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Japanese Landscapes

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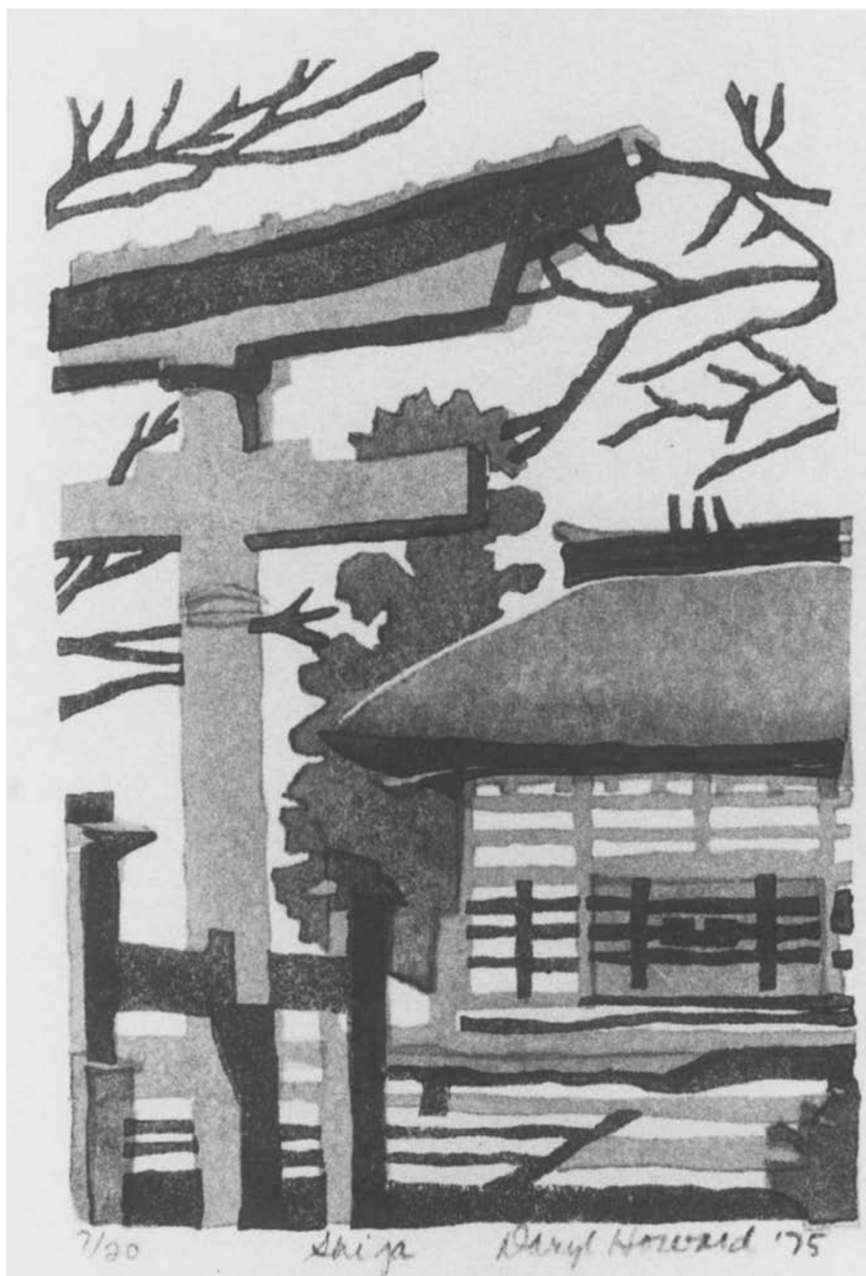
Cotton Mather, P. P. Karan, and Shigeru Iijima

JAPANESE LANDSCAPES


7/20
Shiga
Daryl Howard '75

JAPANESE LANDSCAPES

Where Land & Culture Merge

by Cotton Mather, P. P. Karan, and Shigeru Iijima

THE UNIVERSITY PRESS OF KENTUCKY

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Jacket photograph:
Daybreak in Old Japan (see page 10)

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Woodblock print of a Shinto Shrine, by Daryl Howard

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Asagiri ya	The mists of daybreak seem
Ga ni kaku yume no	To paint, as with a fairy brush,
Hito-tori	A landscape in a dream.

—TANIGUCHI BUSON 1716-1784
Painter and master of haiku

The finest examples of Japanese aesthetics cross the borderlands

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Contents

PREFACE AND ACKNOWLEDGMENTS ix

1. THE GENERAL LANDSCAPE 1

2. PRIMARY CHARACTERISTICS 25

Paucity of Idle Land 26
Scarcity of Level Land 33
Compactness 35
Meticulous Organization 43
Immaculateness 47
Interdigitation 52
Tiered Occupnce 55

3. SECONDARY CHARACTERISTICS 59

Gardens with Sculptured Plants 59
Flowers along the Thoroughfares 64
Lack of Lawns 67
Dearth of Roadside Shoulders 71
Profusion of Aerial Utility Lines 75
Pervasive Vinyl Plant Covers 78
Walled Urban Areas with Gates 81
Sacred Spaces 85
Waning of Traditional Architecture 87

4. TOMORROW 91

REFERENCES 93

ABOUT THE AUTHORS 96

INDEX 97

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Preface and Acknowledgments

FOR DECADES THE THREE OF US have observed, studied, interpreted, and reflected on the landscapes of Japan—from the busy streets of Tokyo and Osaka, to the secluded shores of Kyushu, to the gardens of Nara and Kyoto, and to the volcanoes, beautiful forests, and open spaces of Hokkaido. Over the years we have shared many ideas about the ways in which Japanese landscapes have evolved, how tradition and innovation have often merged, how feudal, isolated Japan has become an integrated, modern, energized society, and how the nation has remained distinctive even as it has become a leader of the contemporary, technological world.

Recently we had the great good fortune to be together again, in Japan. We traveled more than 6,000 miles, reexploring the thoroughfares and the byways of the near and far reaches of Japan, from the coastlines and urban nodes to the alpine culmination of Mount Fuji. It was our intent, in traveling these diverse lands, to present the meanings of the landscapes of this vibrant and distinctive country.

We want this book to be different from the many other books on Japan, no matter how wonderful they may be. After all, we are students of landscape study and believe that through landscape we see revealed the recorded scroll of the coalescence of land and culture in Japan.

We want this book to be of use to scholars, teachers, and students young and old, and also to the throngs of travelers who come to Japan on business or for pleasure and who desire a unique, concise guide to understanding why Japanese landscapes reveal so much about the past and present of a remarkable people.

Other scholars have contributed greatly to our knowledge of Japan, so we include, at the back of this book, a short bibliographic essay of salient works. We owe a great personal

debt to Glenn T. Trewartha, the esteemed geographer whose book, *Japan: A Physical, Cultural, and Regional Geography* (1965), remains a steadfast classic. And there are so many others from whom we have gained insight.

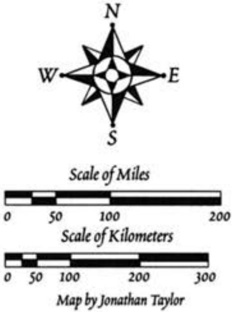
In creating our book, we proceeded on a new approach—to organize the Japanese landscapes according to their primary and secondary characteristics. In so doing, it is our hope that travelers and scholars will view Japan with a new perspective as to why the nation is as it is. To be sure, this is no encyclopedia of the complex history, culture, and economy of Japan, but it is a new type of guide for understanding Japanese landscapes—urban, rural, and wild.

We encourage readers to visit the famous gardens, shrines, castles, and other well-known attractions. But to see and know Japan, it is important to take bullet trains and slow roads, to walk city streets and rural paths, to stop and contemplate all aspects of life and land. Our presentation of Japanese landscapes by their principal characteristics allows readers to experience the wide-ranging geography of one of the world's most distinctive nations.

At this time, we would like to extend appreciation to all of the good people who have assisted in the making of this book, especially: Dr. Gyula Pauer, director of the Cartography and Geographic Information Systems at the University of Kentucky, for his aesthetic rendering of the map of Japan; Dr. Sarah K. Myers, of Croton-on-Hudson, New York, for her excellent copyediting of the manuscript; and George Lenox, of Austin, Texas, for a masterful book design. We also gratefully acknowledge the following Japanese friends for good fellowship during our field studies: Toshiaki Ohji, Yuji Yamamoto, Hiroshi Ishii, Shingo Einoo, Kazuko Tanaka, Kyoko Inoue, Masao Kobayashi, Heiji Nakamura, Tsuyoshi Nara, Koji Kamioka, Shigeki Kaji, Setsuho Ikehata, Ryohei Kagaya, and Tsukasa Mizushima. And we deeply appreciate Daryl Howard, the distinguished American artist who resided in Japan for many years, for the reproduction of her inspired woodblock print of a Shinto shrine.

JAPAN

HOKKAIDO
Lake Shikotsu
Lake Akan
Lake Toya
Usuzan
(volcanic park)
Oshima
Peninsula
Seikan Tunnel
Mount Iwaki
Sea of Japan
TOHOKU
HONSHU
Yamagata Basin
Japanese Alps
KANTO
Mount Fuji
CHUBU
Nobi Plain
Pacific Ocean
CHUGOKU
Kinki Plain
KINKI
Atsumi Peninsula
Kii Peninsula
SHIKOKU
Kochi Plain
KYUSHU
Miyazaki
Plain

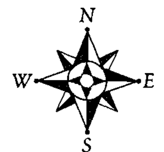


Scale of Miles
0 50 100 200
Scale of Kilometers
0 50 100 200 300
Map by Jonathan Taylor

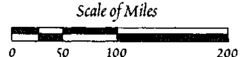
Elevation over 3000 ft.

JAPAN

Sapporo
Northern Horse Park
Chitose
Tomakomai
Noboribetsu
Muroran
Hakodate
Aomori
Onoe
Hirosaki
Akita
Sendai
Niigata
Nagano
Matsumoto
Kofu
Tokyo
Chiba
Yokohama
Shizuoka
Nagoya
Kyoto
Nara
Kobe
Osaka
Okayama
Wakayama
Hamada
Hiroshima
Fukuoka
Saijo
Matsuyama
Beppu
Oita
Misaki
Nagahama
Nagasaki
Kumamoto
Ichinomiya
Minamata
Kagoshima



Scale of Miles



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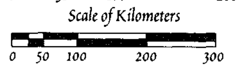
Scale of Kilometers



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Map by Jonathan Taylor

The General Landscape

CHAPTER 1

LANDSCAPE IS A VISUAL SCROLL which provides insights into the nature of a people and their cultural impress upon their environment.

Landscape is the interaction of culture, time, and geographic space. It records what has happened. It is an eloquent transcription of the physical history and the essence of life as it functions in a complex matrix. Landscape is the unvarnished etching of the past and present, of reality. It expresses the values and social forces associated with a culture that have shaped the environment. Our understanding of an area and of human relationships with the environment are really cultural expressions which define place and space. This is landscape, the consequent compage of the elemental bonds of land and culture.

The landscape of Japan commands special attention, for it is extremely complex and intricately organized. It is the occupance record of a culturally distinct and dynamic society on an archipelago bordering the earth's largest continent and on the brink of a 35,000-foot-deep ocean trench. Great tectonic plates collide in this zone, resulting in earthquakes, tsunamis, volcanoes, and hot springs. The land is indeed alive and so is the distinctive culture of the people.

Geography spared Japan the tramp of invading armies and the confusion of many intruding aliens with strange cultures and ways. The Korea Strait, which separates Kyushu, the westernmost island, from the nearest part of the Asian mainland, is 100 miles wide, and although it has sizable stepping-stone islands, it was difficult and dangerous to cross in early times. The barrier strait gave Japan a semi-isolation, placing it within the Chinese culture area and at the same time setting it apart. During certain periods a broad stream of ideas, literature, art, religion, and philosophy flowed from China to

Japan. At other times the flow was shut off from one side or the other, and Japan developed on its own. But whether in isolation or not, Japan was always itself. Thus, the Japanese had more opportunity than most peoples to develop to the fullest their distinctive culture: everything that came from outside was reshaped to suit Japanese tastes and needs. The mixture of subtlety and sophistication, as well as the delicacy and complexity in this culture, bear testimony in the landscape. The balance between driving ambition and aesthetic sensitivity is clearly evident.

Japan has been inhabited for thousands of years. Northern Kyushu, because of proximity to the Asian continent, became the site of its first political center. By the fourth century A.D. a sovereign court had emerged, which by conquest and alliance eventually unified the country as a nation-state. In the seventh century a unified Japan consisting of Kyushu, Shikoku, and Honshu was established. Hokkaido was settled by the Japanese between 1600 and 1868.

Until the mid-nineteenth century Japan was divided administratively into a system ruled by *daimyo* or feudal lords. After the Meiji Restoration (1868) the country was reorganized into prefectures. At present Japan is divided into forty-seven prefectures. But the Japanese consider them too numerous and newfangled to bother about much in ordinary conversation. They more often speak of historic vernacular regions, corresponding in America, perhaps, to New England or the South. There are eight of these regions: *Hokkaido,* the northernmost island; *Tohoku,* northern Honshu; *Kanto,* Tokyo and the Kanto Plain plus environs; *Chubu,* the plump middle of Honshu, including Nagoya, Mount Fuji, and the Japanese Alps; *Kinki,* centered on Osaka, Kobe, and Kyoto; *Chugoku,* the western end of Honshu, including Hiroshima; and the two other islands, *Shikoku* and *Kyushu.*

For nearly two thousand years, an emperor or an empress belonging to the same family as Akihito, the present emperor, has ruled or reigned over Japan. Beginning in the twelfth century, a series of military shoguns seized and exercised real power in the name of the emperor. The shogunate of the Tokugawa family, who governed from 1603 to 1867, sealed Japan from the rest of the world and left the most definitive imprint on the country.

The ancient landmarks of Japan include old roads, old temples, and old castles. Historic roads such as the Tokaido

1. Matsumoto castle lies in the center of Matsumoto Basin, Nagano Prefecture. It is an impressive example of castle architecture in Japan, and it is the oldest five-tiered donjon in the country. The castle was built in A.D. 1504, during the warring states' period. Beautiful cherry trees line the moat. Matsumoto city developed as a castle town. In spite of modernization in the city center, Matsumoto retains much of its heritage as a prosperous castle town, especially along its charming back streets. This old castle town is now an educational, industrial, and cultural center.

and the Nakasendo connected Kyoto with Edo (Tokyo), and the Kokurikudo joined Kyoto with Tohoku via the coast of the Sea of Japan side (formally called *Ura Nihon*, backside of Japan). Many old stage towns (*shukuba-machi*) developed along these roads. In 1987 there were more than 81,350 Shinto shrines and 77,000 Buddhist temples. Old castles were originally military fortifications designed to provide protection against enemy attack. With the rise of feudalism, they became a distinctive architectural form serving as both a palatial residence and a seat of military and political power. The *daimyo* built castles in the center of their domains. Each castle included residences of the castle lord and his chief retainers. Fortifications such as stone walls were built and moats were dug. Around these castles developed castle towns (*joka machi*), the characteristic form of Japanese city until the Meiji Restoration of 1868 (FIG. 1).

Today, however, Japan bears the overwhelming imprint of a bustling, populous, modern society that is finely attuned to severely limited areas of favorable terrain. The legendary

2. Urban skyline of Shitamachi district of eastern Tokyo, which developed in low-lying areas on the western side of the Sumida River. Inhabited by merchants and craftsmen in feudal times, the old neighborhoods in Shitamachi have survived to the present day, with small-scale merchants and artisans clustered in traditional commercial neighborhoods. It is a distinctive area of Tokyo, distinguished in terms of geography, historical background, social and cultural traditions, social identity, and economy. Shitamachi was largely the product of rigid segregation imposed on the mercantile and manufacturing classes by the feudal elite during the Edo period (1615-1867). Today it is inhabited by members of the old middle-class shopkeepers, artisans, wholesalers and industrial subcontractors. The skyline with old and new buildings and smokestacks of factories is dominated by the sixty-story, 800-foot-high Sunshine City Building near Higashi Ikebukuro Station. Some of the fastest elevators in world, traveling nearly 2,000 feet per minute, take visitors to the top of this office, hotel, entertainment, and commercial complex.

3. *(above right)* The superfast Hikari express train of the Shinkansen system at Kyoto Station. The distance of a little more than 700 miles between Fukuoka and Tokyo is covered in about 5 hours and 51 minutes by Shinkansen. It is called "bullet train" because of its speed and shape. A Shinkansen train departs Tokyo for Osaka or some point farther west every seven minutes throughout the day, from 6 A.M. to late in the evening. Between the inauguration of service in 1964 and early 1991, the Tokaido Sanyo Shinkansen carried 3 billion passengers. The Tohoku Shinkansen, from Tokyo to Morioka, commenced service in 1982. Travel time between Tokyo and Osaka, the 311-mile-long urban-industrial corridor of Japan, was reduced from 6 hours and 30 minutes to 2 hours and 30 minutes by Shinkansen, an improvement that considerably altered business activities.

Tokaido corridor, which runs from Kyoto to Tokyo along the underbelly of Honshu, once a romantic route it is now a megalopolis, similar to the Boston-New York City-Philadelphia-Washington urban belt. Here the landscape is dominated by hillsides with highway cuts, television antennas like a skyful of spiders, factories, tall smokestacks, wide-flung railroad yards, and electric power lines that march across the countryside every which way, with poles and towers carrying as many as twenty cables (FIG. 2). It is landscape festooned with wire. On the tops of factories—many of them bright, clean, and modern—signs such as Sony Hi-Fi, Meiji Chocolate, and Kirin Beer shout the temptations that have replaced the complaisant maids of the old inns in stage towns.

Without doubt the Tokaido is one of the world's busiest traffic corridors, for through it run the old road, unrecognizably rerouted and remodeled for car traffic, a new expressway, the Japan Railways' original Tokaido Line, and the bullet train route (FIG. 3). Both rail routes go through the mountains at Hakone in separate four-mile-tunnels. The corridor forms one huge, stretched-out city, with little open countryside anywhere along the route.

Although the land of Japan has traditionally been densely settled, its natural beauty has never been overrun. Rather, every available plot of ground has been cherished. Forests have been cultivated as carefully as rice fields, and each tree grows in its place because someone intended it to be there. The people revere the land and protect it. Some spots are famous for their view of a moonrise, others for the turbulence of surf churning around rocky islets. Even Japan's violent aspects—its storm-beaten coasts and fiery volcanoes—are goals of pilgrimage. Honor for nature is so ingrained in the Japanese that they would not fail to pause and contemplate the colors of leaves and blossoms.

