain a livelihood, as well as to the traditional idea prevailing among them that farming is work for women, which makes them indolent and indifferent towards agriculture. At the end of December, 1931, the total area under cultivation approximated 13,385,916

hectares of which 1,224,936 hectares are paddy and 12,160,980 hectares upland. The area, the number of farming households and of population at the end of December, 1932, are as follows:—

Branch bureau	Area under Cultivation		
	Paddy (Hectare)	Upland (Hectare)	Total (Hectare)
Saipan.....	991	10,778,608	10,779,599
Yap.....	937,436	566,924	1,504,360
Palau.....	219,610	203,672	423,282
Truk.....	55,000	209,000	264,000
Ponape.....	9,916	70,211	80,127
Jaluit.....	1,983	332,565	334,548
Total.....	1,224,936	12,160,980	13,385,916

	No. of farming households	Farming population			
		Male	Female	Total	
Saipan	Japanese.....	2,300	4,538	2,733	7,271
	Natives.....	608	1,035	285	1,320
Yap	Japanese.....	21	21	—	21
	Natives.....	1,714	1,518	196	1,714
Palau	Japanese.....	66	90	23	113
	Natives.....	759	1,057	1,428	2,485
Truk	Japanese.....	3	6	2	8
	Natives.....	2,220	4,872	4,760	9,632
Ponape	Japanese.....	55	55	—	55
	Natives.....	1,351	1,330	21	1,351
Jaluit	Japanese.....	3	3	—	3
	Natives.....	1,701	2,530	1,178	3,708
Total	Japanese.....	2,448	4,713	2,758	7,471
	Natives.....	8,353	12,342	7,868	20,210

Principal production for the year 1932 was as follows:—

	Kilograms	Yen
Maize.....	95,418	11,875
Beans and pease.....	26,750	4,228
Sweet potato.....	1,468,071	57,454
Yam potato.....	1,212,938	76,302
Taro.....	2,177,613	88,847
Tapioca.....	2,405,272	129,467
Water melon.....	251,083	20,484
Pumpkin.....	2,435,923	32,979
Sugar cane.....	383,575,582	1,403,436
Banana.....	1,819,079	88,974
Musk melon.....	2,750,691	80,903
Coffee.....	115,462	7,697
Total incl. others.....	—	2,752,892

Sugar.—At present the sugar industry is carried on in Saipan and Tinian, and the cultivation of sugar cane is mostly confined to those two islands, the production of the other islands being small and almost entirely consum-

ed locally. The total area of sugar plantation in 1919-20 was only 459 cho, but increased to 2,756 cho in 1925-26 and to 6,641 cho in 1931-32.

Year	Total area (Cho)	Production (Kin)
1919-20.....	459.00	755,599
1922-23.....	1,676.50	2,131,100
1925-26.....	2,756.96	15,267,600
1928-29.....	3,317.13	16,423,400
1929-30.....	4,590.33	34,539,700
1930-31.....	6,144.49	64,278,900
1931-32.....	6,641.89	69,557,200

Coffee.—Coffee suits the climate and soil of the Islands and it has long been grown there. But the production was not large in quantity and was chiefly consumed at home. Recently many Japanese have started its cultivation in Saipan with a good prospect of making a fair profit if the work be afforded encouragement. Accordingly the Government, since 1927, has made grants-in-aid to cultivators of coffee.

FORESTRY

As the Islands are small in area, there are no forestry enterprises systematically undertaken, and no regulations have as yet been enacted concerning forestry, which is carried on in conformity with usage.

Timber trees in the Islands are *sonneratia acida*, *calophyllum inophyllum*, *terminalia catappa*, *pterocarpus indicus*, *intsia bijuga*, *serianthes grandiflora*, *kurogaki* and *elacocarpus* sq.

As regards fruit trees, *artocarpus incisa*, *cocos nucifera*, *cocoa edulis*, *anona muricata*, *pangium edule* and *mangifera indica* may be mentioned, while fibre-yielding trees are pan-

danus sq., *cocos nucifera*, *artocarpus incisa* and *hibiscus tiliaceus*. Except *cocos nucifera*, however, these trees are not found in such large numbers as to merit special mention.

