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## The morphological transformation of Japanese castle-town cities

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**Abstract.** *In this historical survey of Japanese castle towns, there are four key findings. First, Japanese castle towns, although having individually unique spatial structures and landscaping, can be grouped into five categories. Secondly, in the town planning of these towns there have been characteristic transformative procedures to meet the needs of modern urban activities. Thirdly, the various schemes that have been devised and implemented at each critical stage during the modern period have been able to control each urban transformation and gradually improve the structure of each city. Finally, these schemes and transformative processes have been fundamentally affected by the existing urban patterns which were already established long before the Meiji Restoration. Every recent transformation has been found to be a distinct process in which a variety of schemes and efforts to change the environment have been integrated with each original urban pattern.*

*Key Words: castle town, radial pattern, warped grid,  
urban transformation, Japan*

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In the early seventeenth century, the beginning of the Edo period, about one hundred castle towns were constructed in Japan as the capitals of feudal domains. A castle town, *Jo-ka-machi* in Japanese, means 'the town-below-the-castle'. Before the Edo period, most Japanese castles were located on high ground, the associated urban area of administration, commerce and housing being built at a lower level. During the Edo period, castle towns had two main components, the castle district and the town. Thus the expression 'castle town' means the whole town, which included the central 'castle district' and the urban area separated from this district by double or triple moats. The fact that the castle was located on high

ground was very important both for defense - for the army base of the clan - and as a symbol of the local government.

Castle towns have played a variety of important roles in each region, as centres of local administration, culture, trade and industry. Since the Meiji period, local government centres - the seats of each prefectural office - have been established in many of these castle towns, which have expanded in population, area and urban functions. Some have changed their spatial structure gradually, while others have maintained their original shape, and social and spatial context.

Since the late nineteenth century, almost all cities in Japan have changed gradually to

cope with urban growth, industrialization, and destruction by fire and earthquake. However, although their spatial structure has changed, the essential urban pattern has been preserved longer in local castle towns than in any other cities. These towns have a variety of different characters which were created by their topography, their street and moat layouts, and by major landscaping at the time of their construction. In the modern period, the original form of each castle town has had a strong effect on the transformative process. Basic principles of urban form, which have been maintained since the Edo period, have made it possible to cope with modernization.

In this paper, an examination of developments associated with typical schemes of castle-town planning will illustrate how the urban structure is being transformed to fit modern urban activity. By studying the transformation of city-wide spatial structure in a variety of castle towns, the nature of the innovative process in Japanese local town planning will be seen. It will be shown that each castle town has a clear spatial structure and urban context that were originally established in the Edo period. The gradual transformation of each urban form has been regulated by this existing urban context. Investigating the transformative processes of castle-town planning during the modern period makes it clear that schemes were proposed to add new structures necessary to urban improvement just at the critical point in urban growth, and that such planning, based on existing urban patterns, successfully brought about the gradual improvement of urban spatial structures. The components of urban spatial structure that are most important in the transformation are shopping streets, castle districts, and railways and their stations.

The method of analysis was threefold. First, the original physical forms of castletowns were analysed and types were recognized. Secondly, the influence of these types on the pattern of modern urban infrastructure was investigated. Finally, scenarios of urban change were recognized.

### Types of castle towns

Although all Japanese castle towns have spatial structures that are to some extent unique, five types can be recognized. These are:

|           |                   |
|-----------|-------------------|
| Type I:   | Warped grid       |
| Type II:  | Radial            |
| Type III: | Horseback         |
| Type IV:  | Whirlpool         |
| Type V:   | Unique structures |

Type I consists essentially of a street layout with a warped grid pattern. Such an ideal city pattern was readily realized where there was little topographical restriction and strong army power. This type is easy to adapt to the needs of modern town planning and most castle towns belong to it.

Type II is made up of a radial street pattern that extends in various directions. This type, which is found in the Tohoku region, was intended to control a large independent territory.

Type III is located on a narrow, horse-back hill. It has a strong axis-street towards the castle district, which is located on the edge of the hill. The axis of the castle town was laid out on the line of the ridge along which the main street ran. The 'lower town' was laid out below the hill and consisted of a mainly commercial district.