Four islands—Hokkaido, Kyushu, Shikoku, and Honshu—constitute 95 percent of Japan's area. Kyushu is separated from Honshu's western headlands by a strait no wider than the length of a tanker. In similar propinquity, the island of Hokkaido nearly touches the northern cape of Honshu. Little Shikoku nestles under western Honshu and thus serves to enclose the scenic and tranquil waters known as the Inland Sea. The nation's total area of 377,688 square kilometers (145,825 square miles) is just one-twenty-sixth the size of the United States, yet Japan's population, 123.6 million, is approximately one-half that of the United States. But the Japanese problem of living space is far more constraining than these figures suggest. Nearly 73 percent of the land is mountainous, and about 14 percent is arable. Moreover, the patchy distribution of arable land is difficult to connect (see Map of Japan on page xi). Yet on this small lowland total rests most of Japan's population, industry and agriculture. In 1990 the density per square mile was 128 persons. Comparable figures are 139 in the Netherlands and 125 in Belgium. The density of the Japanese population per unit of area under cultivation is the highest in the world. Since 1950, however, there has been a strong tendency toward regional concentration. population. As a result, more than 50 percent of the Japanese live in the densely populated areas surrounding the three major urban centers of Tokyo (the Kanto Plain), Osaka (the Kinki Plain), and Nagoya (the Nobi Plain). The Tokyo Metropolitan Area, in particular, though less than 2 percent in terms of area, has a concentration of nearly 24 percent of the national population. Nationally about 60 percent of the total population resides in 3 percent of the total land area of the country.

Japan's challenge is basically to organize itself compactly, three-dimensionally, efficiently, and connectedly and to provide a high economic return, a high standard of living, and a long life expectancy. This Japan has done. It now has the highest average life expectancy in the world, the world's largest source of investment capital, and the highest per capita income in Asia. Furthermore, despite its limited land, Japan is the second largest economic power on the planet.

The Japanese landscape manifests the nature of this accomplishment in the *contrast of old and new landscapes.* While Japan has a very limited area, the four major islands represent a huge latitudinal stretch; the distance from Kyushu to Hokkaido is comparable in latitudinal extent with that from Florida to Québec. If the Japanese islands were overlaid on the Atlantic coast of North America, they would extend from Tallahassee to Montréal.

Visitors often give diverse reports on Japan's climate. This is not surprising, in view of the great latitudinal range of the country plus its varied terrain and its elevational complexity. In addition are the remarkably sheltered borderlands of the Inland Sea that are so noted for sunny weather and the lowest relative humidity in the nation. At Okayama, for example, bright sunshine prevails on more than half of the days in every month. Okayama, about 100 miles west of Osaka, has 129 rainy days per year compared with 227 on the Japan Sea side of Honshu at Niigata.

The thermal range that one might anticipate from the great latitudinal stretch is accentuated by the marked monsoonal factor. Prevailing northwesterly winds spiral outward from continental Asia in winter, and in summer subtropical airmasses emanate from warmer latitudes over the Pacific Ocean. So the winters are somewhat colder and the summers are hotter than are typical for such latitudes. For example, the average January temperatures vary from about 10 degrees Fahrenheit in northern Hokkaido to 45 degrees in southernmost Kyushu. In summer, high temperatures and high humidity make much of Japan sultry, and many people seek respite in the mountains or at seaside resorts. Most Japanese and their visitors prefer spring and autumn. Flowering plants in profusion adorn the springtime landscapes throughout Japan, and the fall season is gloriously emblazoned with color on the deciduous trees of northern Honshu and Hokkaido.

Snow falls on Japan from Kyushu to Hokkaido. In Hokkaido, the landscape is snow-covered all winter. Snow cover prevails on the Pacific side of Honshu southward to about 37 degrees latitude and on the Japan Sea side nearly to Kyushu. In the mountainous western sectors of northern Honshu and Hokkaido snow may accumulate to a depth of six feet and may persist for more than 100 days. In addition to the mystical appeal of snow-capped Mount Fuji, the Japanese revel in their seasonal regimes, and winter sports such as skiing and ice skating enjoy a great popularity.

Hokkaido represents a newer landscape in human terms; almost all of agricultural Hokkaido was colonized after 1868. The Meiji government placed great emphasis on Hokkaido's development and set up a colonization commission to encourage settlers from other parts of Japan. To advise the colonization commission the government imported seventy-six foreigners, more than half of whom were Americans. Most influential were Horace Capron, a former U.S. Commissioner of Agriculture, and William Smith Clark, president of the Massachussetts Agricultural College. Capron helped found Sapporo and gave it a characteristic identical to most Midwestern towns: a rigid grid of streets at right angles to one another; Clark founded what became the University of Hokkaido. Hokkaido today has structures reminiscent of Iowa-style silos and Pennsylvania German barns. Of real castles and temples, Hokkaido has only one of the former and few of the latter.

Hokkaido is noted for its dramatic and unspoiled scenery, which includes active volcanoes, large lakes, and virgin forests. National parks cover four large swatches of the island, preserving lakes (no outboard motors allowed), volcanic areas (vendors are forbidden to boil eggs in the bubbling water), and primeval spruce and fir similar to those in British Columbia. The Hokkaido Development Agency, established in 1950 in the Prime Minister's Office, is charged with formulating and implementing the central government's plan for Hokkaido's development. The rapid pace of development in Hokkaido has sharpened conflict between advocates of environmental preservation and those of development. Religion lays a light hand on this island, and people prefer to visit the many bright-colored restaurants set out spaciously along the smooth new highways.

4. Farmhouse and sheds of a rice farm near Ichinomiya-machi, twenty-eight miles east of Kumamoto, central Kyushu. The north-central area of Kumamoto Prefecture forms a large plain and has a mild climate. Agriculture is important, with rice as the main crop. Wet rice farming demands intensive labor and extensive irrigation. Highly cooperative farm villages developed to maximize rice production, and their customs have had a major influence in shaping Japanese life and politics. Until the modern era, the rice crop also served as the principal index for allocating and managing the land and taxing the populace. The values and customs adhered to by rice-farming villages for centuries remain a powerful, if not always obvious, influence on Japanese society as a whole. Japan's folk culture, for example, continues to reflect the respect, fear, and awe that rice farmers feel toward the natural environment.

So there is this regional contrast between Hokkaido and the rest of Japan, but simultaneously Japan's population more than trebled from 1868 to 1995. In 1872 the average density was 35 persons per square mile. Now it is near 128. In 1868 Hokkaido had only about 160,000 inhabitants. Now there are approximately 5.7 million, but that is only one-fifth the density of the national average.

Space is one of Hokkaido's major assets, and agriculture is the economic mainstay. Farming in old Japan places a heavy emphasis on rice, and the farmstead there is dominated by the farmhouse (FIGS. 4 AND 5). The other farm buildings are really sheds. From an airplane, the farm areas of old Japan are an infinity of small, inundated rice fields resembling verdant

5. Rice paddies in April at the base of Mount Iwaki on the island of Honshu. Grown in Japan for more than 2,000 years, rice is woven through landscape, culture, diet, and even politics. From sushi to sake to simple fare, rice dominates the Japanese diet. Strands of rice straw entwine over entrances to Shinto shrines. Rice-straw ropes, or *shimenawa,* often hang over doorways to ward off eveil. In the honored Japanese sport, sumo, victory comes when one behemoth topples the other or pushes him out of a fifteen-foot-diameter circle ringed with dirt-packed rice straw. And competitors bulk up at tables groaning with rice.

6. Silo and barns, backed by a farmhouse, sixty-one miles north of Hakodate, Hokkaido. About half of the dairy cattle of Japan are in Hokkaido, where the physical environment resembles New England and financial subsidy is available to dairy farmers.

mirrors, flashing the sun back to the viewer. Terraced up from the coast, the paddies make a geometry of different hues of green, set against the blue-green of the background mountains or, down from the hillside, against the white-capped aquamarine of the sea. Seen from eye level, the green stems of rice harmonize with the azure of the sky reflected in paddy water. Seen from on high, the paddies form patterns of varying green according to how they are contoured or arbitrarily parallelogrammed. Near villages the paddies, bordered by banks and ditches, make green squares of a checkerboard, alternating with iron gray of the roof tiles of the intermixed housing lots. In urban-industrial areas, patches of green rice relieve the eye and give the Japanese landscape its special interdigitated character.

Hokkaido's farming, in contrast, is relatively extensive. Despite its high latitude, Hokkaido's main crop is rice; fodder crops for livestock are also raised, as are potatoes, sugar beets, soybeans, and red beans. The fields in Hokkaido are larger and the machinery is bigger. An individual dairy farm may encompass 75 or 100 acres, with barns dominating the farmstead (FIGS. 6 AND 7). Television commercials in Japan show Marlboro Country Japanese cowboys pounding leather in Hokkaido, yet most of the cattle are not beef steers but dairy cattle, yielding one-fifth of Japan's milk supply. Dairying makes good profits, and the government encourages farm-

7. Farm scene in April, on the Oshima Peninsula, southwestern Hokkaido. The hilly terrain is dotted with farm settlements. Dairying, combined with raising food and feed crops such as potatoes, oats, hay, soybeans, and kidney beans, is the prevalent type of agriculture.

ers to shift from rice to cows. These illustrations (FIGS. 4 AND 7) represent the major contrasts between the old and the new.

Contrasts in scale are the rule on the Japanese landscape. The areas of low topographic relief are very small in size and are separated by large areas of rough relief. Forests cover about 68 percent of Japan, and their distribution is closely correlated with the mountainous topography. Mountains dominate the terrain of all the main islands: Kyushu, Shikoku, Honshu, and Hokkaido. Indeed, Japan is mostly mountainous and forested, and mostly very sparsely inhabited. This is a stunning aspect of Japan, so populous a nation of such small area yet with much of the land nearly devoid of population. The forests, however, are a vital environmental component as regulators of precipitation runoff, as havens for recreation, and as sources of lumber and pulp.

The green of the forests that cover Japan is a green of varying textures. Along the east coast of verdant Kyushu, the forests are all bottle-green conifers, dense enough to raise the speculation that no humans have ever set foot there—until one notices that the trees are in perfectly straight rows. The green of Japan's mountains is mostly the green of tree farms rather than the green of wilderness; the Japanese love of the touch and look of wood in houses has long since cost the country most of its natural forest. On hillside plantations, the black-green crowns of the mature cypresses make a pattern like the warp and woof of some nubby fabric. Ruler-straight borders separate these harvest-ready trees from logged-off patches of mottled-green seedlings and underbrush and the shiny green patches of well-pruned, half-grown trees poking upward like rows of daggers.

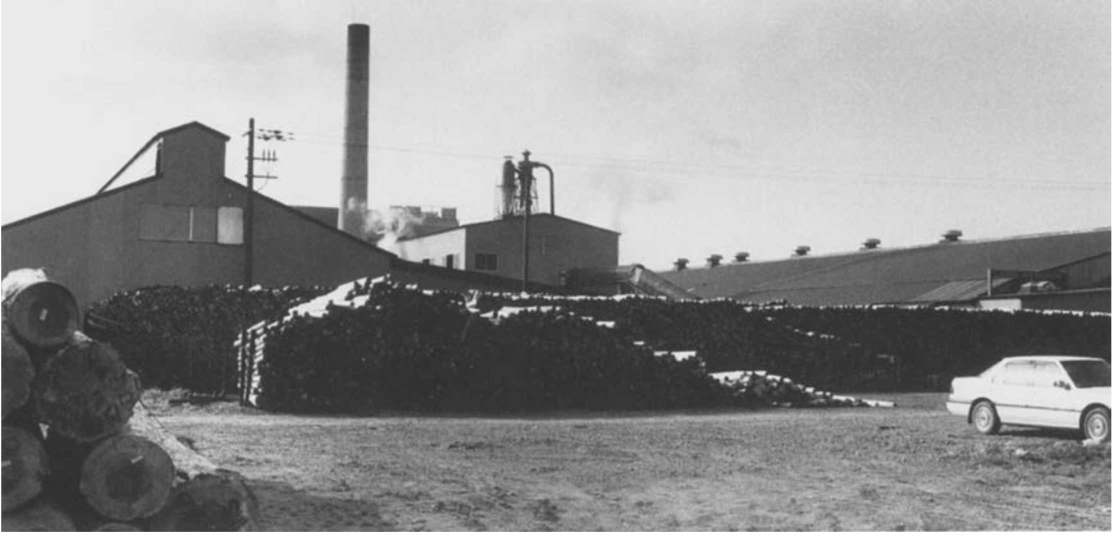
The most common Japanese tree is the cedar, generally debranched in the lower trunk to make it grow straight and knot-free, and rising to a tuft that makes rounded hills look as though they were clothed in green fur. It is the flat green of cedar leaves that colors the mountains north of Kyoto. At mills and sheds in the harmonious little towns of the twisting valleys, men and women scrape the red cortex from the slender young trunks to make naturally fluted columns for the alcoves of *sukiya*-style houses. The *sukiya* style houses are simple, austere, and small. During the Edo Period (1615-1867) the sukiya style of residential architecture became popular among the townspeople. The beauty of *sukiya* comes from its

8. Small, efficient cable system for moving pine logs from rugged mountain slopes to the narrow, shoulderless, black-topped highway in the southern part of the Kinki region. Wakayama Prefecture, south of Osaka. Japan is a great consumer of wood, as well as the world's greatest importer of logs and wood chips (accounting for about 20 percent of the world's wood trade). In 1990 Japan's total wood consumption was 148 million cubic yards of which 26 percent was domestically produced. Japan is also notable for its exceptionally high proportion of planted forests, which occupy 40 percent of the nation's total forest area. About 70 percent of Japan's total area is wooded. In recent years emphasis has been placed increasingly on forests as places of recreation and as natural environments in need of conservation.

delicate sensibility, its slender wood elements, the use of natural materials, and the elimination of ornaments.

In the lofty, green-canopied cedar forest in the Kii peninsula, south of Osaka, men climb huge cedars 300 years old to get seeds. From the seeds will grow more of the big trees, which will be needed two or three centuries hence for pillars in the rebuilding of temples and shrines. Under the green mushrooms of their crowns, similar cedars stand like ghosts among the volcanic peaks of Unzen National Park, east of Nagasaki. Japan's other evergreens are silver fir, white fir, hemlock, spruce, and several kinds of pine. Patient gardeners dote on pine, plucking some needles before they can grow into branches, leaving others to form green branch-tip clusters. Trunks and boughs are trained into grotesque twists and loops; they can make the pine into a living sculpture. There are even more greens in the landscape: The green of the bamboo's feathers, the dull green oval leaves of the persimmon, the green of palms and weeping willows, the green of tea shrubs shaped like shaggy boulders, and, above the tea, the glossy green leaves of tangerine trees.

Decades ago, all lumbering operations were small, but today's operations include huge ones that are among the world's most modern (FIGS. 8 AND 9). The annual timber production in 1990 was approximately 40 million cubic yards,



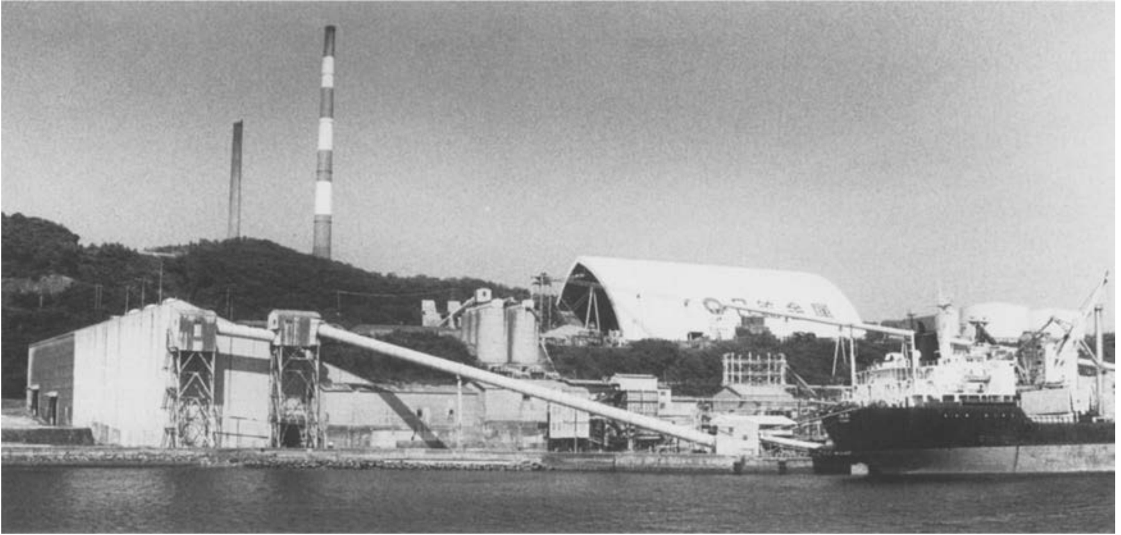
9. Huge modern plywood plant at Hakodate, Hokkaido. The processing of forest and agricultural products is a major industry in Hakodate. A flourishing fishing port since 1741, Hakodate was one of the first ports opened to foreign trade under the Kanagawa Treaty (1854).

but this represents only 28 percent of Japan's voracious demand for wood pulp and building construction. The importation of wood is critical, with most of it is secured from Alaska, British Columbia, Washington, Oregon, the Philippine Islands, and Indonesia.

The natural forests of Japan were mainly broadleafed, deciduous hardwoods in the southwest, and coniferous trees in northeast. Reforestation, or new forests, now represent about 40 percent of the total forest area. These replantings are coniferous softwoods, readily observable as great, dark green swatches of scientifically managed woodlands. Slightly more than half of Japan's forest land is privately owned; the remainder is under national or municipal ownership. Although the forests of Japan are extensive and productive, less than 1 percent of the nation's labor force is engaged in forestry.

Japan's coastal component is an important aspect of its landscape. The length of Japan's coastline is about 21,000 miles. Most of Japan's population is coastal oriented, and the nation's economy depends heavily on importing raw materials and exporting manufactured goods. Japan ranks third in the world in both imports and exports, exceeded only by the United States and Germany. Leading imports include petroleum, foodstuffs, logs and lumber, iron ore, and chemicals.

The shipping of resources from one Japanese port to another is also important. Coal is one example. The main coal



10. Ship unloading coal by augur at port in Oita Prefecture, northern Kyushu. From 1955 onwards the use of coal declined in Japan, but after the oil crisis of 1973 it became a major source of energy. Both domestic production and imports increased. In 1988, 12.4 million short tons of coal were produced, and 111.3 million short tons were imported.

mining areas are in northern Kyushu and Hokkaido. Coal mining is declining, however. As the easily mined higher-grade coal deposits are depleted, high-grade coal and petroleum are being imported to meet national energy needs (FIG. 10). A major heavy industrial area has developed near the coalfields of northern Kyushu. Now, much of the energy importation is to ports near the industrial centers. Almost all of Japan's iron ore is obtained from Australia, India, Brazil, the Philippines, and Canada. The importance of raw materials produces ancillary aspects to the landscape. For example, not only is wood imported from British Columbia, but Canadian

11. A Canadian log house along the Tohoku Expressway, thirty-two miles south of Aomori, Honshu. Imported houses are increasingly popping up in Japan. The Mitsui Home Company, a subsidiary of the giant Mitsui & Company, is building thousands of homes each year using materials from its factory in Canada.

