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DEPARTMENT OF JUSTICE
WAR DIVISION
ECONOMIC WARFARE SECTION

LOCATION REPORT ON JAPANESE RAILWAYS

November 12, 1943

Submitted by:

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Economic Warfare Section
War Division
Department of Justice
Washington, D. C.

Confidential Report
November 12, 1943
Re: Location Report on
Japanese Railways
Submitted by: Charles Layng and
Richard F. Babcock
Economic Warfare Section
Department of Justice
Chicago, Illinois

LOCATION REPORT ON JAPANESE RAILWAYS

INTRODUCTION

Because of the effective work done by our Naval forces in action against Japanese merchant shipping, the railways of Japan have assumed an unusual importance in the war economy of that nation. Previously, the railways were mainly concerned with the transportation of passengers, and they retain their importance in this field, particularly for troop movements. They have, of course, always handled a large amount of freight also, but this traffic was nowhere nearly commensurate to what it would be in a country where coastwise shipping did not play the major role that it did in the Island Empire. With the continuing diminution in coastwise shipping, undoubtedly the railways have been called upon more and more to bear a greater share of the transportation burden.

This report locates several hundred of the physical features of the railways of Japan, including all of the main lines (Exhibit 1). For ready reference, each line is treated separately and the features are listed kilometer by kilometer (Note 1). Some of the bridges and tunnels mentioned have been listed in our previous reports (Note 2), but they are repeated here together with many bridges and tunnels located after publication of the other reports to give as complete a picture, practically kilometer by kilometer, of the Japanese railways as possible. Practically all the railways in Japan have much curved track; where "curvature" is listed in this report, it indicates locations of unusually sharp curves.

It should be noted that the items listed do not by any means comprise all the physical features of the Japanese railways, but they do represent all we have been able to locate (Note 3). Also, railway lines built in the last few years are not included; for one reason, few of these are important main lines; for another, we plan an additional report that will cover the new railway lines of Japan and their physical features.

This compendium is the result of literally hundreds of interviews; of exhaustive library search; and of an analysis and interpretation of the reports of the chief engineer of the Imperial Government Railways for a number of years back (Note 4).

Even before there was any apparent reason for secrecy, the Japanese were inclined to be somewhat vague as to exact locations. Insofar as our library of Japanese maps, timetables and other reference books permits, we have checked and cross-checked these locations and, where any doubt existed, the location has not been listed.

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In each case, the old spelling of place names has been used. Most maps and books still contain the old spelling and, apart from that, the new, so-called "simplified" spelling is not entirely phonetic and is, in many respects, extremely confusing (Note 5).

TOKYO DISTRICT

The three most important trunk lines in Japan--the Tokaido, the Tohoku, and the Chuo (central)--radiate out from Greater Tokyo to cover with their subsidiary and connecting lines all of the vital industrial and agricultural areas on the main island. Because Tokyo is geographically the focal point for the vital trunk lines to Kobe, Shimonoseki and Moji (via Kwammon tunnel) to the west, and for Sendai, Aomori, and Hakodate (via car ferry) to the north, this metropolis has logically become the most important center of the government railway administration (Exhibits 2, 3).

Within Tokyo and its environs are located some of the largest workshops, most important of which are those of Oi on the Tokaido trunk line in southwestern Tokyo (Exhibit 4; Note 6). Tokyo has the most complex intraurban rail transit system of all the Japanese cities, of which two units--the Tokyo underground, and the numerous electric lines radiating out from the city--are beyond the scope of this report.

The most significant rail route in Tokyo is the Yamate belt line on which are situated almost all the principal stations from which the large trunk lines commence.

Yamate Belt Line (Exhibit 5)
34.5 km.

The Yamate or Tokyo Belt Line is a loop railway which provides Greater Tokyo with a link between all the most important railway stations. The eastern section of this line, running north and south, passes through the most congested business section of Tokyo (Exhibits 6, 7), having stations at Kanda, Tokyo Station, Shimbashi, and Shinagawa. At this latter station in the southern outskirts of Tokyo, the belt line swings westward, then north through Meguro, Shibuya, Shinjuku, Ikebukuro, and other western suburban stations, and then swings eastward to complete the loop via Sugamo and Ueno stations. The belt line is completely double tracked and electrified and in certain sections is elevated. (Exhibit 8)

The Tokaido main line, the Tohoku main line, the Joban line, and the Chuo (Central) main line all radiate out from the Yamate Belt Line and traffic moves from one of these important trunk lines to another via the Yamate Belt (Note 7).

Following is an outline of important locations on this line. No distances in kilometers are available, although the Yamate line is believed to form a 34.5 km. belt.

Shinagawa (Exhibit 9)	Large classification yard Railway timber treating plant Electric car house
	Just south of Shinagawa the Tokaido main line leaves the Yamate Belt tracks for Yokohama

Meguro	Transformer substation
Shibuya (Note 8)	The Tokyo subway (western terminus), the To-Yoko Electric Railway, the Tamagawa electric line, and the Tieto electric line all have their termini here. All lines elevated at this point.
Yoyogi	Junction with urban line running east-west across Tokyo to Kanda station via Iidamachi Station on eastern section of Yamate Belt
Shinjuku (note 8)	Shinjuku "station," like Shibuya, is group of stations 4 miles north of Shibuya. Six government railway tracks at this point; 2 electric lines of Yamate; 2 steam of Chuo main line; 2 unidentified steam freight tracks; terminus of Odakyu electric line. Thus 8 tracks parallel each other for distance of 300 yards.
Takadanobaba	Seibu electric line starts just east of Takataobaba.
Ikebukuro (Note 8) (about 6.6 miles slightly east of north from Shinjuku	Government railways divide; Belt line swings east to complete its loop; Freight line goes north to join Tohoku main line at Akabane. Musushino line starts immediately east of Ikebukuro station. Electric car house Transformer substation
Tabata	Classification yard Transformer substation Roundhouse Tohoku main line leaves Yamate Belt at Tabata for Akabane and Urawa
Nippori (2.2 km. north of Ueno Station)	Joban line leaves Yamate Belt for Mikawashima and Kanamachi Junction, electric line for Chiba
Ueno (Exhibits 10, 11, 12)	Main station for Tohoku main line, and Joban line transformer substation (Exhibits 13, 14)
Akihabara (Exhibit 15)	Railway warehouse Sobu main line for Ryogoku crosses Yamate Belt at this station

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Kanda	Transformer substation (Exhibits 16, 17) Line from Yoyogi on western side of Yamate Belt across Tokyo via Manseibashi (Exhibit 17a) and Iidamachi stations joins Yamate east-side line at Kanda
Tokyo Station	Main station of Tokaido main line (Exhibits 18, 19, 20, 21) Central office of Dept. of Railways opposite Tokyo Station (Exhibit 2)
Yuraku-Cho Station (Exhibit 22)	
Shimbashi (Exhibit 23) 1.9 km. from Tokyo Station	Railway research office (Exhibits 24, 25, 26, 27)
Hamamatsucho	Spur to Shiodome where railway shops and transformer substation are located (Exhibit 28)
Tamachi	Electric locomotive engine house Transformer substation (Exhibits 29, 30)

THE TOKAIDO MAIN LINE
Tokyo-Kobe - 589.5 km.
(Kilometers show rail distance from Tokyo)

This line skirts the shores of Tokyo bay and later Sagami bay, as far as Kozu, 77.7 km., in relatively flat coastal country (Note 9). Between Kozu and Atami, 50.8 km., it clings to the rugged west coast of Sagami bay, characterized by precipitous slopes leading to the sea. Tunneling through the mountain, it crosses the neck of the Izu peninsula and reaches a long, narrow coastal plain, along the north shore of Suruga bay, just east of Mishima, 121.6 km. It skirts the north and east coasts of Suruga bay, through relatively flat coastal plains as far as Fujieda, 200.3 km., although occasional mountain spurs jut down to the sea on the east coast from Fuji, 146.2 km., to Fujieda. Between the latter point and Toyohashi, 293.6 km., another coastal plain is traversed, although the line remains some kilometers inland except near Bentenjima, 269.8 km., where the narrow strip of land, between Lake Hamana and the sea, is traversed.

Between Toyohashi and Gamagori, 310.6, the railway again gets close to the sea, along the north shore of Atumi bay, branching to the north through a relatively narrow valley to emerge on the large plain surrounding Nagoya, 366.0 km.

From Nagoya, the line proceeds across the plain in a general northerly direction to Gifu, 396.3 km. Here it turns abruptly westward and breaks through a chain of hills to emerge on the shores of Lake Biwa at Maibara, 445.9 km. It parallels the irregular western shore of Lake Biwa to Otsu, 503.6 km., located near the southern end of the lake, then breaks through

a chain of hills to Kyoto, 513.6 km. From Kyoto, the railway follows the Yodo river valley to Osaka, 556.4 km. (Exhibit 31). From Osaka, the line skirts the north shore of Osaka bay to Kobe, its eastern terminus.

Following are some of the characteristic physical features of the line listed in order of the rail distance from Tokyo. (See under the heading of "Tokyo District," for such information in the immediate vicinity of Tokyo.

K.M. from Tokyo		
1.9	Shimbashi (Hamasakicho)	(See Yamate Belt Line outline)
6.8	Shinagawa	(See Yamate Belt Line outline)
	Oimachi	Transformer substation (Exhibits 32, 33)
	Kamata (Exhibits 34, 35)	Electric carhouse
18.0	Kawasaki	Railway power plant (Exhibits 36, 37) Two double-track bridges over Tama river (side by side) Kawasaki station is connected by overhead bridge to Tokyo Electric Company plant, largest Japanese producer of military electrical equipment. The plant is built on land 35 feet higher than the railroad tracks. The only grade crossing of the Tokaido line between Kawasaki and Tsurumi is here (Note 10)
27.0	Tsurumi (Yokohama)	Large classification yard (Note 11) Engine house Large power station near Tsurumi
27.9	Higashi-Kanagawa (Yokohama)	Electric car house
28.8	Yokohama Station (Exhibit 38)	
46.5	Ofuna	Junction with line to Yokosuka naval base. Curvature Transformer substation Bridge over river immediately north of the town
46.5 51.1	Ofuna Fujisawa	(Bridges over (two rivers

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K.M. from Tokyo		
58.6	Chigasaki	Junction; line to Atsugi
58.6 63.8	Chigasaki Hiratsuka	(Bridges over (Sagami and Ban Yu rivers
63.8	Hiratsuka	Overbridge
63.8 67.8	Hiratsuka Oiso	(Bridge over (Hanamizu river
73.1	Ninomiya	Junction; line to Hatano Transformer substation (Exhibits 39, 40)
77.7	Kozu	Junction of present main line via Atami and Tanna tunnel with old main line via Gotemba (See Gotemba outline immediately following - Tokaido main line outline) Electric enginehouse (Exhibit 41)
77.7 83.9	Kozu Odawara	(Bridge over Sakawagawa (river
83.9 86.0	Odawara Hayakawa	(Bridge over (Hayakawa river
90.4 95.8	Nebukawa Manazuru	(Akazawa (tunnel
99.1	Yugawara	Transformer substation
104.6	Atami	Junction: Ito line
104.6 126.2	Atami (Exhibit 42) Numazu	(Tanna tunnel (Note 12)
126.2	Numazu	Two enginehouses Junction with old main line Classification yard
141.3 146.2	Suzukawa Fuji	(Reverse curves (Junction with line to Kofu
146.2 149.7	Fuji Iwabuchi	(Bridge over Fuji river (Exhibit 43)
149.7	Iwabuchi	Curvature
154.9 158.4	Kambara Yui	(Line subject to flood (conditions
164.3	Okitsu	Two tunnels Bridge over Okitsu river

K.M. from Tokyo		
180.2	Shizuoka	(Bridge over
186.6	Mochimune	(Abe river
193.7	Yaizu	Reverse curves
200.3	Fujieda	Junction with line for Sagara
200.3	Fujieda	(Bridge over
207.8	Shimada	(Oi river
212.9	Kanaya	Junction with line for Senzu
222.2	Horinouchi	Junction with line for Ikeshinden
222.2	Horinouchi	Curvature
229.3	Kakegawa	
238.1	Fukuroi	Junction with line for Shin-Mitsumata, also for Enshu-Morimatsu
245.9	Nakaizumi	Junction with line for Futamata-Machi. Reverse curves
245.9	Nakaizumi	(Bridge over
252.7	Tenryugawa	(Tenryu river
257.1	Hamamatsu	Power station Railway shops (Note 6) Junction with line for Enshu-Futamata Also with line for Okuyama
267.5	Maisaka	(Bridge over
272.9	Araimachi	(Hamana river
276.6	Hashizu	Curvature
286.7	Futagawa	
293.6	Toyohashi	Bridge over Toyokawa river Junction with line for Kurokawara; also for Mikawa-Kawai
310.6	Gamagori	Curvature
318.5	Koda	Retaining walls
318.5	Koda	Retaining walls
325.9	Okazaki	
325.9	Okazaki	Junction with line for Minatosaki; also for Nodachi; also for Tajimi
325.9	Okazaki	Bridge over Yahagi river
333.7	Anjo	Retaining walls

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K.M. from Tokyo		
341.6	Kariya	Junction with line for Mikawa-Toba; also line for Nishi-Nakagane
341.6 346.5	Kariya Obu	(Bridge over (Sakai river
346.5	Obu	Junction with line for Taketoyo
353.6 360.8	Odaka Atsuta	(Bridge over (Tempoku river
360.8	Atsuta	Junction with Aichi Electric Railway; also with line for Tokoname
366.0	Nagoya	Bridge over Yamazaki river Railway hospital Regional general manager's office (Exhibit 44) Railway warehouse (Sasazima) Classification yard Railway workshops Electric substation Large railway storehouse Junction with Kwansai Line Junction with Chuo Line Bridge over Shin river at Kiyosu, a northwestern suburb
370.0	Biwajima	Bridges over Shonai and Biwajima rivers Junction with several electric lines
377.1	Inasawa	Engine shed Classification yard
383.1	Owari-Ichinomiya	Junction with line for Sakaguchi; also for Yatomi; also for Oki; also for Kisogawa-Bashi; also for Komaki
383.1 388.6	Owari-Ichinomiya Kisogawa	(Bridge over (Kiso river
388.6	Kisogawa	Bridge over Sakai river
396.3	Gifu (Exhibit 45)	Junction with line for Osu; also for Takatomi; also with Takayama Line

One informant has stated that 102 passenger trains passed through the Gifu Junction every 24 hours; 80 of the trains were on the Tokkaido Main Line and 22 on the Ota-Seki branch line.