Type IV has a strong concentric spatial system resembling a whirlpool in shape. In the centre is the castle district. A long commercial street is characteristic of this type.

Finally, towns designated as 'unique' (Type V) had spatial structures that tended to be dependent on topographical conditions. They were often seaside resorts.

Castle towns of warped grid pattern (Type I) can be sub-categorized according to three factors: first, the direction of the national highway, which was introduced into the castle town and became a main structure of it (DNH); secondly, the direction of the castle town's axis, along which the central shopping street was located (DCA); thirdly,

the direction of the street from the *Oote-mon* Gate (the main gate of the castle) which often became the administrative and business core and maintained this role in modern times (DOG).

Most castle towns were located along a nationally important highway which became the central street and main axis of each town. The railway, which was laid out within, or adjacent to, the castle town and parallel to the national highway, is the most important modern structure. Most of the central shopping streets are preserved as main streets and are often the castle town's axis. The castle district has often become the new urban core. Thus the combination of national highway, central street and castle district dominates the modern urban structure. Based upon these three elements, four types of grid-pattern castle town can be identified (Figure 1). These can be described as follows (the symbol \* denotes features at right angles and # denotes parallel features):

Type I-A: (DCA#DOG#DNH), e.g. Himeji, Takada, Yamagata and Akita

Type I-B: (DCA#DOG)\*DNH, e.g.

Utunomiya, Wakayama and Fukui

Type I-C: (DCA#DNH)\*DOG, e.g. Sunpu (Shizuoka) and Imabari

Type I-D: DCA\*(DOG#DNH), e.g. Hamamatu and Iida

In castle towns of Type I-A and I-B, the castle-town axis, which is also the main shopping street, is located parallel to the *Oote-mon* (front gate) of the castle, and the commercial activities are separate from the *Oote-do* street which runs towards the front gate of the castle district and is strongly connected to the national highway. The city structures made up of castles and main streets were comparatively easy to adapt to the process of modernization begun in a new era, the Meiji.

In Sunpu (Type I-C), the main street is introduced into the castle town as a symbolic axis facing the front gate of the castle. It serves also as the backbone of the city, both geographically and functionally. In Type I-B

and I-D, the national highway runs through the central part of the castle town, curving inside it.

### The laying out of modern urban structures

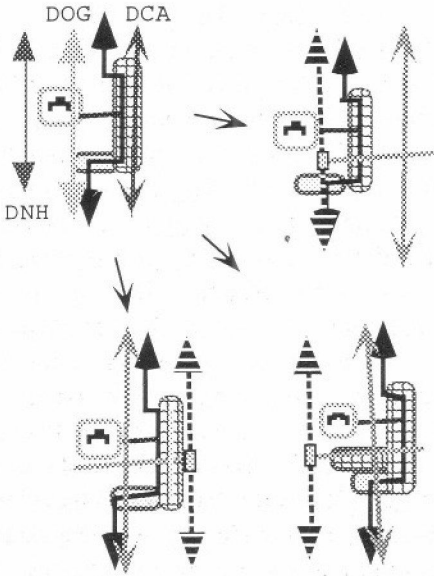
The five main types (I-V) and four sub-types (A-D) of Type I were maintained throughout the Edo period, from 1603 to 1868. Since 1868, when the Edo feudal government was abolished and the Meiji centralized government was founded, Japanese towns have been gradually modernizing. Various types of plans have been prepared and authorized by each local government. Since the 1920s, plans have been revised several times to cope with changing circumstances, such as increasing population and the growth in traffic. The continuous process of building a city on the castle town structure has caused different results in each city. There are two major limiting factors in modernizing the urban environment: one is the location of the national railway station, and the other is the street network. The existing urban structure at the beginning of the Edo period had a strong effect on the street system, zoning, and railway system. Many of the castle towns that were not destroyed either by fire or bombing, and remained small, have maintained their historical character. This has influenced the character of modern urban structures in these cities.

