

# The Meeting of Western and Oriental Cultures: Military Architecture in the 19th Century, Southwestern Hokkaido, Japan

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## I. The Aims of This Paper

From the viewpoint of historical geography, for over ten years the author has researched Japanese castle towns and fortified settlements constructed in the early modern age.<sup>1)</sup> Among them he has paid special attention to Kameda Castle constructed as a new Hakodate magistrate's office at the southwestern end of Hokkaido Island in the mid-nineteenth century (that is, at the end of the Tokugawa period), because the castle is famous for its fortifications modeled after the European style. It has been generally called Goryokaku by reason of its shape with five bastions. Tomatsuri (2000) pointed out, however, that the castle actually consisted of two parts; the inner area used for the headquarters of the magistrate's office and the outer area, surrounding the inner area, used for magistrate officials' housing and maneuvering grounds. The former occupied almost a star-shaped area surrounded with a moat, and the latter covered an almost square area surrounded with linear earthworks.

This paper discusses in detail the origins of these two parts of Kameda Castle to clarify the characteristics of Kameda Castle as military architecture in the mid-nineteenth century of Japan.

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## II. The Uniqueness of Kameda Castle among Japanese Castles in the Early Modern Age

There were nearly two hundred castles during early modern Japan, known as the Tokugawa period (see Figure 1).<sup>2)</sup> Most of them were constructed on hills or on small mountains for defensive purposes, so that the castle areas surrounded by outer walls and moats were neither truly round nor genuinely square. For example, Himeji Castle, the only Japanese castle listed as a World Cultural Heritage of UNESCO (in 1993), had its origin from a medieval fort on one of the isolated hills in an alluvial plain called Harima-heiya,<sup>3)</sup> and it was improved and enlarged as an important castle whenever new feudal lords came to control the main part of Harima province during the early modern age.<sup>4)</sup> Its triple moats with walls went neither in a circular arc nor in a straight line, partly because of natural conditions and partly for purposes of defense.

There were a few star-shaped castles with bastions based on European fortifications, such as Kameda Castle, Tatsuoka Castle (in the eastern end of