Coco-nut palms have been planted throughout the Islands for many years. They grow very well and the copra obtained from them is not only the chief forest product and one of the most important articles of export, but constitutes an indispensable item of the daily diet of the natives. Area of palm forests and the production of copra obtained from them are tabulated as follows, classified according to branch bureaus:—

Branch bureau	Area under palm trees (Hectare)	Production of coco-nuts (Piece)	Production of copra	
			(Ton)	(Yen)
Saipan.....	2,437	4,786,532	689	28,827
Yap.....	3,344	5,266,084	500	26,781
Palau.....	1,453	3,004,480	208	9,517
Truk.....	4,073	34,691,328	1,837	94,193
Ponape.....	6,478	31,916,220	2,365	135,527
Jaluit.....	11,811	56,751,420	5,067	292,265
Total.....	29,600	136,416,064	10,666	587,110

Other productions in 1931 were as follow:—

	Saipan	Yap	Palau	Truk	Ponape	Jaluit	Total
Timber (yen).....	4,106	845	602	955	712	1,088	8,308
Fagots (").....	193,901	11	277	411	144	4,650	199,394
Charcoal (").....	19,721	—	11,095	6,097	3,257	2,731	42,901
Total incl. others (yen).....	220,837	856	12,909	7,463	4,113	8,459	254,647

FISHERY

The noteworthy branches of fishery have hitherto been confined to the collection of sea-slugs, nilotic-top shells and tortoise shells, and in recent years bonito and tunny fishing has been started. Some natives and Japanese catch other fish and collect other shells for their own consumption, but these are scarcely worth mentioning.

Nilotic-top shells are collected chiefly in Palau and Yap, and tortoise shells, chiefly in Palau, Yap, Truk and Ponape, but sea-slugs are collected in every island. The fishing of bonito and tunny is carried on in the seas of Palau, Saipan and Truk.

In Palau and Ponape, some have been carrying on the culture of the pearl oyster. In Ponape the enterprise has, however, ended in failure owing to a lack of technical skill, but in Palau the industry has made very satisfactory progress.

In 1916 the "Regulations for the Fishing Industry in the South Sea Islands" were promulgated. In these regulations it is provided that as a rule persons desiring to engage in the industry shall obtain permission from the authorities, but fisheries recognized by local usage are allowed to continue without going through such a procedure. It is also provided, for the purpose of assuring the proper multiplication of nilotic-top shells, pearl oysters and tortoises, that they shall not be taken at other times than the specified periods. With regard to the acquisition of the fishery rights, no discrimination is made between natives, Japanese and foreigners, any and all persons who have obtained permission being free to engage in that occupation. At present 24 fishing vessels with engines are engaged in fishery.

At the end of 1931 the total catches valued at ¥87,888 of which bonito contributed ¥622,

983, tunny ¥29,898, shell-fishes ¥50,483 of which nilotic-top shells occupied the largest percentage, other catches being ¥33,119 and manufactured marine products ¥1,064,341. The following figures show the value of catches and manufactured marine products in the last five years:—

Year	Total catches (Yen)	Manufactured marine products (Yen)
1927	207,725	40,940
1928	279,133	111,424
1929	342,659	220,209
1930	510,768	484,547
1931	871,490	1,064,341

COMMERCE AND INDUSTRY

The natives lead very simple life and are generally self-supporting as regards articles of daily use and consequently they have as a rule little purchasing power. Besides, the Japanese in the Islands number in all only about 20,000. Moreover, as the Islands are scattered over a vast expanse of water, and communication between them is difficult, commerce and industry are still in a primitive stage. Nearly all the persons engaged in commerce are small shop-keepers selling food-stuffs and sundry goods and doing brokerage business in copra. The most important industry is the manufacture of sugar and its by-products, i.e. alcohol and alcoholic drinks in Saipan. Recently a certain number of persons

have started the manufacture of refreshing beverages and canned fruits, but the amount of production is still quite small. The only handicraft of the natives is weaving fabrics from the leaves of palm and breadfruit trees, there existing no other worth mentioning. The following table shows the value and quantity of the principal goods manufactured in the Islands during 1931:—

