

Urban morphology in Japan: researching castle towns

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Abstract. *Castle towns are one of the main types of urban settlement in Japan. This paper reviews current research on the castle towns in that country, especially in the fields of historical geography, architectural history, and the history of urban planning. The results of research in each of these three fields are introduced; the building and transformation of traditional private houses termed machiya, in the commercial areas of cities, are described; several morphological approaches to the castle town of today are considered; and finally, the application in urban design of knowledge gained from castle-town research is discussed.*

Key Words: castle towns, architecture, history, urban design, Japan

Research in urban morphology in Japan is largely pursued in three disciplines: historical geography, architectural history, and urban planning and design. Each discipline has established its own research perspective and methods, but there have also been recent attempts at interdisciplinary research.

Within historical geography a major focus has been the recognition of geographical regularities in urban forms, giving particular attention to landscape and land use. In research by architectural historians a central interest is the design of urban space and the role that historical research can have in providing a basis for urban design: this research had important beginnings in detailed analyses of plots and the block plans of buildings. Also important in research by architectural historians have been studies undertaken to uncover aspects of life styles, social systems and architectural technology that have influenced the formation of architectural space.

Within the history of urban planning and

design there has been considerable interest in how the planning system and building controls have affected urban form. Important aspects include the use of historical literature to help explain social structures and political systems, and the application of time-series analysis to uncover the processes of urban change.

The beginnings of a coming together of these different disciplinary interests and perspectives is helping to bring to maturity research on the historical development of urban form. A number of books introduce the methods that are being used, both within the different disciplines and in interdisciplinary approaches, and describe the main findings (Takahashi *et al.*, 1989, 1993). The focus is on research on castle towns, which are arguably the single most important type of Japanese historical city.

Background to castle-town research

Ancient capital cities between the seventh

century and the eighth century were laid out using the Chinese method of *fengshui*, with grid-street patterns called *jobosei*. The importation of physical aspects of capital-city design from China was accompanied by a political, administrative and social system of ancient legal codes called *ritsuryosei*.

By the end of the sixteenth century the rise of samurai families and religious power replaced the centralized authority of the Emperor's family. This led to the creation of a variety of types of cities and living spaces, including religious areas, and commercial functions along certain streets. The town of Fuji-yoshida, originally a temple city developed for worshippers of Mount Fuji, to some extent became a model city.

The town of Azuchi, laid out by Nobunaga Oda, and the town of Nagahama, laid out by Hideyoshi Toyotomi, are early model castle towns created in the middle of the sixteenth century during the civil war period. Following these models, 300 castle towns were constructed between the late-sixteenth century and early-seventeenth century in various parts of Japan. Between the middle of the seventeenth century and the end of the nineteenth century, there was a mainly peaceful period associated with Japanese isolation from the rest of the world. It was at the beginning of this period that castle towns were improved and completed in large numbers. They were each constructed for a combination of administrative, trading and political purposes. The castle was designed as a symbolic structure and the residential area occupied by samurai families was divided into areas of different social status.

The standpoint of historical geographers

Castle towns have long occupied a central place in Japanese historico-geographical urban morphology. Original forms of castle towns can still be 'read' in the landscape, as can processes of historical change and the characteristic zoning of residential areas according to social class and occupation. Foci of research have included the influence of

political structure, including feudal ruling structure, on urban form and the effects of the beginning of commerce.

Yamori (1970) summarizes the historical development of castle towns through a number of stages or types. Originally the houses of the merchants and lower classes of samurais were located within the area surrounded by the outer moat. However, with the gradual change of the castle town into a commercial and industrial town they were displaced beyond the outer moat. From the beginning of the seventeenth century the development of a market economy brought a clear social change, identifiable in the urban landscape. This change entailed the transformation of a castle town into a more open commercial town.

This typological sequence is summarized diagrammatically by Yamori (Figure 1). Type A is the castle town built in the period of civil wars between feudal lords (*daimyos*) before the unification of Japan under the Tokugawas. The castle on the hill is physically separated from the town, which has a dispersed structure at the foot of the hill. With this layout, of which the towns of Oka and Takatori are examples, it was not practicable to surround the entire settlement with a moat or embankment.

In type B, a moat and embankment encloses the entire town. Sub-type B₁, of which Nishio and Takasaki are examples, still contains farmland within its outer enclosure. Sub-type B₂, of which Iida, Isezaki and Tokuyama are examples, is more regularly laid out, with a grid pattern of streets.

Many castle towns belong to type C, which is characteristic of those created in the Edo era. In this type, of which Hikone is an example, only the upper class warriors' residential district near the castle, important tradesmen and craftsmen, and the castle itself are within the area enclosed by a moat and embankment.

In type D, of which Matsumoto, Katsuyama and Utsunomiya are examples, the residences of the most important officials, which in earlier castle-towns lay within the castle, are within the district of warriors' residences, though the main administrative buildings and storehouses remain within the castle walls.