K.M. from Tokyo		
402.3	Hozumi	Bridge over Nagara river
410.0	Ogaki	Junction with Ise Electric Railway. Junction with line for Ibi; also for Ichihashi. 1/4 mile spur line from Ogaki station to poison gas and munitions factory (Note 13)
418.1	Tarui	Bridge over Ai river
423.8	Sekigahara	Curvature
445.9	Maibara	Junction with Hokuriku Line Classification yard
445.9 451.9	Maibara Hikone	Curvature
451.9	Hikone	Junction with line for Takamiya Curvature in city
451.9 458.3	Hikone Kawase	(Bridge over (Takamiya river
462.0	Inae	Curvature
462.0 465.7	Inae Notagawa	Bridges over Aichi, Tsuji and Takegushi rivers
474.3	Omi-Hachiman	Junction with line for Hikojo
474.3 488.3	Omi-Hachiman Shinowara	(Bridge over (Niho river
483.9 487.0	Yasu Moriyama	Bridges over Yasu and another river
491.4	Kusatsu	Junction with Kusatsu Line
491.4 499.1	Kusatsu Ishiyama	Bridge over Seta river
499.1	Ishiyama	Curvature Junction with Keihan Electric Railway
503.6	Otsu	Junction with Keihan Electric Railway
503.6 508.1	Otsu Yamashina	Asakayama tunnel

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K.M. from Tokyo		
513.6	Kyoto	Classification yard (at Umekoji) Electric substation: Bridge over east branch of Hotsu river: Bridge over Hotsu river: Junction with Nara Line; also with electric interurban for Nara; also with Keihan Electric Railway; also with Arashiyama Electric Railway; also with San-In Main Line.
527.7	Yamazaki	Track subject to floods
535.2	Takatsuki	
535.2	Takatsuki	Track subject to floods
538.1	Settsu-Tonda	
538.1	Settsu-Tonda	Bridge over Akuta river
541.8	Ibaraki	
548.8	Suita	Classification yard (Exhibit 46) Power station: Railway shops
556.4	Osaka (Exhibits 47,48)	Transformer substation: Railway hospital; Regional general manager's office; two bridges over Yodo river; two bridges over Akuta river; Bridge over Kanzaki river; Junction with San-Kyu Electric Railway; Junction with Joto line; Junction with line for Sakurajima; also for Minoo. Very large freight yards at Umeda. Freight Depot near Osaka Station (Exhibit 49) (Note 14)
564.1	Kanzaki	Junction with Fukuchiyama Line Curvature
564.1	Kanzaki	Bridge over Muko river
571.8	Nishinomiya	
584.6	Nada	Classification yard near docks
589.5	Kobe	Railway hospital: Railway dock facilities: Electric substation: Main line through Kobe is elevated, beginning east of Sanomiya station and continuing west of Kobe main station (Exhibits 50, 51) Junction with San-Yo Line (Note 15)

TOKAIDO LINES
Gotemba Line
(Old Main Line)
Kozu-Numazu - 60.2 km.

This former main line of the Tokaido line was practically abandoned except for local service, following the building of the Tanna tunnel. Now, however, it may again be in use for through service to relieve the new main line. After traversing a valley to the north of Kozu, it plunges into the mountains, with heavy grades (12 miles of 1 in 40 grades) and much curvature, emerging into the Numazu plain a few kilometers north of Mishima. Some of the physical features of this old main line follow:

K.M. from Tokyo		
81.5	Shimosoga	Bridge over Kawaoto river.
87.9	Matsuda	
87.9	Matsuda	Junction with line for Odawara; also line for Shinjuku
93.6	Yamakita	Deep cuts: Heavy curvature: Bridge over Aizawa river

TOKAIDO LINES
Fukuchiyama Line
Amagasaki - Shin-Maizuru (Note 16) - 149.1 km.

K.M. from Amagasaki		
2.1	Kanzaki	Junction with Tokaido main line
7.9	Itami	Bridge over Inadera river
13.3	Ikeda	
16.6	Nakayamadera	Five bridges (names unknown)
19.9	Takarazuka	
19.9	Takarazuka	Bridge over Muko river
21.8	Namaze	
21.8	Namaze	Slopes; retaining walls
28.2	Takedo	
34.0	Dojo	Bridge over Muko river
37.6	Sanda	Enginehouse. Junction with branch line for Arima
64.6	Tamba-Oyama	Bridge over Sasayama river Retaining walls

(OVER)

K.M. from Amagasaki		
110.4	Fukuchiyama	Junction with San-In Main Line
122.7	Ayaba	Bridge over Hatta river
130.9	Umezako	
149.1	Shin-Maizuru	Enginehouse

TOKAIDO LINES
Takayama Line
Gifu - Hida-Hagiwara
96.7 km. (Note 17)

K.M. from Gifu		
27.3	Nino-Ota	Enginehouse Junction with Taita line for Tajimi
-	Takayama	Enginehouse

TOKAIDO LINES
Yokosuka Line (electric trains)
(To Yokosuka Naval Base)
Tokyo-Yokosuka
62.4 km.

K.M. from Tokyo Station		
10.3	Kawasaki	Transformer substation
31.8	Hodogaya	Shimizuyato tunnel
40.9	Totsuka	
51.0	Kamakura	Transformer substation

SAN-YO MAIN LINE
Kobe - Shimonoseki
529.3 km.
(Kilometer distances from Kobe)

This extremely important line roughly parallels the coast of the Inland Sea in southern and western Japan, and is, in effect, the western extension of the Tokaido line. At Une, 83.1 km., it leaves the plain surrounding Osaka bay and plunges into the first of a series of mountain ranges that it crosses, between short stretches of fairly level country. On the occasions when it comes close to the sea, such as, for instance,

a stretch of the line east of Mihara, 233.3 km., it frequently clings to the sides of frowning headlands jutting into the sea and the succession of mountain stretches interspersed by small plains continue as far west as Ogori, 459.8 km. The last stretch of 69.5 miles into Shimonoseki is through rolling hill country, with occasional coastal plains. Some of the physical features of this line are given below:

K.M. from Kobe		
0.0	Kobe	(See Tokaido Main Line)
1.8	Hyogo	Junction with line for Wadamisaki
1.8	Hyogo	Two bridges over Karimo river
5.1	Takatori	
5.1	Takatori	Power station; Railway shops; Curvature in city
7.3	Suma	Railway passes through deep cuts in this distance, with many stone fences for slide protection
10.2	Shioya (Note 18)	
13.1	Tarumi	
15.1	Maiko	
19.2	Akashi	
19.2	Akashi	Enginehouse
19.2	Akashi	Bridge over Akashi river
25.6	Okubo	
32.2	Tsuchiyama	Junction with line for Befuko
39.1	Kakogawa	Junction with line for Takasagoura; also for Yakujin. Curvature
39.1	Kakogawa	Bridge over Kako river
42.4	Hoden	
42.4	Hoden	Bridge over Hokkedani river
46.4	Sone	
46.4	Sone	Grade and curves approaching station
50.5	Gochaku	Bridge over Ichikawa river
54.8	Himeji	
54.8	Himeji	Electric substation. Junction with line for Shikamako; also for Harima Singu Junction with Bantan Line
65.1	Aboshi	Junction with line for Aboshiko; also for Shingumachi.

(OVER)

K.M. from Kobe		
65.1	Aboshi	Bridge over Ibo river
71.0	Tatsuno	
83.1	Une	Junction with line for Banshu-Ako
89.6	Kamigori	Bridge over Amura river
102.4	Mitsuishi	
109.5	Yoshinaga	Bridge over Kongo river
114.8	Wake	
114.8	Wake	Junction for Katakami; also for Yanahara
114.8	Wake	Bridge over Yoshii river
119.4	Kumayama	
119.4	Kumayama	Curvature
123.5	Hantomi	
128.0	Seto	Five bridges
136.1	Saidaiji	
136.1	Saidaiji	Junction with line for Saidaijicho
136.1	Saidaiji	Bridge over Hyakken river
143.4	Okayama	Tracks subject to flood damage
143.4	Okayama	Transformer substation. Junction with Uno branch. Junction with line for Tsuyama; also for Nishi-Soja; also for Inariyama
143.4	Okayama	Bridge over Shiraishi river
149.9	Niwase	
159.3	Kurashiki	Junction with Hakubi line
159.3	Kurashiki	Bridge over Nariha river
163.3	Nishiachi	
168.6	Tamashima	Numerous retaining walls
174.9	Konko	
187.1	Kasaoka	Junction with line for Yakake
187.1	Kasaoka	Kanagasaki tunnel
194.2	Daimon	
201.7	Fukuyama	Junction with Tomo Line. Junction with line for Kannabe. Bridge near station. Overbridges. Enginehouse

K.M. from Kobe		
221.8	Onomichi	Railway docks. Junction with line for Ichi
233.3	Mihara	Junction with line for Takehara
255.7	Kochi	Bridge over Mukunashi river
264.5	Shiraichi	Curvature
273.5 279.5	Saijo Hachi-Hommatsu	Bridges over Hano, Hambi and Megumo rivers. Nine other bridges (names unknown)
279.5	Hachi-Hommatsu	Curvature
295.0 298.9	Aki-Nakano Kaitaichi	Heavy grades and curvature Line subject to floods
298.9	Kaitaichi	Junction with line to Kure
305.3	Hiroshima	Bridge over river in center of city Large railway storehouse. Regional general manager's office. Classification yards. Junction with line for Ujina; also for Bingo-Shobara. Enginehouse. Transformer substation. Line subject to floods in this section
305.3 308.3	Hiroshima Yokogawa	Bridge over Enko river
308.3	Yokogawa	Electric carhouse Junction with line for Kabe
310.8 317.4	Koi Itsukaichi	Heavy grades Line subject to avalanches
317.4 320.8	Itsukaichi Hatsukaichi	15 bridges over Misuji and other rivers
327.1	Miyajima	Railway pier
337.0 341.4	Kuba Otake	Bridge over Megumi river - 13 other bridges (names unknown)
346.7	Marifu	Enginehouse Junction with line for Iwakuni
346.7 354.0	Marifu Fuju	Two bridges
372.5	Obatake	Curvature

(OVER)

K.M. from Kobe		
407.5	Kudamatsu	Railway cut out of sides of cliffs
412.1	Kushigahama	
412.1	Kushigahama	Junction with line for Suo-Hanaoka
442.0	Mitajiri	Junction with line for Hori Junction with Sanzan Line
459.8	Ogori	Junction with Yamaguchi Line. Curvature
485.1	Ube	Junction with line for Kibe
494.9	Asa	Junction with Mine Line
494.9	Asa	Fukuda tunnel (1,135 meters long)
503.2	Habu	
509.4	Ozuki	Junction with line for Nishiichi
515.6	Chofu	Several bridges over Karimo river
521.5	Nagato-Ichinomiya	
525.2	Hatabu	Railway shops (Exhibit 54) Junction with San-In Main Line Line subject to floods in this section
529.3	Shimonoseki	Railway workshops. Kwammon tunnel, under-sea to Moji on Island of Kyushu (Note 19) Power station. Railway docks for steamers to Korea (Exhibits 55, 55a) Ferry service between this point and Komaru on Kyushu Island (Exhibit 56) Perhaps abandoned since opening of Kwammon Tunnel (Note 20)

SAN-YO LINE
Uno Line
32.9

This line extends for 32.9 km. between Okayama and Uno and supplies the rail link between the main island and the island of Shikoku, by means of car ferries and other boats between Uno and Takamatsu.

K.M. from Okayama		
14.9	Chayamachi	Junction with line for Shimotsui
32.9	Uno	Enginehouse. Railway and car-ferry docks Terminus of car ferry to Takamatsu (Exhibit 56a)(Note 20)

SAN YO LINES
Hakubi Line
Kurashiki - Hoki-Daisen
139.6 km.

This line runs north-south across the western part of the Main Island and connects the San In and San Yo main lines.

From Kurashiki on the San Yo line, the Hakubi line crosses the level sea plain and follows a narrow river valley for about 60km. almost to Niimi. From Niimi the line crosses the interior highlands and comes to the comparatively level country south of Hoki-Mizoguchi. From here to Hoki-Daisen on the Japan Sea, the railway passes through flat country.