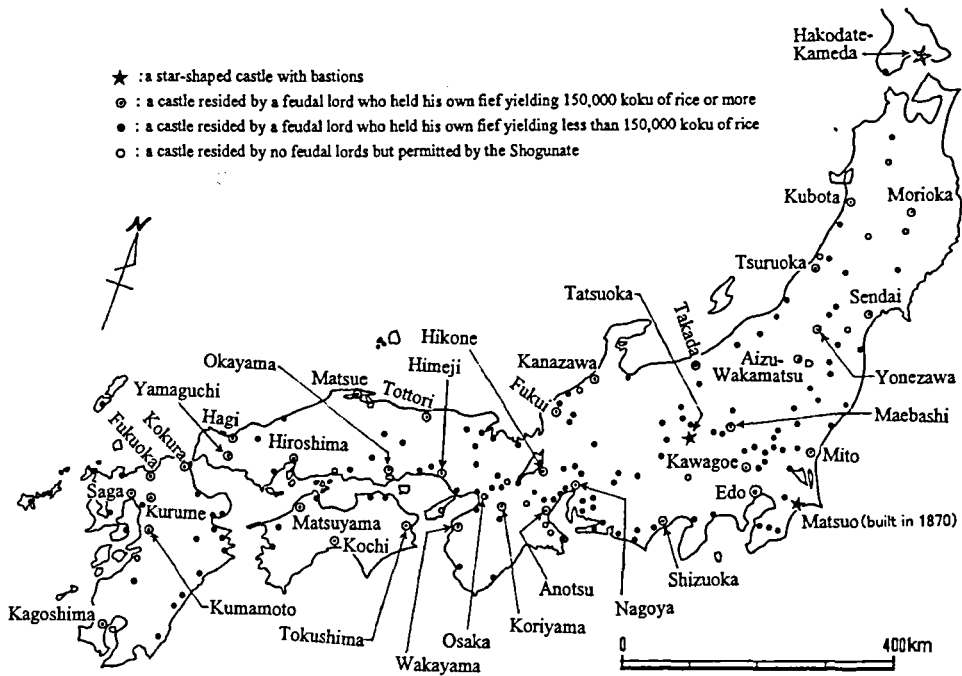


Figure 1 Distribution of castles during the 1860's in Japan

Shinano Province) and Matsuo Castle (in the northeastern end of Kazusa Province).<sup>5)</sup> These three castles were very similar, not only in form, but also in the years of construction (from 1857 to 1870) and also because ministers and magistrates of the Shogunate made the decisions to construct them. However, Kameda Castle differed in the following ways from Tatsuoka Castle and Matsuo Castle.

- 1) Kameda Castle was situated in the frontier zone of the Shogunate in comparison with the other two castles built near the capital, Edo, in central Honshu.
- 2) It was constructed for magistrates of the Shogunate as opposed to the others which were constructed for feudal lords even though they served or had already served as ministers of the Shogunate during construction of their castles.

Because of the above-mentioned unique characteristics, Kameda Castle is the focus of this paper.

### **III. Construction of Kameda Castle as a New Hakodate Magistrate's Office**

In the latter half of the eighteenth century the Great Powers came to Japan to extend their influence in Hokkaido Island, the Kuril Islands, and Sakhalin Island, which were collectively called the Yezo Areas in early modern Japan. To protect Japanese rights and interests against those incursions, the Tokugawa Shogunate adopted the following policies:

- 1) Establishing its own magistrate's office at Hakodate on the southwestern end of Hokkaido.
- 2) Ordering several feudal lords governing the Ou district near Hokkaido to dispatch their detachments to the assigned areas of Hokkaido, Sakhalin and the Kuriles.<sup>6)</sup>

These defensive policies against the Great Powers by the Shogunate were adopted twice; the first term was from 1799 to 1821, and the second term was from 1854 to 1868 (that is, at the end of the Tokugawa period). In 1857, during the second term, the Shogunate began to construct a new castle to afford more effective

protection of the Hakodate magistrate's office.<sup>7)</sup> The new castle called Kameda was designed by Professor Takeda Ayasaburo (1826-1880) who was born on Shikoku Island, Japan, and had studied European sciences in the Dutch language.<sup>8)</sup> The question arises why a Dutch student was appointed as the lead designer of this important castle instead of castle architects who had studied traditional Japanese military science.

In early modern Japan, various modern sciences and technologies were introduced to Japan through Dutch books. Especially in the latter part of the early modern age many Dutch medical and military books were translated into Japanese by the professional translation section of the Shogunate, because European sciences and technologies were thought very useful and powerful.<sup>9)</sup> These books translated into Japanese from Dutch (and from other European languages such as French and English through Dutch) were lent out to the Shogunate's ministers and magistrates as well as to feudal lords.

For example, "*Chikujo-zensho*,"<sup>10)</sup> a Japanese version of the Dutch book "*Handleiding tot de Kennis van den Festingbouw*" [*Handbook for the knowledge of fortifications*], introduces amazing details of various types of fortifications including ones devised by French General Vauban and Dutch technologist Coehoorn (see Figure 2A and 2B).

