

ARMY SERVICE FORCES MANUAL

M 354-23

File No. 110

CIVIL AFFAIRS HANDBOOK

# JAPAN

SECTION 23: FUKUOKA - KEN



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HEADQUARTERS, ARMY SERVICE FORCES

7 AUGUST 1945

*X 11a (20)*

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**M 354-23**  
Civil Affairs

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Headquarters, Army Service Forces      7 August 1945

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HEADQUARTERS, ARMY SERVICE FORCES  
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7. Agriculture
8. Industry and Commerce
9. Labor
10. Public Works and Utilities
11. Transportation Systems
12. Communications
13. Public Health and Sanitation
14. Public Safety
15. Education
16. Public Welfare
17. Cultural Institutions in Japan
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## INTRODUCTION

This manual is one of a series of studies designed to provide Military Government officers working on prefectural and local levels with a concise statement of available factual information.

Each manual covers one prefecture and includes information available at the Presidio of Monterey, California, on 1 August 1945.

### Purposes of the Civil Affairs Handbooks

The basic purposes of civil affairs officers are (1) to assist the Commanding General by quickly establishing those orderly conditions which will contribute most effectively to the conduct of military operations, (2) to reduce to a minimum the human suffering and the material damage resulting from disorder and (3) to create the conditions which will make it possible for civilian agencies to function effectively.

The preparation of Civil Affairs Handbooks is a part of the effort to carry out these responsibilities as efficiently and humanely as is possible. The Handbooks do not deal with plans or policies (which will depend upon changing and unpredictable developments). It should be clearly understood that they do not imply any given official program of action. They are, rather, ready reference source books containing the basic factual information needed for planning and policy making.

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SUMMARY.

Fukuoka-ken is the northernmost prefecture on the island of Kyushu. It is among the five most highly industrialized prefectures in Japan. Fukuoka-ken has eleven cities, the largest and the capital of the prefecture, Fukuoka-shi, having a population of almost 325,000.

Manufacturing is the main occupation in this prefecture with concentrations of heavy industry in the Yawata-Tobata-Kokura, Fukuoka, and Omuta-Miike areas. The prefecture is a deficit area in agricultural production but fish production is normally sufficient to meet local needs. The prefecture has two major coal fields, Chikuho and Miike, which produce almost half of Japan's mined coal.

The prefecture is important for foreign trade having 4 open ports, Moji, Wakamatsu, Omuta and Fukuoka, whose total trade volume in 1939 contributed almost a tenth of the national total.

Fukuoka-ken is served by main and secondary railroads and highways. Two of Kyushu's north-south trunk lines terminate at Moji. Almost one-third of the total length of highways in Kyushu are in this prefecture. Fukuoka-ken has two major radio broadcasting stations, JOLK AND JOSK, and is the focal point for the majority of submarine cables entering Kyushu from Honshu. The electric power generating facilities of the prefecture produce almost 60 percent of the total power produced in the Kyushu Supply Area. The prefecture's 25 generating plants are connected to the Kokura-Tobata-Yawata transmission grid or to the West Kyushu transmission network.

Except in matters peculiarly local, the social organization and cultural institutions of the prefecture are similar to those existing in the rest of Japan. Fukuoka-ken is in the Kyushu Administrative Region with headquarters in Fukuoka-shi.

by AIR-1 WAPA, USE 3/5/41

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## I. PHYSICAL BACKGROUND.

### A. LOCATION AND SIZE.

Fukuoka-ken is the northernmost prefecture on the island of Kyushu, and is at approximate latitude  $33^{\circ}30'N$ , longitude  $130^{\circ}30'E$ . The prefecture has a north-south and east-west extent of 70 miles. Its area is 4,944 square kilometers (1,908 square miles), comprising 1.3 percent of the total area of Japan proper. It is slightly smaller than the state of Delaware and in 1940 had a population of 3,094,132 persons.

### B. TERRAIN REGIONS.

Fukuoka-ken is divided into 3 zones; the Northern Kyushu Lowlands, the Northern Kyushu Highlands, and the Central Kyushu Mountains.

The Northern Kyushu Lowlands and Highlands regions, which lie only partially in Fukuoka-ken, together form a long, narrow area of 100 by 25 miles, north and west of the large Central Kyushu Mountain region and extending northeast-southwest from Shimonoseki-kaikyo ( $33^{\circ}56'N$ ,  $130^{\circ}57'E$ ) to the head of Yatsushiro-wan ( $32^{\circ}20'N$ ,  $130^{\circ}26'E$ ). Dominant types of relief are low rugged mountains and hills and flattish lowlands.

The Central Kyushu Mountains consist of a belt of moderately high rugged mountains, aligned southwest-northeast across the island. The major portion of this region lies outside Fukuoka-ken; and that part within the prefecture is lower and less rugged than the rest and can be classified as merely upland.

#### 1. Northern Kyushu Lowlands.

This region consists of a series of interconnected lowlands aligned north-south through the center of the region and flanked on the east and west by low but rugged uplands.

The larger of the lowlands which lie in Fukuoka-ken are the Saga Plain in the southwestern portion and the Fukuoka plain facing Fukuoka-wan ( $33^{\circ}37'N$ ,  $130^{\circ}20'E$ ). The latter is the largest of a number of lowlands along the northern coast. Approximately 25 percent of the total area of Fukuoka is included in these lowland areas.

a. The Saga Plain. The Saga Plain, also known as the Tsukushi Plain, is the largest lowland area on Kyushu Island and lies partially in Saga-ken and partially in Fukuoka-ken. It extends 31 miles southwest-northeast, from the head of Ariake-kai ( $33^{\circ}13'N$ ,  $130^{\circ}15'E$ ) past Kurume-shi ( $33^{\circ}18'N$ ,  $130^{\circ}30'E$ ) to the Futsukaichi corridor (10 miles north of Kurume-shi) and 16 miles northwest-southeast along the east side of Ariake-kai. Inland

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near Kurume-shi, the plain narrows to 6 miles, but widens to 12 miles farther northeast.

The Chikugo-gawa separates the Saga Plain into 2 equal portions, the western portion lying in Saga-ken and the eastern portion lying in Fukuoka-ken. Approximately 15 percent of the area of Fukuoka-ken is included in the Saga Plain.

The plain is nearly flat and is divided into 1/2 to 2-mile blocks of wet rice land by a complex grid of stream channels and artificial ditches. Travel across country would be difficult unless these streams are bridged.

The seaward margin consists of low, newly reclaimed alluvial flats which are in dry and irrigated rice fields. Kurume-shi, near its center, is the only large urban area in the Fukuoka portion of the plain.

b. The Northern Coastal Lowlands. The Northern Coastal Lowlands consist of a narrow interrupted belt of lowlands including the Fukuoka Plain on the west, and curving around the northern end of the Chikuho upland to include the small Yukuhashi Coastal Plain on the Suo-nada (33°50'N, 131°30'E) arm of the Inland Sea. The lowland strip varies in width from 9 miles at Fukuoka-wan on the west to an average of 1/2 to one mile at the industrial-urban belt between Wakamatsu-shi (33°55'N, 130°47'E) and Kokura-shi (5 miles southeast of Wakamatsu). At 2 points, the base of Moji-hanto (10 miles east of Wakamatsu) and between Tobata (2 miles east of Wakamatsu) and the Onga-gawa (9 miles west of Wakamatsu) the lowland lies inland behind the coastal hill ranges. Low hill spurs cut completely across the lowland at several points in the section between Fukuoka-wan and the mouth of the Onga-gawa; and to avoid these, the main highway and the railway follow a series of tranverse valleys 4 to 5 miles inland.

These lowland areas are chiefly covered with wet rice fields which are flooded or have deep mud from July to October. The rice field areas are divided into blocks one to 2 miles in extent by streams which flow out from the uplands.

Areas not covered with wet rice fields include the sand dune areas along the coast between Fukuoka-shi and Yukuhashi-machi and the built-up urbanized strip between Wakamatsu-shi and Kokura-shi.

The chief gateway from this region is through the Futsukaichi corridor (9 miles southeast of Fukuoka-shi) to the Saga Plain to the south. This passageway narrows to less than a mile near Futsukaichi-machi but widens rapidly north and south to 5 miles.

The corridor has a flat floor of loamy soil which is occupied



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almost completely by rice fields. Two railway lines and 2 highways use the passageway. Hills on either side of the corridor rise 300 to 900 feet within 9 miles.

On the seaward margin of the Northern Coastal Lowlands are several small islands. The largest of these is O-shima (20 miles north of Fukuoka-shi). It extends 3 miles northeast-southwest and its maximum width is 2 miles. Shigano-shima (8 miles northwest of Fukuoka-shi) extends 2 miles north-south and averages slightly more than one mile in width. It has a sharp peak 645 feet high and is joined by a sand spit to a long narrow peninsula which forms the northern limit of Fukuokawan. Nokono-shima, 6 miles west of Fukuoka-shi, extends 2 miles north-south and averages about one mile in width. It is wooded and has a green summit 700 feet high. There are several smaller islands in this vicinity.

## 2. Northern Kyushu Highlands.

The portion of this region in Fukuoka-ken consists of 3 separate sections: the Seburi Upland in the western part, the Chikuho Uplands in the north and a small upland area in the southern portion. About 50 percent of the total of Fukuoka-ken is included in upland areas.

a. The Seburi Upland. Only a narrow northern margin of the Seburi Upland lies in Fukuoka-ken. It is a compact and relatively rugged block of mountains possessing typically bold granitic features, and cut by numerous narrow, crooked valleys. It rises from the Fukuoka plain in steep slopes to sharp crests of 1,500 to 3,000 feet in elevation, reaching a maximum of 3,461 feet at Seburi-yama, 10 miles south of Fukuoka-shi, on the Saga-ken border.

There are no large towns or settlements in this area.

b. The Chikuho Highlands. The Chikuho Highland block is separated from the Seburi Upland area by the Futsukaichi Corridor, a tectonic fault valley. This upland area is not compact like the Seburi upland but consists of detached clusters of granite hills, mostly fault blocks, lower basin-like tertiary areas of dissected hill country, and considerable alluvial lowland. Many flat-bottomed valleys deeply penetrate, but do not cross, the hill belts. Elevations reach 600 to 1,000 feet in the hills, and 1,600 to 2,500 feet in the mountains. Most mountain slopes are steep, but the hillsides have only moderate inclinations. The broader valleys do not extend entirely across the region. Upper sections of the valleys, near passes, are narrow, but nearly level and straight. Commanding heights rise 600 feet to 1,000 feet above the narrow valleys.

Extending from north to south through the middle of this area

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is a basin, 6 to 7 miles wide, drained by the Onga-gawa and its tributaries.

c. The Southern Upland. The upland area in southern Fukuoka-ken is a granitic rock upland rising to elevations of 1,500 feet in the western portion. Tertiary shales, sandstones and conglomerates flank the granites on the seaward side. Routes in this area follow narrow winding valleys which are usually less than 400 feet wide. Adjacent heights are heavily forested. Omuta-shi (33°02'N, 130°37'E) on the seaward margin is the only large urban center of this area.

3. Central Kyushu Mountains.

The Central Kyushu Mountain area in Fukuoka-ken is cut into 2 approximately equal blocks by the Chikugo-gawa, east of Kurume-shi. These 2 blocks of rugged lava plateaus and hills comprise about 25 percent of the total area of Fukuoka-ken.

The lava plateaus have been altered by faulting and erosion with the result that they present a great confusion of features. Mesa and butte forms with steep bordering cliffs are common.

Although these mountains are not high, averaging 1,800 to 3,000 feet and reaching a maximum of 4,045 feet at Shakaga-dake (24 miles southeast of Kurume-shi), they are serious barriers to cross-country movement. No important routes cross this area into Oita-ken except the routes near the Chikugo-gawa. Most valleys are cut down 800 to 1,000 feet below the adjacent plateau masses and are winding and narrow at the bottom. There are no large settlements in this area.

C. HYDROLOGY.

1. Lakes and Ponds.

No mapped lakes exist in Fukuoka-ken, but a large amount of natural storages is accomplished by means of the capacity of the wide, meandering Chikugo-gawa as it flows through the delta plains area at the head of the Ariake-kai.

2. Springs.

There is a recorded hot spring at Musashi (33°29'N, 130°31'E) and cold springs at Funakoya (33°11'N, 130°30'E) Watari (33°32'N, 130°53'E), Hoshuyama (33°25'N, 130°52'E) and Norimatsu (33°48'N, 130°42'E).

3. Rivers.

All the boundaries of Fukuoka-ken with the exception of the portion along the Chikugo-gawa, are along the natural water sheds of the mountainous interior. Thus practically all the rivers have their sources within the prefecture and flow towards the

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coastal boundaries of the prefecture.

The mountain streams of Fukuoka-ken have all the characteristics of those elsewhere in Kyushu. In the main they are either short in themselves or short tributaries of other rivers. Their individual collecting areas are small and are confined to gorges and steep valleys. Gradients are steep, run off is very rapid, and turbulent waters are common. Dams for power and conservation are frequent. The lower reaches of these rivers lose their gradients rather rapidly and as a consequence are choked with sand and gravel. In the flat gradients of the coastal plains areas, the rivers are less turbulent. Numerous earthen dikes and irrigation dams appear on these flats.

Rivers of the prefecture show consistent seasonal characteristics. Flash floods may appear at anytime, but most likely during the peak flow months of July, August and September. November through February is consistently a low water period. The mean annual precipitation for this area is approximately 62 inches, as represented by records taken at Fukuoka-shi.

In 1936, 159 urban communities sustained river flood damage in Fukuoka-ken. The total flood zone amounted to 11,656 acres, of which 196 acres were under cultivation at the time; 74 acres were permanently eroded or inundated, 92 buildings were damaged, total damage amounted to 739,787 yen, and the expended repair expense was 798,741 yen.

The principal river in Fukuoka-ken is the Chikugo-gawa, which forms part of the western boundary with Saga-ken. It has a drainage area of 1,102 square miles and has its source in Oita-ken. It is a typical mountain river until it reaches the broad, flat area about 45 miles from its mouth. Thereafter it meanders widely over its delta; about 6 miles from its mouth on the Ariake-kai, its distributary, the Hayatsue-gawa, leaves the main stream. The Chikugo-gawa is navigable for a distance of 50 miles upstream, but the bay approaches to its mouth are almost entirely blocked by mud flats. Between the years 1873 and 1921 many irrigation and flood control projects, designed also to facilitate navigation, have been installed on the flat reaches of the river.

On the Onga-kawa, in the extreme north, extensive irrigation and flood control projects have been installed between the years 1873 and 1921. For a distance of 4 miles above its outlet at Ashiya-machi extensive river widening and navigation aids have been undertaken. It flows through an important rice-growing area.

The Do-kai, which is the widened outlet of the Yawata-gawa at Yawata-shi, is about 6 miles long and a mile wide at points. It is the location of many dock and navigation improvements.

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At Fukuoka-shi, 2 small rivers which flow through it have been canalized to permit barges to serve industries back of the waterfront.

D. CLIMATE AND WEATHER.

1. Seasons.

During the winter season, north to northwest winds of continental origin flow across Japan. As a result, frequent snows or rains prevail along the western and northern coasts. Fukuoka-ken has damp, cold, gloomy weather in this season.

During the summer, air flow over Japan is prevailingly from a southerly direction. These air streams are heavily laden in their lower levels with moisture which is readily precipitated in local showers all over Japan.

2. Temperatures.

The midsummer temperatures are high and the summer season is very sultry, uncomfortable, and enervating. It is comparable to that of the American Atlantic seaboard from Washington, D. C., to southern Georgia. The growing season is long; 203 days at Fukuoka-shi.

Winters are relatively mild, the coldest months having mean temperatures above freezing, but when it is overcast and a strong wind is blowing, the humid cold is raw and penetrating.

The temperature record at Fukuoka-shi is considered to be representative of the prefecture, (see Table 1).

TABLE 1

Temperatures, Fukuoka-shi, Fukuoka-ken.  
(In degrees Fahrenheit.)

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann.
Mean daily max.	49	49	56	65	73	79	86	88	81	72	63	53	68
Mean daily min.	34	34	38	45	53	63	72	73	65	52	44	37	51

3. Precipitation, Humidity, Fog.

Annual precipitation varies from 60 to 80 inches over the prefecture, being much heavier during the summer than the winter. Humidity is high, but fog is not prevalent except during calm weather in Shimonoseki straits. Table 2 gives the record at Fukuoka-shi, which is assumed to be representative for the prefecture.

TABLE 2

Precipitation & Humidity, Fukuoka-shi, Fukuoka-ken.

	Jan.	Feb.	Mar.	Apr.	May	June	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann.
Mean precip.(in.)	2.8	3.3	4.4	5.1	5.1	10.2	7.7	5.2	8.1	4.2	2.9	3.0	62.0
Mean no. days with precip. of 0.004" or more	17	15	16	14	12	15	14	11	15	12	13	16	170
Mean no. days with trace or more of snowfall	5	6	2	0	0	0	0	0	0	0	*	3	16
Mean relative humidity,(percent)	73	73	74	77	78	82	81	82	83	80	77	74	78

\*Less than 0.5 day

4. Winds.

Table 3 gives the percentage frequency of various surface wind directions at Fukuoka-shi. The mean wind speed is 5.6 m.p.h., 6.5 m.p.h. in midwinter and about 5.0 m.p.h. in midsummer. There are about 7 gales per year from November through April.

TABLE 3

Surface Wind Directions, Fukuoka-shi, Fukuoka-ken.  
(percentage frequencies)

	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Ann.
N	13	16	21	23	21	19	18	19	20	20	15	14	18
NE	6	8	10	9	7	7	7	10	17	15	10	5	9
E	6	7	7	6	6	6	7	11	10	10	10	5	8
SE	26	19	18	19	22	25	24	24	21	23	26	26	24
S	16	16	14	13	13	15	19	14	12	12	15	17	14
SW	4	3	4	4	4	4	5	3	3	4	4	4	4
W	12	12	10	9	8	6	6	5	4	5	9	12	8
NW	14	16	14	12	13	11	8	7	6	6	10	16	11

5. Catastrophes.

Fukuoka-ken is located in the typhoon area but not in that portion of the area subject to greatest damage.

## II. POPULATION AND SETTLEMENTS.

### A. POPULATION.

In 1940 the population of Fukuoka-ken, (including those listed in the armed forces), was 3,094,132, or 4.2 of the total population of Japan. It had a population density of 626 persons per square kilometer, which placed it fourth among the most densely populated prefectures in Kyushu. Between 1935 and 1940 it experienced an enormous increase in population of 338,328 persons, or 12.3, more than double the national average. This growth was largely a result of migration to the prefecture.

It is estimated that as of April 1945 the population of Fukuoka-ken (excluding armed forces) was 2,935,000. It is believed that 265,000 persons left the prefecture as a result of population dispersal caused by bombings and governmental evacuation.

The population of Fukuoka-ken is concentrated in 5 areas: the Shimonoseki-kaikyo industrial area, the Fukuoka Plain, the Nogata-Iizuka area, the Saga Plain and the Suo-nada coastal paddy fields. Of these, the most densely populated is the Shimonoseki-Kaikyo industrial area.

In 1940 Fukuoka-ken contained 10 cities (shi): Fukuoka, Wakamatsu, Yawata, Tobata, Kurume, Omuta, Kokura, Moji, Nogata and Iizuka. Since that time, Tagawa has been incorporated as a shi. Fukuoka-ken ranks 6th. in urban population and 7th. in degree of urbanization among the prefectures in Japan. In 1940, 46.4 of its population, or 1,435,523 persons, lived in the 10 cities mentioned above. During the 20-year period 1920-40 it experienced a steady increase in urbanization; the rural population, on the other hand, increased at a much lower rate during the same period.

Fukuoka-ken and Nagasaki-ken are the only prefectures in Kyushu which show an excess of males over females. In Fukuoka, the sex ratio is roughly 103 males per 100 females. This excess is probably due to male migration to the industrial areas in the prefecture. In only 3 of the 10 cities (Fukuoka, Kurume and Iizuka) in 1940 did the females outnumber the males.

At the end of 1938 there were 55 foreigners in Fukuoka (Koreans not included).

Table 4 lists the population of Fukuoka-ken in 1940 by minor civil sub-divisions.