K.M. from Kurashiki		
65.6	Niimi	Line subject to flood damage. Junction with line for Tottori via Tsuyama

SAN-IN MAIN LINE
Kyoto - Hatabu
675.4 Km.
(Kilometer distances from Kyoto)

This very important line is the only arterial railway along the Japan Seacoast of northwest Japan. It performs a service for the coast cities of Tottori, Yonago and Matsue similar to that of the San Yo main line along the Inland Sea coast. It is linked to the San Yo line by branch lines across the mountainous interior of Japan.

From its eastern terminus at Kyoto the line runs northwest up a river valley and across the interior highlands to Fukuchiyama (90.1 km. from Kyoto). From here the line runs west through the mountains to Wadayama (120.6 km.), where it turns north for Toyooka (150.0 km.). From Kinosaki, a few kilometers north of Toyooka, the line follows the coast of the Japan Sea as far as Yonago (324.6 km.). In this long section the line runs almost next to the sea in many places and cuts its way through cliffs which rise from the water. In some places the line has been elevated by means of viaducts to permit the crossing of the mouths of rivers at the ocean edge (Exhibits 57, 58).

From Yonago the San-In line runs slightly inland through low country and skirts the southern shore of Lake Shinji. Beyond Izumo-Imiachi (386.2 km.) the railroad again follows the coast in a southwesterly direction all the way to Hatabu, its western terminus and junction with the San-Yo line. Along this stretch there is only a narrow coastal plain between the sea and the mountains.

K.M. from Kyoto		
0.0	Kyoto	Junction with Tokaido main line; also with Nara line.

(OVER)

K.M. from Kyoto		
10.3	Saga	Kameyama tunnel No. 1; Kiyotaki tunnel;
21.8	Kameoka	Another tunnel (name unknown) Bridges over Hotsu and Akamidani rivers; Reverse curvature; Retaining walls
29.8	Yagi	Bridge over Kozigahana river near Yagi
77.8	Ayabe	Junction with Maizura line to Tsuruga
84.4	Isa	Bridge over Asa river near Isa
90.1	Fukuchiyama	Junction with Fukuchiyama line for Amagasaki
120.6	Wadayama	Junction with Bantan line for Himeji
140.3	Ebara	Junction branch line for Izushi
159.6	Kinosaki	Oshiya and two other tunnels
167.6	Takeno	Bridge over Takeno river
167.6	Takeno	Curvature at station
167.6	Takeno	Bridge over Satsu river
175.0	Satsu	
181.6	Kasumi	Snow sheds
187.0	Yoroi	Slide protection
187.0	Yoroi	Deep cut
193.4	Kutani	snow shed
199.5	Hamasaka	Five tunnels (names unknown)
205.8	Igumi	
205.8	Igumi	Deep cut at 210.0 km.
213.5	Iwami	
213.5	Iwami	Junction with branch line to Iwai-Onsen
231.9	Tottori	Junction with line for Koge and Tuyama Employees dormitory
231.9	Tottori	Bridge over Tiyo river
236.1	Koyama	
246.3	Hogi	Bridge over Kawada river
249.2	Hamamura	
271.7	Agei	Enginehouse; Bridge over Tokeda river near Agei; Junction with branch line for Kurayosi

K.M. from Kyoto		
287.4 292.9	Yabase Akasaki	Bridge over Arai river
292.9 299.3	Akasaki Shimoichi	Bridge over Yoroi river
319.8	Hoki-Daisen	Junction with line for Bittyu-Kozuro and Kurasiki
324.6	Yonago	Junction with branch line for Sakaiminato
338.2	Arashima	Curvature at station
346.9	Nakata	Curvature at station
353.5	Matsue	Junction with electric line around north side of Lake Shinji for Unsyuhirato and Izumo-Imaichi
370.5	Shinji	Junction with line for Miyosi and Inland sea ports
370.5 374.6	Shinji Shobara	Bridge over two rivers flowing into Lake Shinji
386.2	Izumo-Imaichi	Terminus of electric line to Matsue
449.6 455.9	Asari Iwami-Gotsu	Two bridges over mouth of the Gonakawa river
455.9	Iwami-Gotsu	Junction with branch line into interior
474.9	Hamada	Enginehouse Car inspection and repair shed
508.8 516.1	Iwami-Tsuda Iwami-Masuda	Bridge over Abu river
516.1	Iwami-Masuda	Enginehouse; Junction with line for Ogori on San-Yo Main Line
577.4	Hagi	Bridge over river (name unknown)
601.2	Shomyoichi	Enginehouse
675.4	Hatabu	Western terminus of San-In main line. Junction with San Yo main line for Shiminoseki

(OVER)

SAN IN LINES
Miyazu Line
Maizuru - Toyooka
84.0 Km.

This is a short, exceedingly circuitous line traversing very rough coastal country between Maizuru on the Maizuru line and Toyooka on the San-In main line.

K.M. from Maizuru		
0.0	Maizuru	Bridge over river (name unknown)
9.1	Shinonome	
55.7	Amino	Snow sheds
61.3	Tango-Kizu	Deep cut
80.8	Tajima-Mie	Bridge over river (name unknown)
84.0	Toyooka	
84.0	Toyooka	Junction with San-In main line

CHUO (CENTRAL) MAIN LINE
Tokyo - Nagoya (via Shiojiri)
409 Km.

As the name indicates, this line traverses the central section of the main island between Tokyo and Nagoya. Although it is an extremely circuitous route through a mountainous country, the mileage is only slightly longer than that of the Tokaido line between Tokyo and Nagoya (377.7 km.)

After this line leaves the city of Hachioji on the outer perimeter of the level country around Tokyo Bay it plunges into very mountainous country through which it runs for practically its entire length. From Hachioji it goes northwest for almost 200 kilometers to Shiojiri (junction with Shinonoi line north to Nagano) where it turns south and west and travels through equally rough terrain to Kamigahara from where it follows an easy gradient into Nagoya.

K.M. from Iidamachi Station (Tokyo)		
0.0	Iidamachi (Tokyo) (Exhibits 59,60)	Transformer substation Railway yards
-	Ichigaya (Tokyo)	Tunnel (name unknown)
-	Shinanomachi (Tokyo)	

K.M. from Iidamachi Station (Tokyo)		
6.4	Shinjuku	Junction with Yamate Belt Line and with Odowara electric line. Junction with electric line paralleling Chuo line to Hachioji
-	Okubo	Transformer substation
-	Higashinakano	Transformer substation (Exhibits 61, 62)
-	Nakano	Electric car shed
-	Musashi-Sakai	Transformer substation about 22 km. from Iidamachi (Exhibit 63)
33.6	Tachikawa	Junction with Ome electric line for Mitake
33.6 43.5	Tachikawa Hachioji	Bridge over Tama river
43.5	Hachioji	Junction with branch line to Higashi-Kanagawa and Haijima
49.2 90.0	Asakawa Hatsukari	Line subject to floods
58.7 65.9	Yose Uenohara	Hashizawa Tunnel Amayawa Tunnel
81.4	Saruhashi	Bridge over Sagami river
83.9	Otsuki	Transformer substation (Exhibits 63a, 63b) Bridge over Sagami river Junction, electric line to Fuji-Yoshida
96.5 108.6	Sasago Katsunuma	Sasago Tunnel
108.6	Katsunuma	Transformer substation (Exhibit 64)
123.9 130.2	Isawa Kofu	Bridge over Fuji river
130.2	Kofu	Junction with electric lines to Fuji and Oiwake
169.8 210.2	Kobuchizawa Kawagishi	Slopes
206.7 216.2	Okaya Tatsuno	Two bridges over Tenryu river

(OVER)

K.M. from Iidamachi Station (Tokyo)		
216.2	Tatsuno	Junction with Ina electric line for Tenryukyo
233.9	Shiojiri	Junction with Shinonoi line for Nagano
248.1	Niekawa	Gongen Tunnel
252.8	Kiso-Hirasawa	
275.7	Kiso-Fukushima	Several bridges across Kiso river
329.1	Nakatsugawa	
294.6	Suhara	Sekiyama Tunnel
300.9	Nojiri	Sekiyamazawa bridge
310.1	Midono	Bridge over river (name unknown)
319.2	Sakashita	Protection walls
319.2	Sakashita	Junction with branch line to Okuya
329.1	Nakatsugawa	Bridge over Yotsume river Junction, electric line to Shimotsukechi
340.7	Oi	Transformer substation Junction, electric line to Iwamura
346.1	Takenami	Line subject to floods
351.5	Kamado	
365.8	Tokitsu	Junction with branch line to Higashi-Dachi
372.8	Tajimi	Junction with Taita line to Mino-Ota; also branch line to Kasahara
380.9	Jokoji	Curvature
385.0	Kozoji	Line subject to floods
394.0	Kachigawa	
399.2	Ozone	Bridge over Shonai river
409.0	Nagoya	Junction with Tokaido main line (see Tokaido Main Line outline).

CHUO LINES
Shinonoi Line
Shiojiri - Shinonoi
67.9 km.

This line serves as a link between the Chuo Main Line and the Shinetsu Main Line, both of which cut through the mountainous central interior of the Main Island. This line permits traffic from the north coast city of Naoetsu

to reach Nagoya without taking the longer rail lines via Tokyo to the south or Tsuruga to the southwest. The Shinonoi line is cut through a mountainous region for its full length.

K.M. from Shiojiri		
28.7	Akashina	Sirasaka tunnel
28.4	Nishijo	

CHUO LINES
Taita Line
Tajimi - Min-Ota
17.8 km.

This short line joins the Chuo Line with the Takeyama Line and the line for Gunjo-Hachiman, both of which go out from Min-Ota. The Taita line also permits traffic on the Chuo Line to bypass Nagoya and join Tokaido Line traffic at Gifu Junction.

The entire length of the Taita line is through fairly level country between two mountain ranges.

K.M. from Tajimi		
17.8	Min-Ota	Two bridges over Hida and Kiso rivers near Min-Ota

KWANSAI MAIN LINE
Nagoya-Minatomachi (Osaka)
175.1 km.
(Kilometer distances from Nagoya)

The main trunk of the Kwansai (or Kansai) Line serves as an alternate route to the Tokaido Main Line between the two large industrial centers of Nagoya and Osaka. While the Tokaido Line runs north from Nagoya to Gifu and then west and south to Osaka, the Kwansai Main Line goes west and south from Nagoya to Osaka via Kameyama and Nara.

From Nagoya the railway runs along the relatively level coastal plain to Kameyama (59.9 km.) skirting Ise Bay near Yokkaichi.

At Seki (4.7 km. west of Kameyama) the line enters hill country and follows a small river valley to within a few kilometers of Tsuge (79.9 km.) where it crosses very mountainous country. West of Tsuge the line comes down into a broad river valley and, except for a short section of rugged terrain at Kasagi (114.2 km.), has an easy gradient into Osaka.

In Osaka it is linked to the Tokaido and other Lines by the intraurban Joto freight line (see Joto Line outline).

(OVER)

K.M. from Nagoya		
0.0	Nagoya	Junction with Tokaido Main Line. Bridge over Shonai river on western outskirts of Nagoya
16.4	Yatomi	Junction with electric line to Shin-Ichinomiya: Bridge over Kiso river just west of Yatomi
23.8	Kuwana	Junction with Ise electric line to Ogaki; also electric line to Ageki, and electric line to Suwa; Bridge just north of Kuwana over Ibi river
37.2	Yokkaichi	Junction with Ise electric line to Paijingumae; also electric line to Yunoyama
59.9	Kameyama	Junction with Sangu line
65.6	Seki	Bridge over river (name unknown) immediately west of Seki
71.0	Kabuto	Reverse curvature
79.9	Tsuge	
79.9	Tsuge	Junction with Kusatsu line
94.5	Iga-Ueno	Junction with Sangu-Kyuko electric line
101.8	Shimagahara	Bridge over Satsuki river 2-1/2 miles southwest of Shimagahara
101.8	Shimagahara	Steep grades
108.8	Okawara	Shimagahara tunnel
114.2	Kasagi	Curvature at station
126.9	Kizu	Junction with Katamachi line. Junction with Nara line.
133.9	Nara	Junction with Sakurai line; also electric line to Uehommachi
138.7	Koriyama	Junction with electric line to Uehommachi
145.7	Horyuji	Curvature; Junction with branch line to Hirahata
149.3	Oji	Junction with Nakayama and Sakurai lines
149.3	Oki	Bridge over Yamato river
154.0	Kawachi-Katakami	Kamenose tunnel

K.M. from Nagoya		
158.8	Kashiwara	Junction with electric line to Nagano Curvature at station
167.5	Hirano	Classification yard
171.4	Tennoji	Junction with Joto electric line for Osaka
-	Imamiya (Osaka) (few km. west of Minatomachi station)	Osaka Port Freight Line to Chikka (Note 21)(Exhibit 49)
175.1	Minatomachi (Osaka)	Railway storehouse Transformer substation

KWANSAI LINES
Joto Line
Osaka - Tennoji
10.7 km.

This is principally a freight line operating within the Osaka industrial area and servicing the Tokkaido and Kwansai Main Lines (Exhibit 49).