Sugar	¥ 9,632,902 (660,946 piculs)
Refreshing beverages	4,517 (93 koku)
Alcoholic liquors	135,740 (1,966 koku)
Alcohol	338,330 (6,766 koku)
Others	118,487
Total	10,229,976

MINING INDUSTRY

The principal mineral product obtainable in the Islands and worthy of mentioning is phosphate. Sulphur and manganese are also found but only in small quantities, and are scarcely worth mentioning. The mining industry in the Islands is to be undertaken in accordance with the "South Sea Islands Mining Regulations" promulgated in 1916. The Regulations provide that persons desiring to undertake mining enterprises are to apply for and obtain permission from the Director of the South Seas Office, and that any person irrespective of nationality may obtain mining rights. A person intending to undertake mining operations may enter on land, the property of other persons, and make surveys or investigations thereof or make use of it after obtaining permission from the head of the competent branch bureau. In that case he must pay rent to the owner of the land and pay compensation for all damages sustained.

The head of the competent branch bureau may, with the permission of the Director of the South Seas Office, issue the necessary rule for

the safeguarding of public welfare and deposits of minerals.

In case a miner has been injured, fallen ill or been killed while working, otherwise than by his own negligence, the person undertaking the mining operations is under the obligation to support him or his bereaved family. He is also under the obligation to pay a certain mining tax.

Phosphate is mostly found in Angaur Islands, which was formerly managed by a German company called the South Seas Phosphate Mining Company, Ltd. but is now placed under the management of the South Seas Office. The annual production of the mine is estimated at 60,000 tons. The quantity of refined phosphate exported in the last five years is shown below:—

Year	Quantity (Ton)	Value (Yen)
1927	63,128	1,335,157
1928	61,326	1,386,225
1929	64,459	1,414,875
1930	55,455	1,153,454
1931	59,251	1,125,769

PRODUCTS MUSEUM

A new Products Museum was established in 1929 in Korro Island in the Palau Group,

which is also the site of the head office of the South Seas Office. In this museum are exhibited specimens of various products of the Islands and materials of geographical, historical and scientific value, collected from various places in the territory. The museum is also

intended to function as an organ for finding markets for local products as well as for assisting in transactions in them, with a view to contributing to the industrial development of the Islands and the advancement of local culture.

FOREIGN TRADE

Trade carried on in the mandated territory may be classified as trade between the territory and Japan and dependencies and that between the territory and foreign countries. Most of the trade is conducted between the territory and Japan and dependencies.

The export and import between the Islands and Japan and dependencies are carried on at the nine ports, namely, Saipan, Tinian, Yap, Palau, Angaur, Truk, Ponape, Kusaie and Jaluit.

No duties are imposed on such imports and exports, in principle, but as an exception there is the institution of port clearance dues. Trade with foreign countries is carried on at Saipan, Palau, Angaur, Truk and Jaluit. No duties are imposed on exports, but customs duties are collected on imports.

The chief export articles are phosphate, copra, sugar, and alcohol, their combined value constituting 9 per cent of the total volume of

exports. Nilotic-top shells and sea-slugs are gathered, as a rule, every other year out of regard for their replenishment, so that the value of those articles exported differs from year to year. Nearly all the exports go to Japan, the exports to foreign countries being very small quantities of miscellaneous articles going to Guam from Saipan and to the Gilbert Islands from Jaluit.

The chief import articles are rice and other foodstuffs and drinks, cloth and articles made of cloth, wearing apparel and trinkets, articles made of metal, timber and articles made of wood, oil and wax and fat and articles made thereof, minerals and manufactures thereof. The combined value of those articles constitutes about 75 per cent of the total value of the imports. Below are given the data of staple articles of export and import in the last five years:—

Staple Exports (in yen)