12. Small vessels for fishing and harvesting seaweed at the busy port of Hamada, in Shimane Prefecture, southwestern Honshu. Marine products such as seaweed, shrimp, crab, cuttlefish, and shellfish are basic to the Japanese diet. Stretching from north to south and surrounded by both cold and warm currents, Japan is favored with a rich variety (almost 1,200 kinds) of seaweed. Warmer waters from Honshu to Kyushu are rich in *wakame* (genus undaria), *hijiki* (hizikia), *hondawara* (sargassum), *arame* (eisenia), and *kajime* (ecklonia). Cold waters around Hokkaido abound in *kombu* (laminaria). More than any other people, Japanese include seaweed in their diet. Several varieties are harvested for use in jelly, ice cream, and soy sauce, or as wrappers for rice balls. Most fishing families are *kengyo* (work two ways), meaning that they both fish and farm. Women work alongside men on the boats and in the fields.

13. A quiet, noncommercial embayment, close to but rather isolated from the busy port of Hamada. Such places nurture landscapes threatened elsewhere by the headlong rush to industrialize.

log buildings are being franchised now by the Yamaken Co., Ltd. in Honshu (FIG. 11).

Another important ingredient which affects the landscape is the *accessibility factor*. This is illustrated vividly by two inlets in Shimane Prefecture, along the Sea of Japan in southwestern Honshu. One inlet is at the port of Hamada, which is absolutely abuzz with marine enterprise (FIG. 12). The other inlet, off the beaten path, is a quiet, secluded, forest-fringed embayment with only a smattering of relict vessels (FIG. 13). Hamada (population 49,135) developed during the Edo Period (1600-1868) as a port and castle town. Today it is the administrative, commercial, and industrial center of the Iwami region of Shimane. An important fishing port, it has a thriving marine-products processing industry as well as a growing wood-works industry.

The rural *workaday and recreational landscapes* have strong cultural undertones. In 1920, two-thirds of Japan's population was rural and one-third was urban. Today, the rural popu-

14. Planting rice seedlings mechanically near Ichinomiya-machi, twenty-eight miles east of Kumamoto, in central Kyushu. Rice culture in Japan has never been easy. In former times, the backbreaking task of planting rice seedlings in soupy fields was performed by hand; today the planting is mechanized, but slogging from dawn to dusk behind a smelly, vibrating machine measures one's mettle. Despite the decrease in rice consumption in Japan since the early 1960s, rice is still considered a staple, and rice production and supply is a key element in Japanese agricultural policy. The importation of rice for table use is prohibited. In early 1990s the chief issues concerning rice policy which were debated in Japan were continuing concern with over-production, consumer demands for high quality rice, and the price differential between domestically produced and imported rice. The relaxation of governmental control over pricing and distribution and the introduction of free-market principles were also being considered. Rice has become a symbol of Japan's closed market and the object of criticism from foreign countries, in particular the United States.

lation is less than 20 percent. This change in seven decades has been accomplished by migration from rural to urban areas and by a marked increase in off-farm employment for members of the farm households. The migration from rural to urban areas has involved mainly younger workers, as has off-farm employment. As a result, with a large part of the present agricultural labor force is over the age of forty-five years, (about 14 percent above the age of sixty-five in 1995) has been left to work on the farms.

The decline of the farm population has led to serious and chronic labor shortages in the agricultural sector. Part-time farmers are numerous, and well over half the labor force is female. The government has aided farmers by establishing price support programs, especially for rice. Japanese use the term three *chan* agriculture to refer to their farming system. The three *chans* are *Oji chan* (grandfather), *Obaa chan* (grandmother), and *Okaa chan* (mother) who work on the farm; the father is employed in a factory or office in the local area, and he helps these chans during his three weeks or so of paid holidays. Japan's traditional labor-intensive agriculture has been transformed into a highly mechanized and capital-intensive system in less than a generation.

Japanese farms are tiny by American standards; the average area of cultivated land per Japanese farm is only 3.5 acres, and the major crop is rice (FIG. 14). Because Japan does have an increasingly aging population on the farms, which are the emotional homes for those persons in need of social security, supporting the price of rice is in effect a social-security payment: it enables these elderly people to remain where they have lifelong social and communal ties. The support price of rice is thus a far more socially sensitive system than is the American practice of moving old folks into nursing-home concentrations, away from their lifelong homes and outside the context of the family. Comparing the price of American-grown rice in the Yazoo Delta of Mississippi or in Californiaís Sacramento Valley with the support price of rice in Japan completely misses the social raison d'être.

The rural recreational landscape in Japan is usually an element of multiple land use, is intergenerational in character, and is located close to users. This undergirds the sense of community and the intergenerational dependency that is so strong in Japanese life (FIG. 15). Thus, the Japanese rural scene

15. Neighborhood men and boys come by car and bicycle to fish in this irrigation ditch, near the Arakawa River on the northwestern part of the Kanto Plain. A high artificial levee is on the right. Originating in the mountains surrounding the Kanto Plain, the Arakawa (105 miles long) flows through the plain into Tokyo Bay, draining an area of 1,135 square miles. Its lower reaches are known as the Sumidagawa.

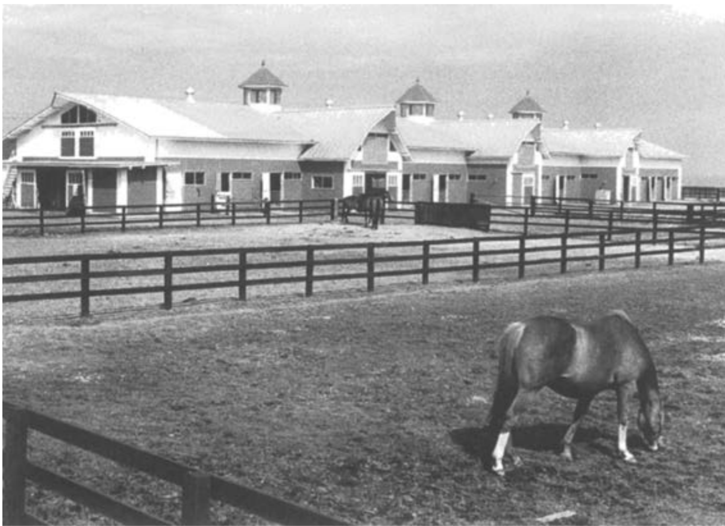
is a strong social landscape in contrast to the American rural scene, which is so markedly economic.

The *travel scene* is very much alive in Japan. The Japanese have loved their land throughout the ages and throughout the realm. The traveler, foreign or domestic, has a magnificent array of attractions to experience. They range from the coral reefs of the Nansei Islands and the live volcano of Sakurajima in far southern Kyushu, to Lake Akan and the Ainu land in northeastern Hokkaido. In between are the rugged ria coats of Kyushu, the spectacular karst country (limestone solution topography), the warm resorts in southern Shikoku, many hot springs, spas, and ski slopes, the massive Japanese Alps, the ancient capital of Nara (before A.D. 794), the capital of Kyoto (A.D. 794-1868), and the many points of interest in Tokyo. And never neglected is the countryside at cherry blossom time. Japan also abounds with peach, plum, and apple trees. The nation has a love affair with fruit trees at blossom time—and rightly so. A recent survey indicated that approximately 84 percent of Japanese over fourteen years of age enjoyed at least one trip a year. The nation has an elaborate transportation system to facilitate travel, and the people appreciate many and diverse attractions (FIGS. 16-20).

16. The interisland ferry near the port of Misaki, western Shikoku, which plies back and forth from the Kyushu port of Beppu. The hot-springs capital of Kyushu is Beppu, which has eight hot-springs resorts in its locale. More than 200 hotels and *ryokans* (traditional Japanese inns) accommodate tourists in the Beppu area. Coastal seaways are a vital linkage for Japan's many settled areas, which are separated from each other by rough topography or by water. Passenger transport by coastal shipping in 1990 totalled 3,890 million passenger miles, and long-distance car ferries handled 1,442 million passenger miles and 862 million car miles. In 1990 Japan had 685 coastal passenger vessels of more than 5 gross tons, plus 497 car ferries. Japan's many harbors crowded with seagoing vessels constitute an impressive landscape element.

17. A sightseeing cable car alongside the steaming volcano, Usuzan, near Lake Toya, north-northwest of Muroran, Hokkaido. The view of Lake Toya from this cable car is spectacular. Usuzan, 2,418 feet high, erupted in 1943 and 1977. Toya, a caldera lake, is one of the northernmost ice-free lakes in Japan.

18. A small Shinto shrine in Kyoto. Newborn babies are taken to the shrine, where prayers recited by the priest formally welcome the child into the community, in which gods and people live harmoniously together. The age-old tradition of Shinto, as a celeberation of life full of the symbols necessary to express group unity, not only has not lost significance but has weathered modernity remarkably well. In the tolerant mix of theologies that is typical of Japan, Shinto shrines and Buddhist temples exist in perfect harmony, and most Japanese visit both at appropriate times.



19. A barn on one of two units of Japan's largest horse farm, near Tomakomai, northeast of Muroran, Hokkaido. This unit has eighty horses, mostly thoroughbreds. Japan has acquired some fine breeding stock from the Bluegrass Region of Kentucky. Many travelers go to the scenic mountains and lakes of Hokkaido, but they also want to see the spacious farmlands that differ so markedly from the tiny farms of Honshu, Shikoku, and Kyushu. The Northern Horse Park, north of Tomakomai and near Chitose, is in this pleasure-horse section of Hokkaido and is a major attraction for Japanese travelers. It is a huge complex, with a clubhouse, a restaurant, stables, tennis courts, a golf course, riding trails, equestrian training facilities, and a park for both summer and winter recreation.

20. The skyline of central Kyoto is changing as old buildings are replaced by modern structures, such as the Kyoto Tower. The city of Kyoto became the capital in A.D. 794 and is one of the major attractions in Japan for both domestic and foreign travelers. Civil wars destroyed many of the city's cultural treasures, but today there are more than 200 Shinto shrines, 1,500 Buddhist temples, the Kyoto National Museum, Nijo Castle (built in 1603 as a residence of the first Tokugawa shogun), and the Kyoto Imperial Palace (the original palace, built in 794, was destroyed by fire; the present structures date from 1855). Kyoto is accessible by the famous Shinkansen ("bullet train") that runs from Tokyo to Fukuoka. The past and the present in Kyoto's landscape resemble loving sisters who are always in one another's thoughts, and often in one another's houses. The glorious Kyoto of long ago, imperial capital for almost eleven centuries, and the smithy in which religion, art, and politics have been forged by the hammer blows of history combine to form the unique cultural landscape of the city.

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Primary Characteristics

CHAPTER 2

THOUSANDS OF INDIVIDUAL SCENES in Japan meet the eye of the observer, but there are recurrent characteristics that represent the distinctive cultural impress of the Japanese people on their land. The landscape is a vivid portrayal of Japanese ideas and their value system of organizing space. Identification and comprehension of the characteristics of the Japanese landscape lends understanding of the occupance patterns and appreciation of the cultural refinements that have evolved on the physical base.

Seven of the characteristics of the Japanese landscape are fundamental:

1. Paucity of Idle Land
2. Scarcity of Level Land
3. Compactness
4. Meticulous Organization
5. Immaculateness
6. Interdigitation
7. Tiered Occupance

Nine secondary aspects (see Chapter 3) further define the Japanese landscape:

1. Gardens with Sculptured Plants
2. Flowers along the Thoroughfares
3. Lack of Lawns
4. Dearth of Roadside Shoulders
5. Profusion of Aerial Utility Lines
6. Pervasive Vinyl Plant Covers
7. Walled Urban Areas with Gates
8. Sacred Spaces
9. Waning of Traditional Architecture

Together, these sixteen components of the Japanese landscape are related to the: limited land, efforts to organize

and maximize the land, and endeavors to enhance the aesthetics of the land.

PAUCITY OF IDLE LAND

Idle land scarcely exists in Japan. The nation has little land for urban or industrial use, and areas for agriculture are extremely limited. As we've noted, nearly three-fourths of the nation is mountainous, and there are no extensive lowlands. The typical plain of Japan is small, depositional, associated with a river, and deltaic, with its outer end being along the sea and with beach ridges and dunes. Rivers, which are often torrents in the mountains, deposit their sediment as they debouch from mountain valleys. The largest of these lowlands in Japan is the Kanto Plain, on which Tokyo and Yokohama are located. It is only about 6,564 square miles in area—about the size of Connecticut but smaller than Catron County, New Mexico. Volcanic ash known as Kanto loam covers more than half of this plain; the remainder consists of alluvial areas and the deltas of the rivers Tonegawa, Arakawa, and Tamagawa. Yet on this single Kanto Plain is a population of 38 million—more than the entire population (29 million) of Canada! No wonder that land in Japan is used intensively, that idle land is virtually nonexistent, and that it is sometimes sold by the square yard (for as much as $225,000 per square yard in the Ginza area of central Tokyo).

Land prices for housing are highest in Tokyo, where they averaged $63,830 per square foot in 1990. The lowest land prices for housing in 1990 were in Shimane Prefecture, where they averaged $1,658 per square foot. The discrepancy between land prices in the Tokyo Metropolitan Area and those in other cities increased significantly in the second half of the 1980s. As a result it has become increasingly difficult for the average worker to buy a house in Tokyo, or even in suburbs more than ninety minutes' commuting time from the central city. Furthermore, serious problems are developing in outlying areas because facilities such as schools and waterworks are unable to cope with the population shifts out of Tokyo.

The differences in land prices are a result of regional imbalances in economic development and population distribution as well as the limited supply of land. The government has pursued a policy of population and industrial decentralization in order to balance the use of Japan's limited

land resources. To date, however, government has been unable to achieve substantial results.

Land is precious everywhere in Japan, more so in the cities than in the towns, more so in the towns than in the country, more so in old Japan than in Hokkaido, and more so on the limited areas of plain terrain. And nowhere is land more precious than in metropolitan Tokyo and Yokohama. Not only are the urban landscapes of the Tokyo-Yokohama metropolitan area devoid of idle land, they are also used so intensively that they are three-dimensional (FIGS. 21-24). The paucity of idle

21. A multilayered rail-transport landscape in the Arakawa-*ku* (ward) of Tokyo. Teaming commuter crowds converge on this terminal by foot, bicycle, motorbike, and automobile and then proceed on the ground or the upper level by fast passenger train. Japan has nearly 16,740 miles of railroads reaching all sections of the country. The Japan Railway operates about 12,535 miles of the total national system. It has four types of passenger trains: the Shinkansen, the Limited Express Trains, the Express Trains, and the local trains. The latter operate over generally shorter distances and serve the everyday travel needs of the people. In 1990 the nation's railways carried 21.9 billion passengers, most of whom were daily commuters. There simply is not enough space to accommodate such mass movement by automobile. Underneath this complex at Oji there is also a subway. In the densely populated urban areas, subways provide important feeder services to the above-ground railways because they require less space. As crowding increases, subways become a more important component of the urban transportation system.

22. View of the renowned Ginza district of Tokyo, looking toward the main intersection of the Chuo-*dori* (avenue) and Harumi-dori, where the famous round building (San-ai) and clock tower are located. The Ginza is the world's most expensive retail shopping and restaurant district. It has elegant department stores and specialty shops in an eight-section, rectangular area between Soto-dori and Showa-dori. This district's street space is crowded with pedestrians on Sundays when motor vehicles are excluded. The Ginza has long had the luster of money about it. It was the site of a mint from 1612 to 1800. Today a square foot of Ginza real estate may command more than $25,000. Opening of a railway between the international port of Yokohama and nearby Shimbashi in 1872 and the proximity of the Ginza to Tsukiji, where many foreigners resided, led to its swift assimilation of Western culture and its emergence as a fashion center. The Ginza district has a split personality: The daytime's sedate, eight-block main avenue, and the nighttime's tangle of tiny streets just off the main avenue with 1,600 night clubs and 1,500 restaurants, mostly in rather ramshackle buildings that sit on top-price land. The cabarets are frequented by customers with large personal fortunes or inexhaustible expense accounts.

23. A parking lot and overhead highway complex with restaurant and rest facilities in Yokohama. This complex illustrates one of Japan's critical space problems and a spectacular engineering design to minimize space allocations for automobiles. In terms of space demands, the automobile is a lavish consumer. Japan, with stringent areal limitations, can ill afford the space-consumption norms of nations in Western Europe and America. In 1990, for example, the number of passenger cars per thousand people was 576 in the United States, 487 in West Germany, 486 in Canada, 439 in Italy, 416 in France, 353 in the United Kingdom, and 262 in Japan. And, in 1995, there were only two cars in Japan for every truck. Automobile ownership in Japan is a luxury; only about one of every four persons owns a car. Other industrialized nations are increasingly experiencing traffic gridlock in their metropolitan centers and on their main thoroughfares. Paradoxically, it may be that these nations turn tomorrow to Japan to observe how to reduce right-of-way widths and other space consumption aspects of an automobile-oriented transportation system. Although the quality and capacity of Japanese highways have increased, it has been impossible to accommodate adequately the explosive increase in the number of automobiles (from 2 million in 1960 to 60 million in 1990), and traffic congestion and air pollution are national problems.

24. The Tsukiji fish market, Tokyo, backed by the tall buildings of the Ginza district. Thousands of retailers and wholesalers here handle seafood, which is received from fisheries throughout Japan. Fish imported from abroad at various ports are carried here by refrigerated trucks and rail cars or by boats. Tsukiji is one of the oldest of Tokyo's central wholesale markets. Located on reclaimed land at the edge of Tokyo Bay in Chuo Ward, Tsukiji handles 90 percent of the fish and marine products sold within the wholesaling system. Tsukiji moves about five million pounds of seafood every day—seven times as much as Paris's Rungis, the world's second largest wholesale market, and eleven times the volume of New York City's Fulton Fish Market, the largest fish market in North America. It amounted to $28 million of fish per day in 1995. While Tokyo slumbers, 60,000 people and a fleet of 32,000 vehicles work to satisfy the region's tens of millions of fish-eaters for a single day. This fifty-six-acre megamarket is a small community with a clear hierarchy. At the top are employees of the seven major first-tier wholesalers, who buy fish around the world and transport them to Tokyo. The big seven, in turn, auction off the daily catch to more than a thousand wholesalers, who cut, package, and deliver the goods to yet another tier of distributors or sometimes directly to stores or sushi bars. Tsukiji market's workday begins just before 3 A.M., when truck convoys begin to arrive, hauling fresh or frozen fish from around Japan and around the world. The workday ends at around 8:30 in the morning. Per capita fish and shellfish consumption in Japan is one of the highest in the world; it is approximately double the rate of consumption in the United States.

land prevails throughout rural areas as well. Empty lots in America's urban areas may exist for speculative reasons. In Japan, however, all such lots will be used now even though they are subject to higher economic use tomorrow. The Japanese do not zone out use, as in the United States; they zone in multiple types of use, and thus produce interdigitation on the landscape.