K.M. from Osaka Central Station		
4.2	Kyobashi	Transformer substation (Exhibits 65, 66)
4.2	Kyobashi	Bridge over Neya river
6.8	Tamatsukuri	
10.7	Tennoji	Junction with Sangu line

KWANSAI LINES
Wakayama Line
Oji - Wakayamashi
89.3 km.

This branch of the Kwansai Trunk serves as a link between the Nagoya-Osaka traffic and the port of Wakayama on the west coast of Kii Peninsula. It likewise joins the Kisei west line (which services the cities south of Wakayama on the Kii Peninsula) to the Kwansai Main Line.

The Wakayama line crosses no high land, running between two mountain ranges from Takada (11.5 km. from Oji) to Wakayamashi.

K.M. from Oji		
0.0	Oji	Junction with Kwansai main line

(OVER)

K.M. from Oji		
0.0	Oji	Bridge over Amadera river
6.6	Simoda	
24.9	Yoshinoguchi	Junction with Osaka electric line to Yoshino
31.6	Kitauchi	Retaining walls
35.8	Gojo	
35.8	Gojo	Enginehouse
45.5	Hashimoto	Junction with electric lines to Koyosan and Shiomibashi
87.8	Wakayama	Enginehouse; Junction with Kisei west line to Kii-Tanabe
89.3	Wakayamashi	Junction with Nankai electric line to Namba. Also junction electric lines to Kada and Shin-Wakanoura

KWANSAI LINES
Sangu Line
Kameyama - Toba
71.6 Km.

The Sangu line is a branch of the Kwansai main line which services the cities along the west shore of Ise Bay and links the Kwansai Trunk with the Kisei east line. Its roadbed for the full 71.6 km. from Kameyama to Toba is through flat coastal country.

K.M. from Kameyama		
0.0	Kameyama	Junction with Kwansai main line
0.0	Kameyama	Grades
5.5	Shimonosho	Bridge over river (name unknown)
5.5	Shimonosho	Curvature at station
5.5	Shimonosho	Reverse curvature
12.1	Ishinden	
15.5	Tsu (Shin-Machi)	Junction with Ise electric line Classification yard
15.5	Tsu	Bridge over Minoya river
19.3	Akogi	

K.M. from Kameyama		
19.3	Akogi	Junction with branch lines to Iwatabashi and Hisai
19.3 23.4	Akogi Takachaya	Three bridges (one over Aikawa river)
34.6	Matsusaka	Junction with electric lines to Tsu, Oishi, Okuchi, and Yamada
37.6 42.5	Tokuwa Okaguchi	Bridge over Kushida river
42.5	Okaguchi	Junction with Kesei east line
53.5 55.7	Miyagawa Yamada-Kamiguchi	Bridge over Miyagawa river
57.5	Yamada	Junction with two parallel electric lines from Matsusaka
71.6	Toba (Exhibit 67)	Junction with Shima electric line to Kashikojima

KWANSAI LINES
Kisei East Line
Okaguchi - Minose
63.4 Km.

The actual length of this line is unknown although some maps (1939) show it complete as far as Owashi on the Kumano Nada Sea. The Kisei east line leaves the coastal plain near Kawaose (18.3 km. from Okaguchi) and crosses the hills over to the coast near Kii-Nagashima. From here it remains rather close to the seacoast as far as Minose.

K.M. from Okaguchi		
25.5 30.5	Misedani Takihara	Bridge over river (name unknown)
56.0	Kii-Nagashima	Enginehouse

KWANSAI LINES
Kisei West Line
Wakayamashi - Kii-Tanabe
98.0 Km.

This Kwansai branch line follows the Pacific coast for practically its entire length down the west coast of Kii peninsula. This is a line

(OVER)

of many bridges and tunnels necessitated by the hills which come down almost to the seashore in many places.

K.M. from Wakayamashi		
1.5	Wakayama	Junction with Wakayama line; also electric line to Namba
3.3	Higashi-Wakayama	Junction with electric line to Koemmae; also branch line to Sando
36.9	Fujinami	Junction with branch lines to Kaigan and Kanayaguchi
57.9	Gobo	Junction with branch line to Nishi-Gobo

KWANSAI LINES
Nara Line
Kyoto - Kizu
34.7 Km.

Though a very short line, this railway serves as a link between the traffic along the northwest coast of Japan via the San In main line and the cities of the Kii peninsula, permitting traffic from the north to bypass Osaka. It skirts the inland hills and mountains and would not appear to be a line of very heavy gradients.

K.M. from Kyoto		
0.0	Kyoto	Junction with San-In main line
0.0	Kyoto	Bridge over Kamo river
2.7	Inari	
10.6	Kohata	Bridge over Uji river
14.9	Uji	
14.9	Uji	Bridge over Uji river
18.1	Shinden	
33.1	Kamikoma	Bridge over Kizu river
34.7	Kizu	
34.7	Kizu	Junction with Kwansai main line

KWANSAI LINES
Sakurai Line
Nara - Takada
29.4 Km.

This line is actually a continuation of the Nara line running south to Sakurai and west to Takada along the level country just west of the mountains in Nara prefecture.

K.M. from Nara		
18.0	Miwa	Bridge over Hase river
19.7	Sakurai	
27.3	Kanahashi	Bridge over Katsuragi river
29.4	Takada	
29.4	Takada	Junction with Wakayama line

KWANSAI LINES
Kusatsu Line
Tsuge - Kusatsu
36.4 Km.

This short line provides a service between the Hokuriku and Kwansai main lines. It runs west of, and roughly parallel to, the Nara line.

From Tsuge to approximately Kibukawa (15.3 km. from Tsuge) it runs through very mountainous country, at the latter station emerging into relatively level country for the remainder of its distance.

K.M. from Tsuge		
0.0	Tsuge	Junction with Kwansai main line
15.3	Kibukawa	Reverse curvature near station

HOKURIKU MAIN LINE
Maibara - Naoetsu
366.5 Km.
(Kilometer distances from Maibara)

This line leaves the Tokaido Trunk at Maibara, skirts the east coast of Lake Biwa and crosses mountainous country to Tsuruga (48.5 km.), one of the most important ports on the Sea of Japan. From Tsuruga the line turns northeast, tunneling through more mountains along the coast and emerges onto the coastal plain at Takefu (91.0 km.). It proceeds through the heavily populated areas of Fukui (109.8 km.) and Kanazawa (186.6 km.) and then crosses the base of the Noto peninsula to Toyama (246.3 km.) where it makes a junction with a circuitous route across the island to Gifu via Takeyama.

From Toyama the Hokuriku line runs north to a point on the coast beyond Hikkaichi (278.1 km.) wher it turns east and winds along the narrow passage between the sea and mountains to Naoetsu.

K.M. from Maibara		
0.0	Maibara	Overbridge

(OVER)

K.M. from Maibara		
7.7 12.8	Nagahama Torahime	Bridge over Ane river
48.5	Tsuruga	Enginehouse. Junction with Maizuru line (section of San-Yo line)
54.4	Simbo	Curves
61.4	Suizu	Line subject to landslides and floods
91.0	Takefu	Junction with branch line to Tonochuchi
91.0 96.1	Takefu Sabae	Bridge over Hino river
96.1 104.1	Sabae Odoro	Bridge over river (name unknown)
109.8	Fukui	Two bridges over forks of Hino river, immediately north and immediately south of Hukui. Junction with electric lines to Awara and Onosanban
127.6	Kanazu	Junction with branch line to Mikuni-Minato
140.2	Daishoji	Junction with electric line to Yamanaka
147.6	Iburibashi	Bridge over Taisyozi river. Junction with electric line to Katayamazu
158.2	Komatsu	Junction with branch line to Ogoya; also electric line to Ukawa-Yusenji
164.0	Terai	Junction with electric line to Turugi
164.0 168.8	Terai Nikawa	Bridge over Tedori river Occasional floods
186.6	Kanazawa	Warehouse; Transformer substation; work-shops; bridge over Tuarumi river just south of Kanazawa; Junction with electric lines to Awagasaki--Yuen and Jinja-Mae
198.2	Tsubata	Junction with Nanao line to Anamizu
211.4	Isurugi	Junction with branch line to Aoshima-Machi
211.4 218.7	Isurugi Fukuoka	Two bridges (names unknown)
227.5	Takaoka	Enginehouse: Junction with Chuetsu line to Himi; also branch line Tojohana

K.M. from Maibara		
227.5	Takaoka	Bridge over Shira river
231.1	Etchu-Daimon	
246.3	Toyama	Junction with branch lines to Sugihara and Sasazu; also electric lines to Sinminato, Iwasenminato and to Kurisuno
246.3	Toyama	Bridge over small river
252.9	Higashi-Iwase	
257.8	Mizuhashi	Curves
263.3	Namerikawa	
263.3	Namerikawa	Junction with electric line to Kurisuno
278.1	Mikkaichi	Junction with electric lines to Unazuki and Ishidako
278.1	Mikkaichi	Bridge over Korobe river
282.1	Ikuji	Occasional floods
295.4	Tomari	Shore protection all along line to Gozu (362.0 km.)
304.9	Ichibur	Bridge over Fudo valley
313.3	Oyasirazu	Snow sheds
313.3	Oyasirazu	Fukaya Tunnel
318.6	Omi	
325.3	Itoigawa	Bridge over river (Name unknown)
329.6	Kajiyashiki	
329.6	Kajiyashiki	Shore protection; floods;
338.7	No	hurricanes
345.1	Tsutsuishi	Shore protection
351.7	Nadachi	
366.5	Naoetsu	Passenger car house

TOHOKU MAIN LINE
Ueno (Tokyo) - Aomori
736.4 Km.
Kilometer distance from Ueno (Tokyo)

The Tohoku Line, with its alternate routes, the Joban Line and the O-U Line, is a most important transportation artery, not only between Tokyo and northeastern Japan, but also between the main island and the islands of Hokkaido and Karafuto to the north.

(OVER)

Leaving Tokyo, it runs almost due north across the Tokyo plain for approximately 90 kilometers, then traverses the mountains for an approximately equivalent distance, until it enters the Fukushima valley just south of that city. So far, the line parallels the east coast, but at a considerable distance inland. From Fukushima (269.2 km.) the line follows the valleys, cutting through one mountain spur to Sendai (348.5 km.), which is only a few kilometers from the coast. From Sendai, the railway proceeds northward through a broad valley that narrows markedly toward its northern end which is reached just north of Morioka (531.7 km.). Following another mountainous stretch the line emerges on the northern coastal plain and, from Noheji (693.2 km.) follows the northern coastal plain into Aomori, along Mutsu bay and Aomori bay.

K.M. from Ueno (Tokyo)		
0.0	Ueno (Tokyo)	(See Yamate Belt Line)
2.2	Nippori (Tokyo)	(See Yamate Belt Line)
3.9	Kawaguti	Two bridges, one over Arikawa river, the other over Tokyo ship canal
4.8	Oku	Classification yard; Enginehouse
9.6	Akabane	Power Station (Note 22) Transformer substation; Curvature; Junction with freight line for Ikebukuro
20.6	Urawa	Retaining walls
26.7	Omiya	Largest railway shops in Japan (Note 23) (Exhibit 68) Junction with Takasaki Line; also line for Kawagoe; also for Kashiwa; Transformer substation; Classification Yard
26.7 35.6	Omiya Hasuda	Bridge over Ayase river
35.6	Hasuda	Junction with line for Bushu-Daimon
39.9 45.3	Shiraoka Kuki	Bridge over Tsumeda and Fatase rivers
45.3	Kuki	Junction with Tobu Electric Railway
45.3 53.8	Kuki Kurihashi	Bridge over Furutone river
53.8	Kurihashi	Junction with Tobu Electric Railway
53.8 61.1	Kurihashi Koga	Bridge over Tone river
77.0	Oyama	Junction with Mito line Junction with Ryomo line

K.M. from Ueno (Tokyo)		
77.0	Oyama	Bridge over Omoigawa river
84.5	Koganei	
105.9	Utsunomiya	Junction with line for Nikko Bridge over Tagawa river
117.6	Hoshakuji	Junction with line for Karasuyama
117.6	Hoshakuji	Bridge over eastern fork of Tagawa river
123.5	Ujiie	
138.1	Yaita	Haryu tunnel
142.9	Nozaki	Bridge over Hoki river
148.1	Nishi-Nasuno	Junction with line for Nasu-Ogawa
148.1	Nishi-Nasuno	Bridge
154.2	Higashi-Nasuno	
154.2	Higashi-Nasuno	Bridge
159.6	Kuroiso	
184.6	Shirakawa	Junction with line for Iwaki-Tanakura
184.6	Shirakawa	Bridge over Abukuma river
189.3	Kutano	
205.3	Kagamiishi	Bridge over Shakado river
211.5	Sukagawa	
218.2	Asaka-Nagamori	Junction with line for Kawahigashi
223.0	Koriyama	Transformer substation; Railway shops; Junction with Ban-Etsu West Line; Junction with Ban-Etsu East Line
255.9	Matsukawa	Junction with line for Iwashiro-Kawamata
255.9	Matsukawa	Curvature
260.3	Kanayagawa	
269.2	Fukushima	Junction with O-U Main Line;, Junction with several electric interurbans
269.2	Fukushima	Curvature
275.3	Senoue	
278.4	Date	Junction with line for Iizaka; also for Kakeda
282.5	Kori	Bridge over Abukume river

(OVER)