Table 4  
Population, 1940, Fukuoka-ken\*

DIVISIONS	TOTAL
FUKUOKA-KEN	3,094,132
FUKUOKA-SHI	323,217
WAKAMATSU-SHI	88,901
YAWATA-SHI	274,335
TOBATA-SHI	84,260
KURUME-SHI	92,734
OMUTA-SHI	177,034
KOKURA-SHI	178,604
MOJI-SHI	138,997
NOGATA-SHI	47,026
IIZUKA-SHI	46,685
TAGAWA-SHI	70,225
KASUYA-GUN	111,007
Shime-machi	16,172
Sasaguri-machi	5,133
Kashii-machi	3,580
Umi-machi	18,481
Koga-machi	6,186
Okawa	4,202
Seto	7,289
Wajiro	4,503
Tachibana	1,687
Shiganoshima	9,858
Sue	12,248
Ono	2,180
Nakabaru	3,477
Aoyagi	2,259
Shingu	4,028
Tatara	5,340
Kubara	2,597
Yamada	1,807

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DIVISIONS	TOTAL
MUNAKATA-GUN	44,054
Akama-machi	4,554
Togo-machi	3,755
Fukuma-machi	4,312
Tsuyazaki-machi	6,260
Konominato-machi	1,671
Yoshitake	1,923
Kato	2,188
Nango	3,665
Jingo	2,182
Kamisaigo	2,560
Katsura	2,253
Tajima	2,193
Ikeno	2,399
Misaki	2,528
Oshima	1,611
ONGA-GUN	116,771
Mizumaki-machi	24,740
Nakama-machi	31,578
Katsuki-machi	19,895
Orio-machi	13,026
Ashiya-machi	6,344
Okagaki	11,635
Onga	9,553
KURATE-GUN	110,838
Miyata-machi	36,989
Kotake-machi	14,321
Ueki-machi	4,183
Koyanose-machi	9,252
Wakamiya-machi	3,748
Tsurugi	11,256
Nishikawa	14,251
Kasamatsu	4,854
Yamaguchi	1,745
Kotsuki	4,652
Naka	1,852
Yoshikawa	3,735
KAHO-GUN	236,274
Yamada-machi	31,986
Okuma-machi	9,109
Futase-machi	20,505
Kobukuro-machi	13,587
Katsuragawa-machi	19,677
Usui	8,996
Senzu	3,779
Ashishiro	1,519
Miyano	2,378
Inatsuki	38,134
Shonai	19,379



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DIVISIONS	TOTAL
Kaita	8,888
Chinzei	7,886
Honami	36,721
Daibu	4,613
Kamihonami	7,409
Uchino	1,708
<b>ASAKURA-GUN</b>	<b>85,775</b>
Haki-machi	3,548
Akizuki-machi	1,702
Amagi-machi	9,092
Koishiwara	1,949
Hoshuyama	5,476
Matsusue	2,221
Shiba	2,918
Kukimiya	2,169
Takagi	2,451
Asakura	2,732
Miyano	3,393
Daifuku	6,318
Minagi	4,014
Kanagawa	3,255
Ninashiro	2,984
Fukuda	2,805
Tateishi	2,861
Kamiakizuki	2,635
Yasukawa	2,997
Mada	3,590
Miwa	7,807
Yasu	8,860
<b>CHIKUSHI-GUN</b>	<b>63,036</b>
Futsukaichi-machi	7,790
Dazaifu-machi	4,935
Naka-machi	13,893
Ono	5,701
Mizuki	3,551
Yamaguchi	3,058
Chikushi	4,479
Mikasa	2,835
Minamihata	2,033
Kasuga	4,523
Iwato	2,820
Antoku	2,015
Osa	3,803
Yamaka	1,600
<b>SAWARA-GUN</b>	<b>14,113</b>
Taguma	4,508
Irube	2,156
Uchino	3,153
Wakiyama	2,270
Kanatake	2,026

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DIVISIONS	TOTAL
ITOSHIMA-GUN	61,192
Maebaru	12,592
Fukuyoshi	4,042
Fukae	2,614
Ikisan	2,252
Nagaito	2,822
Ito	5,155
Susenji	2,782
Imazu	2,172
Motooka	2,938
Nogita	1,841
Sakurai	1,718
Kitazaki	5,109
Kaya	3,275
Keya	2,837
Kofuji	2,914
Ikatsuchi	3,200
UKIHA-GUN	56,316
Yoshii-machi	4,709
Tanushimaru-machi	4,848
Himeharu	5,021
Yamaharu	3,465
Oishi	3,390
Miyuki	5,346
Chitose	4,378
Enami	3,021
Fukudomi	3,031
Funakoshi	3,780
Mizuwake	2,911
Takeno	3,292
Shibakari	3,803
Mino	2,633
Kawai	2,688
MII-GUN	69,585
Kitano-machi	3,597
Kusano-machi	3,237
Zendoji-machi	3,763
Kodaraki	3,243
Aikawa	3,422
Yamakawa	3,317
Miyanojin	4,350
Yuge	2,156
Oki	3,673
Kaneshima	2,356
Oseki	3,523
Korauchi	3,101
Ajisaka	2,912
Ogori	4,054
Mihari	2,128

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DIVISIONS	TOTAL
Tateishi	4,142
Mikuni	3,313
Tachiarai	5,182
Hongo	3,534
Yamamoto	2,521
Ohashi	2,061
MITSUMA-GUN	104,810
Daizenji-machi	4,437
Jojima-machi	6,158
Okawa-machi	15,408
Araki	5,760
Yasutake	3,897
Mitsuma	3,719
Inutsuka	4,997
Omizo	4,750
Egami	3,519
Aoki	4,113
Kimuro	5,446
Kisaki	4,443
Mitsumata	3,689
Kawaguchi	6,215
Taguchi	4,298
Kamachi	5,150
Oi	2,822
Nishimuda	3,677
Onoshima	3,193
Shodai	9,119
YAME-GUN	129,076
Fukushima-machi	8,041
Kuroki-machi	3,095
Hainuzuka-machi	9,553
Nagamine	2,784
Sango	3,601
Mitsutomo	5,193
Hebaru	4,269
Kushige	2,295
Koya	3,692
Obuchi	3,716
Yabe	6,062
Toyooka	3,093
Yokoyama (see Okayama)	
Kawasaki	3,686
Kitagawachi	2,750
Tadami	3,145
Kotsuma	4,037
Kamihiroka	4,973
Nakahiroka	5,060
Shimohiroka	3,637
Okayama	6,246
Yawata	3,049

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DIVISIONS	TOTAL
Kitayama	2,119
Shiraki	3,114
Hoshino	9,266
Furukawa	3,416
Mizuta	12,931
Kasahara	2,390
<b>YAMATO-GUN</b>	<b>84,470</b>
Yanagawa-machi	6,563
Setaka-machi	16,178
Yamato	16,060
Higashimiyana	2,937
Shirouchi	1,949
Mibashi	14,676
Okinohata	4,673
Higashiyama	7,029
Yamakawa	8,116
Nishimiyana	2,058
Ryokai	4,231
<b>MIIE-GUN</b>	<b>13,034</b>
Hae	2,172
Takada	8,259
Hiraki	2,873
<b>KIKU-GUN</b>	<b>4,447</b>
Higashitani	4,447
<b>TAGAWA-GUN</b>	<b>123,729</b>
Kawara-machi	4,709
Soeda-machi	17,430
Kawasaki-machi	24,663
Itoda-machi	15,428
Kaneda-machi	7,013
Akaike-machi	14,025
Magarikane	5,928
Saidosho	2,539
Aka	3,696
Tsuno	2,166
Daito	7,149
Iigane	3,741
Hojo	11,816
<b>MIYAKO-GUN</b>	<b>68,458</b>
Kanda-machi	8,691
Yukunashi-machi	13,381
Saikawa-machi	7,146
Ohase	3,223
Shirakawa	1,817
Tsubakiichi	1,745
Isayama	1,636

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DIVISIONS	TOTAL
Kubo	1,809
Kuroda	1,862
Hieda	2,019
Nobunaga	2,236
Imagawa	2,384
Minoshima	1,388
Imamoto	3,534
Nakatsu	4,005
Hariago	2,752
Izumi	2,245
Toyotsu	2,042
Kii	1,465
Irahara	1,640
<b>CHIKUJO-GUN</b>	<b>63,352</b>
Shiida-machi	4,134
Hachiya-machi	9,538
Higashiyoshitomi-machi	5,223
Kamikii	2,864
Shimokii	2,557
Tsuiki	3,899
Hatta	2,083
Suda	2,421
Nishisuda	1,997
Katsuragi	2,377
Yamada	2,244
Chizuka	2,477
Mikekado	3,413
Kurotsuchi	2,588
Yokotake	2,300
Gokawa	2,306
Iwaya	1,552
Nishiyoshitomi	1,854
Tomoeda	3,210
Tobaru	2,323
Ninamiyoshitomi	1,992

\*All divisions within gun not listed as machi are mura. Population figures listed in the table are those of 1940. Amalgamations and changes which have taken place since then have been reflected by adjusting the basic 1940 figures.

#### B. CITIES AND TOWNS.

##### 1. Fukuoka-shi

Fukuoka-shi (population 323,217) is the capital and the largest city in Fukuoka-ken. In addition its function as an administrative center and its importance as the seat of the Kyushu Imperial University, it has

been playing an increasingly active industrial role, a development strongly supported by the steadily mounting quantities of electric power available. Fukuoka's industrial functions were originally limited to the production of silk and cotton textiles and of a wide variety of porcelain and earthenware products. It now has ordnance and aircraft factories, and many firms are engaged in the manufacture of electrical products and small metal goods. Owing to its proximity to the coal fields, some of which are in the city limits, it has become one of the richest cities in Japan and is the center of the economic life of Kyushu.

Commercially, Fukuoka serves the adjacent Fukuoka Plain hinterland and, through the Mikasa-gawa valley, also serves the Saga Plain (see Chapter I, C). The leading imports of the city are petroleum (handled chiefly by the Asahi Sekiyu KK (Rising Sun Oil Company) at Saitozaki, across the bay), and timber for mine props. Coal outranks manufactured goods as an export.

The city lies 35 miles southwest of Moji-shi, and stretches along the southeastern shore of the inner reaches of Hakata-wan, the northernmost inlet of any size on the western coastline of Kyushu. The city now comprises what were formerly 2 urban units: the old castle town of Fukuoka, and Hakata, a port city containing a number of manufacturing plants. Fukuoka-shi lies on the west side of the Naka-gawa; Hakata on the east. The entire built-up area is crescent-shaped, with horns extending north and west along the curving shores of the bay. Along the waterfront the curve is between 6 and 7 miles long. The outer curve bulges inland up to valleys of the Naka-gawa and the Mikasa-gawa in the vicinity of Hakata.

The commercial and administrative center of the city lies along and to the west of the canalized lower channel of the Naka-gawa. The old industrial area was established on the waterfront of Hakata, between the mouths of the Ishido-gawa (the lower Mikasa-gawa) and the Naka-gawa. New industries have developed on reclaimed land to the southwest, but many of the plants lie within residential areas on the inner border of the city. The most clearly defined residential area is around Hakozaki, inland from the university district in the northeast; but even here there are industrial plants.

In the central area of the city there is a heavy concentration of population and buildings. This is interrupted by only 3 open areas: (1), the 200 acres of fortress grounds around Fukuoka castle; (2), West Park, dominated by the knob of Aratsu-yama, lying to the north

of the castle grounds on a blunt promontory of the shoreline; and (3), the university campus area which stretches for nearly 2 miles along the shore north of the Ishido-gawa. The Najima-gawa (Tatara-gawa) to the north and Muromi-gawa to the west mark the approximate limits of the built-up area along the bay. The sharp hillslopes south of Fukuoka-shi abruptly limit settlement there, but inland from Hakata, town settlement straggles irregularly along the streams, roads and rail lines.

Fukuoka-shi's harbor is located along the southeast shore of the bay and includes all of the Hakata waterfront. It has been enlarged by a filled extension which is capable of taking ocean-going ships. This made land is now covered with warehouses and has railroad connections with the Kyushu network.

Southeast of the wharf in Hakata is the large plant of Watanabe Tekkosho KK (Watanabe Iron Works), Plant No. 1, which produces ordnance and heavy machinery for the navy. The plant is low and made of wood. The Saibu Gas Co. tanks adjoining on the northeast are landmarks. South of this plant are the Hakata RR yards and station, at which urban rail lines converge. These have lost much of their former importance since the development of the Tosu Yards north of Kurume, but are still used. Further east is the Tatara Machinery Works, a modern plant producing ordnance and special types of coal-loading machinery.

North of the university is the Showa Iron Works Plant, a small plant producing ordnance and machinery. This plant has rapidly expanded since 1938. North of the plant are 2 railroad bridges and one highway bridge crossing the Najima-gawa (Tatara-gawa) to Najima. The Najima Steam Power Plant and Najima Seaplane Base are north of the river.

The most important industries in the city lie south of the university. The most southerly is the Nippon Gomu KK (Nippon Rubber Co.) producing rubber boots, shoes and tires. The buildings of this plant are modern, ferro-concrete and flat-roofed. The main building is 5 stories, the others are 2. Southeast of this plant is the Hakata Brewery. In the same area are plants of the Tofu Seifun KK (Tofu Milling Company) and Kanegafuchi Boseki KK (Kanegafuchi Spinning Company).

The Saitozaki Petroleum Center and the Fukuoka Air Station lie on the north side of the bay, some distance apart. The center has a large oil storage capacity and coal bunkering facilities.

The skyline silhouettes the many large, western style buildings which are chiefly grouped along the

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lower Naka-gawa. However, the customary one story, tile roof, wooden building is the predominant structural type, even near the center of the city. The extensive University buildings compare favorably with those of many Western institutions. Other important buildings are:

Prefectural office (Tenjin-cho)  
City office (Inaba-cho)  
Mining inspection office  
Tobacco monopoly bureau  
Chamber of commerce and industry  
Fukuoka products museum  
12th Infantry Brigade Headquarters  
Police station  
Library  
Gendarmerie headquarters  
District court  
Customs house, Public hall  
Weather bureau and agricultural experiment station  
Prison  
Hakata Stock Exchange  
Radio Station JOLK

Other large parks, in addition to West Park, are Obori Park, west of the castle grounds, and East Park, an extensive pine grove close to Yoshizuka Station. The Medical College and Hospital of Kyushu University are in this park.

## 2. Moji-shi.

Moji-shi (1940 population 138,997) lies on the extreme northern tip of Kyushu, on the south side of the Straits of Shimonoseki, at the western entrance of the Inland Sea. The city has had its principal development since 1887, when it was made the northern terminus of the Kyushu railroads and the Kyushu ferry. It ranks fifth among Japanese ports in the number and tonnage of foreign vessels handled, and is second only to Wakamatsu-shi as a coal shipping center. The city is now connected with Honshu by the Kammon Tunnel. It is the base for lighter service from the roadstead and port to the industrial cities to the southwest.

The city is situated on a narrow coastal plain and is backed by relatively high fortified hills. The city follows the coast line for about 5 miles, absorbing the town of Dairi to the south, but measures only 500 to 1,000 meters (about 2/3 mile) in width. The principal industrial section is concentrated in the western quarter of the city, in the vicinity of the great coal docks. A considerable variety of manufacturing plants occupy



waterfront locations.

The Moji Central Wharf in the northeast occupies about 1,000 feet frontage. The Moji Southern Wharf, 1/2 mile to the southwest, is the principal wharf of the straits area for deep draft vessels. The Moji-shi railroad station and yards are between both wharves. The principal industries of the city are the Asano Cement KK a large and conspicuous cement plant located at Shiroki Point in South Moji; Kobe Steel Works, producer of light metal equipment, at Komoriye; Furukawa Denki Seisakusho KK (Furukawa Electric Co.), located at Dairi and the producer of electric wire; and the Nippon Deki Yakin KK (Nippon Electric Metallurgical Co.) located near the Kobe Steel Works and a large producer of non-ferrous metals. The large Dairi marshalling yards are at the southern end of the city. Also on the waterfront are the Nippon Flour Mill and the Dairi-Sakura Brewery, (see AMS map 340462).

Moji-shi is a financial center of Japan and contains branches of most of the principal banks in the country. These include the Bank of Japan, Bank of Taiwan and the Mitsui Bank. There are a number of other private banks in the city. Other important buildings are:

Police station  
 Railway division office  
 Telephone exchange  
 Water police station  
 Customs office  
 Mitsubishi Co.  
 City office  
 Gendarmerie station  
 Railroad hospital

There are 4 parks in the city.

### 3. Kokura-shi.

Kokura-shi (1940 population 178,604) lies 8 miles southwest of Moji-shi. Although much the oldest of the cities on the Shimonoseki-kaikyo, Kokura-shi is as new as the others in its industrial aspects. Its industrial belt is continuous with that of Moji-shi, the principal waterfront plants being blast furnaces, steel mills, and chemical factories. Until the railroad era caused it to be displaced by Moji-shi, Kokura-shi was the terminus of land transportation for northern Kyushu; it remains one of the leading transportation centers of the island. One of the most important old castle towns of Kyushu, it is now the headquarters of an infantry brigade, an infantry regiment and 2 field artillery regiments. The vast army arsenal is one of the leading producers of ordnance, small

arms and ammunition in Japan. It contains an important steel plant as well as many other factories, and the largest railroad shops in Kyushu for both the construction and repair of equipment.

The city is located at a point on the southern shore of the straits where the coastal strand, otherwise narrow from Tobata-shi to Moji-shi, widens at the mouth of 3 streams, the central one of which is the Murasaki-gawa. Therefore the city is less linear in dimensions than Moji-shi, and is bordered on its land side by low paddy fields instead of terraced hillsides. The city is confined by hills to the east and west. The principal built-up area is about 2 miles long along the shoreline, and has an average width of 1 1/2 miles; it is roughly rectangular in shape. There are few open spaces, though the inland southern boundary is rather irregular. Its harbor facilities are undeveloped and it must therefore be served by lighters, principally from Moji-shi.

The Main industrial area in Kokura-shi extends less than 1.5 miles along the harbor and about 1.5 miles inland. The largest industrial plant is the Kokura Arsenal, in the center of the city south of the Kagoshima Main Line RR, on elevated ground southwest of the station. Less than 1/2 mile west of the station are the Kokura Railroad Shops, the most important in Kyushu and among the largest in Japan.

In recent years considerable industrial expansion has occurred in the western section of Kokura-shi. The most important plants known to be in this section, though not precisely located, are a Tokyo-Shibaura Denki Seiskakusho KK (Tokyo-Shibaura Electric Company) factory, producing communications equipment, and the new 50,000 k.w. steam power plant. Riken Jukogyo KK (Riken Heavy Industries) and the Nissan Jidosha (Nissan Automobile Co.) are reported to have established plants here.

Other important industries in the city include 3 steam power plants; Kokura Steel Works, located on reclaimed land on the city waterfront; Okuma Iron Works, a new factory which may be making aircraft fuselages and components; Tokyo Rope Mfg Co., in eastern Kokura between the railroad lines near the water front; an important manufacturer of wire and steel cables; and the Kyushu Special Steel co., on the waterfront. There are also paper and pottery factories in the city.

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The principal Public buildings in the city are located between the arsenal and the waterfront. A series of temples and shrines are in the section off the west bank of the Murasaki-gawa. Other installations shown on AMS map 340463 include:

The city hall,  
2 Police stations,  
A Prison,  
A Library,  
and a hospital.

A garrison area 2 miles long and more than 1/2 mile wide on the southern out-skirts of the city contains a large number of barracks and other military buildings.

#### 4. Tobata-shi.

Tobata-shi, (1940 population 84,260), a small fishing village when the iron and steel industry was established at Yawata-shi, is today a major fishing port of Japan, with docking facilities for a large fleet of steam trawlers. The life of the city is dominated by the overflow of heavy industry from Yawata-shi, including a branch of the Imperial Steel Works and a large glass factory. Functionally, it is a northern extension of the Yawata-shi urban area.

Tobata-shi is situated at the eastern head of Hon-ko, the entrance to Dokai-wan. It lies partly on a flat of limited extent between the slopes of Kompira-yama and the shore to the west, but with a somewhat wider area of low ground to the north. As in Yawata-shi, the industrial area lies along the water and the residential area inland. Small ocean-going vessels can dock in the harbor. Tobata-shi handles not only fish and the traffic of the industrial plants, but also shares with Wakamatsu-shi the export of coal.

Through Tobata-shi run both the main highway and the main railroad from Yawata-shi to Moji-shi, and it is connected with Yawata-shi by electric tramway as well. The narrowing of the coastal strand between Tobata-shi and Yawata-shi, with the road and railroad line crowded between the hills and the bay, has created a bottleneck for land transportation.

The principal industry in Tobata-shi, the plant of the Japan Iron Works (Imperial Iron and Steel), is located in northern Tobata between the railroad and Nagoya-saki. It is among the largest and most modern rolling mills in Japan. The other large industry, the Asahi Glass Co., has 2 separate plants located across the tracks from the Yawata plant of the Japan Iron Works. Other industries in the city include the production of arms and munitions, machines, machine tools, and electrical equipment.

The city is also the site of Meiji Technical College, the buildings and dormitories of the school being west of the industrial railroad connecting the 2 plants of the Imperial Iron and Steel Works. A hospital and city hall are also in the city, (see AMS map 340464.)