Items	1927	1928	1929	1930	1931
Vegetables and fruits	8,853	7,279	8,574	12,736	13,264
Sugar	4,392,987	2,917,673	3,250,107	6,784,853	9,237,201
Dried bonito	12,907	28,995	146,581	298,129	701,180
Alcoholic liquor	929	18,949	51,637	82,532	43,401
Nilotic-top shells	46,736	75,711	80,841	57,218	58,198
Alcohol	418,865	324,702	382,320	261,000	295,344
Phosphate	1,360,759	1,461,636	1,533,174	1,185,736	864,738
Copra	1,792,267	1,961,576	1,854,339	1,709,575	1,126,783
Total incl. others	8,221,516	8,178,816	7,638,069	10,690,002	12,800,217

Staple Imports (in yen)

Items	1927	1928	1929	1930	1931
Rice and paddies	491,744	730,306	800,533	767,058	756,617
Sugar	189,381	152,530	76,977	56,619	59,790
Alcoholic liquor	210,802	255,000	226,091	237,146	256,827
Cigarettes	163,374	229,753	234,749	262,888	296,325
Oil, wax and manufactures thereof	178,546	253,230	298,087	299,673	377,553
Cloth and manufactures thereof	293,958	385,555	362,294	396,537	562,160
Copra	53,163	111,744	128,504	75,730	23,068
Wood and manufactures thereof	306,104	311,701	454,235	394,951	449,423
Total incl. others	3,814,511	4,782,589	7,122,4795	7,118,925	5,958,766

COMMUNICATIONS

Postal Business.—As the post-offices are located in the islands scattered over great expanse of water and are widely separated from one another, communications are entirely dependent on ships, and all mail matters are despatched and received when vessels on regular services call at the respective islands. The occasions on which postal matters are despatched and received in a year numbered 25 at the Saipan post-office, 13 at the Yap post-office, 18 at the Palau and Angaur post-offices, and 11 each at the Truk, Ponape and Jaluit post-offices. When casual vessels call, advantage is taken of it to make an extraordinary despatch, so as to secure early delivery. Among the foreign mails, those destined for the Dutch East Indies have been allotted an exchange office viz. the Palau post-office and they are sent thence to the post-office at Menado in the Celebes by vessels regularly plying between the two places. Also on August 1, 1927, the Jaluit post-office was made on exchange office for the British Gilbert Islands, and the despatch was commenced of postal matters to the Btaritary post-office.

Telegraphic Business.—Telegrams and wireless telegrams in Japanese or European languages, destined to or coming from Japan proper or foreign countries, are dealt with, delivered, and transmitted.

Telegraphic communication is accomplished by means of submarine cables and wireless telegraphy. There are two cables, one being the Yap-Nawa line and the other the Yap-Guam line. The former is used for sending and re-

ceiving telegrams to and from Japan proper and foreign countries, and the latter for telegrams to and from the United States and the Philippines.

There is a wireless installation at every post-office, and the business of the coast stations and the fixed stations is dealt with there. The wireless in Palau is in direct communication with Japan proper, and, besides connecting the Islands with Japan proper, controls the connections between the post-offices in the Islands. The wireless in Truk chiefly functions as an intermediary between Palau and the Islands in the east, and being in direct communication with Rabaul (Bismarck Group), deals with messages between the Islands and other places in the Southern Pacific. The wireless installations of other post-offices connect with each other.

Telephone Service.—In July, 1927, the "Rules for the Telephone Service in the South Sea Islands" were issued by the South Seas Office and subsequently the Palau post-office opened the service on September 1 of the same year and the Saipan post-office on July 21, 1928.

Postal Money Order and Savings Bank Business.—Postal Money Orders for Japan proper and foreign countries and the deposit and payment of postal savings are dealt with. The method of handling these branches of postal business is the same as in Japan proper. Statistics on above-mentioned businesses are tabulated as follow:—

Mail Matters

	1927-28	1928-29	1929-30	1930-31	1931-32	
Ordinary	Received	447,766	569,704	673,969	971,673	939,143
	Delivered	618,704	934,083	988,975	1,223,947	1,334,487
Parcel	Received	5,778	6,042	6,481	7,808	8,525
	Delivered	20,670	24,233	26,354	29,009	30,628
Total	Received	453,544	575,746	680,450	979,481	947,668
	Delivered	639,374	958,316	1,015,329	1,252,956	1,365,115