#### *The warped grid type*

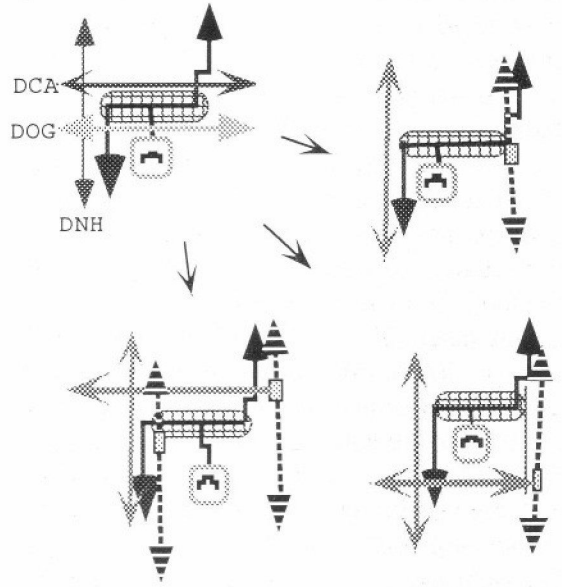
There were three principles for the layout of modern urban structures in castle towns of the warped-grid type. First, the nationwide railway system was laid out parallel with the major highway. Secondly, one main street was laid out connecting the railway station and the central district. Thirdly, additional streets were laid out in a variety of patterns.

These three principles were definitely applicable in the case of Type I castle-town cities (Figure 2). In this type of city, the location of the newly-built railway station at the end of the nineteenth century was critical for the future urban form. In Yamagata

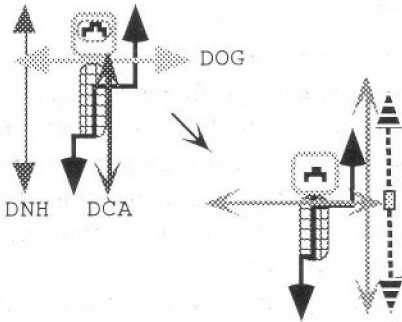
**Type I-A: (DCA#DOG#DNH)**



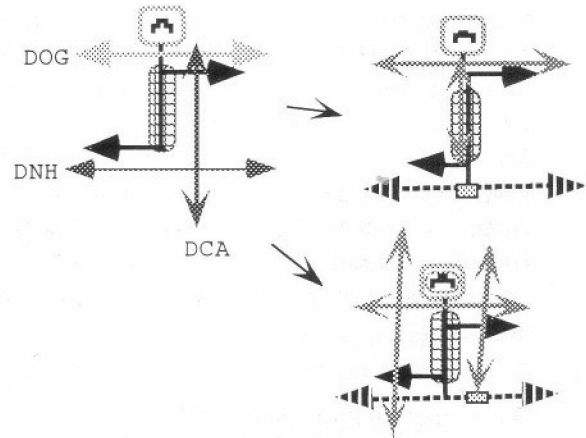
**Type I-B: (DCA#DOG)\*DNH**



**Type I-C: (DCA#DNH)\*DOG**



**Type I-D: DCA\*(DOG#DNH)**



Direction of the Castle Town's Axis (DCA)



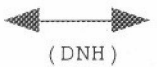
Main Street



Direction of the Oote-Mon-Gate Line (DOG)



Railway and Station



Direction of National Highway (DNH)



Commercial and Business District

Figure 1. Four types of grid-pattern castle-town cities.

(Type I-A) the main station was deliberately located within the castle district in order to revitalize the old castle town that had been devastated at the end of the Edo period. The road network was intended to fit the newly-located station into the heart of the city. Thus the castle-town area has been divided into the castle district and the central business district. In such cities, one of the most important principles of town planning is to integrate the two districts divided by the railway, and to revitalize the whole central area.

Shizuoka (Type I-C), which was called 'Sunpu' in the Edo period, was built by the Shogun Tokugawa Ieyasu in 1609 and was ruled by the central government throughout this era. It was situated in the Suruga plain, so there was little topographical restriction to its development. The plan is a model Type I castle town. A magnificent castle district is located to the north, and a large commercial area was built with a regular square grid pattern like that in Kyoto. The railway was laid out parallel to the historical highway, and the station was located at the end of the central commercial street (Figure 2). There were major fires and reconstruction projects both before and after the widespread conflagration following the wartime bombing that demolished the whole urban area. The Restoration Project was most important for urban transformation. The existing grid-pattern block system in most of the urban area was easily adapted for modern structures.