#### 5. Wakamatsu-shi.

Wakamatsu-shi, 1940 population 88,901, is the chief coal exporting port of Japan, and, with Tobata-shi and Kokura-shi, has received part of the overflow of the heavy industry from Yawata. Its industries chiefly work on subcontracts for the plants on the southern shores of Dokai-wan. It also contains the headquarters of many mining companies operating in the Chikuho coal field to the south.

The city lies across the channel from Tobata-shi, along the shores of the peninsula which separates the body of Dokai-wan from Shimonoseki-kaikyo. The principal settlement is at the eastern tip, on the shores of Hon-ko across from Tobata-shi. Wakamatsu-shi occupies reclaimed land along the north of the bay (chiefly devoted to coaling docks), and on the shores of the strait; it spreads over the lower slopes of the hills which occupy most of the peninsula.

The Tochigi Co. shipyards on the Wakamatsu-shi harbor which consist of shipbuilding and repair yards for small vessels, is located south of the drydock. Directly on the waterfront and next to the Tochigi plant is the Tokai Steel Mfg. Co., a small plant producing rolled products. In the same area is the Hitachi Machine Works, one of the largest plants in Japan producing steel mill rolls. Lumber mills, railroad car repair, arms and munitions and chemicals are other industries in the city.

The important buildings in the city, (see AMS map 340464), are the city hall, hospital, post office, and police station.

#### 6. Yawata-shi.

Yawata-shi, population 297,000, is now the second largest city in Kyushu and the largest and most industrial city along the Shimonoseki Straits. It is the site of the great Imperial Iron and Steel Works, by far the largest producer of pig iron and steel in the Japanese Empire, and is the principal focus of iron and steel manufacturing in Japan. The city was virtually born with the establishment of the first units of the steel plant about 50 years ago and has developed as a residential and servicing center for the personnel of the mill. Though steel industries have been established in the 3 nearby cities, the main plant remains far more important than all of the others combined. The Kurosaki industrial area, on the western outskirts of Yawata-shi, has developed from a suburban village to an urban and industrial adjunct. It too has important heavy industries, including one of the plants of the Japan Aluminum Company.

Yawata-shi lies near the eastern end of the southern shore of Dokai-wan. Prior to the extensive program of reclamation by dredging and filling, which has reduced the water area of the bay by half, Yawata was confined to a narrow strip of land, about  $\frac{1}{8}$  mile broad, along the southern and eastern shores of the bay between the hills and the water, and an area of flat land extending up the Yawata valley from the southeastern corner of the bay. The made land in the bay has more than doubled the area of the city.

The general shape of the Yawata-Kurosaki area is that of a right triangle with a short eastern boundary, a longer southern side, and a hypotenuse along the front of the reclaimed area, which is marked by the central channel of the bay. The eastern side is about 2, and the southern side about  $3\frac{1}{2}$  miles in length. On the low ground residential and industrial structures are crowded closely together; one of the few open spaces of any kind below the slopes of the hills is the baseball field about 7 blocks south of the railroad. The reclaimed land is interspersed with basins and channels.

Yawata-shi is sharply divided into 2 sections. The industrial area, devoid of living quarters, lies north and west of the railroad and includes all the reclaimed land on the Yawata side of the bay. The residential area is crowded between the railroad line and the mountains and up the Yawata valley. In it are buildings auxiliary to the plant, such as the administration building and the large hospital.

Next in importance to the steel plant on the waterfront, is the Nippon Aluminum Co. plant in Kurosaki, south of the harbor, and now a part of Yawata-shi. This compound covers an area of about 43 acres with 11 factory buildings. Also located on reclaimed land at Kurosaki is Nippon Synthetic Industry, a joint enterprise of Mitsubishi and Asahi Glass, producing various chemicals. At the Kurosaki Station, immediately north of the railroad, is the Yasukawa Electric Mfg. Co., one of the largest manufacturers of magnetos and small motors.

Important buildings marked on AMS map 340464 include: 2 hospitals, a police station, gendarmerie station, office for child care, and a post office.

#### 7. Iizuka-shi.

Iizuka-shi, 1940 population 46,685, is a mining city in the Onga-gawa valley, one of a series of mining settlements in the region which includes the cities of Tagawa and Nogata and Kobukuro-machi. Coal mines are in the entire area around the small built-up section. All of the lowland lining the rivers and ponds is put to rice.

There are several industries of minor importance in or near Iizuka-shi. These include Kobukuro Machinery Works, 1.6 miles north of Iizuka-shi, and the producer of various types of machinery and colliery equipment under navy supervision; Japanese Explosives Mfg. Co., manufacturing explosives for coal mine operations and located one mile SSW of the city; and Sangyo Cement Co. on the private railroad from Tagawa to Iizuka.

The location of the mines in the city area is shown on AMS map 340428. A sub-prefectural office, the city hall and the police station are among the identified buildings.

8. Kurume-shi.

Kurume-shi, 1940 population 89,490, is an army center, a rail hub, a rubber-manufacturing point and the site of an arsenal. The city is centrally located in the Saga plain. The chief stream draining the plain, the Chikugo-gawa, passes the northwestern corner of Kurume-shi about 12 miles from its mouth.

The city is oblong in shape and extends for about 2 miles from east to west and one mile north to south. The main streets, surrounded by the most densely populated section, run approximately east-west through the center of the city. The chief industrial sections border the river in the northwest and the military areas are in the southeastern section.

Kurume-shi has an important concentration of rubber plants. The Bridgestone Tire Co., located in the northwest section along the south bank of the Chikugo-gawa, produces about 23 percent of Japan's rubber tires. It occupies a 5-acre compound jointly with the Nippon Rubber Co., which produces rubber shoes and boots. The plant of the Bridgestone Co. is a heavy concrete structure from 3 to 5 stories high. The Nippon Rubber Co. plant is 2 to 4 stories in height. A boiler house near the river furnishes the power supply for both plants. One mile south of the Bridgestone plant, on the east side of the river is the factory of the Tsuchiya Tabi Co., recently taken over by the Nikka Rubber Co. This factory, which is being expanded, is a large producer of rubber-soled shoes and boots. The buildings are mixed; brick walls reinforced with saw-tooth roofs, and modern ferro-concrete 4-storied buildings.

North of the Bridgestone plant is the Kurume Mill of Kanegafuchi Spinning Co. South of the Bridgestone plant, within the Kurume station area, are a large number of warehouses for military ordnance, oil and civilian materials; these buildings are mostly old, wooden structures.

The military installations within the city consist of the headquarters and barracks of the 12th Division. There are 2 separate groups of buildings, with the headquarters and an arsenal in the northern group. The arsenal is primarily an ordnance depot.

Governmental buildings within the city (all shown on AMS map 340436) are: a juvenile prison, medical school, tax office, public hall, police station, and hospital.

9. Omuta-shi.

The manufacturing city of Omuta (1940 population 177,034), the adjacent coal port of Miike (now a part of Omuta-shi) and the underlying Miike coal fields form an important concentration of industry of varied character. The Mitsui interests control the mines, the port and most of the factories, and the community is virtually a company town. The industrial plants, which employ Miike coal either as a fuel or as a raw material, include the largest zinc refineries in Japan and a synthetic oil plant. The port of Miike (Omuta) ranks sixth among Japanese ports in foreign tonnage; 90 percent of its exports are coal, and a large share of its imports are raw materials for the factories.

The Omuta-Miike area is located at the southern end of the Saga Plain. The city of Omuta is crossed by the Omuta-gawa and the Suwa-gawa; southwest of the mouth of the Suwa-gawa is Miike-ko, the port and the largest completely artificial harbor in Japan. Northeast of Omuta proper, across the Domen-gawa, is the Miike-machi section.

The streets of Omuta-shi run generally north-south, east-west. The chief industrial establishments are arranged in a semi-circle along a belt-line coal railroad; the majority are in the northeast. Large undeveloped tracts intervene between the older part of Omuta-shi and the port area; these 2 sections function to some extent as separate cities.

There are 3 separate important clusters of industry in the city. They include:

(1) Miike Harbor. This is one of the largest coal ports in Japan. To the east of the wet dock, which is in the inner harbor, are extensive railroad yards and loading tunnels. The Mitsui Railroad Workshops, which are used for the repair and maintenance of Mitsui Mines Railroad equipment, are southwest of the yards. East of the yards is the Omuta Steam Power Plant No. 1, one of 4 large steam power plants in the area. Omuta No. 2, the largest of the 4, is just southwest of the locks between the wet dock and the inner harbor. Omuta No. 3 is situated in the harbor area but has not been located exactly.

(2) Omuta-gawa mouth. North of the Omuta-gawa mouth on made land are 3 important industries: the large carbide plant of the Electro-Chemical Industry (Denki Kagaku) a part of the Mitsui Electrolytic Zinc Refinery; and the Oriental High Pressure Co. Plant B (Toyo Katsusho Kogyo), producer of fertilizer and acids. The buildings of the Mitsui refinery are heavy ferro-concrete.



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(3) Eastern Omuta. The largest concentration of industry is on the eastern side of Omuta-shi. In this area is the important plant of the Miike Dyestuffs (Mitsui Senryo KK), producer of explosives, poison gases and other coal-tar derivatives. The buildings of this plant are mostly of modern construction. Adjoining this plant is the Mitsui Coal Liquefaction Plant (Sekitan Yuka Kojo) one of the larger Japan synthetic oil plants. Immediately southwest of the dyestuffs plant is the Oriental High Pressure Plant A, producer of ammonia. The buildings of this plant are asbestos sheeting over steel frame. In the same area is the Miike Machinery Works, a large plant which manufactures and repairs colliery machinery, large gas engines and electric motors. The construction of most of the buildings of this factory appear to be metal or asbestos sheeting over metal fram. Few are ferro-concrete. Between the Machinery Works and the Dyestuffs Plant is the main plant of the Mitsui Electrolytic Zinc Refinery (Miike Aen Mekki Seirenscho) the largest high grade zinc plant in the entire empire. The Kanegafuchi Spinning Mill is also in the area. The whole concentration of these industries in eastern Omuta lies within an area of less than one square mile. Several coal mines are also in eastern Omuta.

The government buildings are concentrated between the mouth of the Suwa-gawa and the Omuta-gawa, east of the Kagoshima Main Line RR, which runs north-south through the city. These buildings include: the city hall, a police station, an isolation hospital, the Mitsui Mining Office, and a medical clinic. In the same area are 5 parks. (All installations noted are located on AMS map 340438. The prostitution quarter is off the southern bank of the Omuta-gawa.

(10). Nogata-shi.

Nogata-shi (1940 population 47,026) lies in the heart of the Chikuho coal region, the largest in Kyushu. The city is principally a mining center but also contains a considerable amount of small industry. More than 125 small shops and factories, which in the aggregate produce a substantial number of parts for heavy machinery and mechanical equipment of various kinds, are located in the city.

The built-up section covers an area of less than 3/4 of a mile north-south along the west bank of the Onga-gawa, at the juncture of that river with the Hikosan-gawa. Along the narrow valleys of the Onga-gawa and the Inunaki-gawa, which flows to the west of the city, the land is covered with rice paddies; otherwise the surrounding land is hilly, with two high peaks directly east and west of the city.

Most of the mines in the area are located west and southwest of the city. They are mainly Mitsubishi-owned, and the city contains a group of Mitsubishi workers' houses. A series

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of coal mines are in Miyata-machi, to the southwest. The principal buildings of the city (as shown on AMS map 340471) are: a tax office, the Public Works Office, the public hall, the city hall, the waterworks office, the Nogata Hospital, Otateyama Hospital, a prison and a police station. The licensed quarter is just east of the filtration plant in the southwest section.

III. ECONOMY

A. LABOR

1. Occupation.

The main occupations in Fukuoka-ken are manufacturing, commerce and agriculture. The prefecture ranks sixth in Japan in the number of people engaged in manufacturing. The concentration of war industries in this area has increased the influx of workers as well as the increase in plants and manufacturing. (Table 5).

TABLE 5

Occupation, 1930 & 1944, Fukuoka-ken

Occupation	1930 Census		1944 Estimate**	
	Number occupied (in thousands)	Percent	Number occupied (in thousands)	Percent
Agriculture	364	29.9	340	26.1
Fishing*	17	1.5	14	1.1
Mining	99	9.0	156	12.1
Manufacturing	220	20.1	385	29.6
Commerce	176	16.1	150	11.5
Communication & transportation	63	5.8	85	6.5
Government & professions	86	7.9	120	9.2
Domestic	31	2.8	18	1.4
Others	43	3.9	32	2.5
Totals	1,099	100.0	1,300	100.0

\*Fishing totals are corrected to 1938.

\*\*1944 estimates are based on the changes in population between 1930 and 1944, taking into account the migration of workers and the reallocation and redistribution of labor, as well as the number of men in the armed forces.

The principal occupations in Yawata-shi are industry and commerce. Here are situated the largest producers of iron and steel in Japan. It is estimated that as of April 1945 the labor force of all industries in this city was 144,000 persons, an increase of over 100 percent since 1930. Ninety thousand people are engaged in manufacturing (Table 6)

TABLE 6

Occupation, 1930, Yawata-shi, Fukuoka-ken

Occupation	Number occupied (in thousands)	Percent
Manufacturing	39.0	59.0

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Occupation	Number occupied (in thousands)	Percent
Commerce	14.6	22.0
Communications	6.0	9.0
Government & Professions	3.1	4.8
Others	3.5	5.2
Total	<u>66.2</u>	<u>100.0</u>

The principal occupations in Tobata-shi are fishing, manufacturing and commerce. Its docking facilities provides a good port for fishing and for steam trawlers, and its manufacturing consists largely of iron and steel plants. It is estimated that as of 1 April 1945 the total labor force in this city was 51,000 people, 30,000 of whom were engaged in manufacturing and 20,000 engaged in occupations other than agriculture. (Table 7).

TABLE 7

Occupation, 1930, Tobata-shi, Fukuoka-ken

Occupation	Number Occupied (in thousands)	Percent
Fishing	1.3	5.9
Manufacturing	9.7	45.5
Commerce	4.8	22.5
Communications	3.3	15.5
Government & professions	1.3	5.9
Others	.8	4.7
Total	<u>21.2</u>	<u>100.0</u>

The principal occupation in Fukuoka-shi is commerce and manufacturing. As the capital of the prefecture and of the Kyushu Administrative Region, it also has a large proportion of government employees, and it is the administrative center of the mining and industrial center in northwestern Kyushu. It is estimated that the labor force as of 1 April 1945 reached 155,000, 73,000 of whom are engaged in manufacturing, an increase of almost 200 percent since 1930. (Table 8)

TABLE 8

Occupation, 1930, Fukuoka-shi, Fukuoka-ken.

Occupation	Number occupied (in thousands)	Percent
Manufacturing	27.8	30.4
Commerce	31.8	34.9
Government & professions	14.0	15.3

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Restricted

Occupation	Number occupied (in thousands)	Percent
Others	17.6	19.4
Total	<u>91.2</u>	<u>100.0</u>

Moji-shi and Wakamatsu-shi are the leading coal shipping centers. The present estimate of the labor force in Moji (1945) is 75,000 people, 35,000 of whom are engaged in manufacturing; while the estimate for Wakamatsu-shi is 58,000 people, 24,000 of whom are engaged in manufacturing (Table 9)

TABLE 9

Occupation, 1930, Moji-shi & Wakamatsu-shi, Fukuoka-ken

Occupation	Moji-shi		Wakamatsu-shi	
	Number occupied (in thousands)	Percent	Number occupied (in thousands)	Percent
Manufacturing	10.9	24.2	5.1	21.1
Commerce	13.9	30.9	7.0	28.6
Communications & transportation	10.4	23.2	8.0	22.8
Government & professions	3.9	8.5	1.7	6.9
Others	5.9	13.2	2.5	10.6
Total	<u>45.0</u>	<u>100.0</u>	<u>24.3</u>	<u>100.0</u>

The principal occupations in Omuta-shi are mining, manufacturing commerce and communication and transportation. The total labor force has increased over 100 percent in the period between 1930 and 1945. The estimated 1945 total labor force in this city is 86,000 people, of whom 42,000 are engaged in manufacturing. (Table 10)

TABLE 10

Occupation, 1930, Omuta-shi Fukuoka-ken.

Occupation	Number occupied (in thousands)	Percent
Mining	9.0	24.4
Manufacturing	11.3	30.5
Commerce	9.4	25.2
Communications & transportation	2.1	5.6
Government & professions	2.3	6.1
Others	2.9	8.2
Total	<u>37.0</u>	<u>100.0</u>

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The principal occupation in Kokura-shi is manufacturing. The total number of people engaged in manufacturing increased 400 percent since 1930, while the total labor force increased 300 percent. The 1945 estimates are that there are 57,000 people engaged in manufacturing, and a total labor force of 105,000. In Kurume-shi, a city which is an administrative center for the adjacent agricultural plain, the 1945 estimates of the total labor force are 40,000 people, 21,000 of whom are engaged in manufacturing. (Table 11)

TABLE 11

Occupation, 1930, Kurume-shi & Kokura-shi, Fukuoka-ken

Occupation	Kurume-shi		Kokura-shi	
	Number occupied (in thousands)	Percent	Number occupied (in thousands)	Percent
Government & professions	6.5	18.2	3.2	9.1
Commerce	10.7	29.9	10.0	28.3
Manufacturing	12.2	34.2	13.9	39.2
Agriculture			2.3	6.5
Communications & transportation				
Others	6.2	17.9	3.0	8.5
Total	35.6	100.0	35.4	100.0

As indicated by Table 12, Iizuka-shi has a very high proportion of its working force engaged in mining, while Nogata-shi has a diversified distribution of its occupational groups.

TABLE 12

Occupation 1930, Iizuka-shi & Nogata-shi, Fukuoka-ken

Occupation	Iizuka-shi		Nogata-shi	
	Number occupied (in thousands)	Percent	Number occupied (in thousands)	Percent
Agriculture	1.1	6.7	3.6	22.0
Mining	4.5	25.6		
Manufacturing	3.4	19.7	3.2	19.7
Commerce	5.7	33.0	4.8	29.2
Communication & transportation			1.7	10.4
Others	2.7	15.0	3.1	18.7
Total	17.4	100.0	16.4	100.0

2. Industrial Employment.

In 1938 there were 1,810 factories in Fukuoka-ken employing 5 or more persons. These factories had a total employment

Restricted

of 120,093 people, of whom 80 percent were males. This was an increase over the 1,384 factories employing 42,867 people (60 percent of whom were males) in operation in the prefecture in 1930.

In number of employees this prefecture ranked eighth in all Japan in machinery and tools, third in metals, fourth in chemicals, ninth in food products, sixth in ceramics, and fifth in printing. As indicated in Table 13 the most important industries in terms of employment in 1938 were textiles, particularly silk reeling and cotton spinning, metal-casting and the manufacturing of machinery and tools, metal processing and chemicals (particularly synthetic dyestuffs), the manufacturing of rubber products and industrial drugs.