Okujo (roof tops) provide an example of creating functional space atop most large buildings in a country with paucity of space. They are much more than fire escapes or sundecks; they are extensions of the buildings and offer remarkably detailed microcosms of society and environment. Department stores may have a beer garden, kiddy rides, a bonsai exhibition, tennis and volleyball courts, and a Shinto shrine, all amid a "natural" setting of potted trees and shrubs. Even the least-appointed rooftop garden provides space for meditation, lunch, a cigarette, and a confidential chat. Aside from the rooftop space, the department store (*depaato*) is a mirror of the Japanese society. It is a vivid expression of prosperity, the cosmopolitanism, and the service quality that are very much part of the country. For the Japanese, the *depaato* is place for relaxation, a place to bring the whole family, a place where one gets friendly, quality service—anything but just another building in which to shop.

The polite bow and high-pitched *irasshaimase* (welcome) of the white-gloved girl greeting the *depaato* customers at the escalator and wiping dust from the hand railing with a dainty cloth, the carefully drilled alertness to detail by the employees, and the skill and beauty of the way they wrap packages reflect the immaculate organization of space and culture. A special floor provides shoppers with a row of restaurants to choose from, specializing in everything from Japanese or Chinese cuisine to German, Italian, or French food. There are strollers for the kids and even department stores with free nursery service. But the most impressive aspect is the assortment of cultural activities compressed in the relatively small depaato space. On the entertainment floor, tastefully designed exhibitions of temple treasures, ancient works of art, swords, pottery, woodblock prints, and Japanese and foreign paintings are displayed regularly, one after another. These mini art museums in *depaato* are either free of charge or require a small entrance fee, and the daily newspapers carry a complete listing of what shows are available at different department stores.

25. Terraced lower slopes of upland terrain devoted to tree crops, above the port of Misaki, western Shikoku. Paddy rice-culture is confined to the lowlands, but arable land area is extended by terracing the gentle adjacent slopes. The terraced slopes are used mainly for tree crops. Mulberry fields were formerly widespread in northern Honshu, but after World War II they were converted to orchards. The two most important tree crops in tonnage in 1990 in Japan were mandarin oranges (1,653,000 tons) and apples (1,053,000 tons). Other fruits include grapes, cherries, peaches, and pears. The northern limit of citrus is about 120 miles north of Tokyo, but the major concentration is in Wakayama and Shizuoka Prefectures and along the Inland Sea. Apple production is mainly in northern Honshu and in the Nagano Basin of the Central Highlands. The quality of apples produced in Japan is unsurpassed; each fruit is encased in a bag while it is maturing. Vineyards are prominent in the Kofu Basin of the Central Highlands, and production is increasing. At tourist orchards there, visitors pick their own fruit. Pears are the only important fruit grown on the wet lowlands. Presently, Japan supplies about 63 percent of its consumption of fruits; 37 percent is imported.

26. A residential section in Saijo, Ehime Prefecture, northern Shikoku. The land is extremely valuable, and each house is squeezed onto a lot that is about one-third the size of an analogous American home lot. There are no sidewalks, so the narrow streets accommodate pedestrians, bicycles, and motor vehicles. Children often play in the street and are respected by the vehicular traffic. Walkways and a few small plants occupy the narrow spaces between the homes. Shade trees and lawns are absent. The residents regularly sweep the streets in front of their homes, and the community is absolutely free of litter.

The keen sensitivity to cultural life that the Japanese *depaato* shows reflects the important contribution of this small space to society. One hopes that the changing economics of retailing will pass the *depaato* by and let it remain just as it is.

SCARCITY OF LEVEL LAND

Little of the land in Japan is level. Mind and land may interplay, and the Japanese are fully aware of their shortage of level land. Because only one-eighth of their territory is level or nearly so and only one-fourth of the nation has slopes of less than 15 degrees, the Japanese have devised many means of maximizing the occupance of their favorable terrain. This limited favorable terrain must contain most of their cities, industries, and agriculture. Moreover, because the favorable terrain is patchy, the many segments must be connected in order to be functionally effective.

So the farms are small but intensively worked. Adjacent slopes are terraced for arboriculture (FIG. 25). Residential areas are compacted (FIG. 26), lawns are eliminated, shade trees are

absent, sidewalks are rare, and streets are narrow. Industrial areas are finely organized, with space utilized to the maximum. The scarce segments of level land are finely interlaced with roadways and railways (FIG. 27).It is an impressive, coordinated, cultural achievement, a striking landscape manifestation of the interplay of culture and physical environment.

The scarcity of land has prompted Japanese to land reclamation—the transformation of shallow coastal waters into land for industrial development and, especially in recent years, for residential housing and urban development. The

27. Japan is well connected: it is the most tunnelized nation in the world. Here is the Tadeno Tunnel, 4,183 feet long, on the Chugoku Expressway in Yamaguchi Prefecture, west of Hiroshima. Tunnels save space and shorten the roadway and railway distances between the discontinuous areas of level land. In a few places, tunnels even give passage under the river courses on the deltaic plains. Most of the newer tunnels have white-walled interiors, which make headlight illumination more effective. Japan now has nearly 800 tunnels, including the thirty-three-mile-long submarine railway tunnel under Tsugaru Strait (Seikan Tunnel), opened in 1988, that connects Honshu and Hokkaido. Seikan Tunnel is the longest undersea tunnel in the world; its deepest point is 459 feet below sea level. Construction of limited-access, divided expressways, like the one shown here, began in the 1960s. There are thirty-six expressways in Japan, with a total length of more than 3,000 miles, linking Aomori in northern Honshu to Kagoshima in Kyushu. Construction of the projected 7,157-mile network is expected to be completed early in the twenty-first century. The nature of the terrain and the high concentration of housing, cultivated land, and factories along the routes make the cost of highway construction high in Japan relative to other countries, and expressway tolls are likewise correspondingly high.Expressways are used extensively. Of the total traffic in 1990, 75 percent consisted of passenger cars and 25 percent of other vehicles. The Japan Highway Public Corporation constructs and administers the nation's major toll roads and related facilities.

largest Japanese land-reclamation project in the pre-modern era was the early-seventeenth-century reclaiming of a vast land area out of Edo Bay (now Tokyo Bay) for the construction of Edo (Tokyo). The largest drainage reclamation project of this period was that of Kojima Bay in Okayama Prefecture. After 1950 substantial areas of land were secured for industry by dredge reclamation of coastal areas. Among the many projects under way or near completion in the early 1990s were the Tokyo Bay Frontier Project, a landfill project that includes plans for new urban centers on Ariake and Daiba sites in Tokyo Bay, Port Island, and Rokko Island, the artificial islands in Kobe Bay, and the Kansai International Airport, which was completed in 1994 on an artificial island in Osaka Bay.

This scarcity of level land, always an element in the minds of the Japanese, has nurtured an appreciation for quality rather than quantity, for compactness instead of grandiosity. Indeed, it has ramified through the cultural mind to an acute sensitivity to the principle of reductionism. So the Japanese have not only refined compactness on the landscape, but also they have become enamored with the bonsai, the delicate bowl on the dining table, the tiny flower print, the small garden representing the universe, and the ultimate poetic form represented by *haiku*.

The Japanese are indeed the genius loci for the small place, the guardians of the "inside." Thus, gardens are an inside world, and large parks are a landscape malediction. Thus the urban small plot is a refinement, but the overall pattern of the city is one of interdigitation of land use, (And, to the Occidental mind, that pattern of the Japanese city is a lack of zoning, an inchoate and incoherent urban design). The view of the observer is often the essence in the evolution of a cultural landscape.

COMPACTNESS

Japan is compact in form and compact in spirit. A populous country with a very limited area and much rugged land poses enormous problems of spatial organization. Japan is a striking example of this situation. Numerous writers have assumed that Japan's "compact culture" is an environmental response to the problem of too many people on too little land.

The Japanese landscape mirrors the cultural affinity for smallness, multiple land use, and compactness. The people of Japan adore the miniaturization of the bonsai tree, they scale

down space in their rock gardens, they are masters of multiple cropping and interculture, and they regard tiny flowers with reverence. But is this just an environmental response?

Japan has approximately quadrupled its population during the past 125 years. In 1870 Japan was not straining for space. Not only was the population density then far less than it is today, but, significantly, huge new types of space utilization were yet to come. Technological developments, such as the automobile, were beyond imagination even a century ago. In 1870, not only did the Japanese venerate their long-established miniature verse form known as *haiku*, but they also had the bonsai, their scaled-down garden, their folding fan, their box within a box, their anesama doll, their goza mat that could be folded, their *chabuda* (a folded table), and their tiny tea house.

One can conclude, therefore, that compactness as a Japanese cultural characteristic is not simply a modern adjustment to so many people on so few units of space. Be that as it may, compactness is a fundamental feature of the Japanese culture. It has been an intriguing aspect of the national mindset on the modern landscape. It is quite apparent that Hokkaido has much more space per person than do Honshu, Shikoku, and Kyushu. The people of Hokkaido have larger houses, more thoroughfare space, and less-crowded urban areas. Yet even in Hokkaido, the Japanese have contracted that space in much more refined and confined terms than Americans would have done in similar circumstances (FIG. 28).

The pressures of the Japanese people on place are greatest in the huge metropolitan agglomerations such as Nagoya, Osaka, or Tokyo. Those three metropolitan areas alone contain 43 percent of the national population. This astonishing concentration of human beings on such limited space has been possible only with an extraordinary sense of compactness. Huge apartment buildings (FIG. 29) stack living unit up on living unit, and each of these units has internal space refinements that overwhelm the American mind. Americans are familiar with large apartment complexes, but their individual units are appreciably larger, and they lack the internal niceties of confined space that typify the average Japanese apartment.

And where do the residents shop in Nagoya, Osaka, and Tokyo? Huge shopping cores have been constructed, but much

of the retailing remains in the immediate neighborhood. Typically, each shop operator is a specialty retailer. Shops are small, varied, and numerous; moreover, they are close by. You simply stroll from your dwelling to the rice store, fish shop, fruit store, or appliance shop (FIG. 30). There is no sidewalk, so you proceed on foot, with the narrow street as your passageway (FIG. 31). Pedestrians have no need for a parking space. Your home refrigerator is necessarily small, so your encounters with the shopkeeper and his family are frequent. The relationship is both commercial and social. Both you and the shopowner sleep in the same neighborhood, and you are members of the same community.

28. A rooftop tennis court in Hakodate, Hokkaido, illustrates the efficient use of space. Making the most of space dominates various aspects of the Japanese landscape and architecture. The key to saving space involves the three Cs; comfort, compactness, and convenience. Use of space in Japan is organized with easy living as the uppermost goal. A living room is opened up by creating level changes or joining it with the exterior. A staircase can double as a chest of drawers, a space beneath the floor can serve as a kitchen pantry or hiding place for a disappearing bed; an adjustable table can serve different purposes at different heights. There are also well-known "capsule hotels," in which the customer beds down inside a compartment no wider than a single bed and just tall enough to sit upright. These have spawned "capsule offices" as well as "capsule apartments" in the denser urban areas. People who use them consider the payoff in price and convenience worth the austerity.

Yatai (movable street stalls where food and drink are sold) are another expression of compactness in the landscape. At shrine or temple festivals, in public parks, in side streets near railway stations, in amusement centers and riversides, and in the alleys of densely populated quarters, *yatai* are common elements of the landscape.From these popular, wooden restaurants-on-wheels steaming-hot delicacies are served with sake or beer. A *yatai* is a two or four-wheeled handcart to which have been added the basic facilities required for serving food and drink. Handles for pulling it slide ingeniously into

29. A large apartment building in Arakawa-ku, Tokyo. Individual apartments are smaller—the average living space for a family of four is 700 square feet—and more compactly designed than are analogous units in America. Japanese cabinetry and appliances are designed for less space, and rooms are planned for multiple uses. In addition, this building has no provision for the parking of automobiles; the apartment occupants walk or use public transportation, a further reduction in the per capita use of building space. Thus this structure has about 40 percent less space per person than do comparable ones in America. Some urban authorities in the Western world are now suggesting similar solutions for the future of their jammed urban quarters and traffic-clogged streets. On the other hand, in 1988 the average space per dwelling unit in Japan was about two-thirds that of West Germany and half that of the United States. Multiunit apartment buildings increased to 52.8 percent of total housing constructed between 1986 and 1988. In large cities, multiunit dwellings have become the norm, although the majority of the people aspire to own their own homes. Of the total housing units, 62.3 percent were single-family units and 37.7 percent were multiple-unit dwellings. Of the single-family units, 80.8 percent were owned and 10.2 percent were rented; of the multiple-unit dwellings, 15.1 percent were owned and 79.4 percent were rented.

30. An open store front in the Arakawa-ku, one of twenty-three wards in Tokyo. Each shop may specialize in a single product—hardware, rice, fish, paper, cloth, liquor, eggs. The sliding or overhead doors on the store front, when opened, display the stock of wares to the street traffic. Note the absence of a sidewalk. The street accommodates pedestrians, bicycles, motor scooters, and children at play. Many rental shops and metal, furniture, leather, and confectionery industries are located in Arakawa-ku, which had a population of 184,809 in 1990.

31. Northern Tokyo (Kita-ku) on a day when merchandise is being retailed on the street. The merchants and the customers are residents of this immediate locale, so the occasion is both social and commercial. Shopowners usually live behind or above their stores. Such an urban area is indeed a community in which there is no distinct commercial core and residential zone.

the body framework when not in use. At the rear, storage compartments rise up to support a solid roof. In these are kept dishes, bottles, food ingredients, sauces, condiments, fuel, and other supplies. Chopsticks, skewers, knives, and cooking utensils are available in a drawer at the front and between the handle shafts. The table for customers is a waist-high wooden surface into which are recessed either a hot plate or a copper-lined receptacle for soup heated from beneath. The compact yatai stalls provide additional functional space and are dear

32. Automobiles parked offstreet in a mixed commercial-residential area of Tokyo, which has no onstreet parking. Most residents here have no cars. Those who do must contract for this costly privilege in a space-minimized accommodation such as this elevator-equipped, open, steel structure. There were 7,631,000 passenger cars in the Tokyo Metropolitan Area, including Kanagawa, Chiba, and Saitama Prefectures in 1989 which constituted 23.7 percent of the total passenger cars owned in the nation. In Chiba and Saitama Prefectures, especially, the number of cars per household amounted to 0.8, which was above the national average. The increase in automobile ownership has resulted in shortages of parking spaces. Hourly-rate parking lots are located in commercial areas near the central business district, whereas monthly-rated lots are located in the mixed residential-commercial areas surrounding them. Hourly rate lots tend to be located along back streets behind main streets. There is a relative paucity of underground lots due to their limited capacity and higher building costs. Monthly-rate parking lots are usually above ground. The capitalized land value of the site is an important factor in the location of urban parking lots.

to the hearts of the Japanese, despite changing food fashions and modern innovations.

Many Japanese do not own or use an automobile, but if they do they may park it in a multi-level, steel-girded structure with an elevator, which minimizes the amount of space needed (FIG. 32). The community school, too, is contained in a small space (FIG. 33). And if one plays golf, one may swing a club to one's heart's content in the confined space of a small, netted field (FIG. 34). Many gas stations in large cities have pumps

33. A neighborhood kindergarten school in Tokyo within a well-enclosed area. The open ground is hard surfaced for better use in this humid climate, and both interior and exterior space are fully utilized. A Japanese education requires six years at the elementary level, three years in the lower secondary school, and three years in the upper secondary school. Nine years of elementary and lower secondary school education is compulsory. Higher education comprises universities, junior colleges, and colleges of technology. In addition, there are vocational institutes and other special schools. The percentage of female students is increasing markedly, but still only about three of every eleven university students are women. Mothers participate in many kindergarten activities, taking time off work, if necessary. Japanese mothers are devoted to their children's care and education.

34. A golf club near Munakata, in Fukuoka Prefecture, Kyushu. Sports are very popular in Japan. The traditional ones—judo (a sport of self defense), kendo (a type of fencing), and sumo (a stylized form of wrestling)—require little space. However, the very popular imported sports of baseball (mainly a spectator event) and golf demand more area. Much of Japan's golfing is done on restricted, net-enclosed, driving ranges. Adjoining each range is a clubhouse. In 1988 there were approximately 640 golf courses in Japan, which were being used by some 12 million golfers.

35. A gasoline station on a side street leading to Meiji-dori in Kita-ku, Tokyo. Gasoline is dispensed to vehicles from pumps hanging down from the ceiling in order to conserve floor space.

hanging down from the ceiling—another example of space conservation (FIG. 35). All of this exemplifies compactness of landscape where space is at a premium. Statistically, this extreme compactness is manifested in a much higher population density figure in metropolitan Japan than that which characterizes large American cities.

Compactness and visual aesthetics, stressed in so many areas of Japanese landscape, are especially developed in *ekiben* (box lunches sold on trains and at railway stations), where limitations of space and cost require great ingenuity in the designing of containers and the arranging of food. The fact that the *ekiben* are served cold presents no particular problem, because food is often eaten cold; the freshness and quality of the ingredients that are of primary importance. *Ekiben* is generally made of produce from the local region. For Japanese travelers an *ekiben* is not just a meal but a way to establish a direct physical relationship with the area they happen to be passing through. The fish may have been caught in that bay over there, the greens picked on that mountain, the rice grown in that paddy field. In this sense, then, travelers are not restricted to merely watching the landscape passby—they can taste it, too.

METICULOUS ORGANIZATION

The landscapes of the nation are meticulously ordered. The Japanese have a keen sense for organizing the landscape in terms of both time and area. Long ago, farmers practiced multiple cropping—the growing of only one crop at a time on a plot of land, but following one crop after another in quick succession in order to obtain two or more crops per year from the same piece of land. This, basically, was a meticulous organization of time that affected the landscape seasonally; it was also an economic achievement. And, long ago, farmers practiced interculture—the growing of two or more crops at the same time on the same piece of land. This was particularly productive when fast-growing crops such as vegetables could be interplanted among slower-growing tree crops, another type of careful organization of time and space.

These practices of multiple cropping and interculture were refined types of landscape organization, particularly pertinent to an age when most of the population was rural. Today most of the population is urban, but the interdigitation of land use

is fundamentally a refinement of interculture applied to the urban age. Western scholars in the past have been transfixed with Japanese multiple cropping and interculture, but they have not related these concepts of meticulous organization to the modern urban scene.

The Japanese urban focus is on the detailed scene—the small urban area—and on its complex social or neighborhood viability. This necessitates an interculture or interdigitation of land use in order for the neighborhood to function. Informal neighborhood associations have played an important role in Japanese society at various times in its history. Goningumi (literally, five-man groups) were established throughout the country during the Edo Period (1615-1867). New neighborhood associations called chonaikai emerged after 1920. Small groups called tonarigumi (neighbor groups) were also established. Both tonarigumi and chonaikai were abolished by Occupation authorities after World War II, but unofficial associations have been revived in many areas. Neighborhood groups called kumi, consisting of up to fifteeen households bound together by residential proximity, function in the village. Together the

36. A commuter train station in an outlying section of Tokyo. Note the 217 bicycles. Commuting to work and commuting to school are daily problems faced by Japanese workers and students. Residential districts have spread to outlying suburbs. The average daily time used in commuting to work in 1990 was one hour and five minutes. The average weekday commuting time in the Tokyo area was one hour and nineteen minutes. Transportation fares are largely paid by employers: Companies with 1,000 or more employees pay more than 97 percent of their employees' commuting expenses, and even small businesses with thirty to ninety-nine employees pay 90 percent.

members of a kumi plant rice, prepare for festivals and ceremonies, handle funerals, build and repair houses, and often provide capital, credit, and, especially, labor for one another.