K.M. from Ueno (Tokyo)		
311.9	Kita-Shirakawa	Slide protection
316.8	Ogawara	
316.8	Ogawara	Junction with line for Togatta
330.9	Iwanuma	Junction with Joban Line
330.9	Iwanuma	Bridge over Masuda river
338.2	Masuda	54 smaller bridges in this section
338.2	Masuda	Junction with line for Yuriage
344.1	Nagamachi	Classification yard; Junction with line for Akiu-Onsen
344.1	Nagamachi	Bridge
348.5	Sendai	
348.5	Sendai	Railway hospital; Regional general manager's office; Junction with line for Sakunami; also with Miyagi electric railway
352.6	Higashi-Sendai	Bridge over Nanakita river
356.7	Iwakiri	
356.7	Iwakiri	Junction with line for Shiogama
372.5	Matsushima	Junction with line for Matsushima-Kaigan
382.9	Kashimadai	Bridge over Yoshida river
387.8	Matsuyamamachi	Bridge over Naruse river
391.3	Kogota	
391.3	Kogota	Junction with Rikuu east line; Junction with Ishinomaki line
391.3	Kogota	Bridge over Eai river
397.4	Tajiri	
404.2	Semine	Junction with line for Toyama; also for Tsukidate
404.2	Semine	Grades
412.5	Nitta	
419.9	Ishikoshi	Junction with line for Iwagasaki
441.4	Ichinoseki	Junction with line for Kami-Shishiori

K.M. from Ueno (Tokyo)		
441.4 448.6	Ichinoseki Hiraizumi	Bridge over western tributary of Kitakami river
448.6 456.3	Hiraizumi Maesawa	Curvature Bridge over Shiratori river
466.5 474.1	Mizusawa Kanegasaki	Bridge over Tanzawa river
483.8	Kurosawajiri	Bridge over Waga river Junction with Okoku line.
496.3	Hanamaki	Junction with line for Nishinamari-Onsen; also line for Sennintoge; also Hanamaki-Onsen: Electric railway
531.7	Morioka	Railway shops; Bridge over Kitakami river; Junction with line for Hashiba; also for Hiratsuto
552.6	Koma	Enginehouse; Junction with Hanawa line
552.6 558.2	Koma Kawaguchi	Bridge over Kitakami river
558.2	Kawaguchi	Bridge over Arakawa river
583.4 591.1	Kotsunagi Kozuya	Bridge over Kotsunagi river and two other bridges
635.7 640.7	Kita-Takaiwa Shiriuchi	Ichinichiichi tunnel
640.7	Shiriuchi	Junction with Hachinohe line; also line for Gonohe
661.7	Furumaki	Junction with Towada line
672.2 679.1	Numasaki Ottomo	Slide protection
679.1	Ottomo	Bridge over river flowing into Ogara inlet
679.1 687.6	Ottomo Chibiki	Curvature
693.2	Noheji	Junction with line to Ominato
736.4	Aomori	Junction with O-U Main Line; Railway docks and car ferry to Hokkaido Island (Exhibit 69) (Note 20)

(OVER)

TOHOKU LINES
Joban Line
Tokyo (Ueno) - Iwanuma
345.3 Km.
Kilometer distances from Tokyo (Ueno)

This line affords a parallel line to the Tohoku line to the northern part of the Main Island. It stays close to the coast soon after it leaves the Tokyo plain just northeast of Mito (117.5 km.) and runs along the hill country near the Pacific Ocean for over two-thirds of its length. At no place does it cross any mountain ranges or spurs.

K.M. from Tokyo (Ueno)		
2.2	Nippori	Junction with Tohoku Main Line; also electric line for Chiba
5.6	Minami-Senju	Bridge over Sumida river; Junction with spur to Sumidagawa where railway shops are located
7.4	Kitasenju	Junction with Tobu electric line; Bridge over ship canal north of Kitasenju
12.1	Kameari	Bridge over Naka river
14.0	Kanamachi	
14.0	Kanamachi	Curvature
14.0	Kanamachi	Junction with electric line for Takasago
14.0	Kanamachi	Bridge over Edogawa river.
17.9	Matsudo	
17.9	Matsudo	Electric car house
21.3	Nabashi	Junction with branch line for Nagareyama
29.1	Kashiwa	Junction with branch line to Funabashi; also electric line to Omiya
33.5	Abiko	Enginehouse; Junction with Narita line
33.5	Abiko	Bridge over Tone river
39.6	Toride	
39.6	Toride	Junction with branch line to Shimodate
45.6	Fujishiro	Bridge over Kogai river
47.7	Sanuki	
47.7	Sanuki	Curvature; Junction with branch line for Ryugasaki

K.M. from Tokyo (Ueno)		
52.8 59.4	Ushiku Arakawaoki	Arakawaoki bridge (Exhibit 70)
66.0	Tsuchiura	Bridge over river flowing into Lake Kasumigaura; Junction with branch line for Iwase; also electric line to Ami
72.1 78.6	Kandatsu Takahama	Bridge over Koise river
82.2	Ishioka	Junction with branch line for Hakota
94.1 101.1	Iwama Tomobe	Bridge over river (Name unknown)
111.5	Akatsuka	Junction with branch line for Gozenyama
117.5	Mito	Enginehouse; Junction with Suigun; South line for Iwake-Tanakura
117.5 123.3	Mito Katsuta	Horikawa bridge
123.3	Katsuta	Junction with branch line for Asiguara
132.2 139.6	Ishigami Omika	Bridge over Kuji river One other bridge (Name unknown)
139.6	Omika	Junction with electric line to Hitachi-Ota
149.1	Sukegawa	Shore protection near this station (Exhibit 71)
158.8 164.7	Kawajiri Takahagi	Bridge over river (Name unknown)
164.7 169.2	Takahagi Minami-Nakago	Takato bridge
173.8	Isohara	Curvature at station
190.0	Ueda	Curvature at station
197.2	Izumi	Junction with branch line for Ena
197.2 203.7	Izumi Yumoto	Fujiwara and 2 other bridges
203.7	Yumoto	Junction with branch line to Ena
203.7 207.2	Yumoto Tsuzura	Keiseizan tunnel

(OVER)

K.M. from Tokyo (Ueno)		
211.6	Taira	Junction with Banetsu east line for Koriyama
211.6	Taira	Bridge over Natsui river
217.0	Kusano	
221.4	Yotsukura	Deep cut
226.2	Hisanohama	
226.2	Hisanohama	Reverse curvature
234.6	Hirono	
234.6	Hirono	Bridge over Oku river
250.0	Tomioka	Curvature; Stone retaining walls; Hurricanes reported in this section
255.2	Yonomori	
255.2	Yonomori	Bridge over Chikakuma river
260.1	Ono	
260.1	Ono	Line subject to floods
265.9	Nagatsuka	
279.7	Odaka	Bridge over Odaka river
284.6	Iwaki-Ota	
289.1	Haranomachi	Bridge over river (name unknown)
296.6	Kashima	
336.8	Watari	Bridge over Abukuma river
345.3	Iwanuma	
345.3	Iwanuma	Junction with Tohoku main line

TOHOKU LINES
Mito Line
Oyama - Tomobe
50.2 Km.

This line forms an east-west connection between the Tohoku main line and the Joban line. It traverses the northern section of the Tokyo plain winding around a few small mountain spurs in the vicinity of Iwase (29.6 km. from Oyama).

K.M. from Oyama		
0.0	Oyama	Junction with Tohoku main line
6.6	Yuki	Bridge over Tagawa river near Yuki

K.M. from Oyama		
16.2	Shimodate	Junction with branch line for Nanai Overbridge

TOHOKU LINES
Suigun South Line
Mito - Iwaki - Tanakura 90.5 Km.
Mito - Hitachi-Ota 19.6 Km.
(Kilometer Distances from Mito)

This line turns off the Joban line at Mito and goes inland through very rough country north to Iwaki-Tanakura. It may well be completed by now north of Iwaki-Tanakura to join with the Tohoku main line south of Koriyama. A short spur runs from Mito north to Hitachi-Ota.

K.M. from Mito		
0.0	Mito	Junction with Joban line
10.1	Kamisugaya	Bridge over Naka river near Kamisugaya Junction with branch of Suigun south line for Hitachi-Ota
55.6	Hitachi-Daigo	Curvature
90.5	Iwaki-Tanakura	Junction with branch line for Sirakawa on Tohoku main line

TOHOKU LINES
Takasaki Line
Omiya - Takasaki
74.7 Km.

This line, together with the new Joetsu line from Takasaki to Miyauchi, forms the new short route between Tokyo and Niigata across the center of the island.

From its southeastern terminus of Omiya on the Tohoku main line it runs northwest climbing gradually from the Tokyo plain to Takasaki at the foot of the inland mountain ranges.

K.M. from Omiya		
0.0	Omiya	Junction with Tohoku main line
34.4	Kumagaya	Curvature at station; Junction with electric lines for Hanyu and Mitsumineguchi

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K.M. from Omiya		
70.3	Kurango	Junction with branch line for Kodama Bridge over tributary of Tone river
74.7	Takasaki	Junction with Joetsu line Junction with Ryomo line

TOHOKU LINES
Joetsu Line
Takasaki - Miyauchi
162.6 Km.
(Kilometer distances from Takasaki)

This new route which extends the Omiya-Takasaki line to the Japan Sea-coast port of Niigata traverses some of the roughest country in the main island.

A few kilometers north of Shinmaebashi (7.3 km.), the railroad leaves the level country and, following a small river, begins its climb over the mountains (Exhibit 72). Near Echigo-Yuzawa (94.2 km.) the line turns east of north and follows a narrow river valley to Koide (132.2 km.) where the line follows the river west and north to Miyauchi.

K.M. from Takasaki		
0.0	Takasaki	Junction with Shin-Etsu main line and Takasaki line
0.0 7.3	Takasaki Shin-Maebashi	5 bridges (names unknown)
21.1	Shibukawa	Junction with branch line for Naganohara
21.1 27.5	Shibukawa Shikishima	Bridge over Tone river
41.4	Numata	Bridge over river (name unknown)
46.6 53.7	Gokan Kamimoku	Kinone tunnel Kobinata tunnel
53.7 59.1	Kamimoku Minakami	Retaining wall
59.1	Minakami	Bridge over river (name unknown)
65.9	Yubiso	Four tunnels near Yubiso known as Yubiso Tunnels: Yubiso No. 1, 1760.2 meters " No. 2, 425.2 " " No. 3, 948.0 " " No. 4, 1540.9 "

K.M. from Takasaki		
65.9	Yubiso	Shimizu tunnel (6.03 miles long)
94.2	Echigo-Yuzawa	(Exhibit 73)(Exhibit 74)
65.9	Yubiso	Several bridges over Yuzawa river
107.9	Shiosawa	
88.4	Echigo-Nakasato	Curvature at station
118.4	Itsuka Machi	Overbridges
123.9	Urasa	
123.9	Urasa	Fukuyama tunnel
132.2	Koide	
162.6	Miyauchi	Junction with Shin-Etsu main line

TOHOKU LINES
Ryomo Line
Oyama - Shin-Maebashi
84.4 Km.

This line serves as connection between the Tohoku main line and the Joetsu line. It follows up the north side of the same plateau (which cuts into the mountains northwest of the Tokyo Bay region), which the Takasaki line traverses from Omiya to Takasaki.

K.M. from Oyama		
0.0	Oyama	Junction with Tohoku main line
0.0	Oyama	Bridge over northern tributary of
10.8	Tochigi	Tone River
10.8	Tochigi	Curvature at station
26.6	Sano	Junction with branch lines for Koga, Tatebayashi and Aizawa
52.9	Kiryu	Bridge over Watarse river
84.4	Shin-Maebashi	Junction with Joetsu line

SHIN-ETSU LINE
Takasaki - Niigata
228.9 km.
(Kilometer distances from Takasaki)

This line, in conjunction with the Takasaki line formerly was the principal trans-island line, supplying a connection between the Tokyo district

(OVER)

and Niigata. It was a roundabout route at best and involved very heavy grades, requiring cog-and-rack instead of adhesion operation in one section. However, until the exploitation of Manchuria and the development of Niigata as an important entry for Manchurian products, the line served its purpose fairly well. The increased traffic placed such a burden on the line that, a little over ten years ago, the direct Joetsu line was literally blasted through the rugged mountains to supply a shorter line with fewer curves and a better grade line between Takasaki.

From Takasaki, which is situated near the extreme northwest of the plain surrounding Tokyo bay, the Shin-Etsu line follows a canyon almost due west into the main mountain chain, and, except for brief emergences on to plateaus, continues in a wide crescent through the mountains for some 200 km., after leaving Komoro, 63.3 km., eventually entering the northern coast at Naoetsu, 190.8 km. The line then hugs the coast for 36.3 km., to Kashiwazaki, then proceeds across rolling country with one break through a mountain spur by means of a tunnel, emerging on a plain near Nagaoka, 263.8 km. From this point to Niigata, the territory is relatively flat.