TABLE 13

Factories & Industrial Employment, 1938, Fukuoka-ken

Industry	Factories	Employees		Total
		Male	Female	
<b>TEXTILES</b>	212	1,416	6,666	8,082
Silk reeling (raw silk)	9	82	1,584	1,666
Spinning industry				
Cotton spinning	4	281	2,328	2,609
Hemp thread (rope)	1	40	87	127
Twisted thread				
Cotton	3	22	136	158
Silk	4	2	74	76
Other twisted thread	1		7	7
Woven goods				
Pure cotton	60	176	998	1,174
Other cotton	32	78	292	370
Pure silk	42	448	451	899
Synthetic silk fibre	4	44	100	144
Silk & cotton fabric	2	6	11	17
Stable fibre	2	5	30	35
Knitted goods				
Manufactured goods	13	3	156	159
Cord braided products	1	7	21	28
Cotton refining	20	144	326	470
Other textiles	1	2		2
Dyeing, Refining				
Thread dyeing	7	41	5	46
Textile Printing	2	10		10
Patternless dyeing	1	6	1	7
Refining, Bleaching	3	19	59	78

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Industry	Restricted			Total
	Factories	Male	Female	
<b>METALS</b>	188	44,686	2,155	46,841
Metal refining & processing	24	37,056	1,155	38,211
Casting	72	2,787	247	3,034
Pig iron	1	10	4	14
High grade wrought iron	3	1,752	180	1,932
Steel castings	7	87	5	92
Other metals				
Metal mfg. goods bolts, nuts, washers	13	214	44	258
Needles	3	279	25	304
Chains	4	143	94	237
Cables	1	657	69	726
Springs	1	26	2	28
Steel nets	1	36	9	45
Tin cans	2	365	258	623
Metal plate goods	5	663	21	684
Construct. & furniture	5	44	2	46
Fixtures	1	5	3	8
Buildings and bridges	6	227	15	242
Toys	1		2	2
Other products	22	321	20	341
Plated goods				
Nickel	1	14		14
<b>MACHINERY &amp; TOOLS</b>	361	18,207	1,834	20,041
Steam boilers	3	65	-	65
Gas generators	2	16		16
Prime movers				
Internal Combustion engines	7	127	2	129
Water wheel	2	29	1	30
Electric mach. tools	15	1,556	401	1,957
Insulated electric wire and cables	1	97	43	140
Electric batteries	1	16	7	23
Agriculture mach.	12	115	7	122
Engineering and construction machinery	1	4		4
Mining machinery	49	1,632	67	1,699
Paper manufacturing machinery	1	27	5	32
Chemical industry	12	1,134	44	1,178
Food products machinery	10	149	7	156
Other machinery	8	249	2	251
Cranes	10	628	111	739
Pumps	10	268	37	305
Hydraulic machinery	2	168	7	175
Weights				
Weights & measures	6	36	9	45
Gas & water meters	2	26		26
Medical instruments	4	33		33
Illumination				
Electric light bulbs	1	34	135	169



Restricted

Industry	Factories	Employees		Total
		Male	Female	
<b>MACHINERY &amp; TOOLS</b>				
Vehicles				
Bicycles	7	485	89	574
Other vehicles	3	325	90	415
Ship riggings	2	11		11
Money safes	1	2		2
Valves and corks	3	367	23	390
Pulleys & gears	6	123	2	125
Other machinery & tools	180	10,485	745	11,230
<b>CERAMICS</b>				
Porcelainware	125	4,757	1,484	6,241
Glass & Glassware	13	526	608	1,134
Bricks & Fireproof	18	959	43	1,001
Roof tile	25	1,047	543	1,590
Cement	37	108	53	161
Cement products	6	1,474	56	1,530
Lime	14	399	112	511
Enameled ironware	9	49	30	79
	3	196	39	235
<b>CHEMICAL</b>				
Medicines	116	16,885	4,383	21,268
Industrial drugs	1	6	2	8
Soda ash	1	398	36	434
Industrial drugs	12	2,071	85	2,156
Dyestuffs				
Synthetic Dyestuffs	4	8,276	58	8,334
Paints & Cosmetics	4	15	4	19
Soap & Toilet Articles	3	29	16	45
Explosives	8	238	629	867
Coal Tar extracts	11	316	63	379
Vegetable wax	5	67	3	70
Candle	2	11	43	54
Treated oils processing	1	112	18	130
Rubber products	3	1,692	2,653	4,345
Pulp	1	134	6	140
Paper	18	388	204	592
Fertilizer				
Animal matter	1	16	4	20
Mineral matter	5	2,272	207	2,479
Carbon products	2	32	11	43
Other chemicals	34	812	341	1,153
<b>LUMBERING &amp; WOODENWARE</b>				
Lumbering	151	1,526	217	1,743
Woodenwares	68	697	82	779
Furniture & Fixtures	29	203	7	210
Wooden boxes barrels	20	274	60	334
Other woodenwares	34	352	68	420

Restricted

Industry	Restricted			Total
	Factories	Male	Female	
PRINTING & BOOKBINDING	92	1,695	289	1,984
Printing	91	1,690	284	1,974
Bookbinding	1	5	5	10
FOOD PRODUCTS	454	6,025	1039	706
Brewing				
Native wines	245	3,710	17	3,727
Beer	2	262	113	375
Soy sauce bean paste	79	605	105	710
Soft drinks	20	60	93	153
Milling	4	132	11	143
Starch	1	1	3	4
Sugar	6	423	70	493
Sweetmeats, Breads	27	369	230	599
Canned goods	27	86	285	371
Livestock Products	2	14	2	16
Marine products	15	209	48	257
Tea processing	4			
Ice	16	97	1	98
Wheat flour	3	26	3	34
Other food products	3	31	53	84
GAS & ELECTRICITY	10	748	3	751
OTHER INDUSTRIES	101	1,751	5137	6,888
Paper products	11	105	293	398
Bamboo products	3	31	11	42
Straw and hemp products	1	2	9	11
Wheat, straw wood shavings	7	28	46	74
Buttons	6	39		39
Brush	1	4	5	9
Lacquer	3	38	6	44
Rope and twine	4	24	127	151
Sewing industry	42	1,234	4401	5,635
Hat mfg.				
Hats	3	13	15	28
Medical materails	2	7	74	81
Native style umbrellas	3	42	66	108
Footgear	1	1	5	6
Stone mason	3	9		9
Other products	11	174	79	253

### 3. Mining Employment.

In 1930 the Chikuho coal field (see Chapter III, E) employed 75,440 men and 21,164 women in mines using more than 50 workers. The corresponding figures for 1933 were 75,208 men and 7,969 women.

#### 4. Wage and Hours.

The wage scale in Fukuoka-ken was higher than that for most of Japan due to the skills required. As indicated in Table 14 the highest wages were paid to those engaged in the machinery and tool trades.

TABLE 14

#### Wages & Monthly Income, 1940, Fukuoka-ken

Occupation	Wage (in yen)	Working Days	Monthly Wage (in yen)
<b>Metal Industry</b>			
Flat furnace worker			
Casting worker	2.62	24.0	62.80
Pressed steel worker			
Platers			
<b>Machinery &amp; Tools</b>			
Blacksmith	2.83	20.0	56.60
Woodform workers	2.48	23.0	57.00
Lathe operator	2.45	25.0	61.25
Milling Mach. operators			
Polisher			
Welder	2.48	28.0	69.40
Riveter			
Assembler	2.40	24.0	57.60
Finisher	2.42	24.0	58.00
<b>Ceramic Industry</b>			
Cement mfg. wker	2.42	26.0	62.90
Glass mfg. wker	2.00	25.0	50.00
<b>Food Products Mfg. Ind.</b>			
Wheat flour maker	1.94	25.0	48.50
Beer brewer	2.31	25.0	57.75
Sugar refiner	3.03	26.0	78.80
<b>Other industries</b>			
Lumber worker	2.15	23.0	
Type setter	2.04	27.0	55.10
Book mfg. (M)	2.36	28.0	66.10
Carriers (on land)	2.79	26.0	72.50

#### 5. Employment Exchanges.

There were 13 branches of the National Labor Exchange in Fukuoka-ken. These were located in the following cities: Fukuoka-shi (2), Omuta-shi, Kurume-shi, Nogata-shi, Iizuka-shi, Yawata-shi, Kokura-shi, Moji-shi, Tobata-shi, Wakamatsu-shi, Tagawa-shi and Orio-machi. These exchanges have records

Restricted

of all employable persons with a history of their employment, their present occupation and a listing of their skills. In cities, towns and townships which do not have labor exchanges, these records will be found in the town hall or the city hall.

There are two other labor exchanges in this prefecture; one known as the North Kyushu Labor Exchange, and the other the North Kyushu Rodo. In addition to these there is a vocational guidance placement bureau in Fukuoka-shi.

## B. AGRICULTURE

1. Food Situation.

Including all sources, this prefecture is a deficit producing area based on the estimated Japanese national intake of 2,150 calories per capita per day. However, there is a surplus of wheat. Production of all foods provided a deficit of 200 to 1,000 calories per capita per day, in terms of average production for 1935, 1937, and 1939. The total deficit of foods produced in this prefecture, in terms of a caloric equivalent of brown rice, is estimated at 456 million pounds annually. Based on the national consumption estimate of 372 pounds per capita per year, this prefecture has a normal estimated deficit of 127 pounds per capita per year.

The aggregate annual production of foodstuffs in the prefecture, on a caloric basis, is estimated at 761 billion calories.

2. Agriculture in Relation to Physical Factors.

Fukuoka-ken has a growing season of from 200 to 210 days. (For information on temperature and rainfall, see Chapter I, D.)

3. Farm Organization and Methods.

a. Farm population. The number of farm households in this prefecture in 1939 was 139,765, or 2.5 percent of the nation's total. The average amount of cultivated land was 2.5 acres per household.

b. Land utilization. In 1939, the total amount of cultivated land in the prefecture was 350,000 acres, of which 257,000 acres, or 73 percent were used for rice growing.

The Fukuoka Plain, bordering Fukuoka-wan, and part of the Saga Plain, occupy a large part of the prefecture. There is more agricultural land, in proportion to the total area, than in most prefectures. Terraced paddy fields occupy the slopes bordering Saga Plain.

Rice is an extremely important crop in this prefecture, and an unusually large proportion of the total land area is devoted to rice production. In the northern part, about half of the land is used for growing rice, while in the southern part, about one-third of the area is rice land.

In the north, rice lands do not form a continuous solid block, but follow the river valleys. At the eastern end of the prefecture, a concentration of rice land surrounds Hachiya-

machi, and extends 8 miles to the southeast along the coast. The area has an average width of 6 miles. Another area, averaging 2 miles in width, nearly surrounds Yukuhashi-machi and extends north along the coast for a distance of 12 miles. A smaller area lies just to the south of Kokura-shi. Many isolated rice areas lying in river valleys, center around Ashiyamachi, Nogata-shi, Kawara-machi, Tagawa-shi, Iizuka-shi, and Okuma-machi, in the north central part of the prefecture.

In the northwestern part of the prefecture, in the region of Fukuoka-shi, about one-third of the land is used for rice growing. The areas in this district lie in the valleys of the many rivers emptying into the Japan Sea. The most important of these rivers are the Tataragawa, the Mikasagawa, and the Zuibaiji-gawa.

A large area of rice land is located in the valley of the Chikugogawa, which is about 8 miles wide at the coast and maintains this width for about 10 miles inland. From this point, it narrows as it approaches Kurumeshi. North and east of Kurumeshi, the rice lands takes the shape of a rough triangle about 18 miles long and 12 miles deep.

c. Fertilizer requirements. Table 15 shows fertilizer requirements in Fukuoka-ken in 1930.

TABLE 15

Fertilizer Requirements, 1930, Fukuoka-ken.  
(in pounds per acre)

Crop	Nitrogen(N)	Phosphoric Acid(P <sub>2</sub> O <sub>5</sub> )	Potash(K <sub>2</sub> O)
Rice, paddy	81	78	95
Wheat	96	82	102

The allocation of fertilizers to prefectural fertilizer dealers and prefectural consumer cooperatives from 1 August 1939 to 31 July 1940 is shown in Table 16.

TABLE 16

Fertilizer Allotment, 1940, Fukuoka-ken.  
(in short tons)

Ammonium sulphate-----	55,489.7	short tons
Superphosphates-----	48,535.2	" "
Lime nitrogen-----	10,282.2	" "
Potash-----	3,102.9	" "

Figures for 1937 show a consumption of 826 short tons of sulphate of potash and 270 tons of muriate of potash. There

were 310,556 short tons of ammonium sulphate produced in the prefecture in 1938.

In 1940 agencies of the Japan Sulpha-Ammonia Corporation, first priority dealers, were located in 1 chome, Minato-cho, Moji-shi, 2 chome, Uchihama-cho, Moji-shi, Hamakoji-cho, Fukuoka-shi, Hon-cho, Fukushima-machi and Yame-gun, Minato-cho, Omuta-shi, Fuchibi-cho, Omuta-shi.

4. Crops.

a. Field crops. Rice is an extremely important crop in this prefecture. In 1939, a total of 257,000 acres, or 73 percent of the cultivated land, was devoted to rice culture. Production in 1939 was 358,500 short tons. In spite of this huge production, the prefecture does not produce enough rice to supply the needs of its large population. Wheat, ranking second among the grain crops, produced 126,256 short tons in 1939, or slightly more than a third of the rice for the same year. Barley and rye are also important grain crops. Production figures for rye are not available, but this crop occupied 46,197 acres in 1937.

Legume crops, including broad beans, soybeans, peas, kidney beans, and peanuts, occupied 12,024 acres in 1939. Production of legumes for that year was 7,115 short tons. (See table 17.)

The 1942 rice production of 347,099 short tons showed a decline of 13,965 tons from a 5-year average (1937-41). Statistics for 1923 showed different planting and harvesting dates for 2 important rice varieties. The Bantoshinriki variety, planted about 3 May, and harvested about 11 November, required a longer growing season than the Kairyoshinriki variety, planted about 15 May and harvested about 8 November. Stocks of rice in storage decline rapidly from spring to fall, as shown by the following figures for 1939:

Date	Rice in Storage (tons)
1 March	299,175
1 May	234,813
1 July	158,226
1 September	89,431
1 November	34,744

TABLE 17

Field Crops, Fukuoka-ken.

Crop	Av. prod.	1939 Acreage	1939	Est. prod.
	1935, '37, '39 (short tons)		Production (short tons)	1943-44 (short tons)
Rice *	362,510	257,000	358,500	355,000
Wheat	104,050	114,542	126,256	81,000
Barley	39,054	50,064	50,831	37,500
Naked	34,265	43,133	44,795	34,000
Common	4,789	6,931	6,036	3,500
Rye	---	46,197***	---	---
Broad beans	---	5,556	3,904	---
Soybeans	2,275	4,931	2,527	2,500
Buckwheat	---	2,402***	---	---
Millet	---	1,616	1,350	---
Foxtail	---	870	1,286	---
Proso	---	124	58	---
Barnyard	---	22	6	---
Peas	---	1,165	606	---
Kidney beans	---	365	67	---
Maize	---	107***	---	---
Oats	---	31	15	---
Peanuts	14	7	11	---

\* Rice production in 1942 was 347,099 tons or a decrease of 13,956 tons from a 5-year average (1937-41 inclusive).

\*\* 1936 figure

\*\*\* 1937 figure

b. Vegetables. As shown in Table 18, white radish was not only the leading crop from the standpoint of acreage in 1939 with 7,000 acres, but the production of 65,297 tons was more than double that of any other vegetable. Irish potatoes ranked second, with a production of 31,144 tons in 1939. Other vegetables of major importance in this prefecture are rape cabbage, sweet potatoes, and taro. In addition there were 9 vegetable crops which exceeded a production of 10 million pounds in 1939.

TABLE 18

Vegetables, Fukuoka-ken, 1936 & 1939.

Vegetable	1936	1939 Acreage	1939
	Production (short tons)		Production (short tons)
White radishes	66,709	6,979	65,297



Restricted

Potatoes, Irish	31,925	5,717	31,144
Rape cabbage	---	3,226	27,497
Potatoes, sweet	30,965	5,975	22,496
Taro	23,550	4,009	19,476
Eggplant	9,885	1,994	10,746
Watermelons	13,615	1,375	10,566
Pumpkins	8,897	1,412	8,600
Cucumbers	6,880	1,302	8,210
Tomatoes	----	1,140	7,637
Mixed onions	7,935	1,165	7,443
Burdock	8,614	1,473	7,333
Turnips	----	875	5,278
Green onions	4,822	953	5,243
Cabbage	4,584	628	4,759
Lotus root	----	805	4,609
White cucumbers	----	546	3,443
Carrots	2,341	513	2,310
Cantaloupe	----	151	761

c. Fruits. Oranges and persimmons are the most important fruits in the prefecture. In 1939, oranges ranked first with a production of 13,705.0 tons. Over 73 percent of the oranges produced were of the mandarin type. In the same year, persimmon production totaled 9,984.0 tons. Japanese pears were fairly important, with a production of nearly 13 million pounds in 1939. Other fruits were of relatively minor importance. (See Table 19).

TABLE 19

Fruits, 1933 & 1939, Fukuoka-ken.  
(in short tons)

Fruit	1933 Production	1939 Production
Oranges	10,673	13,705
Mandarin	7,550	10,015
Bitter (Natsumikan)	2,472	2,945
Navel	650	744
Persimmons	13,252 *	9,984
Pears, Japanese	6,169	6,439
Grapes	2,892	3,293
Peaches	1,896	2,534
Citrus fruit (excl. oranges)	---	2,410
Plums	---	1,478
Loquats	---	929
Pears, foreign	70	33
Apples	24	30
Cherries	---	5

\* Does not include dried persimmons, of which there were 545.6 tons produced in 1933.

d. Industrial crops. Rape seed is the leading industrial crop in the prefecture. In 1939, this crop occupied 53,277 acres. Rape seed production figures are not available for 1939, but 495,030 hectoliters were produced in 1936. Silkworm production is fairly important, although the 1939 production of 4,151 tons of cocoons represented only 1.1 percent of the national total. In 1936, there were 23,353 families engaged in silkworm production.

Tea is a minor crop and the yield per acre is relatively low. The 2,899 acres occupied by tea in 1939 represented 2.9 percent of the national total, but the production of 668 tons in the same year was only 1.1 percent of the national total. In 1936, production of 4,425 short tons of rush, which is used for matting, indicates that this crop is relatively important.

Tobacco and sugar cane are produced in limited quantities. (See Table 20.)

TABLE 20

Industrial Crops, Fukuoka-ken.

Crop	1936	1939	
	Production (short tons)	Acreage	Production (short tons)
Rape seed	495,030*	53,277	---
Mulberry	---	12,652	4,151
Rush	4,425	---	---
Tea	---	2,899	668
Sugar	888***	---	---
Tobacco	367	627	---

\* Hectoliters

\*\* Cocoons

\*\*\* 1935, 1937, 1939 average production figure

5. Livestock.

As shown in Table 21, cattle increased in numbers in the prefecture from 1933 to 1939. They far exceeded in numbers any other type of livestock, except chickens and rabbits. A relatively small percentage of the cattle are kept for milk production. In 1936, there were 155 dairies with a total of 1,793 cows, or an average of 11.5 cows per dairy. There were 40 household, other than dairies, with a total of 259 head of milk cows.

The number of hogs showed a considerable decline from 1933 to 1939. During the same period, sheep and goats increased in numbers. Statistics for rabbits are not available

for 1933, but their number increased by nearly 9,000 from 1936 to 1939.

While statistics on poultry are not available for 1939, the importance of poultry is shown by the fact that there were over 2 million chickens in 1933 and only slightly less in 1936.

TABLE 21

Livestock, Fukuoka-ken.

Type	Production (No. of head)		
	1933	1936	1939
Cattle, total	52,525	53,859	59,829
Cows	---	---	40,994
Oxen	---	---	18,835
Milk cows	1,720	2,052	---
Horses	39,473	39,458	---
Hogs	12,733	10,191	7,731
Goats	1,598	2,148	2,846
Sheep	39	70	871
Rabbits	---	48,442	57,411
Chickens	2,015,176	1,944,998	---
Ducks	32,540	40,221	---

6. Meat, Eggs, and Dairy Products.

Eggs were the most important animal product in the prefecture in 1936, with a production in excess of 110 million. Meat production is of minor importance. Only 4,073.1 tons of meat were produced from all cattle, horses and hogs slaughtered in 1936. (See Table 22.)

TABLE 22

Meat, Eggs & Dairy Products, 1936, Fukuoka-ken.

Product	1936	
	Head slaughtered	Quantity(short tons)
Cows	11,381	2,124.1
Hogs	13,418	1,017.6
Horses	5,950	856.5
Calves	738	74.9
Milk	---	5,070.2
Condensed milk	---	none
Butter	---	203.9
Butter, synthetic	---	79.4
Eggs (chicken)	---	110,785,000. (eggs)

### 7. Economic Position of the Farmer.

In 1939, of the total land cultivated in the prefecture, 166,000 acres, or 47.4 percent, were farmed by tenants. The average farm is small, as shown by the fact that 31.8 percent were of less than one-half hectare (1.235 acres), and 66.3 percent were of less than one hectare (2.471 acres) each in size, while only .0004 percent, or 60 farms, were larger than 5 hectares (12.3 acres). In 1936, out of 275,289 acres under paddy rice production, 142,791 acres, or 51.8 percent, were cultivated by tenants. The situation with regard to dry crops was more favorable. Of a total 76,568 acres of dry land crops, 28,668 acres, or only 37 percent, were cultivated by tenants.

Table 23 shows the amount of land tax by types of land in the prefecture for 1935. Over 50 percent of the total tax in that year was paid on paddy fields.

TABLE 23

#### Land Taxes, 1937, Fukuoka-ken.

Type of land	Amount (in yen)
Rice fields	1,308,886
Dry fields	140,249
Homesites	797,128
Salt farms	308
Mineral springs	115
Marsh lands	880
Forests	34,275
Pasture lands	32
Uncultivated fields	8,676
Others	10,961
Total land taxes	2,301,510

### 8. Administration.

The following experiment stations, inspection stations and offices were engaged in agricultural work in the prefecture in 1938:

Agricultural Experiment Station	Kasuga-cho, Fukuoka-shi
Sericulture Laboratory	Ono-mura, Chikushi-gun
Sericultural Management Office	Hakozaki-machi, Fukuoka-shi
Grain Inspection Station	Fukuoka-shi, prefectural office
Moji Rice and Grain Office	Moji-shi
Poultry Breeding Farm	Dazaifu-machi, Chikushi-gun

(For information concerning agricultural schools and the offices of the Economics Department of the prefectural government, see Chapter V.)