#### *The radial pattern type*

In castle towns with a radial street pattern, the railway station was usually placed at the edge of the town's central district so that it did not cut across the street system. It was difficult to adjust the traffic system to the radial road pattern. Urban sprawl often occurred around the station, making it hard to connect the old town and the new urban area. A new system of streets was, therefore, needed to cope with the increasing traffic within the urban area, and to connect the station with the urban core.

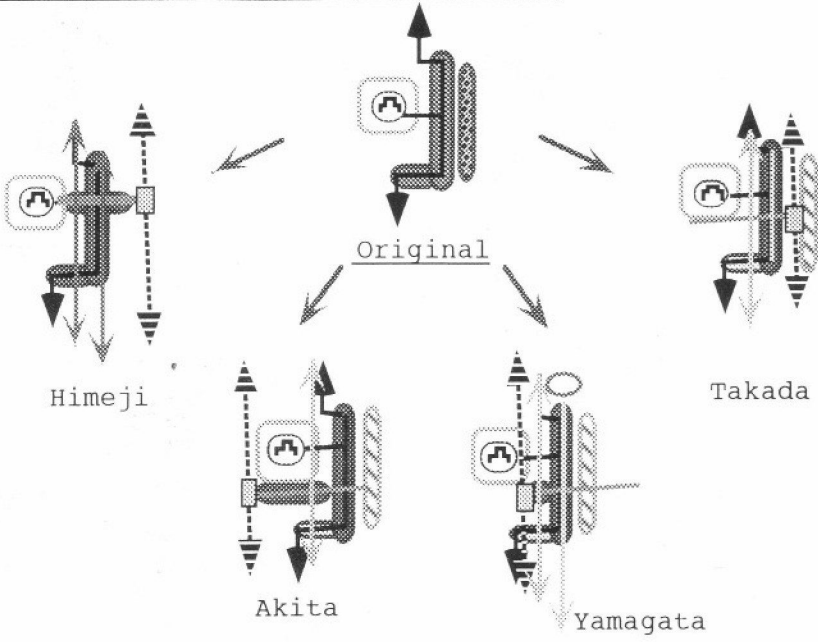
Morioka, located in an alluvial fan of the Kitakami River, is a good example of a castle town with a radial road-pattern containing many T-intersections. The physical form of Morioka is related to the natural form of the surrounding landscape and the nature of the topography. Each radial road was orientated towards the landmarks of the surrounding mountain summits. During the Edo period, transportation was mainly by means of water and the radial pattern sufficed. However, this pattern was not satisfactory for the modern city. One long street was built to connect the station and the business core and to create a new shopping street (Figure 2). Historical character has been conserved by keeping older residential areas free of cars. Increasing traffic and urban sprawl have been accommodated by widening existing streets and developing by-passes to connect the radial roads in areas outside the city centre. A new ring road is planned to run parallel to the river, threatening historical landscapes in its vicinity.

#### *Other types*

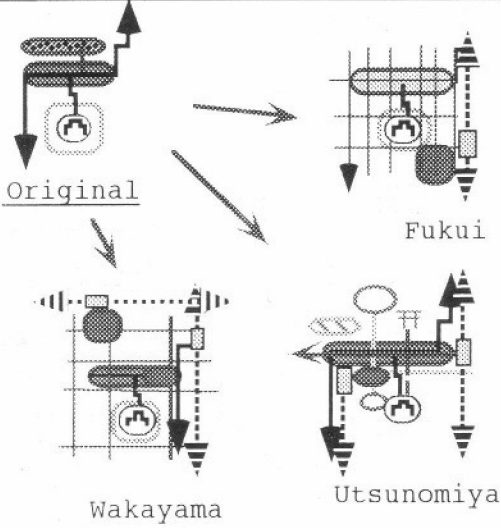
Owing to the peculiar structure of horseback-pattern cities, all the railways were located outside the built-up areas and had little influence on modern changes to urban structure. Topographical constraints have been, and continue to be, of importance in the case of these cities.