K.M. from Takasaki		
0.0	Takasaki	Junction with Takasaki line to Omiya; also line for Shimonita. Junction with Ryomo line, and with Joetsu line.
0.0 3.4	Takasaki Kita-Takasaki	Ten small bridges in this distance
24.2 29.7	Matsuida Yokogawa	Track subject to floods
29.7	Yokogawa	Power station
29.7 35.8 40.9	Yokogawa Kumanodaira Karuizawa	26 tunnels in this section known as Usui Pass (Exhibits 75, 76) Cog-and-rack operation (Exhibit 77) Two substations at Yagasaki and Maruyama in this Usui Pass section
40.9	Karuizawa	Junction with Kusatsu electric railway
63.3	Komoro	Junction with line for Kuomi; also with line for Shimagawara
76.1	Oya	Junction with line for Narikomachi
81.3	Ueda	Junction with a network of electric railways
101.3	Yashiro	Junction with line for Susaka
101.3 106.5	Yashiro Shinonoi	Bridges over Shinano and Chikuma rivers

K.M. from Takasaki		
106.5	Shinonoi	Junction with Shinonoi line, for Shiojiri and Nagoya
106.5 115.8	Shinonoi Nagano	Bridge over Sai river
110.8 115.8	Kawanakojima Nagano	Bridge over west fork of Shinano
115.8	Nagano	Overbridge; Junction with line for Susaka; Transformer substation; Railway shops
126.6	Toyono	Junction with line for Tokamachi
126.6 134.4	Toyono Mure	Reverse curves Shore protection
153.1 161.1	Taguchi Sekiyama	Three bridges over Karasu river
174.1	Arai	Bridge over Hamana river
174.1 184.1	Arai Takada	Bridge over Daido river
190.8	Naoetsu	Junction with Hokuriku main line
190.8 193.5	Naoetsu Kuroi	Bridges over Karasu and Ara rivers
193.5	Kuroi	Junction with line for Uragawara
208.4 214.3	Kakizaki Hassaki	Shore protection
214.3 220.4	Hassaki Omigawa	Retaining walls; Curvature; Shore protection
227.1	Kashiwazaki	Junction with Echigo line
227.1 233.0	Kashiwazaki Yasuda	Bridge
254.1	Raikoji	Junction with line for Teradomari; also for Nishi-Ojiya
254.1 260.8	Raikoji Miyauchi	Five bridges
260.8	Miyauchi	Junction with Joetsu line

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K.M. from Takasaki		
260.8	Miyauchi	Bridge over Shinano river
263.8	Nagaoka	
263.8	Nagaoka	Junction with line for Yukyu-zan; also for Tochio. Classification yard
270.7	Oshikiri	Bridge across four arms of Kariyada
275.2	Mitsuke	river
287.0	Higashi-Sanjo	Junction with line for Echigo-Nagasawa; also for Yahiko
311.9	Niitsu	Junction with Ban-Etsu west line; also with Uetsu line
315.7	Ogikawa	Bridge over Koaga river
320.6	Kameda	
327.0	Nuttari	Large railway storehouse
327.0	Nuttari	Bridge over Shinano river
329.0	Niigata	
328.9	Niigata	Enginehouse; Regional general manager's office

BAN-ETSU LINES
Ban-Etsu East (Taira - Koriyama)
Ban-Etsu West (Koriyama - Niitsu)
Taira - Niitsu 261.9 Km.
(Kilometer distances from Taira)

This is the first trans-island line north of the Joetsu line, in the Northeastern section of the Main Island, and it furnishes the best through connections between the Uetsu, Tohiku and Joban lines which run roughly north-south up the northern half of the Main Island.

A few kilometers north from its eastern terminus of Taira it leaves the relatively level coastal country and climbs into the highlands. By a very circuitous route it goes north and west to Koriyama (85.6 km.) situated in hilly terrain east of Lake Inawashiro.

From Koriyama the Ban-Etsu west line goes west-northwest, runs just north of Lake Inawashiro, turns south to Wakamatsu and then drops down into a low pocket between the mountains. From here it winds through a narrow twisting river valley northwest to the narrow fertile strip along the Japan seacoast in which Niitsu is located.

K.M. from Taira		
0.0	Taira	Junction Joban line
10.3	Ogawago	Line subject to landslides
40.1	Onoiimachi	Bridges over right fork of Abukuma river in this vicinity
73.7 85.6	Miharu Koriyama	Bridge over Abukama river
85.6	Koriyama	Junction Tohoku main line. Division between Ban-Etsu East and Ban-Etsu West lines
113.6	Joko	Bridge over Iwasuberi river near Joko
127.4	Okinajima	Deep cut
127.4 150.9	Okinajima Aizu-Wakamatsu	Bridge over Agano river
150.9 167.5	Aizu-Wakamatsu Kitakata	Bridge over Agano river
167.5 192.5	Kitakata Nozawa	Two tunnels (names unknown)
192.5 252.0	Nozawa Gosen	Several bridges over Agano river
214.7	Hideya	Slide protection

O - U MAIN LINE
Fukushima - Aomori 487.4 km.
(Kilometer distances from Fukushima)

This line serves as an alternate route between Tokyo and northeastern Japan for the Tohoku line, branching off this line at Fukushima and serving the central and western sections of the northern main island.

This line leaves the valley a few kilometers west of Fukushima and crosses a mountain range to Yonezawa, 43.0 km., which is situated on a high plateau. After crossing this plateau, the railway traverses another range for a few kilometers and emerges in a long, narrow valley just south of Yamagata, (90.0 km.). This valley is followed for some 80 kilometers to a point north of Shinjo. From here the line crosses a short but rugged mountain stretch, emerging in a narrow valley south of Yokote (231.2 km.). This valley is a part of the Akita coastal plain which extends unusually

(OVER)

far inland, and the railway extends across this plain to Akita (301.6 km.), which is only a few kilometers from the western coast. From Akita the railway roughly parallels the coast, skirting the eastern shore of Hachinoto Lagoon, then follows a long valley inland to Odate (405.8 km.). Between this point and Hirosaki (450.0 km.), another mountain chain is crossed, and for the remainder of the distance to Aomori (487.4 km.), the line crosses the northern coastal plain.

K.M. from Fukushima		
0.0	Fukushima	See Tohoku line
14.8	Akaiwa	Bridge over Ebi river; Snow fences; Four other bridges
22.0	Itaya	
22.0	Itaya	Two tunnels
26.1	Toge	
26.1	Toge	Snowsheds (Exhibit 78) Snow fences
31.3	Osawa	Snow fences
37.7	Sekine	
43.0	Yonezawa	Junction with line for Tenoko
59.0	Akayu	Junction with line for Arata
91.9	Kita-Yamagata	Junction with line for Aterazawa
109.2	Jimmachi	Junction with line for Yachi
129.8	Oishida	Bridge over Nibu river; Junction with line for Obanazawa
151.5	Shinjo	Junction with Rikuu East Line and with Rikuu West Line; Railway shops
151.5	Shinjo	Bridge over Izumita river
157.1	Izumita	
188.7	Nozoki	Reverse curves
197.3	Innai	
213.3	Yuzawa	Junction with line for Nishimonai
231.2	Yokote	Junction with line for Oikata Junction with Okoku line
231.2	Yokote	Bridge over Asa river
237.6	Gosannen	

K.M. from Fukushima		
249.9	Omagari	Junction with line for Obonai
249.9 255.9	Omagari Jinguji	Bridge over Sunasaki river
268.3 274.8	Mineyoshigawa Ugo-Sakai	Mineyama tunnel
295.2	Yotsugoya	Bridge over tributary of Omono river
301.0	Akita	Junction with Uetsu Line
308.7	Tsuchizaki	Transformer substation; Railway shops
314.6	Oiwake	Junction with line for Funakawa
321.8	Okubo	Transformer substation
330.4	Hitoichi	Junction with line for Gojonome
341.3 348.0	Kado Moritake	Bridge over Itongare river
358.3	Hataori	Junction with Noshiro line
385.1 388.8	Futatsui Takanosu	Ten bridges
388.8 396.4	Takanosu Hayaguchi	Bridge over Nukazawa river
396.4 405.8	Hayaguchi Odate	Bridge over Iwase river
405.8	Odate	Railway water reservoir; Junction with line for Hanaoka; also for Kosaka. Junction with Akita line
412.3 419.4	Shirasawa Jimba	Reverse curves
419.4 430.1	Jimba Ikarigaseki	Bridge over Shimbouchi river Two Yatate tunnels
430.1 438.2	Ikarigaseki Owani	Track subject to flooding
450.0	Hirosaki	Enginehouse; Junction with line for Tsugaru-Onoe
456.3	Kawabe	Junction with line for Kita-Kanegasawa; also for Kuroishi

(OVER)

K.M. from Fukushima		
465.0	Namioka	Curvature
470.1	Daishaka	Line subject to flood conditions
476.3	Tsurugasaka	
487.4	Aomori	See Tohoku Line

UETSU MAIN LINE
Niitsu - Akita
271.7 km.
(Kilometer distances from Niitsu)

This is one of the three lines (Tohoku, O-U, Uetsu) which roughly parallel one another from Niitsu and Fukushima in the south of the main island to Akita and Morioka approximately 250 km. north.

The Uetsu line traces the west coast line of the main island from Niitsu north to Akita, where it has a junction with the O-U line.

At Murakami (59.4 km.) the railway leaves the broad coastal plain and runs along the narrow defile between sea and mountains to a point a few kilometers west and south of Tsuroka (139.4 km.). From Tsuroka to Akita the line hugs the shore line for most of its distance.

K.M. from Niitsu		
0.0	Niitsu	Junction with Ban-Etsu West line Junction with Shin-Etsu Main Line
0.0	Niitsu	4,000 ft. bridge over Agano river.
10.2	Suibara	Longest bridge in Japan
26.0	Shibata	Enginehouse. Junction with branch line for Akatani
26.0	Shibata	Bridge over northern branch of
30.3	Kaji	Agano river
48.0	Sakamachi	Junction with branch line for Echigo-Shimonoseki
48.0	Sakamachi	Bridge over river(name unknown)
59.4	Murakami	
-	Sanukawa	Udomari tunnel (1095 ft.) less than
-	Katsuki	35 km. north of Murakami
-	Katsuki	Manouchi tunnel (313 ft.) about
-	Fuya	35 km. north of Murakami

K.M. from Niitsu		
87.5	Echigo-Kangawa	Byobuiwa Tunnel
101.0	Nezugaseki	Kurosaki Tunnel (211 ft.) just north of Nezugaseki
101.0 109.8	Nezugaseki Atsumi	Stone walls for slide protection
123.2	Sanze	Slopes
139.4	Tsuruoka	Junction with electric line for Yunohama-Onsen
139.4 154.7	Tsuruoka Amarume	Bridge over south branch of Mogami river
154.7	Amarume	Junction with Rikuu West Line for Shinjo
154.7 166.9	Amarume Sakata	Bridge over Mogami river
228.9	Ugo-Honjo	Bridge over river (name unknown) Junction with branch line for Haego
271.7	Akita	Junction with O-U Main Line. Bridge over Omono river just south of Akita

SOBU MAIN LINE
Ochanomizu - Choshi
120.0 Km.

The Sobu Main Line together with its branch, the Narita Line, forms part of a network of excellent railways in the top of the Boso peninsula east of Tokyo Bay and south of Lake Kasumigaura. The Sobu line leaves Ochanomizu station, Tokyo and skirts the northeast shore to Tokyo Bay as far as Chiba. Here it turns northeast to Sakura (where the Narita line goes on to Matsugishi via Narita and Sawara to the north) and then east to Naruto where it turns north to parallel the Pacific Coast to Choshi. These lines run through low level country for their entire length.

K.M. from Ochanomizu		
0.0 2.8	Ochanomizu Ryogoku	Bridge over Sumida river
2.8	Ryogoku	Bridge over Tama river (Exhibit 79) Bridge over Arakawa river just west of Ryogoku (Exhibit 80)

(OVER)

K.M. from Ochanomizu		
4.3	Kinshicho	Railway workshops
7.7	Hirai	Bridge over ship canal
9.5	Shin-Koiwa	Railway repair shops
14.9	Ichikawa	Bridge over Edogawa river just west of Ichikawa
22.7	Funabashi	Junction with branch line for Kashiwa
26.2	Tsudanuma	Electric car repair shop
39.4	Chiba	Roundhouse; Junction with Boso West line for Kamogawa; Bridge over Tuga river near Chiba
54.8	Sakura	Curvature at station; Enginehouse; Junction with Narita line
65.4	Yachimata	Junction with branch line for Sanrizuka
76.4	Naruto	Junction with branch line for Oami
90.4	Yokaichiba	Junction with branch line for Narita
116.8	Matsugishi	Junction with Narita line for Sasagawa and Narita
120.0	Choshi	Junction with electric line for Togawa

SOBU LINES

Narita Line

Sakura - Narita - Matsugishi 75.4
Abiko - Narita 32.9

K.M. from Sakura		
25.5	Namegawa	Curvature at station

KYUSHU ISLAND

KAGOSHIMA MAIN LINE

Moji - Kagoshima
400.0 Km.
(Kilometer distances from Moji)

This important line traverses the island of Kyushu from north to south. It runs west and south to Yoshizuka (77.4 km.) on the Japan sea-coast and then crosses the plateau country between mountain ranges to

Omuta close to Shimabara Bay, a distance of about 70 km. From Omuta to Yatsushiro (233.8 km.) on Yatsushiro Bay the railroad runs south through fairly level highland country. From here to Ijuin (379.5 km.) mountain spurs force the line to follow close to the seacoast. At Ijuin the railway crosses the level plain at the neck of the peninsula to Kagoshima on Kagoshima Bay.