## C. FISHERIES.

1, Production.

The average annual production of fish by Fukuoka-ken for the years 1935-39 was 176,586,000 pounds. This was 2.9 percent of the total production of Japan. The estimated production for 1943-44, adjusted for wartime changes was 141,000,000 pounds. The total value of the fisheries industry production in 1931-33 was 8,000,000 yen. Fish production in this prefecture is normally abundant to very abundant and furnishes a surplus for export to other provinces.

Table 24 gives the relative value of all coastal and fresh water fisheries products for 1936.

TABLE 24  
Fisheries Products, 1936, Fukuoka-ken.

Kind	Value (in thousand yen)
Sea. bream	494
Yellowtail	366
Horse mackerel	357
Sardines	311
Grey mullet	246
Mackerel	244
Gilthead	---
Black sea bream	129
Flatfish	81
Tuna	56
Spanish mackerel	55
Eel	50
Flying fish	32
Fresh water trout	26
Bonito	20
Carp	19
Shark	9
Shellfish	
Shrimp, prawn	332
Squid	272
Lobster	
Octopus	217
Oysters	53
Clam	5
Seaweed	
Amanori	77
Hunori	8
Tengusa	23

Restricted

Others

Total value  $\frac{1846}{5,350}$

The value of deep sea fishing products in 1931 was 1,384,000 yen, and of processed fish products in the same year 2,309,5000 eyb. The total value of processed fish products in 1934 was 3,182,000 yen. Of this total, dried laver (hoshinosh) came to 198,000 yen and dried sardines (maiwashi) 185,000 yens.

In 1936 there were 28,166 fishermen of whom 16,990 were full-time and 11,176 had fishing as a secondary occupation. In that year there were 6,625 fishing vessels, 1,932 of which had motors; of the latter 1,888 were gasoline operated and 44 were steam operated. Of the motorless boats, 4,649 were of less than 5 tons; 44 were between 5-20 tons.

## 2. Ports and Fishing Centers.

The following are the chief ports to which fish are delivered, and their chief products;

Tobata-shi; sardine, sea bream, mackerel

Moji-shi; sea bream

Imazu-mura; sea bream sardine yellowtail, mackerel, horse mackerel.

Suishima; sea bream, spanish mackerel

Fukuoka-shi and Tsuyazaki-machi are also listed as fishing ports.

Tobata is the main base port of the leading fish company of Japan, Japan Marine Products Co., (Nippon Suisan KK). The Amalgamated Fisheries Company, Kyodo Gyogya KK has offices located in Tobata between Yawata and Kokura on the Do-kai. This company was responsible for the construction of facilities and equipment that developed Tobata into a fishing port. (For further details on ports see Chapter IV,A, 3)

## 3. Coastal Fishing.

The sardine season occurs from December to April, but the main season is considered to be from February to April. One sardine spawning ground lies off the west coast of Kyushu. The majority of the aquatic products of this prefecture was taken in coastal waters.

## 4. Deep Sea Fishing.

In 1936, 76 steamship trawl fishing vessels were active in the East China and Yellow Seas (of 130° Long. and 25° N. Lat.)

## Restricted

The majority of these trawlers were based at Tobata. Six trawlers operated from Fukuoka-shi. To protect small village fishing, trawling is not permitted anywhere near the coasts and is carried on on the high seas only under strict licensing. The largest part of the trawl catch consists of creakers.

In 1932 the Kyodo Gyogyo had 6 trawlers of 300 tons and 42 trawlers of 200 tons. These operated in the Japan Sea, Chihili Gulf, Yellow Sea and Straits of Taiwan. The average catch per trawler was between 50 and 100 tons.

### 5. Processing.

Large freezing plants, belonging to Higashikane Company have been installed at Tobata to enable outlying districts to supply fresh fish to large urban markets. Other important processed fish products are dried laver (hoshinori) and dried sardine (maiwashi). In addition to these there were many other processed fish products. The Ariakikai Marine Food Canners Association is located at Okinohata-mura, Yamato-gun, Fukuoka-ken.

An agency of the Japan Whaling Company with its head office in Tokyo, was located in Fukuoka-ken. Whale meat obtained off Kyushy was sold chiefly in Tobata, Shimonoseki and Fukuoka-shi as well as in Osaka. The meat is marketed raw, canned, or corned.

### 6. Governmental Fishing Industry Activity.

There is a large Marine Fisheries Experimental station in Fukuoka-shi, Suzakiora-cho.

## D. FOREST RESOURCES.

1. Forest Land Area and Composition.

A relatively smaller proportion of the land area of Fukuoka-ken is in forest cover than is the case for the other prefectures in Kyushu. Probably less than one-fourth of the total is in large contiguous forest tracts. One such tract, located along the south border with Kumamoto-ken, consists mainly of temperate zone trees due to the high elevation. The other 2 stands lie along the Oita-ken border on the east and along the Saga-ken border on the west and are predominantly of semi-tropical broadleaved evergreen trees. Numerous small and scattered stands are found in the rougher lands throughout the prefecture, particularly on the eastern slopes. On the slopes facing west, grasslands generally provide the main cover. The important commercial timber species located in the prefecture are indicated in Table 25.

TABLE 25

Commercial Timber Trees,  
Fukuoka-ken.

Species	Japanese Name	Common Name	Uses
<i>Cinnamomum camphora</i>	Kuso	Camphor	Cabinets & camphor
<i>Buxus sempervirens</i>	Tsuge	Boxwood	Utensils & wooden- ware
<i>Quercus myrsinaefolia</i>	Kashi	Oak	Handles & furni- ture
<i>Zelkova acuminata</i>	Keyaki	-----	Woodwork, furni- ture, fuel
<i>Cryptomeria japonica</i>	Sugi	Cedar	High grade lumber
<i>Chamaecyparis obtusa</i>	Hinoki	Cypress	High grade lumber
<i>Pinus densiflora</i>	Akamatsu	Red Pine	Construction
<i>Pinus thunbergii</i>	Kuromatsu	Black Pine	Construction

2. Forest Administration and Management.

Large areas in Fukuoka-ken, amounting to about 38 percent of the total acreage are under public ownership, but the names and locations of public or Imperial forests are not available. It is likely that private forests are comparatively small in size and intermingles with public forests. One small national forest of 128 hectares is located near Fukuoka-shi and contains approximately 29,000 cubic meters of camphor timber. It apparently is more of a park than a commercial forest.

All forest land, public and private, is subject to ad-



ministrative controls of the Bureau of Forestry (Sanri-kyoku) of the Ministry of Agriculture and Commerce (Nosho-sho). A Forestry Administration Office is located in Kumamoto-shi for the whole island of Kyushu; this office, not only supervises management of all public lands, but enforces the basic forest law which applies to public and private lands alike. The enforcement of fire and cutting controls is handled by government forestry officials of the Forestry Administration Station. There is a forestry office in Nogata-shi, Monzen-cho. The selection system of management is generally applied to the hardwood and mixed stands except in those managed as fuelwood coppices. The coniferous stands have been managed under the shelterwood systems.

### 3. Forest Problems.

Fire presents only a slight danger to forests in Fukuoka even during the months of March and April when the forests are dry and hazards increase. Precipitation is abundant, so that only during dry years does danger develop. Intensive fire-protection systems maintain adequate fire control. Some damage results from floods, high winds, insects, disease and miscellaneous causes.

### 4. Forest Products.

Fukuoka-ken is one of Japan's lesser forest products sources in spite of the presence of some 85 sawmills with an output of nearly one percent of the national total. Rough timber products, including sawlogs, poles, piling, ties, etc. were valued at about 3.1 million yen. According to the 1930 census, 1,340 persons were engaged in forestry activities. Some fuelwood and charcoal is also produced from woods and mill waste as well as sprout growth; this amounted to about 1,200,000 yen in value.

Bamboo poles and shoots, bark for roofing, thatching, posts, poles, and camphor products are also of importance as forest products and byproducts.

Since the timber occurs mainly in steeper areas, logging is difficult. Very little mechanical equipment is used in the small tracts of this prefecture and no record is available to show the presence of logging railroads. It must be assumed that the more primitive methods of skidding and hauling by the use of hand power and carts are the rule.

## E. MINING.

Fukuoka is the most important coal mining and coal producing prefecture in Japan Proper, producing an estimated 47.5 percent of the coal mined in the country. Wartime expansion of coal production is believed to have been partially successful despite shortages of skilled miners, pit props, spare parts for mechanical equipment and new cutting and loading machines. Coal from Fukuoka-ken serves as the life blood of Japanese railroad and inter-coastal shipping, electric power plants and the varied industrial plants.

A small amount of copper, chrome and manganese ores is mined in the prefecture. A list of principal minerals found in Fukuoka-ken follows:

Mineral	Location
Andalusite	Kasuya-gun.
Chalcopyrite*	Nakakawachi mine, Yamada-mura, Kasuya-gun.
Chromite*	Daibu-mura, Kaho-gun.
Coal*	Chikuho, Fukuoka and Miike Fields.
Galena	Unknown
Gold*	Hoshino-mura, Yame-gun
Lepidolite	Miyako-gun
Limestone*	Unknown
Psolimelane*	Unknown
Pyrolusite*	Unknown
Pyrite*	Yamada-mura, Kasuya-gun
Scheelite	Sannoyama, Tagawa-gun
Silver	Hoshino-mura, Yame-gun
Tourmaline	Unknown

\* Commercially important.

See OSS map 7205 for location of mines mentioned in this chapter.

1. Non-ferrous Minerals.

a. Chromite. The Usagiyama mine (33°38'N, 130°35'E) in Daiou-mura, Kaho-gun, was a producer of chromite prior to 1932.

b. Copper. There are at least 4 small copper mines in Fukuoka-ken; the Nakawachi mine in Yamada-mura, Kasuya-gun (33°41'N, 130°32'E), the Saidosho mine in Saidosho-mura, Tagawa-gun (33°44'N, 130°51'E), the Shiraki mine in Ono-mura, Kasuya-gun (33°42'N, 130°32'E), and the Yoshikara mine in Chikushi-gun. No information on production at these mines is available.

c. Gold. In 1934, there were 161 gold mines reported in the prefecture, 30 of which were reported as being worked. The largest of these mines are reported to be in Hoshino-mura, Yame-gun (33° 14'N, 130° 48'E).

d. Manganese. The Imperial Manganese Company was reported as increasing manganese ore production in Fukuoka-ken in 1942.

2. Non-metallic Minerals.

a. Clay. The "Nankan" clay district is 4 miles northeast of Omuta-shi. Clay from this district is homogeneous soft plastic clay, found in beds 3 to 30 feet thick dipping at a 5° angle. Underground mining is necessary to recover the clay. The clay is used to make retorts for the Miike zinc retort plant of the Mitsui Kozan KK (Mitsui Mining Company) and for local pottery manufacture.

b. Sand. There is a large sand pit served by a feeder railroad of the Kobukuro RR in Kobukuro-machi, Kaho-gun.

3. Coal Fields. There are 2 major Japanese coal fields in Fukuoka-ken: the Chikuho field and the Miike field. Table 26 lists coal production of these two fields from 1934-1937.

TABLE 26

Coal production, Chikuho and Miike Fields, Fukuoka-ken.

Year	Production(short tons)
1934 (78 largest mines )	21,400,798
1935 (91 largest mines)	22,763,058
1936 (48 largest mines)	22,579,627
1937 (6 months. 46 largest mines)	14,061,513

a. Chikuho Field. This coal field covers an area of about 290 square miles in Manakata, Onga, Kurate, Kaho, and Tagawa guns, and is drained by the Onga-gawa and its tributaries. Development of the field has been rapid because of the availability of labor and supplies, the temperate climate and the location of the field close to deep-water ports. The great industrial plants attracted to locations near the field have greatly increased the demand for coal.

As many as 20 coal seams have been found. Mineable seams vary from 1 to 15 feet in thickness. Chikuho coal is bituminous and in general non-coking, but some mines produce a poor coking coal. It averages 45.8 percent fixed carbon, and 42.9 percent volatile matter. There are 9,300 to 13,100 British Thermal Units per pound and 5,170 to 7,300 calories per kilogram.

Restricted

Coal Production costs in the field are given in Table 27.

TABLE 27

Production Costs, Chikuho Coal, 1929, Fukuoka-ken.  
(per metric ton)

Item	Yen
Labor in mine	2.20
Surface labor	1.00
Supplies	1.00
Power	.80
Overhead *	.80
Taxes	.70
Total	<u>6.50</u> **

\* Includes interest on 24.00 yen investment per ton of coal mined.

\*\* Add 1.10 yen per metric ton for railroad freight for 27.8 mile (average) haul to seaport.

The following is a list of coal mines in the Chikuho Field, arranged alphabetically by gun and by name of mine. Name of owners follows location. All production figures are in short tons. Items 134-174 give data on mines whose locations in the prefecture are not known.

ASAKURA-GUN

1. Nakazaki.  $33^{\circ}24'N$ ,  $130^{\circ}52'E$ . Hoshuyama-mura.  
Transportation by road.

CHIKUSHI-GUN

2. Hayami.  $33^{\circ}34'N$ ,  $130^{\circ}31'E$ . Ono-mura. Near Hakatawan railroad Line.

3. Katsuta-tanko.  $33^{\circ}33'N$ ,  $130^{\circ}33'E$ . Ono-mura. Mitsubishi Mng. Co. Production: 1936, 290,000; 1940, about 290,000; plan to increase to about 725,000 short tons. Improvements under way (1940). Near station at end of Hakatawan Railroad Line.

4. Otani-tanko.  $33^{\circ}33'N$ ,  $130^{\circ}31'E$ . Ono-mura. Otani Coal Mining Co. Production: 1943, 141,561; 1935, 161,498; 1936, 155,922; 1937, 208,032. Served by Hakatawan Railroad Line.

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5. Imajiku.  $33^{\circ}35'N$ ,  $130^{\circ}16'E$ . Imajiku, Fukuoka-shi. Intelligence of August, 1944 states mine at Imajiku seems active.

KAHO-GUN

6. Chinzei.  $33^{\circ} 38'N$ ,  $130^{\circ} 37'E$ . Chinzei-mura. Jinroku Watanabe. Production; 1934, 20,100; 1935, 18,200. Location is in doubt. Assumed to be located in Chinzei-mura.
7. Futase.  $33^{\circ} 39'N$ ,  $130^{\circ} 40'E$ . Futase-machi. Nippon Steel Co. Production: 1934, 951,928; 1935, 1,020,342; 1936, 1,070,273; 1937, 1,024,336. Poor coking; used for coking. Served by Kobukuro Railroad Line.
8. Gongendo.  $33^{\circ} 42'N$ ,  $130^{\circ} 43'E$ . Kaita-mura. Feeder railroad connects with Kurata tramway.
9. Haji.  $33^{\circ} 34' N$ ,  $130^{\circ} 41'E$ . Katsuragawa-machi. Feeder railroad connects with Chikuho Main Line.
10. Iba.  $33^{\circ} 34' N$ ,  $130^{\circ} 44'E$ . Yamada-machi. Served by Chikuho Main Line.
11. Iizuka.  $33^{\circ} 37'N$ ,  $130^{\circ} 41'E$ . Honami-mura. Iizuka Mng. Co. Production: 1934, 612,000; 1935, 588,000; 1936, 654,000; 1937, 745,000. Bituminous. Served by Chikuho Main Line.
12. Inatsuki.  $33^{\circ} 36'N$ ,  $130^{\circ} 42'E$ . Inatsuki-mura. Nippon Seitetsu Co. Production: 1934, 182,000; 1935, 200,000; 1936, 299,000; 1937, 248,000. Good coking. Served by connecting railroads to Kobukuro Railroad Line.
13. Inohana.  $33^{\circ} 34'N$ ,  $130^{\circ} 46'E$ . Yamada-machi. Hisatsume Mng. Co. Production; 1934, 1,010,000; 1935, 1,190,000; 1936, 1,810,000; 1937, 1,160,000. Feeder railroad to Chikuho Main Line. Company was capitalized in March, 1920 with 5,000,000 yen to exploit the Shitsuo Coal Mine. Later extended activities to the Inohana Mine.
14. Iwasaki.  $33^{\circ} 36'N$ ,  $130^{\circ} 43'E$ . Inatsuki-mura. Shigeyoshi Kiso. Production : 1934, 142,000; 1935, 102,000. Spur railroad to Iizuka-shi.
15. Kaho. Kamihonami-mura. Kaho Mng. Co. Production, 1934, 294,000; 1935, 342,000; 1936, 350,000; 1937, 362,000.
16. Kakinokida.  $33^{\circ} 36'N$ ,  $130^{\circ} 41'E$ . Honami-mura. Served by Chikuho Main Line.
17. Kamoo.  $33^{\circ} 36'N$ ,  $130^{\circ} 44'E$ . Railroad served mine.
18. Kashiwamori.  $33^{\circ} 38'N$ ,  $130^{\circ} 43'E$ . Spur railroad to Chikuho Main Line.

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19. Kawamiya.  $33^{\circ} 41'N$ ,  $130^{\circ} 41'E$ . Kaita-mura. Served by Sangyo Line.
20. Kiuraki.  $33^{\circ} 42' N$ ,  $130^{\circ} 44'E$ . Kaita-mura. Feeder railroad to Ida Railroad Line.
21. Kumagahata.  $33^{\circ} 33' N$ ,  $130^{\circ} 47'E$ . Yamada-machi. Feeder railroad to Chikuho Main Line.
22. Kurota.  $33^{\circ} 36'N$ ,  $130^{\circ} 44'E$ . Yamada-machi. Served by Chikuho Main Line.
23. Kuwano. Kaita-mura. Production: 1937, 5,000. Quality fourth grade. Adjoins Veno mine to north. Observations made during 1938-42 indicate about 5,000 short tons of fourth grade coal per year at that time. Belonged to a cooperative known as Kotoge Kogyosho. (See Oda Colliery, No. 118.)
24. Mameta (Maineda?)  $33^{\circ} 35'N$ ,  $130^{\circ} 39'E$ . Katsuragawa-machi. Aso Shoten Co. Production: 1934, 188,000; 1935, 203,000; 1936 220,000; 1937, 218,000. Quality: slightly coking. 11,600 BTU. Spur railroad to Chikuho Main Line. 1,318,775 tsubo
25. Motoshibarū.  $33^{\circ} 34' N$ ,  $130^{\circ} 38'E$ . Daibu-mura. Mikasatanko. Served by Muroki Railroad Line.
26. Matsuo. Kaita-mura. Production: 1937, 5,000. Quality sixth grade. 3000 meters N.W. of Takeuchi Mine. Observations made during 1938-42 indicate about 5000 short tons of sixth grade bituminous coal per year production at that time. Belonged to a cooperative known as Kotoge Kogyosho. ( See Oda Colliery, No. 118.)
27. Nakakago.  $33^{\circ} 35' N$ ,  $130^{\circ} 44'E$ . Inatsuki-mura. Road to railroad. Power line to mine.
28. Nakatsuru.  $33^{\circ} 40'N$ ,  $130^{\circ} 41'E$ . Kobukuro-machi. Taisho Mng. Co. Production: 1934, 66,000; 1935, 705,000; 1936, 816,000; 1937, 790,000. Quality: 11,400 BTU. (See Arate mine No. 52.) regarding location. Further information on Nakatsuru places it in Nakama-machi, Onga-gun. PW interrogation source quoted under Arate states: 1,000 workers at Nakatsuru #1. 2 sloping pits and 2 shafts. 88 workers at Nakatsuru #2. 2 sloping pits, both subject to flooding; electric pumps operated 24 hours a day. Power supplied from an outside source. Another more reliable source states that the most modern equipment is used.
29. (Name of mine unknown)  $33^{\circ} 39'N$ .  $130^{\circ} 40'E$ . Futasemachi. Nakano Co.

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30. Namazuta.  $33^{\circ} 40' N$ ,  $130^{\circ} 42' E$ . Kaita-mura. Mitsubishi Kogyo KK Production: 1934, 791,000; 1935, 804,000; 1936, 843,000; 1937, 849,000. Quality: non-coking, 12,600 BTU. Served by Kobukuro Railroad Line.

31. Nishishakano.  $33^{\circ} 41' N$ ,  $130^{\circ} 37' E$ . Kobukuro-machi. Taisho Mng. Co. Production: 1937, 780,000. Location in doubt, assumed to be near Shakano. Road to railroad.

32. Okuma.  $33^{\circ} 33' N$ ,  $130^{\circ} 45' E$ . Okuma-machi. Kanamari Ng. Co. Production: 1934, 41,400; 1935, 51,900. Served by Chikuho Main Line.

33. Onoura. (Onodani)  $33^{\circ} 31' N$ ,  $130^{\circ} 46' E$ . Ashishiro-mura. Kaijima Coal Mng. Co. Production: 1934, 1,465,000; 1935, 1,490,000; 1936, 1,640,000; 1937, 1,850,000. Quality: high grade. Assumed to be at Onodani.