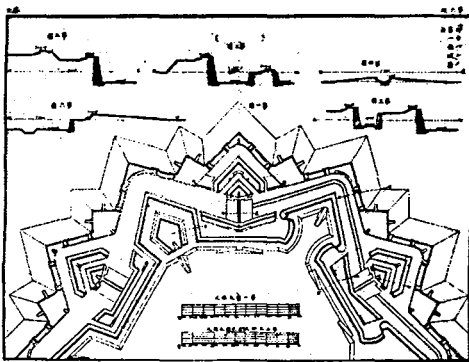


Figure 2A Vauban's first fortification method in a separate volume of the illustrated book of "*Chikujo-zensho*".  
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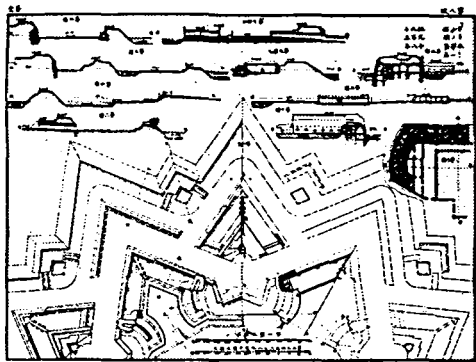


Figure 2B Coehoorn's first fortification method in a separate volume of the illustrated book of "*Chikujo-zensho*".  
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During the construction of Kameda Castle, French naval officers who visited Hakodate Port by warship offered advise.<sup>11)</sup> In addition, it has been suggested that Prof. Takeda gained knowledge about fortification from books translated from French into Dutch while he was in Hakodate (Shiroyama, 1966), though he had learned military architecture from Dutch books prior to this assignment.

Therefore, it is virtually certain that the castle was constructed in the European fortification style, both in learned knowledge and in practical techniques. The construction of Kameda Castle was halted in 1862 because of financial pressures. Only one of the five demilunes of the original plan was finished building at that time. In 1864, the Tokugawa Shogunate finally declared the end of Kamada Castle construction in spite of it's being incomplete.

#### IV. Shape and Style of Kameda Castle

The Hakodate Port was one of the authorized ports open to foreign countries in 1854 in accordance with the treaties. An old map named "*Hakodate Kameda Ichien Kiri-ezu*" drawn in 1862 (see Figure 3)<sup>12)</sup> precisely shows the area around Kameda

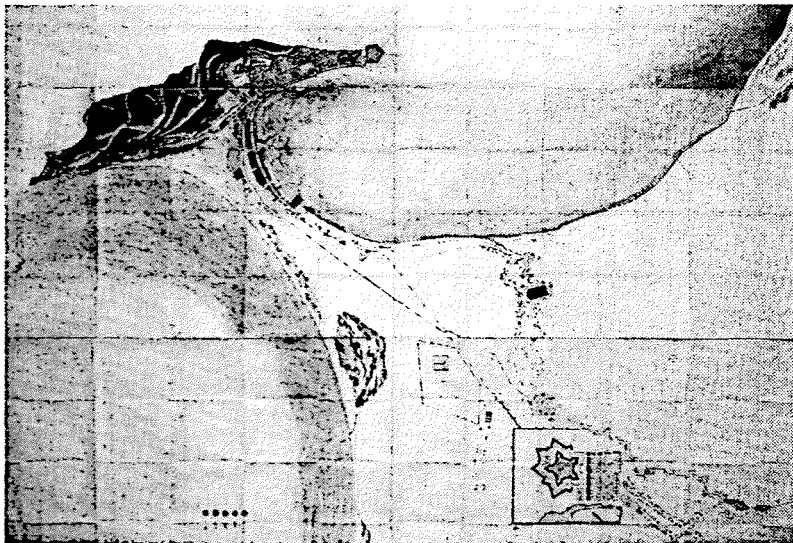


Figure 3 Old map of Hakodate in 1862 named "*Hakodate Kameda Ichien Kiri-ezu*"  
Upper side is west.

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Castle and the Hakodate port town. A road went straight to the north from the port town, and a walled office with fortifications was situated along it. An office called Tsugaru-Jin'ya was constructed as headquarters for the detachment dispatched from the Tsugaru Feudal Clan.<sup>13)</sup> Kameda Castle was situated to the north of this Tsugaru-Jin'ya.

When we look closely at the old map, it is clear that the castle had star-shaped fortifications with five bastions. The specific shape reminds us of the typical European fortifications and for that reason the castle has been commonly referred to as Goryokaku, or fortress [: *kaku*] of five [: *go*] bastions [: *ryo*] (see Figure 4).