K.M. from Moji		
0.0	Moji	Regional offices; Roundhouse; Railway hospital; Electric substation. This is the Kyushu terminus for Kwammon Tunnel (Note 19) Bridge between Moji and its suburb Kyumoji
5.0	Dairi	Enginehouse; Railway storehouses
11.7	Kokura	Railway workshops; Transformer substation; Shops. Junction with Nippo main line. Bridge over river (name unknown)
17.2	Tobata	Transformer substation
22.1 25.9	Yawata Kurosaki	Grades
25.9	Kurosaki	Between Kurosaki and Yatsushiro there are at least 17 bridges of which some are more definitely located below.
31.1	Orio	Junction with Chikuho main line to Harudo. Southern terminus for important branch line for Chikuho coal fields (Note 24)
31.1 35.3	Orio Ongagawa	Bridge over Nagari river
35.3	Ongagawa	Junction with branch line for Muroki
70.8	Kashii	Junction with branch lines for Umi and Saitozaka
77.4	Yoshizuka	Junction with branch lines for Sasaguri and Chikuzen-Katsuta
79.0	Hakata	Junction with branch line to Higashi-Karatsu; Electric line parallels Kagoshima line to Kurume
99.4	Haruda	Junction with Chikuho main line
99.4 107.1	Haruda Tashiro	8 bridges (names unknown)

(OVER)

K.M. from Moji		
108.3	Tosu	Classification yard; Engine shed; Junction with Nagasaki main line
115.4	Kurume	Junction with branch line for Yoake; also line for Shimowakatsu; Bridge over Chikugo river
127.6	Hainuzuka	Junction with branch line for Kuroki
133.7	Yabekawa	Junction with branch line for Nankan; also branch line for Kurume via Chikugo-Yanagaw
170.1	Takase	Line subject to floods
186.1	Ueki	
178.2	Konoha	Curvature at station
186.1	Ueki	Junction with branch for Yamaga
198.1	Kumamoto	Bridge over river (name unknown) Junction with Takamori line for Oita
203.4	Kawashiri	Curvature at station
203.4	Kawashiri	Bridge over river (name unknown)
209.0	Uto	
209.0	Uto	Branch line for Misumi
233.8	Yatsushiro	Junction with Hisatsu line for Kagoshima
233.8	Yatsushiro	Bridge over Kuma river
243.9	Hinagu	Hinagu Tunnel No. 1
263.6	Sashiki	Tunnel near Sashiki
295.1	Komenotsu	Line subject to floods
320.0	Akune	
314.5	Origuchi	Curvature
320.0	Akune	
326.0	Ushimohama	Curvature
333.4	Nishikata	Cut (at 329.9)
347.5	Kami-Sendai	Bridge over river (name unknown)
350.7	Sendaimachi	
350.7	Sendaimachi	Junction with branch line for Miyanojo
356.4	Koban-Chaya	Curves
362.7	Kushikino	

K.M. from Moji		
379.5	Ijuin	Junction with branch line for Nakurazaki
379.5 387.2	Ijuin Manjuishi	Curvature
396.8	Nishi-Kagoshima	Workshops; Transformer substation; Junction with branch line for Goino
400.0	Kagoshima	Shops; Junction with Nippo main line for Moji

KAGOSHIMA LINES
Hisatsu Line
Yatsushiro - Kagoshima
152.0 km.
(Kilometer distances from Yatsushiro)

This line provides an alternate rail route to the Kagoshima trunk between Yatsushiro and Kagoshima. It runs inland in a southeasterly direction from Yatsushiro following a narrow river valley through converging mountain spurs to the wider valley surrounding Hitoyoshi (51.8 km.) From here the railway turns south over the mountains to Yoshimatsu (86.8 km.) and Kurino and reaches the coast at the north end of Kagoshima Bay near Kajiki. From here it runs on the Nippo tracks along the bay to Kagoshima.

K.M. from Yatsushiro		
11.0 29.8	Sakamoto Shiroishi	Bridge over Kuma river
51.8	Hitoyoshi	Roundhouse
51.8 71.7	Hitoyoshi Yatake	Bridge over Kuma river
94.3 106.5	Kurino Makizono	Bridge over river (name unknown)
106.5	Makizono	Reverse curvature; also reverse curves at km. 102.0

NIPPO MAIN LINE
Kokura - Kagoshima
462.0 Km.
(Kilometer distances from Kokura)

This line traverses the entire length of Kyushu island along the east coast.

(OVER)

From Kokura to Usa (86.8 km.) it runs next to the coast through the low plain. At Usa it cuts between hills at the neck of the peninsula. Rejoining the coast line north of Oita (144.0 km.) it tunnels and twists through very rugged coastal terrain as far south as Tomitaka where it comes onto a wide alluvial plain which it traverses to a point a few kilometers west of Miyazaki (351.0 km.). After a short but circuitous stretch over a mountain spur it plunges down to Miyakonojo (401.0 km.) from where it again crosses rough country to join the Hisatsu line at the northern end of Kagoshima Bay.

K.M. from Kokura		
0.0	Kokura	Workshops; Junction with Kagoshima main line
24.3	Yukuhashi	Curvature at station; Junction with branch line for Nogata and Soeda
24.3	Yukuhashi	Bridge over Harai river
29.5	Shindenbaru	
29.5	Shindenbaru	Bridge over Futakuchi river
36.2	Shiida	
44.5	Unoshima	Junction with Unoshima line for Yabakei
51.1	Nakatsu	Junction with branch line for Horizane
56.0	Osada	Bridge over Inumaru river.
59.4	Imazu	
59.4	Imazu	Bridge over Yashiro river
64.8	Buzen-Zenkoji	
64.8	Buzen-Zenkoji	Junction with branch line for Buzen-Futsukaichi
75.1	Usa	Junction with branch lines for Usa-Hachiman and Bungo-Takada
98.5	Kitsuki	Junction with branch line for Aki
132.3	Oita	Engine shed; Junction with Hohi main line for Kumamoto
137.4	Takajo	Bridge over Ono river near Takajo
140.4	Tsurusaki	Bridge over Ono river
143.7	Ozai	
255.6	Nobeoka	Bridge over Gokase river near Nobeoka
269.4	Kadogawa	Floods
276.1	Tomitaka	

K.M. from Kokura		
276.1	Tomitaka	Junction with branch for Hososhima
319.4	Minashiro	Bridge over river (name unknown)
326.1	Hirose	Line subject to floods
326.1	Hirose	Junction with branch for Sugiyasu
339.3	Miyazaki	Bridge over river (name unknown)
341.9	Oyodo	Junction with Miyazaki railway line for Uchiumi
389.3	Miyakonojo	Car repair house; Bridge over river (name unknown) Junction with Kitto line for Yoshimatsu
391.8	Nishi-Miyakonojo	Junction with branch for Shibushi
434.1	Hayato	Junction with Hisatsu line for Yoshimatsu
455.1	Ryugamizu	Reverse curvature
462.0	Kagoshima	
462.0	Kagoshima	Junction with Kagoshima main line for Moji

NAGASAKI MAIN LINE
Nagasaki - Tosu (Note 25)
158.8 Km.

This line forms the western branch of a rail system crossing the northern part of Kyushu from Nagasaki to Oita. The Kyudai line from Kurume to Oita forms the eastern section of this rail system.

For the greater part of its length the Nagasaki main line follows the northwest shore of Shimabara Bay running between the highlands and the ocean. At Saga it runs up the broad alluvial valley to Tosu, its eastern terminus on the Kagoshima main line.

K.M. from Nagasaki		
0.0	Nagasaki	Electric substation
1.6	Urakami	Bridge over Shimonogawa
6.2	Michinoo	
9.7	Nagayo	Bridge over Nagayo river
17.9	Okusa	
31.6	Isahaya	Junction with Shimabara (private) line

(OVER)

K.M. from Nagasaki		
79.6	Haika	Engine shed; Junction with branch line for Hidariishi
90.9	Arita	Bridge over Arita river near Arita
119.1	Hizen-Yamaguchi	Engine house; Junction with branch line for Hizen-Hama
127.3	Kubota	Junction with line for Hakata and Nishi-Karatsu
127.3	Kubota	12 bridges in this section
133.8	Saga	
133.8	Saga	Bridge over river (name unknown)

NAGASAKI LINES
Karatsu Line
Kubota - Nishi-Karatsu
42.5 Km.

This branch runs off the Nagasaki main line at Kubota and winds northwest between plateaus to Nishi-Karatsu on the Japan seacoast.

K.M. from Kubota		
5.1	Ogi	12 bridges in this section
10.6	Higashi-Taku	

HOHI MAIN LINE
Kumamoto - Oita
148.0 km.
(Kilometer distances from Kumamoto)

This is the only trans-island (east-west) line known to be completed between the Nagasaki-Kyudai lines to the north and the Nippo Yatsushiro lines to the south.

It traverses the plateau country around Kumamoto and climbs the inland mountain range, starting near Tateno (32.3 km.), and comes down into a valley west of Miye. At Miye the railway turns north and runs between mountain spurs to Oita on Beppu Bay.

K.M. from Kumamoto		
0.0	Kumamoto	Junction with Kagoshima main line

K.M. from Kumamoto		
32.3	Tateno	Junction with Takamori line
111.9	Miemachi	Bridge over Ono river
125.2	Inukai	
148.0	Oita	Junction with Nippo main line; At Oita station spur lines connect Navy Yard and Oita gas storage plant and gas works with Hohi main line (Exhibit 81)(Note 26)

HOHI LINES
Takamuri Line
Tateno - Takamori
17.7 Km.

This is a very short line running southeast from Teteno up a narrow cut in this mountainous region.

K.M. from Tateno		
0.0	Tateno	2 tunnels (names unknown)
-	Shirakawa	
-	Yoshita	Tunnel (name unknown)
17.7	Takamori	Enginehouse

CHIKUHO MAIN LINE
Wakamatsu - Haruda
68.1 Km.

This is a short but important line primarily constructed to provide rail transport from the Chikuho coal mines to the port of Wakamatsu. This line crosses the Kagoshima main line at Orio and rejoins it at the Chikuho line's southern terminus of Haruda.

K.M. from Wakamatsu		
0.0	Wakamatsu	Classification yard; Railway workshops; Transformer substation
10.8	Orio	(See outline of Kagoshima main line)
24.8	Nogata	Classification yard
31.3	Kotake	Two bridges in vicinity of Kotake

(OVER)

ISLAND OF HOKKAIDO

HAKODATE MAIN LINE
Hakodate - Asahigawa
425.1 Km.

This line runs in a generally north-south direction from Hakodate to Asahigawa in the center of the island. As is true of all the lines in Hokkaido, protection against snow and blizzards is one of the most important problems on this railway in the northern part of the Island Empire. (Exhibit 82) (Note 27)

K.M. from Hakodate		
0.0	Hakodate	Power station; Hokkaido Island terminus of the Aomori (Honshu)-Hakodate car ferry. There are 4 steamers on this service. At the landing lead tracks from railway yards open into three parallel tracks to connect with those on the steamers. The quays extend as far as the railway yards (Note 20)
3.4	Goryokwaku	Railway workshops junction with line to Kikonai
28.0	Onuma	Junction with electric tramway to Shikabe
49.5	Mori	Junction with line for Sahara
102.8	Kunnui	Junction with line to Setana
112.3	Oshamambe	Enginehouse; Junction with branch line for Muroran (This line connects the Hakodate and the Muroran main lines)
132.3	Kuromatsunai	Enginehouse; Junction with line for Sutsu
179.6 186.3	Kaributo Hirafu	Curves
193.3	Kutchan	Enginehouse; Kutchan tunnel; Several bridges over a river which the line follows for some 30 miles south of Kutchan. Junction with line for Wakikata and Kimobetsu
203.6	Kozawa	Junction with branch line for Iwanzai
203.6 213.4	Kozawa Ginzan	Curves
224.1	Shikaribetsu	Reverse curves
252.5	Otaru	Railway docks

K.M. from Hakodate		
254.1	Minami-Otaru	Railway pier at Temiya (on branch line) 2.8 km. from Minami-Otaru
256.2	Otaru-Chikko	Shore protection
259.3	Asari	
259.3	Asari	Snow protection walls and sheds
262.9	Hariusu	
262.9	Hariusu	Hariusu Tunnel (entrance to this tunnel subject to landslides)
262.9	Hariusu	Snow protection walls
268.1	Zenibako	
286.3	Sapporo	Regional offices; Railway hospital; Junction with line for Isikari-Numata
288.5	Naebo	Junction with branch line for Numanohata Enginehouse; Transformer substation; Workshops
304.2	Nopporo	Junction with branch line to Shin-Yubari
307.3	Ebetsu	Junction with branch line to Kuriyama
307.3	Ebetsu	Bridge over Shinyubari river
316.7	Horomui	Bridge over Ishi Kari river
326.9	Iwamizawa	Classification yard; Junction with northern terminus of Muroran line. Junction with branch line for Horonai and Ikusyunbetsu
343.7	Bibai	Junction with branch line for Tokiwadai
362.2	Sunagawa	Junction with branch lines to Utashinai and Kami-Sunagawa
362.2	Sunagawa	Bridge over Ishikari tributary
369.8	Takikawa	
369.8	Takikawa	Junction with western terminus of Nemuro main line
378.2	Ebeotsu	Bridge over Ishikari tributary.
385.7	Moseushi	
385.7	Moseushi	Bridge over Ishikari tributary
392.9	Fukagawa	

(OVER)

K.M. from Hakodate		
392.9	Fukagawa	Enginehouse; Junction with line for Shumarinai; also line for Rumoi and Haboro on west coast
406.1	Kamuikotan	Curves
415.0	Ino	
415.0	Ino	Shore protection
421.1	Chikabumi	
421.1	Chikabumi	Bridge over Ishikari river
425.1	Asahigawa	
425.1	Asahigawa	Northern terminus of Hakodate main line; Railway workshops and transformer sub-station; Junction with line for Simohurano on Nemuro main line; From here Soya main line goes on to Wakkanai

SOYA LINE
Asahigawa - Wakkanaiminato
258.9 Km.