No. of Telegrams Dealt with

	1927-28	1928-29	1929-30	1930-31	1931-32	
Domestic	Despatched	74,460	83,971	82,301	87,704	108,365
	Transmitted	127,201	111,596	101,793	83,493	111,441
	Received	69,364	79,372	89,973	95,343	105,445
Foreign	Despatched	724	966	1,211	1,573	1,570
	Transmitted	681	697	767	465	619
	Received	320	364	351	351	447
Total number	272,750	276,966	276,396	368,929	327,887	
Total charges (yen)	42,860	45,514	46,654	50,557	61,621	

RAILWAYS

There is no railway in the Islands for the public. The only railways existing are a light railway in Angaur constructed for the carriage of phosphate, and another, 48 miles in length, constructed in Saipan by the Nanyo Kohatsu Kaisha for the benefit of its sugar industry. Of the latter railway, the section between Garapan and Charankanoa, about 4

miles, is open for traffic for the convenience of the public. At the end of December, 1931, the total carriages numbered 796, locomotives 18, and mileage 84.26 miles. Vehicles, classified according to kinds, are: motor buses 42, automobiles 7, waggons 138, carts 2,066, rikisha 1, bicycles 2,925 and others 4, total number being 5,183.

CHAPTER XLI

SIX PREMIER CITIES

THE CITY PLANNING LAW

The rapid expansion of cities and towns in recent years has been such that their complete reconstruction is judged necessary as they hardly meet the radically changed requirements of modern traffic, sanitation, etc. The City Planning Law, first adopted in 1919, provides for the organization of the Central and Provincial City Planning Committees to deliberate on all important measures for preserving and promoting, in and outside the city limits, matters of public welfare and benefit.

The expenditures involved are met either by the Government or by the communal bodies according as one or the other conducts the work. Private individuals materially benefited by the new plans and arrangements may be made to bear the whole or part of the expenses within a certain limit. For raising the necessary fund, the municipality, with the approval of the Government, may levy upon its citizens special burdens not exceeding 12½% of land tax, 40% of prefectural taxes, etc. The law came into force in January, 1920, for the six premier cities of Tokyo, Kyoto, Osaka, Kobe, Nagoya and Yokohama, the same law being extended later to over forty smaller cities throughout the country including Sapporo, Otaru, Hakodate, Sakai, Amagasaki, Nagasaki, Niigata, Hiroshima, Okayama, Shimonoseki, etc., and is expected to do much for improving them as to street plan, sanitation, sewage systems, etc. in harmony with the City Building Law passed by the Imperial Diet in April, 1919.

It may be noted that in September, 1922, Dr. Charles A. Beard, a noted American expert of municipal administration, arrived in Tokyo in response to the invitation of the Tokyo Municipal Research Board presided over by the then Mayor Viscount (afterward Count) Goto. Before he went home in March 1923 he handed to the Mayor a report embodying the results of his six months' study of the important problem of Greater Tokyo. It has made a profound impression on the public.

Building Regulations.—The City Building

Law came into operation on December 1, 1920, when the Rules for Operation were enforced. They specify the kind of buildings not allowable in the residential, industrial, or commercial quarters. A building in the residential quarters must not exceed, as a rule, 65 feet in height and in the other quarters 100 feet, though some allowance is made for those with spacious surroundings, such as a park, a road, etc.; in particular the height of a brick or stone building must not exceed 65 feet and that for a wooden one 50 feet.

Area and Population

Of the six premier cities, Tokyo now occupies the foremost place as to area and population in consequence of the expansion of the municipal district effected on October 1, 1932, as preparatory step to the execution of the Greater Tokyo plan. The following comparative table is based on the latest census taken at the end of 1930:—

Cities	Area (Sq. km.)	Population	Pop. per sq. km.
Tokyo.....	553.59	4,970,839	8,979
Osaka.....	187.14	2,453,573	13,111
Kyoto.....	288.65	952,401	3,300
Nagoya.....	151.04	907,404	6,003
Kobe.....	81.90	707,616	9,617
Yokohama.....	133.88	620,306	4,633

For reference sake, below is given the comparative statistics as to area and population of Tokyo, Osaka, London and four other large cities of the world.