34. Oshiro.  $33^{\circ} 42' N$ ,  $130^{\circ} 44' E$ . Kaita-mura. Railroad to Nogata-shi.

35. Sasawara.  $33^{\circ} 33' N$ ,  $130^{\circ} 42' E$ . Usui-mura. Kyushu Coal Mng. Co. Quality: high grade gas coal, 12,000 BTU. Formerly operated by the Taikai Kogyo under which management considerable trouble with flooding encountered. New management overcame the trouble, and the Niide Main shaft and Niide #3 shaft were active (1943). Ogigaura, a new shaft, was sunk in 1941. November 1942 production was valued 380,000 yen. A special electric railway was built and operated connecting to the Chikuho Main Line.

36. Shimo-Ushinokuma.  $33^{\circ} 34' N$ ,  $130^{\circ} 44' E$ . Yamada-machi. Feeder railroad to Chikuho Main Line.

37. Shimo-Yamada.  $33^{\circ} 34' N$ ,  $130^{\circ} 45' E$ . Yamada-machi. Furukawa Coal Mng. Co. Production: 1934, 340,000; 1935, 362,000; 1936, 338,000; 1937, 306,000. Quality: 12,500 BTU. Feeder railway to Chikuho Main Line.

38. Shirakae.  $33^{\circ} 32' N$ ,  $130^{\circ} 47' E$ . Yamada-machi. Feeder railway to Chikuho Main Line.

39. Shirokado.  $33^{\circ} 36' N$ ,  $130^{\circ} 43' E$ . Inatsuki-mura. Railroad spur to Iizuka-shi.

40. Shoji.  $33^{\circ} 40' N$ ,  $130^{\circ} 40' E$ . Kobukuro-machi. Kiyoshi Saikawa Shoji Mng. Co. Production: 1934, 19,900; 1935, 24,800. Road to Kobukuro Railroad Line.

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41. Shonaiyin.  $33^{\circ} 41' N, 130^{\circ} 37' E$ . Aike. Production; 1937, 15,000. Quality: fifth grade. Northeast of Watanabe colliery. Observations made in 1938-42 indicate about 15,000 short tons of fifth grade coal per year at that time. Belonged to a cooperative known as Ketoge Kogyosho. (See Oda Colliery, No. 118.)

42. Tadakuma.  $33^{\circ} 39' N, 130^{\circ} 41' E$ . Honami-mura. Sumitomo Coal Mining Co. Production: 1934, 455,000; 1935, 482,000; 1936, 492,000; 1937, 471,000. Quality: Coking 11,700 BTU. Served by Chikuho Main Line. Power line to mine.

43. Tagawa.  $33^{\circ} 38' N, 130^{\circ} 40' E$ . Honami-mura. Mitsui Mng. Co. Production: 1934, 1,270,000; 1935, 1,325,000; 1936, 1,510,000; 1937, 1,860,000. Quality: Gas coal 12,000 to 13,100 BTU. Two mines about 1.2 miles apart. Uses for the coal from Tagawa mine include naval fuel, producer gas manufacture for steel industry, ceramics, and cement manufacturing. Employees total 9,300, including 2,090 miners (1937). Average production per miner was  $4\frac{1}{2}$  tons, working 70 percent of the time. Extensive workman's dormitories were built.

44. Takarabe-Shakano.  $33^{\circ} 40' N, 130^{\circ} 42' E$ . Kaita-mura. Takarabe Shoten Co. Production: 1935, 15,800. Served by Kobukuro Main Line.

45. Tsunawaki.  $33^{\circ} 38' N, 130^{\circ} 44' E$ . Shonai-mura. Aso Shoten Co. Production, 1934, 500,000; 1935, 497,000; 1936, 475,000. Served by a spur railroad to the Chikuho Main Line. Power line to mine.

46. Urushio.  $33^{\circ} 35' N, 130^{\circ} 45' E$ . Yamada-machi. Hisatsune Mng. Co. Production: 1934, 126,500; 1935, 116,000; 1936, 117,000; 1937, 123,000. Feeder railroad to Kobukuro Railroad Line.

47. Usui.  $33^{\circ} 33' N, 130^{\circ} 43' E$ . Usui-mura. Road to Chikuho Main Line.

48. Yamada.  $33^{\circ} 35' N, 130^{\circ} 44' E$ . Yamada-machi. Yamada Coal Mng. Co. Production 1934, 180,000; 1935, 231,000; 1936, 292,000; 1937, 313,000. Feeder railroad to Iizuka-shi. Power line to mine.

49. Yamano.  $33^{\circ} 36' N, 130^{\circ} 43' E$ . Mitsui Kozan KK Production: 1934, 611,000; 1935, 706,000; 1936, 789,000; 1937, 1,090,000. Quality: Bituminous, 1,280 BTU. Served by Chikuho Main Line. Power line to mine.



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50. Wakabashi (Wakabayashi?) 33° 35' N, 130° 37' E. Daibumura. Served by railroad spur to Chikuho Main Line.

51. Yoshikuma. 33° 35' N, 130° 41' E. Katsuragawa-machi. Aso Shoten Co. Production: 1934, 225,000; 1935, 243,000; 1936, 272,000; 1937, 322,000. Quality: Coking, 11,700 BTU. Served by Chikuho Main Line. Power Line to mine. Area: 2,091, 726 tsubo.

#### KASUYA-GUN

52. Arate. Seto-mura. Yeheikobayashi. Production: 1934, 149,500; 1935, 155,000; 1936, 143,000; 1937, 156,000. Only information is contained in a P W interrogation report which contains many conflicts. Report states Arate mine is 2 miles south of Nakama railroad Station, near Nakazuru. Collieries #1 & 2, and 4 miles north of Katsuki-machi. Report places Nakama Station at the intersection of a single-track railroad, and a double-track railroad between Nogata-shi and Orio-machi in a known coal mining region. Stated to employ 300 men. Two sloping pits. Subject to flooding and operates electric pumps on a 24 hour basis. Power supplied by transmission lines from power plant  $\frac{1}{4}$  mile north of Nakama Station. Served by a 6-mile single track railroad spur extending from Nakama-machi to Katsuki-machi.

53. Asahi. 33° 40' N, 130° 37' E. Kotake-machi. Production: 1937, 24,000?; Quality: high grade. About 7 miles south of Asahi-Tanko. (See No. 71.) Twenty small mines. Employed 1,000 workers, 20 of whom were women. One 10-hour shift. A sloping pit 600 feet long by 5 $\frac{1}{2}$  feet high with smaller tunnels branching off at the far end to the coal runs which are said to be about 2 feet thick. Pit props of pine were spaced at 5-10 feet intervals. All mining, including drilling, blasting and loading was manual. There were only 4 narrow-gauge mine cars. These cars were hauled to the large metal bin by electricity. Coal was transported from the bin to the rail head by 3 wheeled gasoline-driven motorcycles over a 500 meter motor road to the railhead. It was then deposited on a conveyor belt where sorting was done by 40 women who put the graded coal into chutes which dumped it into waiting railway cars. Electric power is available.

54. Hirao. 33° 35' N, 130° 28' E. Shime-machi. Road to Fukuoka-shi and to Chikuzen Sangu Railroad Line.

55. Kaigun-Shimbami. 33° 34' N, 130° 31' E. Sue-mura. Navy Coal Mine. Production: 1934, 510,000; 1935, 567,000; 1936, 595,000; 1937, 556,000. 3 mile road to Hakatawan Railroad Line.

56. Kasue. 33° 35' N, 130° 31' E. Sue-mura. Road to Hakatawan Railroad Line.

Restricted

Restricted

57. Katsuta-tanko.  $33^{\circ} 33' N$ ,  $130^{\circ} 33' E$ . Ono-mura. Mitsubishi Kogyo. Production: 1937, 240,000. Served by Hakatawan Railroad Line. Improvements were being made in 1940 when yearly output was about 264,000 short tons. It was planned to increase output to 725,000 short tons.

58. Kido.  $33^{\circ} 37' N$ ,  $130^{\circ} 34' E$ . Seto-mura. Kido Coal Mng. Co. Production: 1934, 149,000; 1935, 184,000; 1936, 232,000; 1937, 482,000. Road to Sasaguri-machi. Bituminous coal.

59. Kubara.  $33^{\circ} 39' N$ ,  $130^{\circ} 31' E$ . Kubara-mura. Served by a feeder railroad to Sasaguri Railroad Line.

60. Minamizato.  $33^{\circ} 36' N$ ,  $130^{\circ} 28' E$ . Shime-machi. Served by road to Chikuzen Sangu Railroad Line.

61. Mokota.  $33^{\circ} 34' N$ ,  $130^{\circ} 29' E$ . Shime-machi. Served by road to Chikuzen Sangu Railroad Line.

62. Otouche.  $33^{\circ} 36' N$ ,  $130^{\circ} 30' E$ . Sue-mura. Served by Hakatawan Railroad Line.

63. Sakaida.  $33^{\circ} 35' N$ ,  $130^{\circ} 30' E$ . Sue-mura. Served by Chikuzen Sangu Railroad Line.

64. Sasaguri-tanko.  $33^{\circ} 36' N$ ,  $130^{\circ} 32' E$ . Seto-mura. Sasaguri Coal Mng. Co. Production: 1934, 20,600. Served by a road to Sasaguri Railroad Line. Power line at Sasaguri-machi.

65. Shinayashiki.  $33^{\circ} 35' N$ ,  $130^{\circ} 28' E$ . Shime-machi. Served by Chikuzen Sangu Railroad Line.

66. Sue.  $33^{\circ} 38' E$ . Sue-mura. Served by Hakatawan Railroad Line.

67. Takada.  $33^{\circ} 38' N$ ,  $130^{\circ} 31' E$ . Kubara-mura. Meiji Mng. Co. Production: 1934, 264,000; 1935, 278,000; 1936, 273,000; 1937, 306,000. Quality: 12,300 BTU. Served by feeder railroad to Sasaguri Railroad Line. Bituminous coal. 3,495,306 tsubo.

68. Tanaka.  $33^{\circ} 37' N$ ,  $130^{\circ} 31' E$ . Served by Sasaguri Railroad Line.

69. Ueki.  $33^{\circ} 36' N$ ,  $130^{\circ} 30' E$ . Sue-mura. Served by road to Hakatawan Railroad Line.

70. Yoshinara.  $33^{\circ} 34' N$ ,  $130^{\circ} 30' E$ . Tadami-machi. Served by Chikuzen Sangu Railroad Line.

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KURATE-GUN

71. Asahi-tanko.  $33^{\circ} 46'$  N,  $130^{\circ} 39'$  E. Nishikawa-mura. Served by Muroki Railroad Line.

72. Furokawa-shakano.  $33^{\circ} 48'$  N,  $130^{\circ} 39'$  E. Nishikawa-mura. Furokawa Coal Mng. Co. Production: 1934, 344,000; 1935, 331,000; 1936, 356,000; 1937, 378,000. Motor road to coast.

73. Kaijima.  $33^{\circ} 42'$  N,  $130^{\circ} 40'$  E. Miyata-machi. Kaijima Mng. Co., a subsidiary of Kaijima Gormi Kaisha. A gassy mine. Served by Kobukoro Railroad Line. Kaijima Coal Mng. Co. has its main office in Shimonoseki-shi, in Yamaguchi-ken. This company is known for progressive employer-employee relationships, and has established company schools, hospitals and amusements at the mines, and a Mines Safety Research Bureau.

74. Kirinootanko.  $33^{\circ} 42'$  N,  $130^{\circ} 39'$  E. Miyata-machi.

75. Kotaki.  $33^{\circ} 41'$  N,  $130^{\circ} 43'$  E. Kotake-machi. Jitaro Aoyagi. Production: 1934, 16,400; 1935, 13,800. Served by Kobukuro Railroad Line.

76. Mikasa-tanko.  $33^{\circ} 45'$  N,  $130^{\circ} 39'$  E. Kasamatsu-mura.

77. Miseya.  $33^{\circ} 34'$  N,  $130^{\circ} 43'$  E. Kotake-machi. Served by a feeder railroad to Kurate Tramway.

78. Muroki-tanko.  $33^{\circ} 44'$  N,  $130^{\circ} 39'$  E. Kasamatsu-mura. Served by feeder railroad line to Kurate Tramways.

79. Nakaizuma.  $33^{\circ} 43'$  N,  $130^{\circ} 44'$  E. Kotake-machi. Served by Ida Railroad Line.

80. Seibu.  $33^{\circ} 42'$  N,  $130^{\circ} 41'$  E. Kotake-machi. Koga Colliery Co. Ltd. Said to have an excellent organization and equipment and to produce superior coal amounting to 70 percent of Koga Colliery Co's production. Served by feeder railroad to Kobukuro Railroad Line.

81. Shakano-o.  $33^{\circ} 42'$  N,  $130^{\circ} 41'$  E. Koga Colliery Co. Ltd. This mine was developed in 1896. Is one of several managed by Koga Colliery Co.

82. Sensui.  $33^{\circ} 47'$  N,  $130^{\circ} 39'$  E. Nishikawa-mura. Served by a railroad to the coast.

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83. Shinda Colliery.  $33^{\circ} 46' N, 130^{\circ} 39' E$ . Nishikawamura. Sugawara Kogyo Goshi Kaisha, established in 1935 by Makoto Sugawara, also operates the Yamashiro Colliery at Yamashiro-mchi, Nishimatsuura-gun, Saga-ken.

84. Shirogashiro-tanko.  $33^{\circ} 41' N, 130^{\circ} 42' E$ . Kotake-machi. Feeder railroad line to Kobukuro Railroad Line.

85. Shodani.  $33^{\circ} 44' N, 130^{\circ} 40' E$ . Wakamiya-machi. Served by road to Kurate Tramway.

86. Sugamuta-tanko.  $33^{\circ} 42' N, 130^{\circ} 41' E$ . Miyata-machi. Served by feeder railroad to Kurate T ramway.

87. Takarabe-komatsu.  $33^{\circ} 47' N, 130^{\circ} 36' E$ . Kasamatsumura. Takarabe-Shoten Co. Served by Muroki Railroad Line. Production: 1935, 12,900.

MUNAKATA-GUN

88. Ikeda.  $33^{\circ} 31' N, 130^{\circ} 33' E$ . Ikeno-mura. Kihara Mng. Co. Transportation appears to be by road. Location is in doubt. Production: 1935, 62,000.

89. Tsuji.  $33^{\circ} 52' N, 130^{\circ} E$ . Misaki-mura. Kijima Mng. Co. Production: 1937, 480,000. Transportation appears to be by road. Location is in doubt.

90. Ebitsu.  $33^{\circ} 49' N, 130^{\circ} 38' E$ . Yoshitake-mura. Kasamari Mng. Co. Production: 1934, 80,500, 1935, 69,500. Served by feeder railroad to the north.

ONGA-GUN

91. Futajima. Nissan Coal Mines. Said to be a very large coal mine consisting of four mines all connected underground by a conveyor belt by which coal is conveyed direct to the Nissan Coal Liquification Plant at Futajima.

92. Hirayama.  $33^{\circ} 52' N, 130^{\circ} 34' E$ . Okagaki-mura. Hirayama Mng. Co. Production: 1934, 256,000; 1935, 270,000; 1936, 329,000; 1937, 309,000. Transportation appears to be by road. Location is in doubt.

93. Kasuya. Mizumaki-machi. Nippon Coal Mng. Co. Production: 1934, 141,000; 1935, 149,000; 1936, 198,000; 1937, 205,000.

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94. Miyoshi. Miyoshi Mng. Co. This company started coal mining along the Onga-kawa in 1904 and opened another mine, the No. 2 Miyoshi, in 1910. Then absorbed the Takamatsu mine and took over several neighboring small mines. It does business in cooperation with the Igimi Mng. Co. It is capitalized at 2,000,000 yen, fully paid up (1934). Miyoshi Co. is reported to hold 3,672,888 tsubo in the Wakamatsu district and to have 22,259,000 tsubo still undeveloped (1932). Production was 695,000 short tons in 1933. Coal from Miyoshi went to Osaka, Nagoya, and Tokyo.

95. Takamatsu Colliery. Mizumaki-machi. Nissan Kagako Kogyo. Production: 1934, 436,000; 1935, 419,000; 1936, 500,000; 1937, 515,000. Quality good grade. The coal produced by this colliery to be used as material for liquid fuel and to be operated by Nissan Liquid Fuel Co. which is estimated to produce 10,000 hectoliters of gasoline annually (1939).

SAWARA-GUN (and FUKUOKA-SHI)

96. Fukuoka. Fukuoka-shi. Sawara Mng. Co. Production: 1937, 289,000. Quality : excellent. The property extends from Nishishimmachi and Hamamachi to Ikimura, Fukuoka-shi. Sawara Co. first operated in 1914 as the Meihama Mng. Co. and reorganized in 1929 as the present company. Work is done by a combination of very modern machinery and hand work, women doing much of the manual labor. The working day is 11 hours at 90 sen per day. A tunnel was being driven to mine coal under Fukuoka-wan (Hakatawan) (1940). Coal is said to be of excellent quality, hard and suitable for boilers.

97. Sawara. Sawara Mng. Co. Production: 1934, 334,000; 1935, 355,000; 1936, 360,000, 1937, 360,000. (See Fukuoka mine, No. 96.) Other than the discrepancies in production, there is no evidence as to whether Sawara mine and Fukuoka mine are separate mines owned by the same company or the same mine. They are both owned by Sawara Mng. Co.

98. Torikai.  $33^{\circ} 34' N$ ,  $130^{\circ} 22' E$ . Fukuoka-shi. Served by the Hokuchiku Railroad Line.

99. Hiyoshi.  $33^{\circ} 35' N$ ,  $130^{\circ} 26' E$ . Fukuoka-shi. Kyodo Coal Co. Production: 1934, 41,800; 1935, 36,000. Served by the Kagoshima Main Line.

TAGAWA-GUN

100. Akaike.  $33^{\circ} 41' N$ ,  $130^{\circ} 46' E$ . Akaike-machi. Meiji Mng. Co. Production: 1934, 453,000; 1935, 430,000; 1936, 412,000; 1937, 528,000. Served by the Ida Railroad Line.

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101. Aramaki. Akaike-machi. Quality: Fourth grade. Observations made between 1934 and 1938 state 250 persons were employed. 5000 meters northeast of Shonaigin mine.

102. (Name unknown). Kawasaki-machi. Furukawa Kogyo KK. Production : 1937, 300,000. Company also operates Furukawa-Shukano (No. 72) in Kurate-gun. Employed 3,000 workers and produced an average of 800 metric tons per day (1942). Coal is hauled in cars to electric trams and shunted to railway yards. Nippon Seitetsu KK is the mine 's main customer.

103. Higashi Kawasaki.  $33^{\circ} 36' N, 130^{\circ} 49' E$ . Kawasaki-machi. Served by road to Miyatoko.

104. Hojo.  $33^{\circ} 41' N, 130^{\circ} 48' E$ . Hojo-mura. Mitsubishi Kogyo KK. Production: 1934, 430,000; 1935, 470,000; 1936, 525,000; 1937, 588,000. Quality : Non-coking, 13,000 BTU. Served by the Ida Railroad Line. Electric Power plant at the mine. Controls 3,948,546 tsubo.

105. Hokoku.  $33^{\circ} 39' N, 130^{\circ} 47' E$ . Kaneda-machi. Meiji Mng. Co. Production: 1934, 592,000; 1935, 531,000; 1936, 555,000; 1937, 556,000. Served by Sangyo Line.

106. Ikejiri.  $33^{\circ} 36' N, 130^{\circ} 48' E$ . Kawasaki-machi. Served by Miyatoko Railroad Line.

107. Itomachi.  $33^{\circ} 37' N, 130^{\circ} 47' E$ . Iigane-mura. Torao Aibe. Production: 1934, 21,000. Assumed to be same as Ito mine. Served by road to Miyatoko Railroad Line.

108. Itotabi.  $33^{\circ} 39' N, 130^{\circ} 50' E$ . Magarikane-mura. Shukichi Ota. Production: 1935, 91,000. Served by feeder railroad to Ida Railroad Line.

109. Kamiyamada.  $33^{\circ} 33' N, 130^{\circ} 46' E$ . Akaike-machi. Hashigami Mng. Co. Production : 1934, 109,000; 1935, 111,000. Served by Ida Railroad Line.

110. Kamiyama.  $33^{\circ} 40' N, 130^{\circ} 47' E$ . Akaike-machi. Hashigami Mng. Co. Production: 1934, 109,000; 1935, 110,000. Served by the Ida Railroad Line.

111. Kigyokomatsu.  $33^{\circ} 38' N, 130^{\circ} 48' E$ . Kawasaki-machi. Kyushu Mng. Co. Production: 1934, 52,000; 1935, 100,000; 1937, 161,000. Served by Ida Railroad Line.