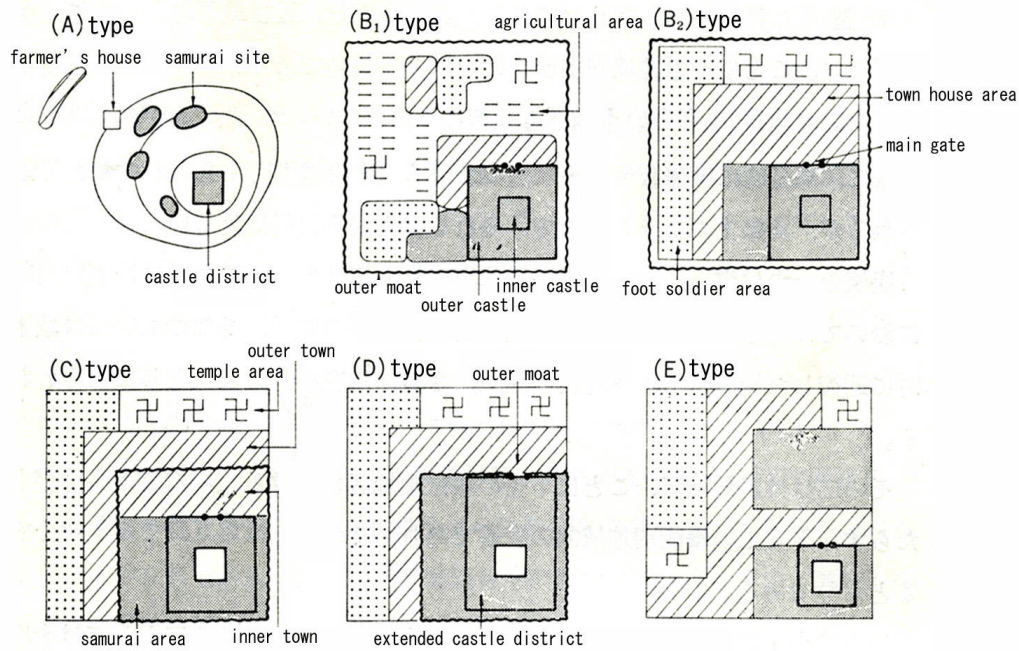


Figure 1. Transformation of castle towns (based on Yamori, 1970, p. 258).

Finally, castle towns of type E, of which Sabae is an example, were built during the peaceful conditions after the middle of the Edo era. This type is associated with areas of late urbanization. Here defensive structures are absent in the warriors' residential areas.

Other researchers have carried out more detailed studies using the framework provided by Yamori. For example, Yamori *et al.* (1987) examined the relationships between each part of the town and the structure of the town as a whole, and considered such aspects as the influence of types of building lots on the layout of streets. However, from a geographical perspective, their research did not go beyond the analysis of planning proposals, social structure and lifestyle. In a sense there was a hiatus in the progress of research at this point.

Approaches through architectural history

Research on urban morphology by architectural historians has included the use of the findings of philology. However, the main research theme within the history of architecture has been the methodology of planning

and design and the technology of architecture. Two research methods are particularly prominent. The first focuses on the perspectives of ordinary people (Noguchi, 1988). This is particularly research using historical records to clarify the transformation process of the details of architectural spaces. It often involves clarifying the social context, such as that of the merchants. The second is concerned with how the execution of power is expressed spatially (Miyamoto, 1986), a particular concern being the symbolic significance of spaces at the time of construction of the castle town. This research aims to clarify the technology, design concepts and aims of feudal lords, often employing historical texts. The first of these two approaches may be summarized under the heading 'Transformative processes', and the second under 'Power and symbolism'.

Transformative processes

Research on the detailed transformation of Japanese urban space has methodological similarities to the work of the Italian building typologists (Noguchi, 1988). A private house

termed a *machiya* constitutes a 'model'. It has a small garden, a storehouse, and a working area at the rear of the house.

Noguchi established a method of analysing the transformation process of urban space, associated with land ownership change, as a merchant society developed. This research method clarified the transformation of the various parts of castle towns, casting light on the planning process.

Itoh (2004) has shown how the geographical structure of towns was created between the fourteenth and sixteenth centuries. He also demonstrated the subsequent processes by which castle towns were physically expanded. A commonly held view of this period was that it was dominated by poor social conditions, lack of freedom, and rule by religious authority and powerful local clans. However, Itoh has concluded that this period was associated with much greater cultural freedom than had previously been acknowledged, and gave rise to various local cultures, and the development of art and economic activities. He gave especial attention to the effects of these developments on residential areas.

By fieldwork and the deciphering of old documents, Itoh puts forward the argument that towns were influenced strongly by professional religious groups. His work has been a major contribution to understanding the configuration of the castle town.

Power and symbolism

Castle towns were constructed by feudal lords under conditions of absolute power. However, despite this apparent similarity of origin to that of medieval European cities, they differ greatly from European cities in their physical form.