Americans, ever generous with space, have focused on the simplicity of broad urban areas, each set aside as an industrial, wholesale, retail, or residential zone. Their emphasis on the urban landscape is to have functional economic zones; they do not focus on the social concept of the neighborhood.

The meticulous organizational aspect of the Japanese as applied to the urban neighborhood is, of course, coupled with their cultural predilection for compactness and their fascination with reduction (FIGS. 36-39). This has not only been exemplified by the small Japanese rock garden, but also is related to Japanese accomplishments in the development of the small automobile, the small transistor, and the small computer.

Note Issa's *haiku*:

How beautiful!
Through a hole in the paper screen
I see the Milky Way.

37. An area adjacent to a commuter train station in an outlying section of Tokyo, with complex urban organization, including an overhead pedestrian walkway and overhead street parking for pigeons. The extension of the urban commuter system, including subways, has been a major accomplishment of the post-World War II period. Suburban residential patterns have been dependent on the spread of commuter railways. Land values for lots within walking distance of stations are correspondingly higher, and only recently have automobiles caused the kinds of changes found in suburban areas in the United States.

38. An area near a commuter train station in an outlying section of Tokyo. Note the close spacing of the buildings for small shops and residential use, the limited automobile parking, the narrow streets, and the absence of sidewalks. A subway connects with suburban surface rail networks to ease congestion at major stations and to improve convenience for passengers. In 1991, there were thirty-four subway lines totaling 325.3 miles operating in nine cities—Tokyo, Osaka, Nagoya, Kobe, Sapporo, Yokohama, Kyoto, Fukuoka, and Sendai. More than 8 million passengers a day travel on the twelve Tokyo lines (143 miles) and 3 million on the seven Osaka subway lines (61.5 miles).

39. Meticulously organized, closely spaced industrial structures in Shizuoka City, with a complex of eleven overhead pipelines. Since World War II the metal, machinery, motorcycle, automobile, shipbuilding, and oil-refining industries have become important to Japan.

40. An example of the immaculately organized, rectangular grid-pattern of fields developed under the *jori* system of land division (in which large square tracts of land were divided into thirty-six smaller squares called *tsubo,* each having an area of one square *cho;* one *cho* measures 358 feet on each side) in the Kinki region. In the background is one of the many facilities of the Kirin Beer company, which also produces soft drinks and food products. A member of the Mitsubishi group of companies, Kirin is an industry leader: Sales in 1990 totaled $10.5 billion, of which beer contributed 89 percent.

IMMACULATENESS

No modern nation is more immaculate than Japan. The Japanese are quite sensitive to environment in their immediate vicinity, but a bit indifferent to the outside world. The clean-tilled fields (FIG. 40), the trimmed terrace borders, the weed-free roadsides, the clean city streets (FIG. 41), the tidy ditches, the well-swept waterfronts (FIG. 42), the neat machine yards, the trim orchards, the uncluttered farmsteads, the clipped cadastral borders, the scrubbed storefronts (FIG. 43), the litter-free factory grounds, the debris-free homes both back and front, and the spic-and-span public areas (FIG. 44) set Japan far apart from the rubbish-laden lands and those with billboard mania. Americans, in particular, may well maintain that immaculateness is a fundamental characteristic of the Japanese landscape.

41. A clean, well-swept, narrow street in the Ikebukuro section of Tokyo. Ikebukuro has rapidly expanded into one of the largest subcenters of the Tokyo metropolis (the other two being Shinjuku and Shibuya). Note the mix of old and new buildings, the utility poles with overhead wires, and the absence of sidewalks.

42. Repairing a net along the clean waterfront of the fishing port of Nagahama, Ehime Prefecture, western Shikoku. Debris and refuse are completely absent.

43. A spotless storefront with merchandise neatly stacked alongside the street in the town of Onoe, twenty-four miles south of Aomori, northern Honshu.

44. A resident of Nagahama, Ehime Prefecture, western Shikoku, explaining with pride the town's small rock garden, encircled with flowers. An oasis of serenity in a crowded land, the Japanese garden invites contemplation and calms the soul. Re-creating nature in miniature has for centuries proved an irresistable challenge for the Japanese. Though women are typically housewives in this area of rural Japan, more of them are beginning to challenge tradition by taking advantage of opportunities unheard of a generation ago. It is a commonplace statement in Japan that the nation's hardworking housewives are its secret weapon, the unrecognized segment of the workforce that makes the country so successful, the backbone of the nation that enables its men to perform the economic miracle.

But there is a dark and somber side to Japan that is common to all industrial nations: Severe pollution. *Kogai,* or pollution, is menacing every major Japanese city. Motor vehicles and industries cast a yellow pall over all population centers. Dangerous quantities of toxic liquids and solids are released into the streams, lakes, bays, and surrounding seas. Eating fish now has an added element.

Pollution violates Japan's immaculate beauty (FIG. 45). Environmental pollution has accompanied industrialization since the Meiji Period (1868-1912). Among the earliest cases were the copper poisoning caused by drainage from the Ashio Copper Mine in Tochigi Prefecture, beginning as early as 1878, and the air pollution created by the Besshi Mine Field in Shikoku, first noticed in 1893. The subsequent development of the textile and paper and pulp industries led to the pollution of air and water, and the use of coal as the major fuel for industry in general contributed to widespread air pollution. The most resented and dramatic offenses have been against human health. The tragedy of Minamata, a seaside town facing the splendid islets off the western coast of Kyushu, captured the full-scale horror of environmental pollution. Although the scandals of *kogai* continue, they began to decline as far back as the 1970s. Japan has embarked on a farreaching, severe, and expensive cleaning program. Behind the government's anti-pollution effort lies a clear and massive public consensus reclaim and restore the immaculate character of the landscape.

45. *(opposite)* Huge chemical plants belching smoke are conspicuous along the Sumida River in Tokyo and along the Tokyo Bay coastal area. As elsewhere in the world, industrialization has generated many pollution-related problems. Environmental pollution in Japan was at its worst between 1965 and 1975. The pollution-control law of 1967 prescribes a number of antipollution measures to protect the environment and health.

Much in contrast to the United States, where labor is often willing to live and die with industrial poison rather than lose jobs, Japanese unions (knowing their employment to be guaranteed) often oppose pollution out of realization that such iniquity as mercury discharge in the long run injures the public, the unionists, and the industry itself. The railway workers' union (rather than management) decided to slow bullet trains from 110 to 62 miles per hour over a 6-mile stretch in Nagoya, where residents said the roar of trains at high speed created unbearable noise pollution. Major firms in Japan now put at least 10 percent of investment into pollution-prevention equipment or devices to maintain the immaculate, clean landscape.

The obsession with cleanliness in Japan has led to the appearance of a new line of products at stationery stores throughout the country: Pens and pencils whose barrels are impregnated with an antiseptic chemical to kill bacteria.

Pentel's germ-free pens, decorated with a medical-looking blue cross, are the most successful product. Since the germ-free writing instruments went on sale in 1994, a host of similar anti-bacterial items have been introduced, including stationery, origami paper, and bicycle handles. Hitachi has even developed an automated teller machine that irons and sanitizes the bills it dispenses.

The Japanese have always been into cleanliness. Proper appearance and form are important in Japanese society. Tidiness is also necessary for public health in a country with a population half that of the United States crammed into an area the size of California. Bathing is a ritual in Japan. Shoes are taken off before entering homes. People with colds wear face masks in the streets and subways, so as not to infect others. Money given as a wedding present must be clean and crisp, so that people actually iron bills before inserting them in ceremonial envelopes.

Karaoke bars, at which people sing before an audience to recorded background music, give loyal customers personal microphones that are stored behind the counter for use each time they come. Washing machines at some coin laundromats allow a customer, before inserting dirty clothes, to give the insides of the machine a quick shower to wash away any lingering traces of the last customer. Writers in Japanese popular magazines, even as they write about people who are squeamish about germs, also note the emergence of young women who do not care about cleanliness and rarely shower,

INTERDIGITATION

The Japanese landscape is remarkably interlaced, interrelated, and interdigitated. As we've noted most of the people are crowded on the nation's flattish land, which is only one-eighth of the entire country, an area smaller than Costa Rica. This means that most of the industrial, commercial, residential, and agricultural land use is concentrated on an extremely limited area. The Japanese response to this areal constriction has been to leave no land vacant even for a short term, and to have no exclusion of any major type of land use. This response was not parliamentarily promulgated. Rather, it evolved as the population increased and with the cultural progression of experience with this extraordinary shortfall of space.

Most of Japan's nearly flat terrain is in separate, deltaic plains and in a few small intermontane depressions. Each deltaic plain developed functionally into a regional community, but these communities were separated by mountainous topography. As modernization progressed and Japan moved from feudalism into a truly national state after 1868, social and economic challenges necessitated an effective linkage of these separated deltaic entities and small intermontane depressions. This was accomplished by developing an extraordinary system of interlaced railways and roadways, and by using many tunnels in the process.

The Japanese landscape that evolved on this nearly flat land has two major aspects. One is that it is interdigitated, and the other is that the interdigitation pattern is finely textured. What could have evolved, but did not, was areal specialization for each plain. For example, rice could have been grown mainly on some deltaic plains, vegetables planted on others, and manufacturing developed on still others. While it is true that some of these plains have more industrial development than do others, and that some have a degree of agricultural specialization, for the most part each of these plains is highly diversified, the pattern of diversification is one of interdigitation, and the interdigitation is one of small, individual parcels of land—that is, it is finely textured. This pattern seems almost endlessly recurrent.

An illustration of this is the Saijo area of Ehime Prefecture, in northern Shikoku. Saijo, on the Inland Sea, developed as a castle town in Edo Period. Electrical machinery, paper making, textile, and dyeing industries utilize its abundant underground water supply. *Nori,* a seaweed, is cultivated in the coastal area. In this area, a single vista includes both field-land and hot-house agriculture, field-crop diversification, industrial and warehouse establishments, and a profusion of roadways and utility lines, plus retailing, recreational, and educational facilities (FIG. 46). This segment is divided not into large parcels but into small ones. What does this small parcelization denote?

Japan is mainly a nation of mini-sized units. Most of the farms are nearly garden-sized by American standards. Most of the retailing is done in small shops. Japan does have huge apartment structures, but most of the people live in small houses or in upstairs units of shops or other commercial

46. An interdigitated landscape on nearly level land in the Saijo area of Ehime Prefecture, northern Shikoku. Note the two vinyl greenhouses in the lower left, a factory in the lower right, the houses and some shops in the middle ground on the left, and the agricultural fields in the middle ground on the right. In the back are houses, a school, and a warehouse. To Americans, this land may seem unzoned. The Japanese regard its interdigitation as being well integrated. Residents here do know their neighbors and the sense of community is strong.

establishments. Great corporations such as Sony and Nissan flourish, but more than two-thirds of all Japanese industrial workers are in companies with fewer than 300 employees. More than half of all Japanese factories have fewer than ten employees. And Japan, on a per capita basis, has almost twice as many wholesalers and retailers as does the United States.

The unusually large number of small retailers in Japan compared with the numbers in other countries is supported by a number of economic factors, including the preference of housewives for shopping in their neighborhoods (especially for everyday goods such as fresh foods), the parking problem and cost of using automobiles in crowded urban areas, the absence of inexpensive land sites in suburban areas in which

to build large shopping centers, and the Japanese preference for the proximity and individualized service that small, neighborhood stores can provide.

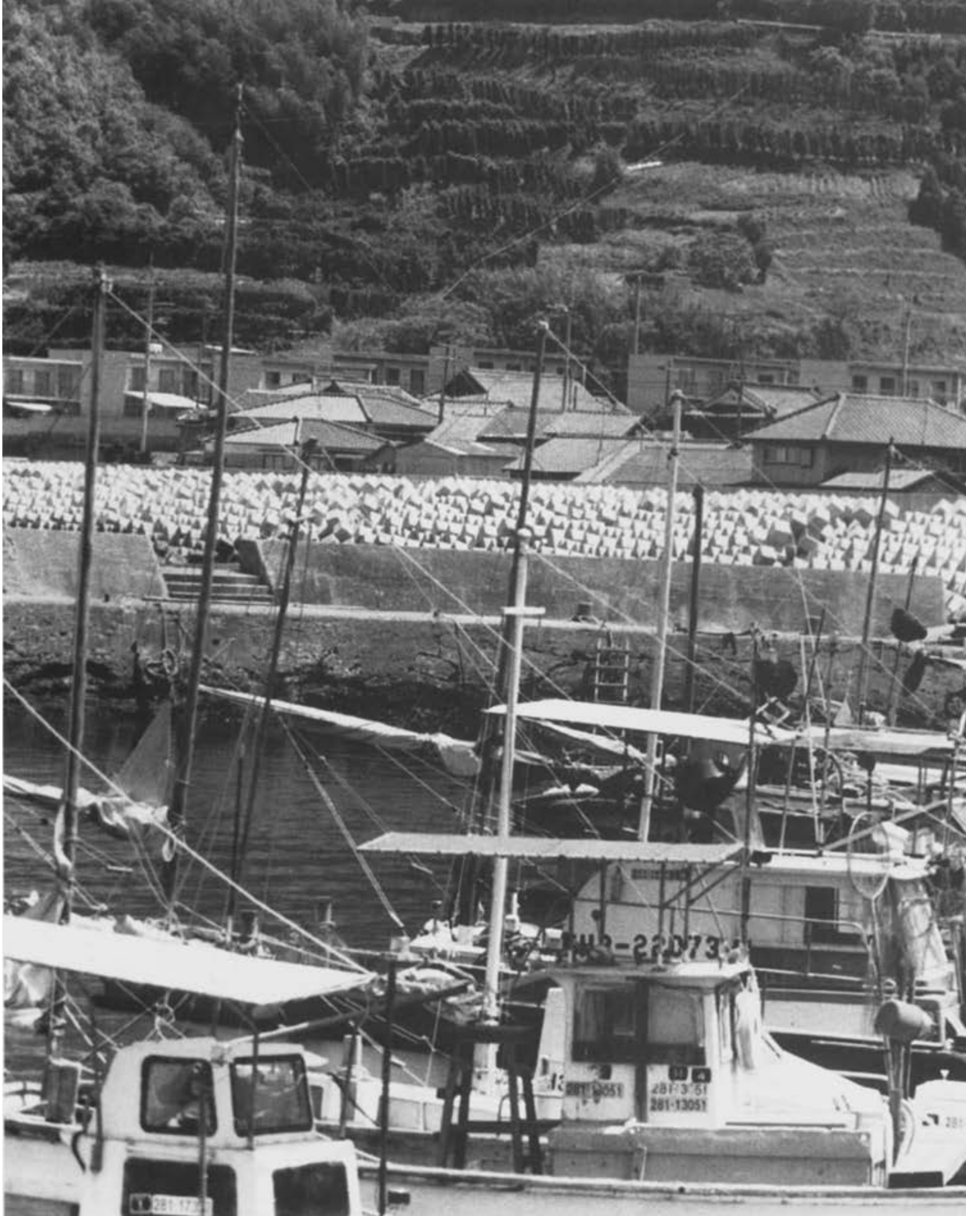
The landscape reflects this preponderance of mini-sized units, or fine texturization. A striking aspect of the landscape is how each type of land use is interdigitated with other types and that there is an absence of unused land awaiting speculative development. Land speculation does exist, but Japanese land is remarkably expensive, and the speculative land is invariably already in some type of interim land use. For example, the Tokyo metropolitan region, home to more than 31 million people, includes 88,000 acres of farmland held in speculation for building. Even in central Tokyo, farm plots take up roughly 4,500 acres. It is common to see weekend farmers tending rows of cabbages or vines of table grapes amid towering apartment blocks and industrial structures. Land in agricultural use, even in urban areas, is taxed at a rate of about a tenth that of regular land. The city farmers retain their land use in the expectation that the price of land will rise as pressure grows for more space for housing.

TIERED OCCUPANCE

The land of Japan is set in tiers. Its occupance has expanded up the lower slopes of the adjacent intensively used lowlands, and the character of this occupance has resulted in a tiered landscape. The tiered pattern is a series of land-use belts. By the seaside are marine vessels and associated facilities. These are backed by commercial establishments and residential structures. Still farther away from the waterfront are paddy fields and rural residences, and then dry-land agriculture on the terraced foothills. This belted, specialized land-use system is one of the fundamental characteristics of the Japanese landscape. How did it develop?

In a nutshell the role of rice in Japanese life and the shift from a dominantly rural to a dominantly urban society were the basic elements in the development of a tiered land occupance. Let us explain.

In 1920 more than half of Japan's population was rural and half of the cultivated land was in rice. The areas of dense population were coincident with the alluvial lowlands. This was mainly the consequence of the Japanese farmers' dependence on rice culture. Because "spade agriculture" prevailed then, farms were necessarily small and were



47. A tiered landscape at Nagahama, Ehime Prefecture, western Shikoku: fishing vessels in the harbor, with compactly grouped houses and shops along the waterfront, backed by terraced and cultivated slopes. Like most areas in Japan, human occupance here is more vertical than horizontal, with a narrow border of coastal land rising to steep mountain slopes. Narrow roads cling precariously to steep hillsides, on which people cultivate their crops in beautifully terraced fields. Below, the tile roofs of the settlement wink gunmetal bright in the sun, bordering the waterfront like a narrow strip of polished gravel washed ashore by the tide. The waterfront functions as the main street, launching ramp, and freight terminal. Fruits and seafood are shipped from here to markets on Honshu, twenty miles away.

concentrated on irrigated alluvial areas. So two major field classes prevailed: Irrigated lowlands and uplands. The former were the more productive, required more labor, and contained more homesteads. The uplands were mainly unirrigated and were in tree crops, with some interculture of vegetables and dry-land cereals.

Before World War II it was believed that farm mechanization could only mean large machines on large farms. But the Japanese devised very small and efficient agricultural implements, and this occurred as the rural-to-urban migration became significant, as off-farm employment arose, and as farm workers aged. So two major tiers were extant in the period of rural population dominance, which persisted through the transition into an urban-dominated society.

Today less than 10 percent of the labor force is in agriculture, and by 1975 the metropolitan areas of Tokyo, Osaka, and Nagoya had 40 percent of the nation's population. It is significant that most of Japan's population in the rural-dominated 1920s was on the lowlands and that in the urban-dominated 1990s it remains on the lowlands. Thus, through this period of time, two main tiers have persisted, one heavily and compactly populated, the other one not. The tiered occupance today has been refined further (FIGS. 47-49).