The spatial structures and historical context of castle towns with a whirlpool pattern have been maintained because the railway station was established away from the urban area, owing to the complexity of the topography. The central commercial district has developed around the station. Revitalization of the old town centre is one of the most important issues in towns such as Tsuruoka. In this case, upper- and middle-class Samurai settled to the west and north of the castle district, while the commercial and mid-town area formed an L-shape to the east and south. Two contrasting street patterns are evident: radial and grid. The inner-town area designated for commercial land uses

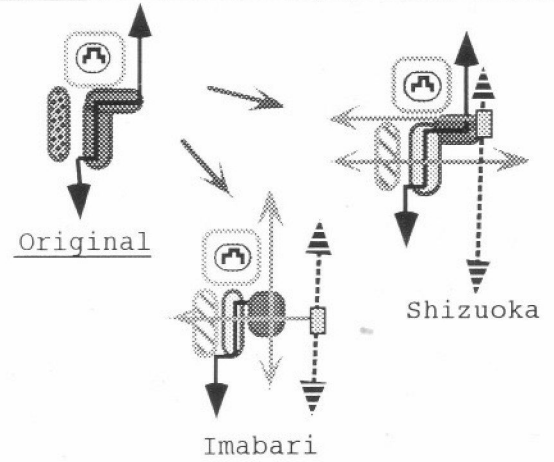
Type I-A: Warped Grid (DCA#DOG#DNH)



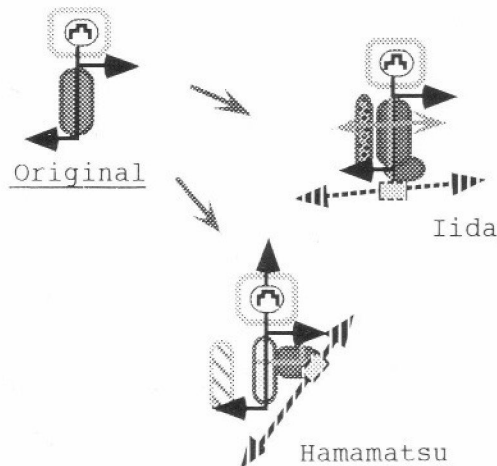
Type I-B: Warped Grid (DCA#DOG)\*DNH



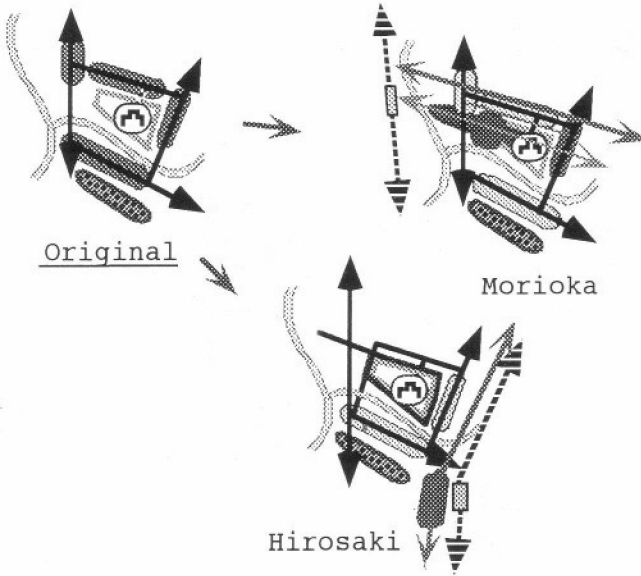
Type I-C: Warped Grid (DCA#DNH)\*DOG



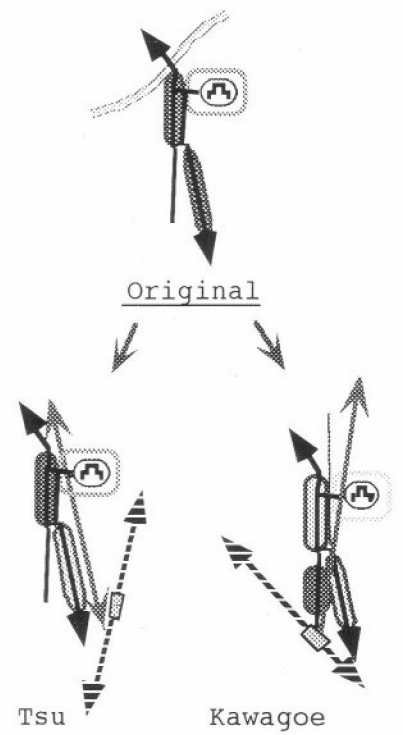
Type I-D: Warped Grid DCA\*(DOG#DNH)