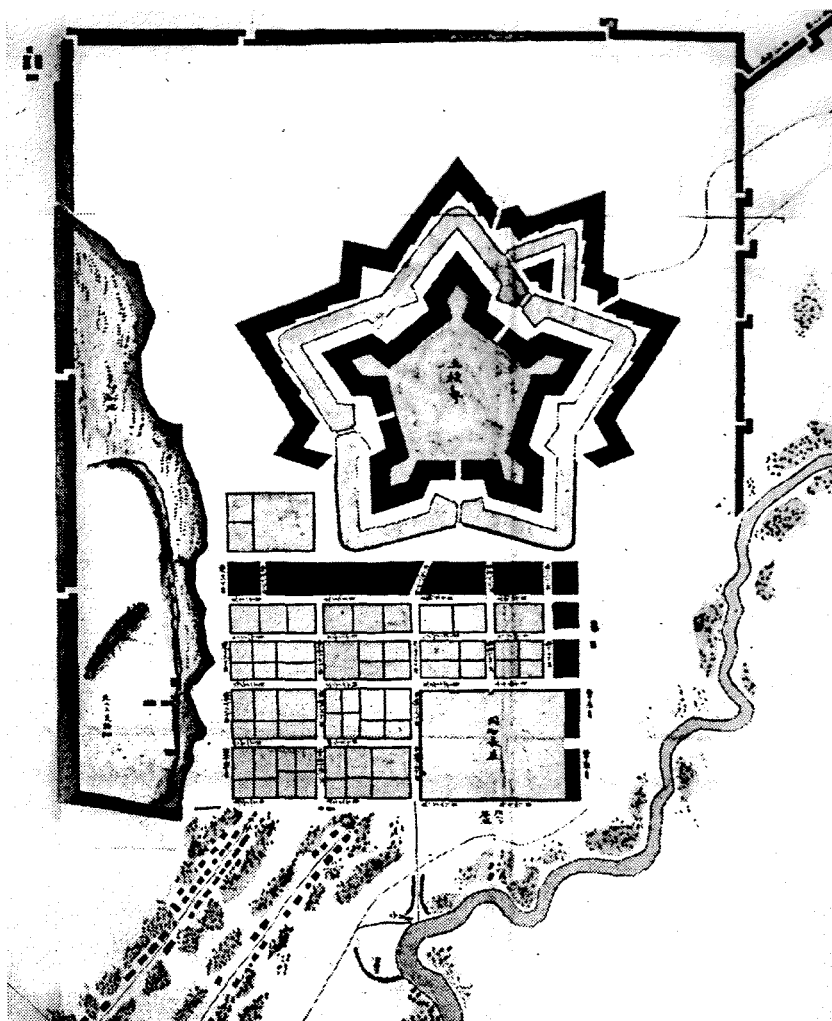


Figure 4 Kameda Castle in 1862 drawn in an old map named "Hakodate Kameda Ichien Kiri-ezu"  
Upper side is south.  
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Also on the old map, there can be clearly seen the policemen's residential quarters to the north of the star-shaped Goryokaku. The quarters were composed of many plots for residential detached houses, a large residential site for terrace houses, and greenbelts. They were separated by several streets that ran north-south and east-west. The detached houses were constructed for the police inspectors and the terrace houses for the police sergeants.<sup>14)</sup> Moreover, long linear walls can be seen around Goryokaku in addition to a vast square area surrounded by the walls in the old map.

The author insists that we must not ignore these elements, that is, the residential quarters, linear walls, and a vast square area, in addition to star-shaped Goryokaku, when we mention Kameda Castle in aggregate. We should refer to all of this area as Kameda Castle. When we look at another old map named "*Kankyo Hakodate Zenzu*" published in 1860 (see Figure 5),<sup>15)</sup> the facts above-mentioned are well supported, and the residential quarters were drawn as a large unit for officers' housing named Oyakutaku and on the north quarter a long linear wall was drawn as the boundary of the castle. The author (Tomatsuri, 2000) has already pointed out that Kameda Castle consisted of two parts: the inner star-shaped area called Goryokaku for the headquarters of the magistrate's office, and the outer vast square area, surrounding the inner area, for magistrate officers' housing sectors and maneuvering grounds.