48. Highway tunnel and terraced slopes with interculture in Ehime Prefecture, western Shikoku. The terrain of Ehime is predominantly mountainous. The warm climate is suitable for the cultivation of fruit, and the prefecture leads the nation in this category, especially in production of mandarin oranges and other citrus fruits.

49. Terraced diluvial (older and somewhat higher alluvial) fields on the inner lowland of Ehime Prefecture, western Shikoku, with houses at the edge of the lowland, backed by terraced slopes with interculture. The island has little level land; gardens and citrus groves are carved out of the mountain sides in terraced plots known as *dandanbatake* ("step-step fields").

Secondary Characteristics

CHAPTER 3

THE NINE SECONDARY CHARACTERISTICS of the Japanese landscape are refinements of the immediate environment. These are the characteristics that affect individuals so directly in daily life in every region throughout the nation. They define the specific and detailed nature of the locale, whereas the primary characteristics pertain to the more generalized traits of the national scene.

GARDENS WITH SCULPTURED PLANTS

Japan's public gardens are widely recognized and admired by both Japanese and foreign visitors, but home gardens are the omnipresent and highly distinctive landscape feature of the nation. Public gardens are the idolized representations of the aesthetic concept; home gardens represent economic and spatial compromises with this idolized representation.

The salient aspects of public gardens are that they represent a scaling down of idolized nature, where spacious panoramas are compressed into a controlled scale; they are a subjugation of nature; they present nature trimmed and form is controlled; and they include a meandering path along which are inspiring new perspectives. At their best, they are gardens of meditation (FIG. 50).

The typical home garden is a very confined space, separated from the road or street by a masonry enclosure (FIG. 51). It is arranged with meticulous attention to perspectives gained through the fenestration of the home. The perspective, also, is to reduce space, to control form by sculpturing or by contorted trimming of the plants. It is a careful endeavor to enhance the aesthetics of the home environment (FIG. 52). Moreover, it is very private. In some areas lacking space for home garden, people plant trees and shrubs, often in pots, in the narrow strip of space in front of their home (FIG. 53).

50. Pond and garden on Toji Temple grounds in Kyoto. Founded in A.D. 796 by imperial order, Toji is now the head temple of the Toji branch of the Shingon sect of Buddhism. After the capital was moved to Kyoto in 794, temples were founded for the protection of the city. This temple garden has three ponds and Japan's tallest pagoda, 184 feet high, which was built in 1644.

51. Home and garden in the town of Onoe, east of Hirosaki, Aomori Prefecture, Tohoku region of northern Honshu. Note the smallness of the lot, the masonry enclosure, and the controlled plant forms. Also, note the large windows, which give expanded and enriched visual space from the interior. A traditional Japanese garden is designed to be in harmony with its surroundings. The underlying characteristics of most Japanese folk gardens is fidelity and order to the forms of rock, plants, and trees.

52. Note the rock in the lower right and the sculptured plants in the private home garden in Ehime Prefecture, western Shikoku. Observe, too, that flowers are missing here and in FIGS. 50 AND 51. In Japan, flowers are chiefly for display along roads and streets and for arranging as an art form in the house, not for the garden.

53. Plants and shrubs in front of homes in the Higashi Ikebukuro district of Tokyo. Here homeowners do not have space for a garden, but they use the narrow stripof space in front to grow plants and shrubs, often in pots.

The idolized Japanese garden emphasizes nature controlled by the human hand, whereas the English garden is one of studied naturalness and the French garden represents a rational order with a geometric aspect that is imposed on disorderly nature. A Japanese home garden is an attempt to achieve living perfection on limited space. It consists of three essential elements: Rocks, water, and plants. The rocks are the bones of the garden, the water is the blood coursing through its veins, and the plants are the flesh to give it form. These elements alone are sufficient. Flowers are not an essential component. The compositional beauty derives from blending plants, water, and rock. The development and interplay of these elements determine the perfection. The home garden expresses the idea of living in harmony with nature, rather than conquering it. All the elements in a garden, including the house, form an integral part of the unified whole.

To achieve the desired effect, each element is precisely located. In these small home gardens one can appreciate the beauty of nature despite such a density of humanity. Along the west coast of Japan and in areas with heavy snowfall, in winter the garden takes on a different aspect. Every tree branch is tied up to a central pole to help it to bear the weight of the heavy snowfalls. Surprisingly, the garden loses little of its charm under these circumstances. So much of its beauty depends on the layout of individual elements that it can still be appreciated despite a lack of foliage and the presence of rope.

To the Western way of thinking, the intellectualization of nature represented in Japanese home gardens is an anathema. In the West people worry that progress is not leaving enough wilderness, and there is an attempt to sanitize nature and tame it for public parks and gardens.Rationalizing nature to the degree observed in home gardens in front of folk houses is a particularly Japanese phenomenon. The vernacular gardens represent one of the most visual aspects of Japanese culture and landscape, reminding observers of the value system underlying the subtle use of space and methods of scenic composition.

A love of natural form and an eagerness to express it ideally have been primary motives in the development of traditional sculptured plants in home gardens. By pruning branches, pinching off new growth, and wiring the branches and trunk, plants are nurtured into the desired shape. It is important that plants produce the artistic effect desired in

the garden. For homeowners, sculptured plants not only duplicate nature but also expresses personal aesthetics or sensibility by artistic transmutation. They may suggest a scene from nature or even a grotesque character, but in all cases they must appear as a wonder of nature. Evergreens are the most popular sculptured plants. Pines, which symbolize eternity, are especially popular, particularly the fine-needled variety.

In residences of Zen monks, gardens are designed not so much to produce aesthetic pleasure as to promote a meditative calm. Contemplation of a person's place in the cosmos plays an essential part in Zen, a Buddhist sect that became Japan's most influential religion (or philosophy) during the thirteenth century. Accordingly, the gardens in which Zen priests and laymen studied during meditation were symbolic miniature versions of the world of nature. The profundity of nature could best be rendered, Zen gardeners thought, not by ornate and brightly colored plants but by evergreens, dark mosses, and rustic paths, or by a stark design of black rocks on white sand. Such gardens, they believed, preserved some of the mystery and the spirit of a lesson taught by the Buddha, who, when asked to define ultimate reality, silently pointed to a flower.

Another type of vernacular garden is found around teahouses. During the fifteenth and sixteenth centuries Japan was constantly torn by internal wars. The men, however, found refuge from strife in the tea ceremony, a ritual of elegant simplicity that developed in this period. Essentially the tea ceremony was a gathering of friends in a small house, set in a secluded garden; the purpose in meeting was to drink tea and discuss a work of art—often a utensil used in making and serving the tea.

Teahouse gardens are laid out according to a prescribed plan. An entrance path leads to the outer garden and a small shelter where guests gather. After the tea master arrives, the guests proceed to an inner garden. There they perform ritual purification by rinsing their hands and mouth before passing through the low door of the teahouse. Every detail of the teahouse garden must have the correct natural charm. The plantings are as woods-like as possible: No flowers, no majestic views, nothing to startle visitors. The growth is seemingly random and uncontrolled (although, of course, it is carefully planned and tended). The moss that carpets the ground, and the inset stepping stones, are lightly sprinkled with wa-

ter to capture the dewy coolness of morning or the freshness that follows a rainfall.

The entrance to the tea garden, a space designed for entry, takes visitors not just physically from the street to the tearoom, but through a spiritual transition as well. More correctly called *roji,* meaning "dewy path," it offers an environment carefully designed to initiate the kind of mental repose required for the tea ceremony. It compresses the emotional content of a journey from the crowded city to a secluded place, in the space between the road and the teahouse.

A series of landmarks and thresholds are designed into a *roji.* At each of these points one is encouraged to release the concerns of daily life and progressively enter a "tea" state of mind. The first such point is a roofed gate through a high wall that clearly separates the *roji* from the outer world. Entering this gate represents the first step out of the complexity of the outer world and into the "calm of tea." Unless the property is very small, a second, middle gate (*chumon*) divides the inner and outer *roji.* Passage through the middle gate symbolizes entry into an even deeper state of simplicity. A third threshold is a low stone laver called a *tsukubai.* Here the mouth and hands are washed. The purpose is not hygiene so much as a simple, fresh feeling and sense of spiritual purification. The last threshold is the entry to the tearoom itself, a tiny door at which all must bow to enter, teaching that everyone is equally humble within. Thus, by cleverly controlling the environment, the *roji* becomes a landscape of entry and a cultural symbol in the Japanese landscape.

FLOWERS ALONG THOROUGHFARES

Japan's public space is severely limited, but it is embellished with flowers along the thoroughfares. The role of flowers in the Japanese culture is distinct from that in the United States. The Japanese place flower arranging (*ikebana*) much higher in their repertoire of arts. To Americans, a bouquet of flowers is really special; to the Japanese, the delight is in the arrangement of a single blossom. Instead of bunching together masses of blossoms and balancing them with greenery in a vase, the Japanese avoid balance and symmetry. They treat each floral splendor as one to be separately admired—one branch, one color, one luxury of line. That is in the realm of aesthetics.

Then there is the humdrum world, the one in which we all must live. Americans emphasize the sameness of broad, grass-bordered roadways, perhaps interrupted occasionally with deciduous or evergreen trees but rarely with planted flowers. In Japan thousands flock to see a special variety of plum tree in bloom. And the Japanese have made a national festival out of cherry-blossom time. Cherry-blossom viewings stir deep emotions every spring. Westerners are prone to think that if they have seen one cherry blossom they have seen them all. But Japanese notice differences between orchards, and between trees in orchards, and between blossoms on trees, and between the petals of the blossoms— differences attributed to the stoniness of the soil or the strength of the sunshine or the chilliness of the breeze—and these differences give them billions of petals over which to exclaim.

In 1909 the city of Tokyo presented cherry trees to Washington, D.C.; they grace the tidal basin where people flock every spring to experience the beauty. In Kobe, a wide boulevard called Flower Road, which extends southward from Sannomiya Station, is decorated with flowers of the season. It is, indeed, common to see beds of flowers planted by the roadside (FIG. 54), and sometimes even along a city street (FIG. 55), where space is precious and so limited.

54. Flower bed along a road high above Lake Toya, eighty miles north of Hakodate, Hokkaido. This sector of Hokkaido, southwest of the Ishikari Plain, is in a region studded with volcanoes, calderas, and hot springs. Despite the region's great natural beauty, including fine forests, the Japanese cultural touch is an added aesthetic element along roadways and in urban settlements.

55. Street scene in Iyo-shi, near Matsuyama, northwestern Shikoku. Note the profusion of aerial utility lines, the narrow streets without automobile parking spaces, and the buildings close to the curbside. Yet space is found for planted flowers.

Three blocks west of Tokyo Station lies the moat of the Imperial Palace, with huge stones laid in a herringbone pattern. Along this waterfront with rows of flowers and trees runs an eight-lane boulevard, back of which stand massive office buildings. These rectangular buildings, plus ones on the streets between the moat and the station, make up Marunouchi district, Tokyo's headquarters for banks and corporations. It was here in Edo times that feudal lords from the provinces built their obligatory mansions, to house their hostage families. The Emperor Meiji turned the area over to Baron Iwasaki, founder of the Mitsubishi *zaibatsu* (industrial and financial combine), to develop. In this sixty-acre district, one of the most valuable swatches of land in the world, narrow strips planted with azaleas and carnations interspersed with intriguing small, modern sculptures line the middle streets. At noon the nearly half a million people who work here, among them hundreds of Japan's highest business executives, walk past the blooming flowers.

56. Houses in Tomakomai, Hokkaido. The climate here is analogous to that of New England. The roadside garages, which are connected to the houses, obviate snow removal from the private driveways during the winter. Note, also, the absence of lawns. Originally settled by colonist militia (Tondenhei) in the late nineteenth century, Tomakomai is a prosperous industrial city of more than 160,000. It is the leading producer of paper in Japan. Oil refineries and aluminum and lumber plants are also located here.

LACK OF LAWNS

Americans, on visiting Japan, are quick to observe the lack of lawns. Lawns are absent even in the towns of Hokkaido, where urban space is the least crowded (FIG. 56). Lawns are lacking on farmsteads throughout the nation (FIG. 57). And there is seemingly no need for lawns in the rest of Japan (FIG. 58), even in the cemeteries or neighborhood Buddhist temples (FIGS. 59 AND 60). The landscape certainly reveals that the Japanese do not have an obsession for lawns.

Americans are baffled as to why the Japanese are without grass. Their cultural standards are the ultimate of assumed rationality. Thus Americans are unmindful that in most of the nation's regions imported types of grass are planted, that lawns occupy more land than any single crop, that the 26 million acres of turf grass is an area larger than the state of Indiana, that most of the water in the cities in the West is used for watering lawns, that 5 percent of the nation's petrolum use is devoted to mowing, that air and noise pollution are a

57. A rural homestead in Akita Prefecture, northern Honshu. The house is close to the road, so there is no space for a front lawn. Other space near the house is occupied by a vinyl-covered greenhouse and an intensively cultivated garden. The economy of Akita Prefecture has traditionally been dominated by agriculture, especially rice. Sake brewing is active as well. Transportation difficulties caused by mountainous terrain and snowy winters have retarded industrial development and have led to an outflow of population to urban centers such as Tokyo and Yokohama.

59. *(opposite page)* Somei Cemetery, in the Toshima-ku of Tokyo. Dense residential-commercial land surrounds this quiet island of stone memorials with surfaced walks amid trees and shrubs, but without even a patch of grass. When a person dies, a hearse with a roof like that of a pagoda and with black-lacquered sides, fitted with cut-glass windows and covered with ornate gold bas-reliefs, carries the body not to a cemetery but to a crematory. The cannister of ashes is then placed under a tombstone that stands side by side with others, like chessmen. In Japan space has always been too limited to give each person six feet of earth.

58. Closely spaced houses in Nagahama, Ehime Prefecture, Shikoku. With little flat land, the houses are placed almost wall to wall. The main open space is for the occasional torrential runoff of stream flow from the mountains.

60. Entrance to a neighborhood Buddhist temple in the Nishi-ogu section of Arakawa-ku, Tokyo. Note the hearse in front of the entrance. About 90 percent of the funerals in Japan are conducted according to Buddhist rites. In this older section of Tokyo a mix of older homes and newer apartment buildings surrounds the local temples.

consequence of such widespread mowing, that urban householders use far more chemicals than do farmers, that few of the pesticides used on lawns have been tested for long-term effects on people, that this compelling preoccupation with lawns is not an American custom but an offshoot from England, that Americans expend most of their lawn time just cutting the growth that was stimulated with fertilizers, and that the common lawn scene in the nation country is working on lawns, not enjoying them!

So Americans, after visiting Japan, might well be expected to reduce the monotonous expanse of lawn grass by adding

shrubs and rocks, by using more xerophytic plants in their water-thirsty regions, by decreasing their use of chemicals, by maneuvering some time away from lawn work and into lawn leisure, and by asking if our departed members need grass in their cemeteries. More travel to Japan might induce Americans to save much energy, chemicals, and space. But this could devastate employment in America's mowing-machine factories and not gain a consensus from the nation's dearly departed. For now, however, most Americans agree with Senator John James Ingalls's famous pronouncement in 1872 that "grass is the forgiveness of nature—her constant benediction."

DEARTH OF ROADSIDE SHOULDERS

The Japanese concept of roads is that they are used for movement of goods and people. Roadside shoulders do not have this function, so they are rare. Japan's road system reflects the nation's frugality and its limited space. Americans—the world's biggest spenders and borrowers, and custodians of a vast area for population—are astounded by the space-saving and money-saving aspects of Japan's road system.

Japan does have added costs in the development of its road system because it has widely scattered and small, flatland settlement areas that are separated by mountainous terrain. Most of Japan's areas of dense settlement are along the coast, but the costs of constructing highways there, given the irregular coastlines and rugged headlands, are formidable. Japan's road system is low in quantity and quality compared with those of other leading industrialized nations.

Japan's national expressways are paved, as are almost all of the general national highways and prefectural roads. But the "other" roads, of which one-third are unpaved, constitute 84 percent of the total road mileage. And throughout Japan all highways and byways are squeezed into incredibly narrow right-of-ways by the standards of Western Europe and North America (FIGS. 61-63).

Japan relies on its railways and its coastal shipping more than do France, Italy, the United Kingdom, and the United States among other countries.. And Japan has far fewer cars per 1,000 population than does any other leading industrialized nation. Could this be a consequence of its frugality, its physical geography, or both?

61. A prefectural road, with no shoulders, in the northwestern part of the Kanto Plain, Honshu—an area designed before the advent of automobiles. This road is a thoroughfare for pedestrians, bicyclists and motorists. Japan had 80,173 miles of prefectural roads and 583,744 miles of local roads in 1991. Virtually all roads are paved. The total expenditure in 1990 on roads was $65.2 billion or approximately 3.2 percent of the gross national product.

62. A field-service lane, without shoulders for passing, amid rice paddies near the base of Mount Iwaki, twenty-four miles southwest of Aomori, Honshu. The dikes between the paddies, a foot or two wide and about a foot high, serve as footpaths. Mount Iwaki, 5,331 feet high, is a conical, composite volcano in the Chokai andesite volcanic zone. Also called Tsugaru Fuji, Mount Iwaki is part of Tsugaru Quasi-National Park.

Japan's space limitations and its frugality are reflected in the almost complete absence of roadside shoulders, even on the national expressways. This is a bane to landscape photographers or those with automotive problems. Japan's admonition about that, however, is simple: Forego roadside photography and avoid car trouble.

The use of highways in Japan is rapidly expanding. The number of passenger cars has more than doubled during the past two decades. Bus and truck traffic, however, has increased far less.

Aomori, on the northern tip of Honshu, is linked by a network of expressways with Kagoshima at the southern end of Kyushu, and the network continues to grow throughout the archipelago. One strikingly modern feature of Japan's expressways are rest stations designed as interludes in highway travel. Service areas—complete with parking lots, restaurants, shops, gas stations, and rest rooms—are located about every thirty miles. Some rest stations provide faxing and postal ser-

63. An affluent rural homestead without even side parking for visitors, near Ichinomiya, twenty-eight miles east of Kumamoto, central Kyushu. Long overshadowed by its big-brother island to the north, Kyushu is striving to lure high-tech industry from Honshu and foreign countries. Kyushu now hustles for a larger piece of the Pacific Rim's economic pie. Ready for the future, it promotes its proximity to markets in South Korea, China, and Southeast Asia. The resulting prosperity and affluence are reflected in the landscape. Kyushu's most enduring challenge is what the Japanese call *kaso*—or depopulation. A large percentage of the island's high-school graduates still leave their native towns and villages to work or study off the island.

vice, nursing rooms, bathing facilities (and hot-spring baths on the Chuo Expressway), and vending machines.