112. Kihara-Kawasaki.  $33^{\circ} 36' N, 130^{\circ} 50' E$ . Kawasaki-machi. Minejiro Kihara. Production: 1935, 21,400. Served by Miyatoko Railroad Line.

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113. Kurauchi.  $33^{\circ} 34' N$ ,  $130^{\circ} 52' E$ . Soeda-machi. Kurauchi Kogyo KK. Production: 1937, 550,000. Quality: good. Main office is at Soeda-machi, Tagawa-gun. The mines are along the Hikoyama-gawa, measure 4 kilometers in length and extend over 3 towns. 2600 people were employed and 500,000 metric tons of good quality coal was produced in 1936.

114. Miyao.  $33^{\circ} 39' N$ ,  $130^{\circ} 51' E$ . Magarikane-mura. Miyao Mng. Co. Production: 1934, 97,400; 1935, 84,000. Served by the Kokura Railroad Line.

115. Miyatoko.  $33^{\circ} 39' N$ ,  $130^{\circ} 47' E$ . Kaneda-machi. Served by the Sangyo Line.

116. Moriasu.  $33^{\circ} 37' N$ ,  $130^{\circ} 48' E$ . Kawasaki-machi. Served by the Miyatoko Railroad Line.

117. Nakatsubara. Magarikane-mura. Nakatsubara Kogyo KK. Production: 1934, 18,000; 1935, 24,000. Company is located in Magarikane-mura. Its 270,000-tsubo coal deposit in the Nakatsubara district had 2 shafts in operation and one scheduled to be in operation soon (1939). Also operates in Kaho-gun.

118. Oda.  $33^{\circ} 41' N$ ,  $130^{\circ} 46' E$ . Akaike-machi. Production: 1941, 10,000. Quality: second and third grade. This mine with 15 other small mines in the vicinity belonged to a cooperative known as Kotoge Kogyosho of Kaita-mura, Hako-gun. Oda produced 10,000 short tons in 1941. Of this, 4,000 were second grade product of the Oda washing plant. There was only one sloping pit 1,500 feet long and 6-7 feet high, at the lower end of which radiated smaller pits. Coal was blasted from  $3\frac{1}{2}$  feet, cleaned and loaded into small mine cars. Cars were tipped automatically into two bins. Trucks drew from these bins and hauled over four Km of asphalt road to a loading platform from which a 500-meter railway spur connected to the Ida Line at a point equidistant between Akaike-machi and Kaneda-machi Stations. The small washing plant was located 3000 meters southwest of the pit entrance. The colliery had an electric substation and power was supplied by public utilities company for use in hauling, lighting the main pit, and operation of ventilating fans in the mine. As there was no water problem, pumps were not used. There were 70 employees, of which 20 were women, working one shift from 0800 to 1500, six days a week.

119. Omine.  $33^{\circ} 35' N$ ,  $130^{\circ} 50' E$ . Daito-mura. Kurouchi Mng. Co. Production: 1934, 226,000; 1935, 244,000; 1936, 278,000, 1937, 267,000. Served by the Miyatoko Railroad Line.

120. Oyaba.  $33^{\circ} 48' N$ ,  $130^{\circ} 38' E$ . Kaneda-machi. Served by the Sangyo Line.

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121. Shichikubaru.  $33^{\circ} 39' N$ ,  $130^{\circ} 51' E$ . Magarikane-mura. Served by the Tagawa Railroad Line.

122. Shimadai.  $33^{\circ} 36' N$ ,  $130^{\circ} 51' E$ . Daito-mura. Served by the Miyatoko Railroad Line.

123. Shin-Itotabi.  $33^{\circ} 39' N$ ,  $130^{\circ} 50' E$ . Kaneda-machi. Asatarokakudo. Production: 1937, 147,000. Served by the Kokura Railroad Line.

124. Sho.  $33^{\circ} 34' N$ ,  $130^{\circ} 51' E$ . Kawasaki-machi. Served by Miyatoko Railroad Line.

125. Soeda.  $33^{\circ} 35' N$ ,  $130^{\circ} 51' E$ . Kawasaki-machi. Served by Miyatoko Railroad Line.

126. Takeuchi. Akaike-machi. Production: 1937, 7,000?. Quality: fourth grade. Located a few thousand meters northeast of Watanabe mine. Observations made between 1938 and 1942 indicate about 7,000 tons of fourth grade bituminous coal per year at that time. Belonged to a cooperative known as Kotoge Kogyosho. (See Oda Colliery, No. 118.)

127. Tanigawa.  $33^{\circ} 40' N$ ,  $130^{\circ} 46' E$ . Kaneda-machi. Served by the road to Sangyo Line.

128. Veno. Akaike-machi. Production: 1937, 7,000. Quality: Third grade. Located a short distance west of Ikeda No. 1. Observations between 1938-42, indicate about 7,000 tons a year of third grade bituminous coal at that time. Belonged to a cooperative known as Kotoge Kogyosho. (See Oda No. 118.)

129. Yagashira. Akaike-machi. Located about 5,000 meters northeast of Shonaiyin Mine. Employed about 250 people. One of a group of 15 small mines which belonged, with Oda (See 118.) to a cooperative known as Kotoge Kogyshe.

130. Yasukawa. Akaike-machi. Quality: Second grade and fourth grade. Unreliable information states: Situated at the southern end of the 500-meter double-tracked railway spur serving the Oda Colliery's loading platform (See No. 118). Conflicting information on production states: 4,400 underground workers produced only 100,000 tons in 1941; 3,500 miners produced over 3,000,000 tons in 1941, or three tons per day per worker, on a 300-day year. Yasukawa mines are 4 in number. Electrically operated cutters and blasting used in all pits. Cutters cut the coal to a height of one foot above the floor and to a depth of 2 feet. Electric drills bored 1 1/2-inch holes. Pit 3 used electric detonators while pits 1, 2, & 4 used fuzes. Informant stated it

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was customary to blast 3 times in an 8-hour shift. Coal was hand-shoveled into an electrically operated link conveyor which emptied into 7/10-ton coal cars underground. Pit No. 1 had a 150-foot vertical shaft with 2 cages which were used to transport workers to and from the small tunnels below. Pit No. 1 had a 2,100-foot sloping pit, at the end of which radiated 4 or 5 smaller tunnels ranging in length from 50 to 100 feet by 6 feet. Mines 2 to 4 had sloping pits of about 1,800 feet by 7 feet. Each tunnel was equipped with narrow gauge (19") tracks; electric wiring, lighting and pumps. At the point where the smaller tunnels converged was located an electrically operated hoist. When each 14 mine cars were loaded in the smaller tunnels, they were hauled to this point, from which the primary hoist hauled them to the surface. The primary hoist could handle 22 empty cars on the descent. Each pit was equipped with "snail" type pumps manufactured by Hidate Tekkosho and the pump motors (HP not known) were manufactured by Yasukawa Tekkosho (both located at Tobata-shi, Fukuoka-ken). Pits 1 and 2 were equipped with 7 or 8 pumps; pit 3 had twice that number, due to continued threat of flooding; and pit 4, being little affected by water, had only one or 2 pumps. When cars reached the surface they were rolled down hill to an "endless" (?) which bodily lifted up each car and moved it to the coal-loading platform where the coal was dumped into chutes according to grades and then dumped into railway cars for shipment via a 500-meter double-tracked spur through Akaike-machi to Wakamutsu-shi. Other buildings included a mine car repair shop, electrical repair works, forge and machine shop. Power is obtained from the power plant in Akaike-machi about 50 meters west of the Ongawa.

Conflicting sources indicate 4,400 underground workers, 3,500 miners and 1,000 Japanese and 4,000 Korean workers in 1942. Collieries 1, 2 and 4 worked 2 11-hour shifts, whereas No. 3 worked 3 8-hour shifts. Miners worked in groups of 9 to 11 men, 4 to 6 of which were assigned to drilling and blasting and 5 to each electric cutter. Grades of bituminous coal, as well as height of seams, varies according to pits. No's 1, 2, and 3 were all fourth grade with heights of 5 feet, 4 feet, and 8 feet respectively. Pit 4 produced second grade coal from a seam having a height of only 2 feet. Explosions and cave-ins caused work stoppages of from a week to 2 weeks each year. In 1941 a fire in pit 1 caused a shutdown of 2 weeks, and an explosion in pit 3 took 83 lives. Accidents limit the working year to about 300 days.

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YAMATO-GUN

131. Takao. 33° 07' N, 130° 26' E. Nippon Kogyo KK.  
Production: 1936, 200,000.

132. Yamato. 33° 09' N, 130° 30' E. Yamato-mura. Sa-  
juro Sugimoto. Production: 1935, 44,500.

YAME-GUN

133. Taio. Yabe-mura. Kuhara Mng. Co.

LOCATION NOT KNOWN

134. Aida. Chozaburo Akiyama. Production: 1934,  
90,500; 1935, 87,000; 1937, 113,000. Quality: Weak coking.  
11,900-12,500 BTU.

135. Akiyoshi. Owner: Tagomori Mng. Co. Production:  
1935, 13,500.

136. Atago. Owner: Kama Mng. Co. Production: 1934,  
29,300; 1935, 67,000.

137. Chorei. Owner: Takamatsu Nakajima. Production:  
1934, 74,300; 1935, 121,000; 1936, 99,700.

138. Fukasaka. Owner: Sukizo Iwasaki, Fukasaka Coal  
Mng. Co. Production: 1935, 106,500; 1936, 129,300; 1937,  
77,500.

139. Genno. Tagamori Mng. Co. Production: 1934,  
57,200; 1935, 35,100.

140. Gongenyama. Gongenyama Coal Mng. Co. Production:  
1935, 19,200.

141. Hommiyao. Shigeo Ueno. Production: 1936, 19,600  
1937, 34,600.

142. Hojusan. Hojusan Mng. Co. Productions: 1935,  
46,200; 1936, 53,600.

143. Hoshu. Nogami Mng. Co. Sandai Fukuda. Product-  
ion: 1934, 138,000; 1935, 123,500; 1936, 132,100; 1937,  
137,000.

144. Inahana. Owner: Sadao Hisatsuna. Production:  
1937, 198,500.

145. Kaharu. Kaharu Mng. Co. Production: 1934, 45,400;  
1935, 18,400.

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146. Kameyama. Taho Coal Mng. Co. Production: 1934, 185,000; 1935, 191,000; 1936, 184,200; 1937, 110,500 for the first part of the year. Quality: Non-coking. 11,800-12,900 BTU.
147. Kanda. Makoto Sugawara. Production: 1934, 47,600; 1935, 55,600; May be at Kanda-machi, 133° 47' E, 131° 00' N., Miyako-gun.
148. Katsubara, Chikayoshi Akimoto. Production: 1935, 24,000.
149. Kijio (Kijo). Takamatsu Nakajima. Production; 1934, 77,600; 1935, 93,600.
150. Koyanose. Chikoku Mng & Ry Co. Kyushu Mng. Co. Production: 1934, 150,000; 1935, 148,000; 1936, 183,000; 1937, 219,000. May be at Koyanose-machi, 33° 46' N, 130° 44' E, Kurate-gun.
151. Kurate. Kanamaru Mng. Co. Production: 1935, 16,400.
152. Maoka. Okazake Kyodo Co. Production: 1935, 21,700.
153. Meiji. Meiji Mng. Co. Production: 1934, 51,500; 1935, 44,300; 1937, 225,000. Quality : Weak coking, 9,300-12,200 BTU.
154. Midori. Kanamari Mng. Co. Production: 1934, 69,500; 1935, 75,000.
155. Minechi. Kurauchi Mng. Co. Production: 1934, 294,000; 1935, 296,000; 1936, 514,000.
156. Momotachi. Sanzao Matsuo. Production, 1935, 11,000.
157. Namae. Takeo Iwasaki. Production: 1935, 38,700.
158. Ominae Bunko. Kurauchi Mng. Co. Production: 1934, 26,300; 1935, 24,800.
159. Omine-Sanko. Kurauchi Mng. Co. Production: 1934, 193,000; 1935, 177,500; 1936, 170,000.
160. Otsuji. Kaijima Coal Mng. Co. Production: 1934, 425,000; 1935, 422,000; 1936, 480,000; 1937, 280,000 for the first six months of the year. Poor coking. 11,010 to 12,300 BTU.

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161. Saisho Kogyosho. Meiji Mng. Co.
162. Shikishima. Isaburo Amagasaki. Production: 1934, 26,600; 1935, 26,700.
163. Shinnyu. Mitsubishi Mng. Co. Production: 1934, 445,000; 1935, 455,000; 1936, 470,000; 1937, 524,000. Non-coking. 12,600 BTU.
164. Shinshakanou. Fujii Mng. Co. Production: 1934, 42,000; 1935, 52,500.
165. Shintakae. Yuhei Kobayashi. Production: 1935, 25,400.
166. Showa. Tokumatsu Nakajima. Production: 1934, 183,000; 1935, 232,000; 1936, 224,000; 1937, 116,000 for the first six months of the year.
167. Taisei. Fujii Mng. Co. Production: 1934, 95,000; 1935, 84,000.
168. Takae. Takae Coal Mng. Co. Production: 1934, 26,600; 1935, 21,500.
169. Takao. Kanamari Mng. Co. Production: 1934, 26,600.
170. Takao. Nippon Coal Mng. Co. Production: 1936, 200,000.
171. Tsukushi. Yoshiro Fukundai. Production: 1934, 159,000; 1935, 207,000; 1936, 187,000; 1937, 179,000.
172. Tsukushi. Yoshiro Fukundai. Production: 1934, 17,100; 1935, 17,500.
173. Umenoki. Nippon Coal Mng. Co. Production: 1934, 123,000; 1935, 135,000; 1936, 132,000.
174. Yokoshima. Meiji Mng. Co. Production: 1935, 14,3000.
175. Yoshinoya mine. New pit (1943) 6-foot beds at 15-16 feet underground.

b. The Miike Field. The Miike field lies in Omuta-shi, Miike-gun, and Yamato-gun in the extreme southwest corner of the prefecture and extends into Kumamoto-ken. That section of the Miike field which lies in Fukuoka-ken has five mines, including the recently opened Mikawa mine. The Miike field, owned by Mitsui Kozan KK, is the only major field in Japan where ownership and production are directed by a single company.

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The Miike field is approximately 11 miles long, north and south, (along and under the Ariake-wan) and 5 miles wide east and west. Of the 8 coal seams found in the field, only 2 are mineable. They occur in the Omuta beds of the Komonoyama sedimentary series. The highest or "Miike seam" averages 8 feet in thickness and has been extensively mined. Six to 10 feet below the Miike seam is the "second seam" 5 feet in thickness, which is also mined. Structurally the field is simple, with the coal-bearing beds dipping 5 to 10 degrees southwest. Many faults with small displacements are found underground.

The field is delimited on the east by granite ridges, to the south-west, down dip, the coal seams extend beneath the borrom of Ariake-wan. In 1912 the field had a proven area of ten square miles and actual reserves of 66,000,000 short tons of coal. In the same year the probable reserves were 770,000,000 short tons in a 70 square mile area.

Coal from the field is poor coking bituminous, but has at times been used in coke ovens. A large tonnage was formerly used for bunker fuel. Reliable reports indicate that the coal being mined is becoming more powdery and of lower grade. Table 28 gives an analysis of the coal.

TABLE 28

Miike Coal Analysis, 1913, Fukuoka-ken.

<u>Constituent</u>	<u>Percentage</u>
Water	0.66
Volatile matter	41.74
Fixed carbon	45.24
Ash	9.36
Sulphur	3.64
Calories per kilogram:	7,460
British thermal units per pound:	12,300 to 13,427

Coal mined per year is shown in Table 29 below:

TABLE 29

Miike Coal Production, 1934-1937, Fukuoka-ken.

<u>Year</u>	<u>(short tons)</u>	<u>(average tons per day)</u>
1934	2,560,000	7,000
1935	2,722,000	7,460
1936	2,900,000	7,940
1937	3,175,000	8,700

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All reports indicate a continued increase in annual production. A new mine, the Mikawa, see below, was reported as being placed in operation in 1943. Production from this mine should more than offset the decline in production from the eastern section of the field which has virtually been worked out.

Coal from all mines in the field except the Yotsuyama Mine (Kumamoto-ken) and possibly the Mikawa mine is hauled by electric trains to a coal washing plant in Omuta-shi.

(1) Miyanoura Mine. Coal mines in the field include the Miyanoura Mine in Omuta-shi, located on the main coal field railroad in the field. The mine is developed by a 2 compartment vertical shaft having a reinforced concrete headframe. No coal is hoisted through this shaft but it is used as an air and supply shaft.

(2) Kattochi Mine. The Kattochi mine, also in Omuta-shi, is the most eastern mine in the field. It is reported that this mine has been worked out.

(3) Mikawa Mine. The newest mine in the field, the Mikawa mine, was reported placed in operation in 1943. The mine is located in Miike-gun, in the west central part of the field.

#### 4. Mining Administration.

The headquarters for the Kyushu district of the Munitions Ministry (Gunju-sho) is located in Fukuoka-shi. All Japanese government mining laws and regulations covering mining districts and individual mines in Fukuoka, Oita, Saga, Nagasaki, Kumamoto, Kagoshima, Miyazaki and Yamaguchi prefectures are enforced through the Fukuoka-shi office. Mine maps, production records and mining reports covering all mines in the district are maintained at district headquarters. The Japanese Government owns and operates a coal mine Experiment Station in Nogata-shi. At the station "permissible" type coal mining equipment is tested and approved. Studies are made of the causes of coal mine explosions and the methods to be used to prevent explosions.

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## F. MANUFACTURING

Fukuoka-ken is one of the 5 most highly industrialized prefectures in Japan. It has good ports giving access to raw materials of the Asiatic mainland and other parts of Japan, and a well-developed transportation system allowing the chief industrial centers of the prefecture, Yawata, Tobata, Kokura, Moji, Fukuoka, and Omuta, to tap the extensive coal deposits and other resources of Kyushu.

In 1938 Fukuoka-ken ranked fourth among the prefectures of Japan in the value of production from non-government factories with 5 or more operatives, (Table 30). Production from government factories and from other unreported items, such as war materiel, may have been so great as to merit a higher ranking for this prefecture.

TABLE 30

Principal Manufactures, 1938, Fukuoka-ken,  
(in non-government plants employing 5 or more persons)

Industry	Value (millions of yen)	(Rank among prefec- tures)	Percent of value of total manufactures Japan Proper Fukuoka-ken Plants		
Ore & metal processing	978.7	1	21.9	58.2	188
Chemicals	372.2	3	10.1	22.2	116
Food processing	108.4	6	6.1	6.4	454
Machinery & tools	84.5	6	2.3	5.0	361
Ceramics	58.7	2	13.8	3.4	125
Textile	30.0	27	*	1.7	212
Printing	17.5	3	6.4	1.0	92
Lumber & wooden ware	5.6	20	1.2	*	151
Other	30.4	6	4.4	1.8	101
Total	1,685.9	4	8.7	100.0	1,800

\* Less than one percent.

At Yawata and Tobata Japan built its first modern integrated steel plant and associated coke ovens and since then the area has become Japan's Pittsburgh. It is the outstanding modern source not only of iron and steel products, but also of the products of allied industries, particularly chemicals, cement, and glass coke production, and other coal processing provides fuel for the steel furnaces; and the by products are used as the raw materials for important chemical output. Blast furnace slay, coal, and limestone, the major material requirements of cement producers are in good supply. The availability

of raw material, including fuel, encouraged Fukuoka-ken to become Japan's outstanding producer of window and plate glass and in 1938 her second largest producer by value of ceramics and firebrick.

Fukuoka-ken is outstanding among the prefectures in the manufacture of primary metal products, especially of iron and steel. Production of machine tools, machinery parts, and finished equipment and ordnance items is not on the same scale as that of the raw metal and semi-finished goods, but the prefecture nevertheless ranks sixth in the production of these commodities.

The 1938 value of food processing in Fukuoka-ken did not compare with metal and chemical production, but it did represent the third largest group of manufactured products in the prefecture, and placed the prefecture sixth in Japan in this category. Fukuoka-ken was third in 1938 in value of printing industry products and sixth for miscellaneous manufactured products.

Fukuoka-ken's smaller communities have become increasingly active in manufacturing, especially of light finished goods and war material. Small scale manufacturing in Japan is not satisfactorily measured by available statistics. The 1936 value of manufactures from shops with less than 5 workers in Fukuoka-shi was reported to be nearly 50 million yen, or nearly 27 percent of the city's total for that year. These shops in 1936 employed a reported 21,374 persons or over half the city's workers engaged in manufacturing. Somewhat in contrast, Moji-shi shops with less than 5 workers had a 1937 output valued at nearly 76 million yen, or 4.4 percent of the city's total manufactures, and employed 10,076 workers, or nearly 16 percent of the total engaged in manufacturing.