This completes the rail link between Hakodate and Wakkanaiminato which is carried as far north as Asahigawa by the Hakodate main line.

K.M. from Asahigawa		
3.7	Shin-Asahigawa	Junction with Sekihoku line for Nokkeushi
53.9	Shibetsu	Junction with branch line for Oku-Shibetsu
76.2	Nayoro	Junction with Nayoro main line for Engaru (138.1 km. long)
76.2 199.4	Nayoro Horonobe	The Soya line follows the Teshio river from a point south of Nayoro to Horonobe and in this distance crosses the Teshio river several times.
129.3	Otoineppu	Enginehouse; Junction with alternate branch line for Wakkanai via Hama-Tombetsu
258.9	Wakkanaiminato	Northern terminus of Soya line; Car ferry from here to Odomari on island of Karafuto Two relatively small ships operating daily except December to March inclusive, when 12 to 13 trips monthly are operated.

NAYORO MAIN LINE
Nayoro - Engaru
138.1 Km.

This line provides rail connection between towns on east coast of the island and the northern part of Hokkaido which is serviced by the Soya line. Likewise, traffic from Abashiri, on the east coast, (northern terminus of the Abashiri and Semmo lines) is linked to Wakkanaiminato by the Nayoro and Soya lines.

K.M. from Nayoro		
88.9	Shokotsu	Enginehouse; Junction with branch line for Omu
121.9	Naka-Yubetsu	Bridge over river near this town. Junction with branch line for Shimo-Yubetsu
138.1	Engaru	Enginehouse; Junction with Sekihoku line between Asahigawa and Nokkeushi

NEMURO MAIN LINE
Takikawa - Nemuro
446.6 Km.

This line practically crosses the island from east to west at approximately its widest point. It goes southeast from Takikawa to Urahoro where it swings slightly north of east and follows the Pacific Coast to Nemuro on the far eastern tip of the island.

K.M. from Takikawa		
0.0	Takikawa	Bridge across Ishikari tributary
7.2	Horokura	
57.6	Shimo-Furano	Junction with line for Asahigawa terminus of Hakodate line. Two bridges across Ishikari tributary.
139.1	Shintoku	Junction with branch line for Sikaoi
146.2	Shimizu	Junction with line for Kami-Horoni
182.9	Obihiro	Junction with three branch lines; north to Nukabira; south to Hiroo; south to Kamibisei, Yatiyo, Totuta
182.9 187.7	Obihiro Satsunai	Bridge across a Tokati tributary
204.2 207.1	Toshibetsu Ikeda	Bridge across Tokati river and one of its tributaries

(OVER)

K.M. from Takikawa		
207.1	Ikeda	Junction with Abashari line for Abashari via Nokkeusi
283.9	Shiranuka	Bridge across a river (name unknown)
311.2	Kushiro	
311.2	Kushiro	Railway shop; Passenger car shed; Transformer substation; Railway coal piers; Junction with lines for Syari, Nemuro-Sibetu, and Sitakara. Bridge across a river (name unknown)
357.8	Akkeshi	Enginehouse

ABASHIRI LINE
Ikeda - Abashiri
193.0 Km.

This line runs north and west from Ikeda on the Nemuro line to Abashiri on the northeast coast of Hokkaido. Together with the Semmo line (further east and roughly parallel to the Abashiri line) it provides cross country rail transport to and from the ports on northeast and southeast coasts of Hokkaido island.

K.M. from Ikeda		
11.5	Takashima	Classification yard
140.0	Nokkeushi	Junction with Sekihoku line
165.1	Bihoro	Junction with branch line for Kitami-Aomai

SEMMO MAIN LINE
Abashiri - Kushiro
169.1 Km.

K.M. from Abashiri		
0.0	Abashiri	Tunnel (name unknown)
37.3	Shari	
37.3	Shari	Enginehouse
169.1	Kushiro	Railway shops; Junction with Nemuro main line

MURORAN MAIN LINES
Muroran - Iwamizawa
142.2 Km.
Higashi-Muroran - Oshamambe
77.2 Km.

The line from Muroran to Iwamizawa provides rail transport from the coal mines in the interior of Hokkaido to the ferry service at Muroran for Aomori on the main island (Honshu). At Iwamizawa it joins with the Hakodate main line.

K.M. from Muroran		
0.0	Muroran	Power station; Railway docks. Coal pier (Exhibits 83, 84, 85)
5.8	Wanishi	Workshops; Junction with line for Oshamambe on Hakodate line
66.1	Tomakomai	Junction with line for Samani; Railway shop
74.9	Numanohata	Junction with connecting line for Sapporo on Hakodate line; also line for Hetonai
101.7	Oiwake	Junction with branch line for Noborikawa
117.3	Yuni	Bridge over Yubari river
122.4	Kuriyama	Bridge across an Ishikari tributary Junction with branch line for Yubari
134.8	Shibun	Junction with branch line for Manzi-Tanzan
142.2	Iwamizama	Terminus of line; Junction with Hakodate main line; also branch line for Horonai

A continuation of the Muroran Main Line runs along the coast from Higashi-Muroran to Oshamambe on the Hakodate Main Line.

K.M. from Higashi-Muroran		
10.6	Shizukari	Rebunkazan and 7 other tunnels
23.6	Rebun	

SHIKOKU ISLAND

Practically no information is available to us on the railways on this island. Two or three locations of which we can be certain are listed below under their proper lines.

(OVER)

YOSAN MAIN LINE
Takamatsu - Iyo-Kaminada
216.7 Km.

K.M. from Takamatsu		
0.0	Takamatsu	Car ferry terminus for Uno on main island (see Uno line under San-Yo line)
0.0	Takamatsu	Bridge over Higashifuro river.
6.1	Kinashi	
6.1	Kinashi	Curvature
32.3	Tadotsu	Enginehouse; Railway shops; Junction with line for Awa-Ikeda

TOKUSHIMA MAIN LINE
Tokushima - Awa-Ikeda
74.1 Km.

K.M. from Tokushima		
0.0	Tokushima	Railway shops; Curvature; Junction with Komat-Sushima line; A very large bridge near Tokushima

N O T E S

Note 1 — The kilometer distances have been taken from condensed time tables published by the Japanese Government Railways Bureau as revised March 1933. Although this source is ten years old, it may be assumed that the distances as listed have remained the same in the overwhelming majority of the cases.

Note 2 — See report No. 3252 on Railway Bridges in Japan, (CHI-126) by Charles Layng, Economic Warfare Section, Department of Justice, Chicago, Illinois; also report No. 3253, Railway Tunnels in Japan (CHI-127) by Charles Layng and Richard Babcock, Chicago, Illinois.

Note 3 — We have possession of two extremely technical publications written in Japanese and dealing principally with Japanese railways, namely, The Japanese Government Railway Bulletins, and certain issues of Dobboku-Gakkai-Si, a Japanese engineering magazine. It is believed that a translation of this material will furnish further information on railway locations, as well as extremely valuable technical data on railway construction and rolling stock. In general, the information in this report did not come from sources of a technical nature such as might merit more careful consideration. For that reason, references to sources, item by item, will not be made in the body of the report.

Note 4 — Our principal source of information on these locations has been the Annual Reports, Japanese Government Railways Bureau, for the years 1921, 1923, 1925, 1927, and 1928 through 1937. Many publications, such as the Far Eastern Review, the Railway Gazette, and the Engineering News Record, have furnished information on locations. Where the particular item has been obtained from a previous report, reference will be made to that report.

Note 5 — As a guide, the following is a list of some of the changes as between the old and the new Japanese spelling:

Old	New
J	Z or Zy
Ts	T
Ch	T
F	H
Sh	S

Examples of queer results of the new spelling are: "Joetsu" becomes "Zyoetsu"; "Fukushima" becomes "Hukusima"; "Shinagawa" becomes "Sinagawa"; "Shinjuku" becomes "Sinzyuku"; and "Iidabachi" becomes "Iidabasi."

Note 6 — For detailed report on the O-I and other Japanese railway workshops with accompanying illustrations, see report No. 3024 on Far Eastern Transportation No. 7, Japanese Railway Workshops by Charles Layng, Economic Warfare Section, Department of Justice, Chicago, Illinois (CHI-99).

Note 7 — Locations on these main trunk lines which are within the Tokyo District but are beyond the point where these lines join the Yamate Belt are listed on the outlines of those lines.

(OVER)

Note 8 For more details on the Shibuya, Shinjuku, and Ikebukuro Stations, see report No. 3068 on Shibuya, Shinjuku, and Ikebukuro Stations, Tokyo, Japan, (D-179) by E. B. Price, Economic Warfare Section, Department of Justice, Denver, Colorado.

Note 9 The topographical information about the country through which these lines run was obtained from Japanese naval air charts produced jointly by ONI and MID and are part of the War Department Map Section, Office of Chief of Engineers, U.S.A. This information has been supplemented by Layng's travels over several Japanese main lines a few years ago.

Note 10 For detailed report on the Tokyo Electric Company and Kawasaki environs, see Confidential Report No. 2522 on Tokyo Electric Company, Kawasaki, Japan, by Robert A. Nitschke, Economic Warfare Section, Department of Justice, Chicago, Illinois, (CHI-48).

Note 11 The largest yards are at Tsurumi, Shimagawa, and Suita. Each of these yards has a capacity of 5,000 cars daily. For further information on Japanese railway classification yards, see Confidential Report No. 2827 on Traffic Capacity of Japanese Railways, by Charles Layng, Economic Warfare Section, Department of Justice, Chicago, Illinois (CHI-47).

Note 12 For detailed information on the Tanna Tunnel, see Confidential Report No. 3253 on Japanese Railway Tunnels (CHI-127) by Charles Layng and Richard Babcock, Economic Warfare Section, Department of Justice, Chicago, Illinois; see also Far Eastern Review, May 1933, pages 204-220.

Note 13 See Confidential Report No. 2972 on Poison Gas Factory and Munitions Plant at Ogaki, Honshu, Japan, (D-60) by J. A. Dole, Economic Warfare Section, Department of Justice, Denver, Colorado.

Note 14 The Yumeda freight depot and yards cover more than 5 acres and have a trackage of over 13 miles. There are steel sheds with steel and concrete platforms 500 to 900 ft. long. The freight line is elevated and traverses the northern end of Osaka, connecting with the main line at Suita (Exhibit 49).

Note 15 For further information on transportation in the Kobe District, see Confidential Report No. 2975 on Communications Bottlenecks in the City of Kobe, Japan (D-94) by E. B. Price, Economic Warfare Section, Department of Justice, Denver, Colorado.

Note 16 This entire section is referred to as the Fukuchiyama Line, though parts of the northern section of the line run over the tracks of the San-In Line and also over a section sometimes referred to as the Maizuru Line.

Note 17 According to a map published by the Japanese Tourist Bureau in 1939, this line has been completed north of Hida-Hagiwara to Toyama via Takeyama.

Note 18 In the Shioya railway station area, transportation facilities are congested between the sea and the hills, which are about 150 yards from the shore. In addition to the tracks of the San-Yo Main Line, there is one overhead bridge near the station to carry electric trains between localities in this area, and also another overhead bridge to carry highway traffic over the railway tracks.

Note 19 For more detailed information on the Kwammon Tunnel, see report cited in Note 12.

Note 20 For detailed information and numerous exhibits on Japanese railway car ferries, see Confidential Report No. 3161 on Railway Car Ferries, Part 2 (CHI-117), by Charles Layng, Economic Warfare Section, Department of Justice, Chicago, Illinois.

Note 21 This freight line was opened in 1928 and was said to be, at that time, the "best equipped" in Asia. It is eight miles long, partly elevated, and is equipped to handle 700,000 tons of freight with 200 freight cars.

Note 22 For more detailed information on this power station, see Confidential Report No. 2826 on Electrification of Japanese Railways (CHI-42) by J. C. Cramond, Economic Warfare Section, Department of Justice, Chicago, Illinois.

Note 23 For further information about the Omiya workshops, see report cited in Note 6.

Note 24 See Confidential Report No. 2788 on Iron Works, Industrial Plants, and Other Objectives at Yawata, and Military Zone of Moji, Japan (NO-73), by R. L. Porter, Jr., Economic Warfare Section, Department of Justice, New Orleans, La.

Note 25 According to information in the Japanese Government Railway Annual for 1927, there were built or under construction at that time 128 bridges on this line. A few are more exactly located in this outline.

Note 26 For more detailed information, see report No. 2529 on Military Objectives at Oita, Kyushu, Japan (D-57) by J. A. Eble, Economic Warfare Section, Denver, Colorado.

Note 27 No topographical maps being available which show the Island Hokkaido, we are unable to give a description of the type of country through which these lines run.