Nowhere else in the world are automatic vending machines so widespread as in Japan. From the bustling urban intersections to the most bucolic rural lane, vending machines are common, dispensing nearly all of life's necessities and many of its frills. In addition to the usual soft drinks and cigarettes, Japan's colorfully turned-out machines dispense jewelry, fresh flowers, frozen beef, rice, whiskey, beer, hamburgers, videocassettes, throwaway cameras, underwear, and batteries (FIG. 64). Japan has about 5.4 million of these machines, almost the same number as does the United States, but for half the population. And each Japanese machine produces on average twice the sales volume as its American counterpart. A total of more than $45 billion in goods was sold through Japanese vending machines in 1990. Thus, convenience is challenging the tradition of dealing with neighborhood shopkeepers. The popularity of vending machines shows how Japanese are reconciling their age-old devotion to elaborate courtesies with their increasingly harried lives. In a nation where every social encounter—at work, at home, at the store—is a still governed by obligation and ritual, many people prefer to drop coins into a machine than to deal with a person.

64. Vending machines along a street in central Tokyo. These machines sell beer, wine, whiskey, and other beverages made by Suntory, the oldest and largest distiller of whiskey in Japan. Founded in 1899, it is one of the world's top three whiskey producers. Old Suntory (sold in vending machines and stores in Japan), with annual sales of $6 billion in 1990, is the world's best-selling whiskey.

With high rents and with labor in short supply, vending machines free up shelf space and run twenty-four hours a day. Along traditional *shotengai,* or shopping streets, small merchants have a bank of vending machines in front of their shops. Japanese vending machines also benefit from the country's electronic expertise. Among the latest innovations are solar machines to reduce electricity use; machines that use small elevators to deliver items at chest height; and machines fitted with point-of-sale computers that automatically radio headquarters with details on sales, inventories, and whether the mechanisms are functioning properly. Vending machines have become an ubiquitous element in the roadside landscape.

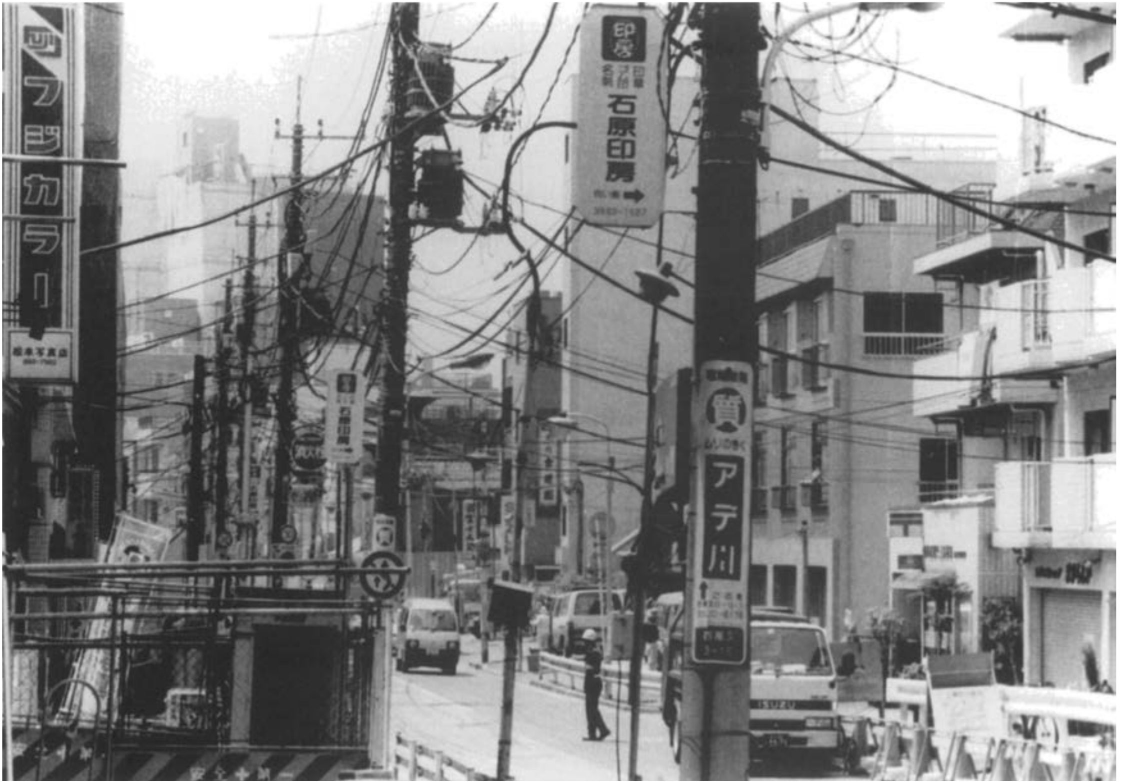
PROFUSION OF AERIAL UTILITY LINES

The utility lines of Japan have high visibility, and their pattern is extraordinarily complex. Japan certainly does not go underground with them. As in much of the United States, landscape photographers search diligently in urban settings for spots uncluttered by distracting wires and poles. The complexity of the pattern, moreover, is compounded by lines at many levels and branching out at many angles from transmission poles along a single street (FIGS. 65-67). Indeed, Japan's system evolved with one more wire or one more cable for every new one needed. Lines were not combined, nor were they buried. The consequence in the urban settings has been an amazing and confusing profusion of aerial utility lines.

Two main reasons for the profusion have been propounded: One pertains to Japan's legendary frugality; the other to the nation's "inside" cultural perspective. After all, the system of aerial lines never was organized; it just grew. Modernizing it now would be expensive. Also, when one goes inside, one does leave the outside.

The "outside" perspective ranks high in the Occidental world, so its cities favor broad boulevards, grand traffic circles, and heroic monuments and statues. One of the renowned examples of exterior Occidental display is the ChampsÉlysées of Paris, leading from the Place de la Concorde to the árc de Triomphe, celebrated for its impressive breadth, its tree-lined beauty, and the fountain display at its center. St. Peter's Church in Rome boasts a majestic elliptical piazza bounded by quadruple colonnades and a monumental avenue leading to the piazza. Vienna has its imposing Ringstrasse, a magnificent,

65. A street in Tokyo with jumbled utility lines, crowded motor lanes, and a confusing sidewalk pattern. Private automobiles have been one of the fastest-growing segments of domestic passenger transportation since the 1960s due to three factors: rapid growth of income, to a point where families could afford automobiles; development of a automotive industry geared to the specific needs of the domestic market (small vehicles with right-hand drive); and improvement of roads. Despite the popularity of automobile ownership, problems such as traffic congestion, the lack of parking, and the high cost of fuel continue to restrict the day-to-day use of private vehicles.



66. A street in a residential-commercial sector of Tokyo with narrow vehicular lanes, difficult pedestrian walkways, and an absolute maze of transmission wires and cables. Today's Tokyo developed from the humble fishing village of Edo in 1590. With vertical reach for living space, sunshine rights are a burning issue, and developers are required to compensate those overshadowed by their buildings. The city's open space totals only 10 percent of its area.

67. An industrial complex in Noboribetsu East, Hokkaido. Note that the utility lines are in an organized pattern. This is in striking contrast to that in long-established, nonindustrial urban areas. Noboribetsu has numerous spas, and ceramics, chemical, and food-processing industries.

150-foot-wide boulevard planted with four rows of trees and lined with splendid buildings and huge monuments. Buenos Aires displays its Avenida de Mayo and the Avenida 9 de Julio—the latter reputed to be the world's widest boulevard. Even Washington, D.C. Which was designed by Pierre LíEnfant, has its magnificent mall dominated by the capitol, the Washington Monument, and the Lincoln Memorial, all flanked by great avenues.

Tokyo and the other Japanese metropolitan centers have no matching counterpart. The Imperial Palace has an "inside" not a flamboyant "outside" perspective. Indeed, the actual palace is walled and surrounded by moats.

So the streets of Japan have one main characteristic, be they in residential-commercial sectors or in major downtown areas: They are functional. They are thoroughfares, along and across which are utility lines and pedestrian and vehicular traffic. Occidental streets, in comparison, have an "outside," or display, aspect that is of major significance to the cultural psyche.

PERVASIVE VINYL PLANT COVERS

Vinyl plant covers are a strikingly modern element in the agricultural landscape of Japan, and they represent a new economic horizon for Japanese farmers. These plant covers are a response to expanding urbanization, new standards of living, and improved transportation and marketing of agricultural products. The rising standard of living has brought an increased consumption of flowers, fruits, and vegetables. And there is more demand for "off-season" produce as well as a premium for higher quality.

Flowers grown in vinyl-covered greenhouses on the Atsumi Peninsula, south of Nagoya, for example, are shipped in bloom during the "off-season" months of April and May. Vegetables produced in vinyl greenhouses in southern Kyushu, on the Miyazaki Plain, reach the markets of Osaka, Nagoya, and Tokyo before local production in those areas. Vinyl greenhouses in the Tohoku district of northern Honshu are used for growing rice seedlings. The seedlings are planted in trays, stacked on racks, and later transplanted in the fields by machines.

In southern Shikoku, on the mountain-girded Kochi Plain, vegetables are produced under vinyl cover and are

shipped "off-season" by fast, modern transportation to the large metropolitan markets and even north to Hokkaido. In the Yamagata Basin of the Tohoku district—Japan's chief cherry-tree area—fruit is grown under a vinyl canopy to protect it from rain.

The use of vinyl is widespread on almost all deltaic and basin lands as agriculture intensifies and upgrades the quality of produce (FIGS. 68-70). This is particularly evident in and around the suburbs of large cities where markets are at hand and high land prices dictate extraordinary intensification. So,

68. In Akita Prefecture, northern Honshu, vinyl sheets are placed along rows of vegetables for thermal modification and weed control. In the back are vinyl-covered greenhouses for growing vegetables and flowers.

69. A vinyl-covered greenhouse for growing strawberries on the northern part of the Kanto Plain. The operator of this small farm has off-farm employment. Family labor is used, especially on weekends.

70. Rice culture near Ichinomiya, twenty-eight miles east of Kumamoto, central Kyushu. Note the large, vinyl-covered greenhouses in the center, where rice seedlings are produced and then transplanted by machines in the inundated paddies. Greenhouses are also used to grow sweet potatoes and other crops. The nation places a premium on Kyushu's stretches of agricultural lands. A net importer of food and two-thirds mountainous, Japan supports 124 million people—nearly half the number living in the United States—in an area smaller than California.

the usurpation of farmland by expanding urbanization is offset by more production per acre, especially through the use of vinyl.

Urban farmers, such as those in Edogawa Ward, eastern Tokyo, who grow crops in vinyl greenhouses have found that their vegetables and flowers are adversely affected by the artificial all-night city lights. There are reports of chrysanthemums blooming at the wrong time, rice ears developing too late, and undeveloped spinach leaves—all due to artificial city lights along sidewalks and streets. The ward governments

have responded by lowering the intensity of outdoor lights. And the vinylization of Japanese agriculture continues to expand.

The number of farm households in Japan decreased from 4.95 million in 1975 to 3.83 million in 1990, and farm households engaged exclusively in farming decreased from 616,000 to 592,000 in the same period. So fewer farms are the rule now, as part-time farming increases. Although agricultural production per unit area is mounting, Japan is experiencing some increase in food imports. Its virtual food self-sufficiency is mainly in vegetables and fresh eggs. Wheat, barley, and pulses are the main food imports.

WALLED URBAN AREAS WITH GATES

The archetypal Japanese home has a walled-in garden with a locked gate for privacy. In contrast to individualism, community and family are exalted in Japanese culture. This value system in the culture of Japan finds expression in the walled enclosures that symbolize family solidarity. Within the walls family members are secure—and more closely attached to each other. The Japanese feeling that people are not separate from nature finds expression in the vernacular garden part of the home. In the United States, single houses standing alone without separate walls around house lots is an expression of individualism, a valued element in the middle-class Anglo-Saxon culture that still dominates the United States. The individualistic American house presents a bold front to the world; in contrast, the Japanese house presents a united front within the walled compound.

The residential life of Japan has undergone enormous changes during the twentieth century, when the gulf between the realized and the idealized has been huge. In the early part of the century most of the population was rural, most of the settlement was on flat land, most of the houses were arranged in a strassendorf type of street village pattern, most of the people lived in a subtropical clime, and most of the dwellings were flimsy. Houses were generally one storied, with only three or four rooms, and with no attic, cellar, or continuous foundation. Buildings were framed on wooden poles and roofed with thatch or tile. Whereas the Chinese preferred brick, stone, or clay, the Japanese favored wood. They admired the appearance of weathered wood on the exterior and the rich tones of hand-rubbed interior wood surfaces.

The house had sliding panels, especially on the south side, which could open to the south breezes of summer and to the sun in winter. Rooms were multi-functional and were adapted to flexibility of use by sliding panels with translucent panes to facilitate the passage of light. Roofs had a pleasing combination of straight and curved lines, and a broad overhang beyond the walls to shield open rooms from rain and yet relate to the differential angles of the winter and summer sun. The house had a fire pit for cooking. Basically, the home was a subtropical one in which the restricted heating was for the occupants, not a provision for room comfort.

The homes of the wealthy were in stark contrast. Their homes had roofs of tile, metal, or composition; they were larger, often two storied, and were set back from the street behind a walled area with a locked gate for privacy (FIG. 71). Between the wall and the house was a garden of miniaturized, sculptured plants, meticulously arranged to make it an integral component of the home when the sliding doors were open. The garden had weathered rocks aesthetically placed, and perhaps a pond. These homes, with their walled-in gardens, were relatively spacious. They represented then, and still do, in substance and style, the idealized.

Today, most of the nation's population resides in a new reality, that of crowded urban areas where the amount of private space per individual is drastically limited. Epitomizing this is what we call *Tokaidopolis,* a spectacular urban sprawl of humanity that stretches along southern Honshu from Kobe and Osaka through Kyoto and Nagoya to Yokohama and Tokyo. This amazing agglomeration, 300 miles long, is an essentially unplanned urban belt of gigantic dimensions and complexity—a phenomenon characterized in 1961 by the famous French geographer, Jean Gottmann, as a megalopolis.

Tokaidopolis, Japan's megalopolis, embraces most of the nation's residences, all of the central government, the headquarters of most of the large industrial and financial institutions, most of the prestigious universities, and all of the great organizations of publication and communication. This concentration of human beings and their institutions has developed into a world-renowned complex famous for its unparalleled productivity but with stressful social and environmental consequences. Among these are long, daily commutation via public transportation from residence to work. Nowhere in

71. An attractive, contemporary, private residence with numerous features of traditional Japanese architecture as idealized and afforded by the upper economic class of Ehime Prefecture, western Shikoku. It is two storeyed, with ornamentation at the gable ends of the multilined tiled roof. A striking aspect, to Occidental eyes, is the absence of a lawn. The small plot of land, walled in and with a locked gate for privacy, has sculptured plants for ornamentation. The wide roof overhang provides shelter from storms and the sun. The miniaturized garden in the rear, an integral part of the home, is carefully oriented to the house fenestration and complements the perspective of the living space. The sidewalk in front is protected fron vehicular encroachment by a concrete barrier. Space is limited, so there is no provision for automobile parking along the narrow, two-lane thoroughfare.

the world does the average worker take so long, in such jammed circumstances, for this journey.

The adjustments to this new reality are manifold. Mainly they pertain to limitations of space for individuals and families. Residential units are compact, children go to parks or commercial playgrounds, automobiles are a luxury, and much of daily life transpires in public and semi-public places. Lacking a guest room in the house, most Japanese do not entertain friends at home but meet them in restaurants or coffee shops. The idealized home for the majority is just a dream, but one that embodies both the space and the style of an elegant and refined tradition.

The traditional walled residences, particularly their entrances, reflect the psychosocial aspect of Japanese society. These entrances consist of three basic elements: A gated wall surrounding the property, an inner court through which one passes, and a special entrance hall called a *genkan* (literally, mysterious gate). The surrounding wall is usually constructed of wood or skillfully finished clay plaster. Significantly, it always extends above eye level. The result of the high wall and gate is that visibility into the property is either eliminated or strictly controlled. This clear separation of family space and public space reflects the importance of the family in Japanese society. The home and the family (the Japanese word *uchi* possesses both meanings) are the core of Japanese society and, as such, are private and not to be tresspased on lightly. The wall is an expression of this desire for the family to remain apart from society at large.

The entry court, between the outer wall and the house, has the planted garden and the stone path that crosses the court in curves. As a result, the initial focus on entering is never the destination. This deflecting walkway expresses the characteristic Japanese dislike for directness in social interaction. Eyes are cast aside to avoid an offending glance; in speech points are couched in circular logic. Directness is seen as overly aggressive and simplistic. The *genkan's* importance can be seen in its size, which may cover 10 percent of the floor area of the house. In a nation where space is precious, size equals importance. The *genkan* space is designed for receiving guests with the ritual formality befitting Japanese custom. Entrances rank as a fundamental visual element in the Japanese landscape. They are characterized by the firm control of passage from one space to the next. To the Japa-

nese, the entrance and the way of entering are as important as the destination itself.

SACRED SPACES

In Japan small sacred spaces, such as Shinto shrines and Buddhist statues in alleys, streets, or corners, are a vital part of the landscape. The emphasis here is not on the major shrines and temples but the sacred spaces and holy places of ordinary folk living in the narrow alleys in various neighborhoods and rural areas. Manifested in a variety of forms, they are ubiquitous. The small, graceful *torii* gate to a neighborhood shrine separates the purified sacred area from the outer world (FIG. 72). The essence of Shinto is purity. The formal religion is based on the ritual purging of evil spirits and the invocation of protective gods. The shrine is a purified, and ritually repurified, space.

Tiny statuettes known as *mizuko jizo* are common along the roadsides (FIG. 73). These are guardians of babies who died very early in life. Japanese dress up the *mizuko* figurines like little newborns, wrapping them with bibs, hand-knit sweaters, booties, and hats against the cold. They pour water

72. A small *torii* (gate) leading to a neighborhood Shinto shrine at Nishi-ogu san-chome, Arakawa-ku, Tokyo. Shinto, Japan's indigenous religion, is a faith without explicit creed or major religious texts. It had its origins in ceremonies the Japanese performed to mark planting and harvesting, and remains a religion rooted in nature. Shinto adherents pray to hundreds of *Kami (*spirits) who are found in nature—wind, sun, moon, water, trees—and in humankind—divinized ancestors or great figures of the past. Most Japanese practice both Shintoism and Buddhism. A construction crew will break ground only after a Shinto priest has purified the area. Baseball teams call Shinto priests in for blessings at the start of spring training. In small neighborhood shrines local people come to pray and ask for blessings.

73. Statues of *Mizuko Jizo*, representing Bodhisattva, along a street in the Shitamachi district of Tokyo. *Mizuko Jizo* bring solace to the souls of infants who were stillborn or suffered from miscarriage, abortion, or some other accident that prevented their birth. Since the Kamakura Period (1185-1333), Jizo has been regarded as the savior of children, rescuing their tormented souls at the banks of the river Sai in the realm of the dead. Their statues are common features of the landscape along roadsides throughout Japan.

over the childlike figurines to quench their thirst. *Mizuko jizo,* which literally means Bodhisattva of the water-babies, in recent decades has come to refer to the aborted fetuses who were stranded on the banks of the river that, according to Japanese Buddhist tradition, separates the worlds of life and death. In the post-World War II era it has been linked more to abortions than to miscarriages or stillbirths. Women and sometimes men come to stand before these monuments to express grief, fear, confusion, and hope of forgiveness.