#### 1. Food Products.

In 1938, the output of food and beverage processing industries was valued at 108,364,399 yen, which was 6 percent of the 1938 total value of processed foods produced in Japan proper, and over 6 percent of the total industrial output of the prefecture. Moji-shi was the principal food processing center in the prefecture and ranked eighth among the cities of Japan in output of food products in 1938. However, Fukuoka-shi and some of the other cities in the prefecture also had important food products industries.

In 1938, the major industries in this group, in order of importance, were breweries and distilleries, sugar mills, and flour mills, (see Table 31.) Also of importance in the pref-



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fecture, but of less importance in terms of total value of production, were soy and confectionery products. The production of both alcoholic beverages and sugar refining has been curtailed during the present war.

The 247 breweries and distilleries reported in 1938 accounted for 7 percent of the value of alcoholic beverages produced in Japan in that year. The 1938 value reported for refined sake was 60 percent of the value of all alcoholic beverages produced in Fukuoka-ken and accounted for 6 percent of the value of national sake production. The best rice for sake brewing, however, is not grown in this prefecture. The largest breweries were the 2 German-type plants, on the Sakura Biiru KK located in Moji-shi, and the other the Dai Nippon Biiru KK in Fukuoka-shi. Both are nation-wide concerns with breweries in other parts of Japan and on the Asiatic continent. They accounted for nearly 11 percent of the beer production of Japan proper.

Formerly Fukuoka-ken led all other prefectures in sugar refining. In 1938 its 6 refineries produced over 95 million hectolitres of refined sugar. Principal plants were the 2 at Moji of the Dai Nippon Seito KK and the Meiji Seito KK at Tebata.

Third in importance among food processing industries in Fukuoka-ken in 1938 was flour milling, which produced 8 percent of Japan's total 1938 flour output. There are 4 large mills of which the Tofu Seifun KK Company at Fukuoka-shi is the largest. The other large mills are: Kitoku Seifun KK at Fukuoka-shi, the Nippon Seifun KK at Moji-shi, and the Nisshin Seifun KK at Kokura-shi.

Fukuoka ranks third among the prefectures in manufactured ice: 162,891 metric tons in 1938, which was 8 percent of the total production of manufactured ice in Japan proper that year.

Of the 27 establishments reported as engaged in production of confectionery and bakery products, only one produced bakery products. Eight plants produced mizu-ame, which is a honey-like product used as a syrup and also as candy. The remaining 18 plants produced various kinds of candy.

Twenty-seven canneries are located in the prefecture. They can fruits and vegetables and, to a lesser extent, beef, mackerel and whale meat. The names and locations of only 3 of these canneries are available. An association of canners, the Ariake-kai Marine Food Canners Association, is located in Akinohata-mura, Yamato-gun. There is a branch factory of the Oriental Can Co. in Tobata-shi.

Other small industries in the prefecture are: salt manufacture (from sea water); liquor dregs (a by-product of brewing and distilling industries); vinegar; sauces and condiments; tea processing; wheat flour products such as vermicelli and macaroni.

TABLE 31

## Food Products Industries, 1938, Fukuoka-ken.

Industry	Plants	Value (thousand yen)
Breweries & distilleries	247	42,286
Sugar mills	6	29,338
Flour & feed mills	4	19,197
Confectioneries & bakery products	27	4,986
Soy sauce, pastes & vinegar plants	79	4,556
Canning	27	1,982
Marine products (not including canned fish)	15	1,482
Soft drink plants	20	1,012
Ice manufacturing plants	16	976
Other (inc. liquor dregs, livestock & dairy products, wheat flour processing, etc.)	13	2,549
<b>Total</b>	<b>454</b>	<b>108,364</b>

2. Textiles.

While this prefecture has the largest textile production on Kyushu, it represents only a small part of Japan's total production. In 1938 there were 212 textile plants employing 5 or more persons, of which the main categories were: 9 silk reelers, 8 silk throwsters, 4 cotton spinners, 142 weavers, 13 knit goods manufacturers, and 36 miscellaneous plants. The value of production was ¥30,049,116 or almost one percent of that of Japan Proper.

The most important plants were the 4 branch plants of the Kanegafuchi Boseki KK, which has headquarters in Tokyo. According to recent information, the Fukuoka-shi (Hakata) plant has been converted to aircraft, the Kurume plant was sold to the Japan Tire Co., and the Omura-shi (Miike) plant was sold to Mitsui Kozan KK. No details are available regarding the fourth branch.

Textile production in 1938 in terms of value is shown in Table 32.

TABLE 32

## Textile Production, 1938, Fukuoka-ken.

Type	Value (in yen)
Cotton yarn	11,488,002
Cotton fabrics	6,233,645
Raw silk	4,432,147
Silk fabrics	2,997,576
Cotton batting	2,832,728
Dyeing and finishing	1,337,929
Thrown silk	583,140
Staple fibre yarn	558,101
Knit goods	383,877

3. Chemicals.

Chemical production is of great importance in Fukuoka-ken. Industrial chemicals, fertilizers, rubber goods, and dyes and intermediates account for the largest yen values among chemical products. Raw materials for much of the chemical production is derived from the coking of coal. The coking process yields gas, light oil, and tar, from which are produced hundreds of compounds including explosives pharmaceuticals, dyestuffs, synthetic rubber, varnishes, lacquers, plastics, and antiseptics. The coke produced is used principally in the smelting of iron but serves also as a raw material for the production of synthetic petroleum.

Fukuoka-ken is a large producer of sulphuric acid. The largest use of this product is in the manufacture of fertilizer. Two of the 5 large dye intermediate plants of Japan are located in the prefecture. These are Nippon Soka Kogyo KK at Yawata-shi and Mitsui Kozan KK at Omuta-shi.

The yen values of production for principal chemical products in 1938 are shown in Table 33.

TABLE 33

## Chemical Products, 1938, Fukuoka-ken.

Products	Value (in million yen)
Industrial chemicals: (includes important percentages of sulphuric acid, soda ash, caustic soda, bicarbonate of soda, calcium, carbide oxygen, hydrogen, chlorine, naphthelene, salicylic acid.)	91.0
Coke	96.5

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Products	Value (in million yen)
Miscellaneous chemicals	57.5
Fertilizers, (largely ammonium sulphate)	52.7
Rubber goods, (largely tires & shoes)	27.5
Dyestuffs & intermediates	18.0
Vegetable, animal & manufactured oils, (largely rape seed & soy bean oil)	13.3
Paper & pulp	7.0
Soap, about 4 percent of Japan's laundry soap	1.4
Other	7.3
Total	372.2

The importance of the production of certain key chemicals in Fukuoka-ken is shown in Table 34.

TABLE 34

Selected Chemicals, 1935-1939 average, Fukuoka-ken.

Product	Percent of total production for Japan
Benzene	91
Toluene	58
Synthetic oil	7
Rubber	15
Dyes	34
Intermediates	25
Calcium cyanamide	30

The location and importance of the 3 principal coke-producing plants in the prefecture are given in Table 35.

TABLE 35

Coke Producing Plants, 1944 Estimated, Fukuoka-ken.

Plant	Rank among coke plants in Japan	Percent of coke production in Japan (est. 1944)
Nippon Seitetsu KK (Yawata-Tobata)	1	33.2
Nippon Kasei Kogyo KK (Yawata-Tobata)	3	6.3
Mitsui Kozan KK (Omuta-shi)	4	6.3

TABLE 36

Iron, Steel, & Steel Product Capacity, 1944\*, Fukuoka-ken.  
(in thousand of metric tons)

## Section A

Area and Company	Pig	Iron (rated**)	
		Other	Total
Fukuoka-ken			
Nippon Kogyo, Hachiyama-machi, Chikugo-gun	---	---	---
Fujikoshi Kozai Kogyo (formerly Kyushu Tokushu Tokushuko) Kokura-shi	---	---	---
Kokura-Seiko, Kokura-shi	256	---	256
Tokai Kogyo, Wakamatsu-shi	---	---	---
Nippon Seitetsu, Tobata-shi	214	---	214
Nippon Seitetsu, Yawata-shi	1,965	---	1,965
Prefectural total	2,435	---	2,435
Kyushu total	2,435		2,435
Japan Proper total	8,312	362	8,674
Japanese-controlled areas, total	13,332	922	14,254

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Section B.

Company and Area	Steel furnace capacity****			Total
	Open hearth	Electric	Bessemer	
<b>Fukuoka-ken</b>				
Nippon Kogyo, Machiya-machi, Chikujo-gun	---	---	---	---
<b>Fujikoshi Kozai</b>				
Kogyo (formerly Kyushu Tokushu Tokushuko) Kokura-shi	---	2	---	2
Kokura Seiko, Kokura-shi	243	13	---	256
Tokai Kogyo, Wakamatsu-shi	---	---	---	---
Nippon Seitetsu, Tobata-shi	---	---	---	---
Nippon Seitetsu, Yawata-shi	2,795	90	260	3,145
Prefectural total	3,038	105	260	3,403
Kyushu total	3,087	220	260	3,567
Japan Proper total	9,921	1,952	760	12,633
Japanese-controlled areas, total	12,234	2,332	760	15,326

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## Section C

Company and Area	Rolled steel products						Total rolled steel products
	Rails, structural shapes	Plates	Sheets, strip, tinplate	Bars, rods, wire rods	Pipes, Tubes	Misc.	
Fukuoka-ken							
Nippon Kogyo, Hachiya-machi, Chikujo-gun	---	4	24	---	---	---	28
Fujikoshi Kozaki Kogyo (formerly Kyushu Tokushu Tokushuko) Kokura-shi	---	---	---	---	---	---	---
81 Kokura Seiko, Kokura-shi	120	---	---	313	---	---	433
Tokai Kogyo, Wakamatsu-shi	45	47	---	---	---	---	92
Nippon Seitetsu, Tobata-shi	---	100	300	---	---	---	400
Nippon Seitetsu, Yawata-shi	606	430	150	631	---	60	1,877
Prefectural total	771	581	474	944	---	60	2,830
Kyushu total	771	656	474	944	---	60	2,905
Japan Proper total	1,583	2,491	1,487	3,123	411	525	9,620
Japanese-controlled areas, total	1,959	2,631	1,537	3,361	491	530	10,509

\* Capacity figures are believed to be minimum estimates of the potential output. Some estimates are based on data 6 or more years old.

\*\* Rated iron capacity is based on full operation for a 365-day year. Allowances for maintenance and operational factors are not made.

\*\*\* Includes sponge iron and output of electric furnaces and equipment other than blast furnaces.

\*\*\*\* Capacity of equipment assuming adequate raw material supplies.

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4. Ore and Metal Processing.

Metal and metal products have been the most valuable manufactures of Japanese industry, in 1938 exceeding the value of chemicals, the second major group, by 800 million yen. Fukuoka-ken was Japan's most important producer of iron and steel. In 1938 its production of all metals was valued at 867 million yen, or 27.3 percent of the reported value of all metal produced in Japan proper. Table 36 shows the relative position of Fukuoka-ken in Japan in iron, steel, and product capacities.

Iron, steel, and rolled steel production capacity was 28, 27, and 29 percent respectively of the total for Japan proper and included nearly all the capacity on Kyushu.

a. Nippon Seitetsu KK Yawata Plant. The most important Fukuoka-ken factory group and largest industrial establishment in Japan is the Yawata plant of the Nippon Seitetsu KK (Japan Iron Manufacturing Company). The Yawata plant is the largest fully integrated iron and steel mill in Japan. Its employees have been reported to number 16,604 persons as shown in Table 37. All the mills of this company had an estimated nearly 42, over 43, and over 37 percent, respectively, of the iron, steel, and rolled steel product capacity in Japan proper in 1944.

TABLE 37

Iron, Steel, & Steel Product Capacity, 1944\*,  
Nippon Seitetsu Plants.  
(in thousand of metric tons)

Location of plants, (Japan proper only)	Rated iron **	Steel furnace capacity***	Rolled steel products
Yawata-shi	1,965	3,145	1,877
Hiro-mura	730	800	550
Muroran	1,171	664	200****
Kamaishi	537	619	425
Tobata-shi	214		400
Kawasaki-shi		81	68
Osaka-shi		187	172
Total Nippon Seitetsu	3,617	5,496	3,692
Percent of Japan proper	42 (-)	43 (+)	37 (+)
Japan proper (all companies)	8,674	12,633	9,620

\* Capacity figures are believed to be minimum estimates of the potential output. Some estimates are based on data 6 or more years old.



- \*\* Rated iron capacity is based on full operation for a 365-day year. Includes pig iron and sponge iron.
- \*\*\* Capacity of equipment assuming adequate raw material supplies.
- \*\*\*\* Primary rolled steel capacity was estimated at 500,000 metric tons, but 200,000 tons only for secondary rolled products.

This steel plant has depended on imported iron ore, chiefly from Korea, China, the Phillipines and Indo-China. The approximately 2,000,000 metric tons of coal used per year have moved by rail from mines in the nearby Chikugo field.

(1) Pig iron. The reported iron production from the blast furnace in 1934 was 1,148,000 short tons; in 1935, 1,205,000 short tons; and in 1936, 1,462,000 short tons. The estimated annual capacity at the end of 1944 was 2,160,000 short tons.

Available data on number and capacity of blast furnaces at the Yawata plant are shown in Table 38.

TABLE 38

Blast Furnaces, Iron Production Capacity  
Yawata Iron Works, 1936-38, Fukuoka-ken.  
(Capacity (in short tons))

Number	Per day		Annually (total, each capacity)*
	(each)	(total)	
1	770	770	271,000
1	550	550	200,000
2	440	880	321,000
1	460	460	168,000
1	390	390	140,000
1	360	360	132,000
1	320	320	114,500
2	1,000	2,000	803,000

\* Installed by 1936, except last 2 which were installed by 1938.

(2) Steel. The Yawata Works 1936 open hearth steel production\* (from an unknown number of hearths) was reported as 2,290,000 short tons of ingots. An estimated annual open hearth capacity of 3,060,000 short tons of ingot steel was reached in 1942. This was after a continued expansion beyond the 1937 addition of five 120-ton furnaces. By 1937-38 there were 40 to 50 open hearths installed.

\*Production of one metric ton of Japanese steel in 1939 required 451 kg. of pig iron or hot metal; 616 kg. of scrap; 204 kg. of coal; 105 kg. of limestone; 59 kg. of iron ore; 10 kg. of manganese ore; 3 kg. of coke; and 3 kg. of fluor-spar.

This works had two 12-ton capacity Bessemer converters in 1935, one basic and one acid. The basic converter annual capacity was estimated at 66,000 short tons and that of the acid converter at 220,000 short tons.

Electric furnace capacity reached a combined estimated annual total of 100,000 short tons of ingots by 1942. This was after expansion from 29,000 short tons in 1936 and 63,000 short tons in 1938.

The electric furnaces included one 5-ton, one 6-ton, two 10-ton, and two 15-ton furnaces plus an undetermined number of unknown sizes, and an unknown number of high frequency 1-ton induction furnaces.

(3) Steel products. Rolling mills at this plant include Japan's largest mill for rolling rails, structural shapes, bars, rods, and wire, and the third largest plate sheet strip, and tin-plate mills.

Primary rolling mill capacity is estimated at 2,970,000 short tons of blooms, billets and slabs. In 1930 there were 7 primary mills. Detailed information is lacking, but in 1937 one 2-high reversing blooming mill with an annual capacity of 530,000 short tons was rolling slabs for the plate mill and blooms for the sheet, bar, and structural mills.

The plant is known to have large medium, and small bar mills with annual capacities of 495,000 short tons, 200,000 short tons, and 137,500 short tons, respectively, or a total of 832,500 short tons.

Structurals and shapes capacity was estimated at over 323,000 short tons at the end of 1944. In 1936 the plant produced 294,000 short tons of shapes. The plant had in 1937 one old hand-operated mill and one new electrical driven structural mill. Plate capacity estimated at 473,000 short tons has been installed since 1937. Production for 1936 was 362,000 short tons of heavy plate and 32,200 short tons of light plate. A 2-high steam-driven Mesta plate mill was in operation in 1937.

Rail mill (light and heavy) capacity is estimated at 344,000 short tons per year. The 1936 production was 307,000 short tons.

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Sheets and tin plate annual capacity is about 165,000 short tons of sheets and 110,000 short tons of tin plates. In 1937 the works had 20 2-high hot mills for sheets and the same number and type of mills for sheets.

Wire rod mill capacity is estimated at 155,000 short tons per year. A new wire and rod mill was installed in 1942-43.

Forgings amounting to yearly 13,150 short tons were reported produced in 1935. In 1936 there were approximately 12,800 short tons of steel castings produced. Present forging and castings produced. Present forging and casting capacity is believed to be much higher than in the mid-thirties.

The plant is equipped to produce a number of miscellaneous products including round and square merchant shapes, nails of all sizes, bolts and boilers. Miscellaneous rolled products amounting to over 62,000 short tons were produced in this plant in 1936.

Auxiliary plants and equipment are known to include: (1) a sintering plant for fine ores. This plant was sintering, leached chalcopyrite-pyrite concentrates, from an Osaka copper recovery plant as early as 1929. (2) Power plants (see Chapter IV, C, 4 and Appendix III). (3) Three batteries of by-product coke ovens and 2 coke by-product plants. (4) Two refractory brick plants.

b. Nippon Seitetsu KK Tobata Plant. The Tobata plant of the Nippon Seitetsu KK is located along Shimonoseki-kaikyo north of Tobata-shi at 33°54'N, 130°50'E. Since 1934, when the plant was acquired from Toyo Seitetsu KK, it has been administered by the company's Yawata plant 4 miles to the southwest.

The plant has one 330-ton and one 315-ton per day blast furnace. Their combined annual capacity is 235,000 short tons of pig iron. The 1935 iron production was 218,000 short tons. The plant has the largest and most modern sheet, strip, and tin plate mill in Japan and the sixth largest plate mill. A 43-inch continuous tandem hot strip mill, built in the United States in 1937, began operating at the plant in 1942-43 on slabs from the Yawata plant. This mill is capable of rolling both plates and strips. Plate capacity is 110,000 short tons per year and the annual capacity for rolled strip or sheets from strip is 330,000 short tons. The plant has one 42-inch, 5 stand Mesta cold mill with an annual capacity of 130,000 to 165,000 short tons of tin plate. Sheets and strip are shipped to other plants of the company for finishing.

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c. Kokura Seiko KK. The Kokura Seiko KK (Kokura Steel Manufacturing Co.), largely controlled by the Asano interests, operates blast furnaces, open hearths, and rolling mills in Konomi-cho, Kokura-shi. The plant at Kokura-shi was the fourth largest producer of shops and rails in Japan. There are 2 blast furnaces at the works. One is known to be a 350-ton furnace. The combined capacity of both furnaces is estimated at 280,000 short tons of pig iron annually.

The plant probably has at least 7 open hearth furnaces. Their yearly capacity has been estimated at 267,000 short tons of steel ingots.

Electric furnace annual capacity is estimated at 138,600 short tons which is considerably above the approximately 4,800 short tons of electric steel which were produced in 1936.

Bar mill capacity in 1937 was estimated to exceed 100,000 short tons. The 1935 bar production was 84,500 short tons.

Annual wire rod capacity at this works is believed to have exceeded 244,000 short tons from 2 wire rod mills, one installed by American engineers. Shapes and structurals rolling capacity was estimated at 132,000 short tons per year.

d. Kyushu Tokushu Seiko KK. The Kyushu Tokushu Seiko KK (The Kyushu Special Steel Co.) operates a plant at Kokura-shi. This Kokura works is affiliated with Fujikoshi Kozai Kogyo (Fujikoshi Steel Materials Industry) which has 5 plants in Toyama-ken. The Kokura plant's 1939 capacity was estimated to exceed 2,000 short tons of electric steel.

e. Tokai Kogyo KK. Two steel works in Fukuoka-ken produce rolled products but have no iron output or steel furnace capacity. One of these, the Tokai Kogyo KK (Eastern Sea Steel Industry Co.), Wakamatsu-shi, 70 Hamamachi, produces rolled steel products from ingots obtained from Nippon Seitetsu.

The 1936 steel plate production was reported as 46,550 short tons. The plant is reported to have 2 shape mills with a total annual capacity of 50,000 short tons. The works produced some 400 odd tons of tinplate in 1936. Company products are supplied to the Imperial Railroad Ministry and other Imperial Government Bureaus.

f. Nippon Kogyo KK. The Nippon Kogyo KK (Japan Mining Co.) has a rolled steel products plant at 2554 Shida-machi, Chikujo-gun. The plant produced 22,800 short tons of steel sheets and 3,700 short tons of plates in 1935, which was probably chiefly consumed by the company's various enterprises.