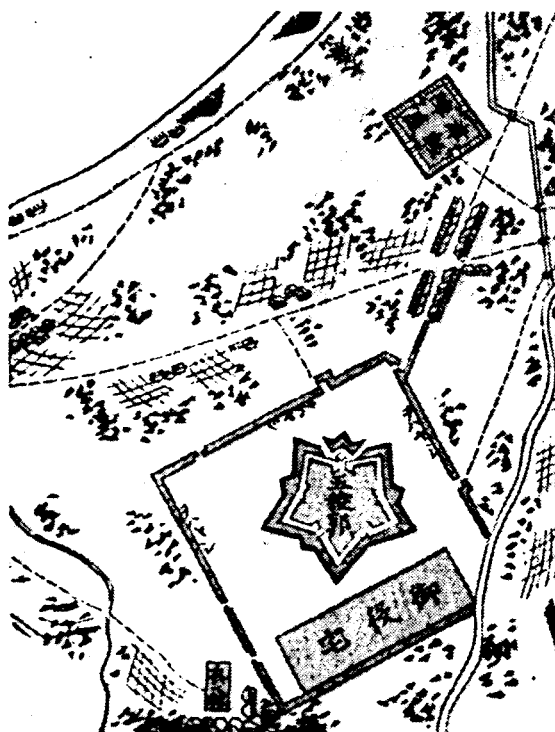


Figure 5 Kameda Castle and Tsugaru-Jin'ya shown in the first part of "*Kankyo Hakodate Zenzu*" (1860)  
Upper side is south.  
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## V. Origin of the Two Parts of Kameda Castle

In this chapter, the two parts of Kameda Castle will be compared with similar types of fortifications in European countries and Japan in order to determine their origins.

### 1) In the case of the inner star-shaped area of Kameda Castle

We should compare the inner star-shaped fortifications of Kameda with those of six typical fortress towns in the area of the Benelux countries and their south border zone<sup>16)</sup> because of the three following reasons. The first is that the Netherlands was the only country that maintained contact with Japan throughout the Tokugawa period and so the Tokugawa Shogunate obtained various kinds of Western knowledge from the Netherlands as mentioned in the chapter III. The second reason is that the Benelux countries (Belgium, the Netherlands, and Luxembourg) which have been called the Low Countries as a whole since ancient times,<sup>17)</sup> have had many characteristics in common comparing with other neighboring countries including Germany, France, and England. The third reason is that along the southern long border of the Benelux countries there were many battles with France. Their military experiences influenced the design of Kameda Castle because France was a leading country in the field of engineering military architecture as mentioned in the chapter III. Therefore, the fortifications of fortress towns in the south border zone of the Benelux countries and France are important when we search for the origins of Kameda Castle.

Figure 6 shows three typical fortress towns in the Netherlands.<sup>18)</sup> Naarden is located near the south coast of the IJsselmeer, and this third set of strong fortifications was constructed at the end of the 17th century. Coevorden is located near the northeast border with Germany, and its strong fortifications were constructed around 1600. Willemstad is located near the mouth of the Maas River, and its strong fortifications were constructed at the end of the 16th century. In this figure, I deliberately used Dutch old topographic maps published in the middle of the 19th century<sup>19)</sup> in order to compare the scale of their original fortifications as much as possible. Judging from the figure, Kameda's star-shaped fortifications are obviously smaller than those of the three fortress-towns. When we compare the