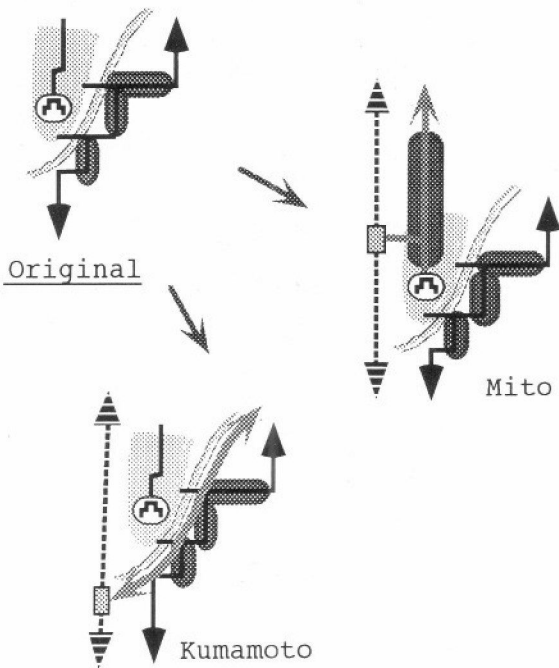
### Type II: Radial



### Type IV: Whirlpool



### Type III: Horseback



### INDEX

| Edo Period       | Modern Age                            |
|------------------|---------------------------------------|
| Castle District  | Civic Centre                          |
| Commercial       | RailWay and Station                   |
| Temples District | Central Commercial District           |
| Moat             | Declining Commercial District         |
| High Way         | Main street for Cars                  |
| Hill Edge        | Park once served as a Castle District |
| River            | Old Temples District                  |

Figure 2. Examples of the transformation of castle-town cities.

consisted of the grid street pattern. Urban blocks surrounding those inner-town commercial districts have been connected by the radial street system to the major national highways.

### Conclusion

Castle-town cities in Japan at the end of the twentieth century can be understood as a process of evolution from early modern castle towns. All are in the process of adapting modern planning and urban construction to historical legacies. Some castle towns are remarkably unchanged, whereas others have been greatly changed by reconstruction projects following war damage. In both cases, the configuration of the early modern castle town provides an important morphological frame.

A number of findings of this research merit emphasis. The first is the development of a morphological classification of Japanese castle towns. The second concerns the manner in which town planning has adapted historical forms to the needs of modern activities. The third is the variety of characteristic schemes that have been devised and implemented at each critical stage during the modern period, controlling each urban transformation and improving the structure of each city.

Finally, these schemes and transformative processes have been fundamentally affected by existing urban patterns that were already established long before the Meiji Restoration. Every recent transformation has been found to be a distinct process in which a variety

of schemes and efforts to change the environment have been integrated with each original urban pattern. Innovative policies and methods in town planning during this modern period have been implemented in a wide variety of ways. In the future, such innovations in planning will necessarily become even more important in order to maintain the urban pattern and develop the uniqueness of each Japanese castle town.

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## International Conferences of the IPHS

The International Planning History Society held its Seventh International Conference in Thessaloniki from 17 to 20 October 1996. Attended by nearly 100 delegates from 25 countries, the theme was 'The Planning of Capital Cities'. A report on the conference is contained in *Planning History* 18, 3 (1996), 28-31. The

Eighth International Conference will be held in Sydney, Australia from 14 to 18 July 1998 (further information from Dr Robert Freestone, School of Town Planning, University of New South Wales, PO Box 1, Kensington, New South Wales, Australia 2033).