Japan is not sundered by the kinds of debates about abortion that are common in the West. In Japan abortions are entirely legal in the first five months of pregnancy and they hardly stir a murmur within society. There are no protests or bombings at abortion clinics, no debates about banning abortions, and no politicians taking stands on the issue. Although virtually everyone in Japan believes that abortion is a woman's own business, the silent mourning over abortions in front of

mizuko jizo is striking in the sense that many women feel uneasy after exercising their right. And once in a while, groups of gynecologists who perform abortions go to a shrine or a temple to attend a special memorial service to purify themselves. Three decades ago, more than a million Japanese women each year turned to abortion. Now Japan has only 300,000 to 400,000 abortions yearly. *Mizuko jizo* are sacred signs in the landscape of a pervasive but silent mourning.

WANING OF TRADITIONAL ARCHITECTURE

The dominating aspect of Japan's human landscape today is that it is manifestly modern. The nation has precious jewels from its past, as renowned as those in Nara and Kyoto, but most of the constructs in the present landscape are similar to those found throughout the industrial world. Traditional architecture has been waning, and the toll on old structures has been hastened by both natural and human disasters. In the past half-century alone, typhoons, tsunamis, earthquakes, and fires have exacted a dreadful and recurrent cost to Japan. Indeed, few old societies have so few structures remaining from bygone eras. This has been accentuated not only by disasters, but also by Japan's unparalleled pace of economic development.

Western-style homes are becoming more popular in Japan, particularly since the Kobe earthquake showed their durability. Whereas American homes typically stand for fifty to seventy years, post-World War II Japanese houses often survive only about twenty. In Japan, there is little market for used houses. Land is the precious commodity—land prices account for 70 percent of a dwelling's cost—and many people routinely tear down houses after one generation and rebuild. "Imported houses" from the United States and Europe are riding a wave of popularity among well-to-do home buyers. Buyers praise the sturdiness of their construction, as well as features such as cathedral ceilings, big windows, and, for the very rich, an occasional two-car garage. In 1995 more than 5,000 homes were packaged and shipped from the United States to Japan, more than triple the number in 1993. And that does not include imported homes from Sweden and log cabins from Canada. That is a tiny share of the 1.5 million houses and apartments built each year in Japan, but there is a trend toward houses built the American way, with imported raw materials.

74. Modern buildings as far as the eye can see along a main thoroughfare of downtown Tokyo. Tokyo was once criss-crossed by a network of streetcars. Where the tracks ended, so did the city. Now only one streetcar line remains. The rest have been supplanted by a labyrinth of subways and urban expressways like the one shown here. The 135-mile-long Tokyo Metropolitan Expressway network is used by an average of one million automobiles daily. The network is now being extended to a total of 202.8 miles. Millions of people moving on underground subways and expressways or on elevated expressways have been cut off from the visual stimulation of the natural world. In the meantime, Tokyo residents have learned the intoxicating appeal of artificial spaces. Fifty years ago schoolchildren and workers commuted on one of the old streetcars, watching the activity on the city streets. Now children go to school and commuters to work on sightless subways or expressways, plugged into a Walkman, the sound of taped music replacing the landscape and sounds of the city.

Imported houses are also popping up in Tokyo's suburbs, where land prices are among the world's highest. Most families still build at least one traditional Japanese room with *tatami* (floor mats), but the rest of the house usually has hardwood floors, big windows, and doors that swing open rather than sliding into walls. The building of Western-style houses has resulted in a startling spread of what look like upscale American suburbs in the Japanese landscape. Nowhere is that more striking than in Sweden Hills of Hokkaido, where the driveways are packed with Porsches, BMWs, and Jeeps. Design and durability are the major factors in the spread of Western-style houses made with foreign materials. And for people who are ready to move to Japan's more remote northern areas, the new, energy-efficient, Western-style houses also offer a chance for that most prized possession: Space.

The capital city of Tokyo, for example, rightfully places high regard and pride on its Imperial Palace, but few primary cities in the world are so overwhelmed by modern edifices and retain so few symbols of the past (FIGS. 74 AND 75). It is perhaps not too surprising that an onrushing urban expansion such as that of Tokaidopolis would obliterate most of yesteryear. But aside from the very modern Hokkaido, it is conspicuous that, even in the small, outlying centers of old Japan (FIG. 76), most of the buildings are modern in age, form, and function.

75. Modern apartments stacked level on level in northeastern metropolitan Tokyo. The average floor space per dwelling unit in Japan in 1988 was 961 square feet. In the United States in 1990 it was 1,798 square feet; in Italy 1,421; in West Germany 1,292; in France 1,141. Compounding the present interior space problems in Japan is the national fascination with gadgetry. Automatic rice cookers and microwave ovens arrived. Air conditioners and television sets became necessities. Also, upholstered furniture is replacing pillows scattered around the room, and beds are replacing the folded mattresses that used to be stored in a closet in the daytime.

76. Modern boxlike commercial and residential units at the port of Misaki, western Shikoku. Most of the population centers in Japan are seaports, and goods that do not need to be moved rapidly between them can most easily go by water. Coastal shipping has been a formidable competitor with railway freight traffic. Total tonnage handled by Japanese ports grew at an annual rate of 15 percent between 1980 and 1990. More than half of the tonnage handled in ports during this period was domestic shipping freight

Tomorrow

CHAPTER 4

JAPANESE SOCIETY is peering into tomorrow. What are the great questions? Ask an elderly lady in the rice paddy near Ichinomiya in central Kyushu (FIG. 77). She may or may not know that few women occupy seats in the Japanese Parliament, that few women have served as cabinet ministers, that few women have salaries comparable to those of men, and that a woman was not admitted to Tokyo University until the end of World War II. But she is keenly aware that her grandchildren are in day-care centers, that girls now rarely study flower arranging and the tea ceremony, and that her modern household appliances have proliferated. Can she be wondering about the future role of women in fast-changing Japan?

Or ask men who are trimming tea bushes near Kakegawa, southwest of Shizuoka, in Honshu (FIG. 78). They may or may not know the factors affecting the current lumber supply

77. A grandmother in a rice paddy, near Kumamoto, central Kyushu. The unlabeled social security of the elderly in rural Japan rests considerably on both sexes laboring in the fields. More than 75 percent of older Japanese live in rural households and work on family rice farms. The emigration of young people to cities has reshaped the rural life of Japan. As more and more of its young people depart, the community becomes, in the words of one resident, "an aging star—still shining, but growing smaller." Few old people can afford the luxury of retirement; most continue to work or care for their grandchildren while the parents earn a living. Kumamoto has one of the largest populations of hundred-year-olds in Japan. The locals attribute this to hard work, a healthy diet including plenty of fresh vegetables, and mokkosu—dialect for a state of mind hovering somewhere between merely stubborn and devoutly cantankerous. In the spirit of mokkosu, older Kyushu residents gripe that encroaching urbanization has robbed life of its color and snap.

in Japan, or why, on the streets of Osaka, one finds new faces of workers from Southeast Asia or Peru, or why tourist travel by cruise ships is booming. They are aware, however, that tea bushes are now trimmed by machine, that most men in rural areas have off-farm employment, and that the personal computer has become an item to include in farm equipment. Can they be wondering about urban encroachment on the precious and very limited supply of the nation's agricultural land? The questions are diverse, but they relate to such major considerations as: How will Japanese society handle future problems of space? What are the environmental considerations? How can the economic base be forwarded? How can the rising demands of individuals be accommodated? How can Japan's cultural integrity be maintained?

78. Waves of green lapping the landscape of a tea farm exemplify the Japanese ideal of beauty. Here tea bushes are being trimmed with gas-powered clippers in a field southwest of Shizuoka, Honshu. Farms in Japan are small by Occidental standards, but they are highly mechanized and scientifically operated. Half of all tea produced in Japan comes from Shizuoka Prefecture. Prior to the Edo Period, the consumption of tea was limited to the ruling class. Only in the twentieth century, with introduction of mass-production techniques, did tea achieve widespread popularity among the general population. In 1989 Japan produced 98,078 tons of green tea and imported 2,474 tons of green tea and 11,308 tons of black tea. Tea was introduced into Japan by Buddhist monks who visited China in early times, but Japan's tea industry did not commence until 1191.

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About the Authors

THE AUTHORS of this volume are internationally acclaimed scholars of social and cultural change, and they have known each other for decades. They have lectured at leading universities in Asia, North America, and Europe. Each has published books on landscape and human occupance. Dr. Cotton Mather, emeritus professor of geography at the University of Minnesota, has held fourteen visiting professorships at distinguished North American and overseas universities and is famed as an analyst of landscapes. Dr. P. P. Karan, professor of geography and director of the Japan Studies Program at the University of Kentucky, has been awarded numerous international honors and is widely recognized as the world's leading authority on the Himalayan realm. Dr. Shigeru Iijima, emeritus professor of cultural anthropolgy at the Tokyo Institute of Technology and a past president of the Japanese Society of Ethnology, is a noted scholar of Asian cultures. The authors of this volume have been leaders of expeditions recognized by the prestigious Explorers Club of New York. This study of landscapes entailed field analysis by the authors throughout Japan. But it was at a secluded and serene setting in Kyoto's Kinkakuji Temple garden in "Old Japan" that this book was conceived.

Index

aboriculture 33
accessibility factor 17
Akan, Lake 20
Akihito, Emperor 2
Akita Prefecture 68, 79
Aomori 15, 34, 49, 60, 72, 73
Arakawa-*ku* (ward) 27, 29, 39, 70, 85
Arakawa River 20, 26
Ashio Copper Mine 51
Atsumi Peninsula 78
automobiles 29
  ownership and use of 76
  parking problem 54
  parking spaces 40-41

Baron Iwasaki 66
belted land-use system 55
Beppu 21
Besshi Mine Field 51
Bestor, Theodore 95
Buddhist temples
  and Shinto shrines 22
  in Kyoto 23
  neighborhood 70
  numbers of 3

'cactus women' 52
Capron, Horace 8
capsule
  apartments 37
  hotels 37
  offices 37
cars 29, 34, 73
  Tokyo Metropolitan Area 40
cherry-blossom viewing 65
Chiba Prefecture 40
Chubu 2
Chugoku 2, 34
Clark, William Smith 8
coal mining areas 15
coastal seaways 21
compactness 25
  on landscape 35, 38
Cybriwsky, Roman 95

daimyo 2
  castles built by 3
dairying 11
dandanbatake (step-step fields) 58
depaato (Department store) 31

Edo (*See also* Tokyo) 3, 66, 77
  Bay 35
  Period 4, 12, 17, 44, 53, 92
Ehime Prefecture 53, 54, 56, 57, 58, 61, 69, 83
ekiben 43
expressways 34, 71, 73
  Chugoku 34
  Chuo 74
  Tokyo Metropolitan 88
  traffic on 34

farm
  greenhouses 80
  households 81
  in urban areas 55
  mechanization 57

population 19
size 19, 33, 53, 92
farmers
part-time 19
urban 80
fishing families 16
forests 12-14
Fuji, Mount 2, 8
Fukuoka 4, 23, 42, 46

gardens 25, 35, 82
folk 60
home 59, 61, 62
public 59
rock 45, 50
tea house 63-64
vernacular 81
Zen 63
gasoline station 42
Ginza district 28
golf courses 42
Greenbie, Barrie 93

Hakodate 10, 14, 37, 65
Hakone 5
Hamada 16-17
Hendry, Joy 94
Higashi Ikebukuro 4
Hikari 4
Hirosaki 60
Hiroshima 2
Hokkaido 6, 20, 65, 67
climate of 7
colonization commission 8
contrasts with rest of Japan 9
farmhouse 10
farming in 11
farm land in 22
horse farms 22
landscape 8

seaweeds 16
settlement of 2
space as asset in 9
Sweden Hills 89

Honshu 2, 6, 7, 16, 34, 49, 56, 67
horse farms 22

Ikagawa, Toshi 95
Ikebukuro 48
immaculate 25
Imperial Palace 66, 78, 89
Inland Sea 32, 53
'inside' cultural perspective 75
interdigitation 25, 31, 35, 52-53
Ishikari Plain 65
Itoh, Teiji 94
Iwaki, Mount 10, 72
Iwami region 17

Japan
ancient landmarks 2
arable land 6
cleanliness in 52
climate of 7-8
coal mining 14-15
coastal shipping 90
commuting to work 44, 46
contrasts of old and new landscapes 7
density of population 6
diet 16
drainage reclamation 35
education in 41
environmental pollution 51
expressways 34, 71
fish consumption 30
folk culture 8
folk garden 60
forest cover 12-13
funerals 70
golfing in 42
historic roads 2-3
housing units 38
industrial workers 54
land prices 26, 45
living space in 6
prefectural roads 72
regions of 2
road system 71
snowfall 8
subway lines 46
suburban residential pattern 45
tea garden 64
tea production 92
timber production 13
tree crops 32
tunnels in 34
urban neighborhood 44, 54
use of space in 37
vineyards 32
women's role in 50, 91
wood consumption 13
Japan Highway Public Corporation 34
Japan Railway 27
Japanese Alps 2, 20
Jensen, Marius 93
Jinnai, Hidenobu 95
joka machi 3
jori system 47

Kanagawa Prefecture 40
Kanagawa Treaty 14
Kansai International Airport 35
Kanto Plain 2, 6, 20, 26
area 26
land prices 26
population 26
prefectural roads in 72
vinyl-covered greenhouse 79
Keene, Donald 93
Kinki Plain 2, 6, 13
region 47
Kirin Beer Company 47
Kita-*ku* 39
Kobe 2, 46, 82
Flower Road 65
Port Island 35
Rokko Island 35
Kochi Plain 78
Kofu Basin 32

kogai (pollution) 51
Kornhauser, David 93
Kumamoto 8, 18, 73, 80, 91
Kyoto 2, 3, 4, 20, 46, 82, 87
  Imperial Palace 23
  Tower 23
  National Museum 23
  cultural landscape 23
  Toji Temple 60
Kyushu 1-2, 6, 7, 34, 51
  coal mining 15
  elderly residents 91
  high-tech industry
  ria coast 20
  rice farming in 8
  seaweeds 16
  vinyl greenhouses 78

land
  in tiers 55
  multiple use of 31
  prices 26, 45, 87
  reclamation 34-35
  shortage of level 33
  speculation 55
landscape 1, 26
  accessibility factor in 17
  coastal component of 14
  contrast of old and new 7
  contrasts in scale of 12
  definition of 1, 26
  Hokkaido 8
  immaculateness of 47
  interdigitated 52, 54
  interplay of culture and physical environment in 34
  tiered 56
  workday and recreational 17
lawns 25, 33, 67

marine products 16
Meiji Restoration 2, 3
  Period 51
  Emperor 66
meticulous 25, 43, 45, 46
migration
  rural to urban 19, 57
Minamata 51
Misaki 21, 32, 90
Mitsubishi group 47
  zaibatsu 66
Mitsui & Company 15
Mitsui Home Company 15
Miyazaki Plain 78
mizuko jizo 85-86
Morioka 4
Muroran 21, 22

Nagahama 48, 50, 56, 69
Nagano Basin 32
Nagoya 2, 6, 36, 46, 51, 57, 78, 82
Nakasendo 3
Nansei Islands 20
Nara 20, 87
nature
  in miniature 50
  idolized 59
Niigata 7
Nijo castle 23
Nobi Plain 6
Noboribetsu 77
Northern Horse Park 22

Oji 27
Okayama 7, 35
Osaka 2, 36, 57, 78, 82
  Bay 35
  rainy days per year 7
  subway lines 46
  travel time to Tokyo 4
Oshima Peninsula 11

Pitts, Forrest 95
population
  in metropolitan areas 36
  decline of farm 19
  growth 36
  migration 19
  rural 17, 19, 55
Reischauer, Edwin 93
rice
  consumption 18
  culture in central Kyushu 80
  farming 8, 11, 32
  in Hokkaido 11
  in landscape, culture, diet 10
  policy 18
  seedlings 18
  support price 19
roji 64
rural homestead 68, 73

Saijo 53, 54
Saitama Prefecture 40
Sakurajima 20
Sannomiya Station 65
Sapporo 46
sculptured plants 25, 61, 62
seaweeds 16, 53
Semple, Ellen Churchill 95
Sendai 46
Shibuya 48
Shikoku 2, 6, 20, 32, 49, 51, 53, 54, 56, 57, 58, 61, 69, 78, 83, 90
Shimane Prefecture 16, 17
Shimbashi 28
shimenawa (rice-straw ropes) 10
Shinjuku 48
Shinkansen system 4, 23
Shinto shrine 31
  in Kyoto 22, 23
  neighborhood 85
  number of 3
Shitamachi 4, 86
Shizuoka Prefecture 32, 91, 92
shotengai (shopping street) 75
shukuba machi 3
Somei cemetery 68
space 9
  artificial 88
  community school 41

consumption aspects of 29
example of functional space 31
family 84
genkan 84
per dwelling unit 38
per person 36
parking 40-41
problems 29, 89
public 84
reduce 59
sacred 25, 85
saving aspect of roads 71
use of 37
value system in use of 62
sukiya style houses 12
Sumidagawa 20, 51
Sunshine City 4
Suntory 74

Tamagawa 26
tiered occupance 25
Tochigi Prefecture 51
Tohoku 2, 3, 60
Expressway 15
Shinkansen 4
vinyl greenhouses in 78-79
Toji Temple 60
Tokaido 2, 4
corridor landscape 5
Shinkansen 4
Tokaidopolis 82, 89
Tokugawa Shogunate 2, 23
Tokyo (*See also* Edo) 3, 4, 23, 30, 36, 57, 61, 68, 76, 77, 78, 82
commuter train stations 45-46
downtown 88
Ginza district 28, 30
Marunouchi district 66
Metropolitan Area 6, 26, 40, 55
Shitamachi district 4
Station 66
subcenters 48
suburbs 89
subways and expressways 88
Yokohama metropolitan area 27
Tokyo Bay Frontier Project 35
Tomakomai 22, 67
tondenhei (colonist militia) 67
Tonegawa 26
Toshima-*ku* 68
Toya, Lake 21, 65
Trewartha, Glenn 93
Tsugaru Strait 34
Tsugaru Quasi-National Park 72
Tsukiji 28
Fish market 30

University of Hokkaido 8
Unzen National Park 13
ura nihon 3
urban farmers 80
Usuzan volcano 21

vending machines 74
vinyl plant covers 25, 78
visual aesthetics 43

Wakayama Prefecture 13, 32
walled compound 25, 81
walled residences 84

Yamagata Basin 79
Yamaguchi Prefecture 34
Yamaken Company Ltd. 17
yatai 38, 40
Yokohama 26, 27, 28, 29, 46, 68, 82