

Japan's Bridges Show Ingenuity of People

In Japan today, gigantic bridges are being constructed with latest engineering techniques; for example, the 1036-meter-long Ashido Grand Bridge in Northern Kyushu and the 1020-meter Choshi Grand Bridge across the mouth of Tone River. Also a survey is being made preparatory to building a bridge connecting the main island of Honshu with Shikoku across the Seto Island-Sea.

Aside from these "modern" bridges, there are "old" type bridges which retain their own unique characteristics, drawing the admiration of the people. These "old" bridges have been regarded as cultural assets in each locality.

To begin with, the first recorded bridge in Japan was the Kobashi Bridge built in 326 over the Kudara River in present day Osaka City. While details of its structure are not known today, it is believed to have been a wooden bridge.

In 611, Koreans introduced the Chinese type of bridge

architecture into Japan, leading to the construction of the bowshaped bridges that adorn Japanese gardens today. In subsequent periods when the country was torn by battles among clans and warlords, Buddhist monks offered their services as architects and keepers of bridges. They repaired and kept in good condition bridges destroyed by warriors in their battles that knew no end.

Hideyoshi Toyotomi, after considerable fighting, put the whole country under his rule in 1592. Doing his utmost to further peace at home, he built three outstanding bridges in Osaka, where his majestic castle was located. These three bridges, namely, Tenjin, Tenman and Naniwa, served to connect the deltas along Yodo River, creating a greater Osaka in those days, and their names became synonymous with the prosperity of Osaka. In 1690, when Hideyoshi constructed the Sanjo Bridge in Kyoto, stone pil-

lars were used for the first time in Japan. Though made of wood, the bridge still stands as one of the nation's architectural treasures.

In the mountainous regions and in the countryside, log bridges of the primitive type were built across the narrow gorges and streams. Over wider gorges and rivers, wooden bridges were built with a remarkable degree of engineering skill.

In some districts, however, the people cleverly floated a chain of boats in the rivers to take the place of bridges. An outstanding example is the Funa Bashi (boat bridge) across the Tone river in Chiba prefecture to the east of Tokyo Metropolis. The bridge, four meters wide and 237 meters long, is moved to one of the less turbulent tributaries of the river during the typhoon season of July to September. This was and is not the prevailing method of spanning rivers in Japan, however.

The prototype of the boat bridges on record was the 48-boat bridge that warlord Katsushige Shibata used to span the Kuzuryu river on the Japan Sea side of the country in 1576. This type of bridge was extremely useful and strategic in nature in those days, inasmuch as it could be

removed at any time to block the passage of the enemy.

Japan was a beneficiary of advanced foreign technology in olden times. Foreign know-how was brought in by immigrants, traders and missionaries, and thoroughly blended with native techniques. The arch-type stone bridge was introduced into Japan through Nagasaki, the first of the Japanese ports opened to foreign contact. A stone-arch bridge of this type was built in Nagasaki, in 1635. It was called the Megane (glasses) Bridge because of its shape, resembling the rims of spectacles. In the days when wooden bridges were prevalent, the stone-arch type bridge drew considerable public attention. In fact, similar bridges were soon constructed in various localities.

The 141-meter-long Reidal bridge was constructed in Kumamoto prefecture in Kyushu in 1848. The stone-made Tsujun bridge built in 1854 not far from the Reidal bridge, is outstanding in that it has served two useful purposes, as a link in an important transportation route and as a sorely needed water spillway for the neighboring watershed highlands.

A squire called Yasunosuke Nunoda, architect, of the bridge, who deeply sympath-

ized with the people in the highland villages, contrived to draw water from a distance of four kilometers and siphoned it up into Todoroki waterway. This water was conveyed to the villagers through a square wooden spillway built in the Tsujun bridge. Since then, the thankful villagers have made it a tradition to open the spillway and let the water flow down on the first day of August every year in honor and memory of their "saviour".

The people who directed the six-year-long construction of the Tsujun bridge were called to Tokyo after the Meiji Restoration of 1868 to build the stone bridges that still remain in splendor today. The famed Mansei Bridge spanning a branch of the Sumida river in Kanda ward, and the Niju (Double) Bridge, the gateway to the Imperial Palace, tell graphically of the feats they accomplished long ago.

In contrast to the arch-type stone bridge, the Kintai Bridge over the Nishiki river in Yamaguchi prefecture in western Japan, is noted for its unique structure. Built in 1678, the 225-meter-long bridge has four pillar bases made of stones, designed to stand the impact of surging flood waters. Aside from its

aesthetic appearance, the bridge is designed to increase its resistance to floods when sandbags are placed on the arches of the bridge, making the arches stretch slightly, thus tightening the joints in the bridge. The splendid idea seen in this unique structure of the bridge was originated by Lord Hiroyoshi Kikkawa, whose descendants controlled the area for generations.

The Saru (monkey) Bridge which spans the Katsura river in Yamanashi prefecture, is a peculiarity in its own right. It is the subject of one of the masterpieces by the famed woodblock-print artist, Hiroshige Ando (1787-1858). The bridge links two steep cliffs, some 30 meters apart, without perpendicular props. In those days, it was impossible to stand pillars in the gorge, some 30 meters deep. Three rows of four-layered beams were extended from both sides, and they were joined by an arch-type bridge. Legend says that it was blue-printed by a Chinese gardener and built some one thousand several hundred years ago, but there is no record to support this.

Both the Kintai Bridge and the Saru Bridge are particularly interesting as pieces of architecture which reflect the culture of old Japan.

So far as the stories of Japanese bridges go, one of the best known bridges in Japan is the Nihonbashi (Japan bridge), which was the starting point of Tokaido (Tokyo-Kyoto road) in olden days and today is the center of downtown Tokyo. The history of this bridge tells of the history of bridge construction in the country. Originally a wooden bridge, it is now a steel and concrete structure beautifully decorated with bronze ornaments. "Oedo Nihonbashi" (Nihonbashi of the flowery

capital of Edo), as it is called in folk songs, has been rebuilt several times, recruiting the latest engineering skill of the period.

There are 126,700 bridges in Japan, with a total length of 16,720,000 kilometers. They represent the tradition of old Japanese culture and the affection the people entertain for time-honored architectural beauty. But large wooden bridges are gradually bowing out of public view, with the rapidly increasing availability of steel and concrete.

RESEARCH . . .

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attended another meeting of historians of Asia in Singapore early this year.

These conferences are only in addition to others more numerous which have been held under the sponsorship of Unesco and other United Nations agencies, or organizations affiliated with it, on the national, regional, or inter-regional levels. Their specific mention is only an illustration of the efforts of men of

DEAD LANGUAGE . . .

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plicated language has recently been deciphered. As a result, it is expected that studies on Hsi-Hsia will be advanced in the future, particularly in the field of East-West contact through Central Asia in the Middle Ages.

goodwill from all lands towards greater mutual understanding among them through education.

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*One Lady—Why do you want to get divorced?
Another—Because I'm married.*