Apart from the segregation of the different social clans in distinct parts of the town and the location and form of the castle, it is hard to unravel the morphological complexity of the town and the underlying planning principles. Documentary evidence of the formation of these towns as entities is lacking.

In general, the structure was formed for military purposes, with crossing streets

forming a 'maze' (*kuichigai*) for foiling enemy attacks. However, this military explanation is more likely to be accurate for towns created after the peaceful period of the latter part of the Edo era.

Castle towns designed in a complex fashion for military purposes were no longer required after the nineteenth century. Hence, many historical structures in castle towns were demolished in the process of transformation into modern cities. This occurred with little consideration being given to their historical value.

When preserving old towns or redesigning present-day ones, the clarification of the original planning principles of castle towns becomes extremely important. There has been increasing recognition of this from the point of view of architectural history and urban design.

Akira Naito (1994) has revealed the design of the first attempt at building a castle town (that of Azuchi). He has shown its aesthetic sensitivity, its religious and symbolic significance, and the influence of European urban design at that time. He has shown that the castle town of Azuchi was not just built for military purposes.

Miyamoto (1986, 2005) in his research on the modern history of urban space has confirmed that attention was given to vistas in designing many castle towns. He drew attention to the significance of symbolic and picturesque urban beauty in the methods of castle town design and verified that lines of sight from the turrets of the hilltop castle were an important consideration.

From his perspective on urban design and redesign, Shigeru Satoh (2003) presents a broad picture of design principles from an examination of 53 typical castle towns. He includes various conditions, such as line of sight, the nature of surrounding mountains and scenery, and the measuring scale used. In addition Satoh clarified the importance of an axis line towards surrounding mountains that were of symbolical and religious significance. He established the way in which castle towns were also designed in relation to prevailing winds and water courses, and reflected the conception of a castle town as a Japanese

garden. Thus in a number of respects ecological principles were incorporated into urban design.

Most castle towns were built in the late-sixteenth and seventeenth centuries. It has been demonstrated that their layouts are products of the former arrangement of arable land termed *gorisei*. This entailed the layout in a grid of the lots that were given to farmers or divisions of units of land that were shared among a number of people (Takahashi *et al.*, 1993).

With the introduction of railways, improved roads, and other new functions in the modern era, it became necessary to formulate proposals for the next phase of urban design after clarifying the transformative processes that led to present urban forms.

Satoh (1995, 1997) clarifies seven patterns of transformation of historical castle towns, including how these different types of transformation were interrelated and the systems of controlling the expansion of cities after the Second World War. He successfully articulated the patterns of transformation and analysed the recent conceptions of urban design that accord with the design principles of castle towns.

Current approaches to urban form

The modernizing process in cities in twentieth-century Japan was disorderly in comparison with traditional planning. It provided little basis for future urban design. However, there has been some research directed at unravelling the character of historical towns and cities.

Hidenobu Jinnai, who is knowledgeable about the Italian typological method, has been actively researching in the field of urban morphology in Japan, China and the Arab countries, and a notable product of this has been his *Space anthropology in Tokyo* (Jinnai, 1995). He utilized the Italian typological method in his analysis of how towns and cities were transformed between the Edo and Tokyo eras and again subsequently. He also clarified the formation of the megalopolis of Tokyo as a whole.

After the Second World War, urban areas were altered in extremely diverse ways and it is hard to generalize about recurrent patterns. Arguably, the only morphological research on urban architecture that has proved really fruitful is that on the *machiya*.

The Japanese Architectural Society is, however, very actively collecting and publishing theses. It is also undertaking a study entitled 'Progress and control of urban architecture'. This stems from a perceived need to increase the sustainability of cities. The summaries of theses are being published in three volumes (Architectural Institute of Japan, 2007).

In conjunction with these summaries, Satoh (2004) presents ways of improving the form of a densely populated area by developing ideas grounded in traditional urban architecture. Tatsumi *et al.* (1999) present the guidelines for new urban planning based on a progression from the historical architectural model of the *machiya* in Kyoto. A project is attempting to answer the question of how a new *machiya* pattern can be created in present-day cities.

Control over architecture in Japan is extremely weak in the present conditions of high economic growth, and the development of architecture continues in a somewhat disorderly manner. Methods of reorientating urban design, giving attention to sustainable architecture and founded on a morphological approach, are much needed.

Conclusion

Urban morphology as it currently exists in Japan is mostly characterized by a cognitive approach (Gauthier and Gilliland, 2006). Although a normative approach is evident in a good deal of research (Satoh, 1999), effective planning outcomes have for the most part been limited to the restoration of certain historical areas. It has proved difficult to ground urban landscape management in the historical development of urban form. This may partly reflect the absence hitherto of a coherent theory of the morphological development of the Japanese city, which may in turn reflect

Japan's complex urban history. Nevertheless, morphological approaches are promising to yield effective applications in urban design. Furthermore, the passing of the Landscape Act in June 2006 has provided greater legal control over the development of the urban landscape. This combination of developments in the research basis of planning practice and changes in government policy augurs well for urban design.

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