Cities	Area (sq. km.)	Population	Pop. per sq. km.
New York.....	820.0	6,930,000	8,451
Tokyo.....	553.59	4,970,839	8,979
Osaka.....	187.14	2,453,573	13,111
London.....	299.00	4,377,000	14,706
Berlin.....	878.0	4,288,000	4,884
Chicago.....	545.00	3,376,000	6,194
Paris.....	104.00	2,811,000	27,738

Tax Burdens

The tax burdens in the six premier cities for

the fiscal year 1930-31 (settled account) stood as follows (per capita):—

Cities	National tax	Prefectural tax	Municipal tax	Total
Tokyo.....	¥11.17	¥3.88	¥9.40	¥24.45
Osaka.....	6.42	3.24	8.11	17.77
Kyoto.....	4.69	4.27	6.72	15.68
Kobe.....	4.96	4.76	5.91	15.63
Yokohama.....	6.13	5.08	6.49	17.70
Nagoya.....	4.19	3.34	5.73	13.26

Social Works

With the growing importance of social problems in general, the municipal authorities are attending to various social and relief works, though financial considerations are hampering their activities in this direction.

Among the various social undertakings calculated to give relief to the increasing pressure on living, there are two that deserve mention, as they have been taken up in recent years by various municipal authorities especially in the six premier cities. These are (1) the "public markets" and (2) the "common dining halls."

The Public Market.—The first market of the kind was established in Osaka in 1918, soon after the "Rice Riots" which broke out in many parts of the country. At first rice was the sole article offered for sale, but subsequently the list has been very much enlarged and at present it covers most articles of food and other commodities of daily necessity. Exempt from tax, supplied direct by producers, and enjoying other advantages that tend to reduce the cost, articles on sale at the public markets are reputed cheaper though considered a trifle poorer in quality than those brought by errand-boys of retail-merchants to their regular customers. Those who patronize the public

markets are people of middle and lower classes, and it is believed that the habit of buying direct at shops will grow, our people now being so dependent on their regular retailers as to leave them free to bring articles at their option. They are too indolent or shy to do shopping by themselves of such articles. The example set by Osaka has spread to other cities, and at present there are in Tokyo as many as 48 such markets, in Osaka 63 and a number at Kobe, Kyoto, Nagoya and some other cities. The public markets were at first temporary barrack sheds, but many have since been rebuilt in permanent style. At first no fee was charged on retailers using the stalls at a public market, but at present in most places the stall-keepers are charged a certain rate. Rates in Tokyo range from ¥10 to ¥2 per tsubo per month according to the location.

The Common Dining Halls.—Interesting to note the first common dining hall in Japan, that in Tokyo, owes its existence to a philanthropist, who with the idea of supplying cheap and wholesome food to poorer people, started in 1918 the "Democratic dining hall" on the modest scale of serving 60 sitters at a time. Then appeared similar establishments in Osaka, Nagoya and other cities, most of them run by religious and other charity bodies, and a few as municipal undertakings. At first the charges were 8 sen for breakfast and 10 sen for either dinner or supper, but the tariff has been somewhat advanced lately owing to rise of prices. At a model municipal hall in Tokyo 8 sen for breakfast and 10 sen for either dinner or supper is a rule, while in a corresponding establishment in Osaka the tariff is uniform, 12 sen.

THE RECONSTRUCTION OF TOKYO AND YOKOHAMA

Thanks to the indefatigable efforts made by both the authorities and citizens, this stupendous work of reconstructing the devastated area of Tokyo and Yokohama, covering no less than 8,783.33 acres and expending a sum of about 750 million yen, was thoroughly completed in March 1930, when the Reconstruction Bureau of the Home Office which was created soon after the occurrence of the great disaster of 1923 to supervise the execution of the gigantic task was discontinued some items of minor importance, that unfinished, being

taken over by the reconstruction sections of the respective municipalities. In Tokyo, the memorable accomplishment of the great work was celebrated with appropriate ceremonies on March 26, 1930. A brief survey of some of the important items of the complicated reconstruction planning and its progress follows.

Street Adjustment

The main idea underlying this principal work of city planning in Tokyo was to increase the percentage of roads to the total