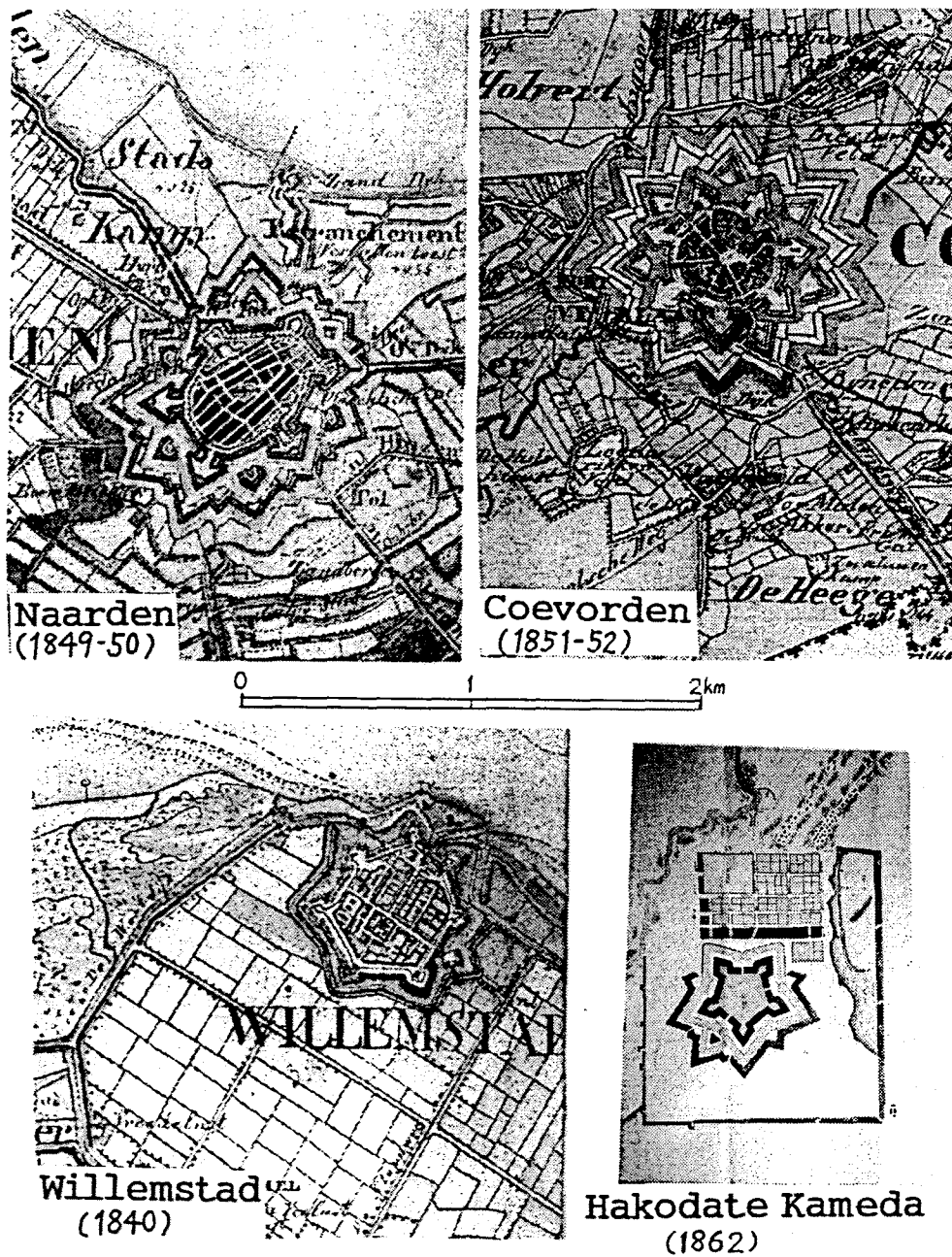


Figure 6 Typical military towns provided with star-shaped fortifications in the Netherlands: Willemstad (1840), Coevorden (1851/52) and Naarden (1849/50) in contrast to Japan's Hakodate Kameda (1862)  
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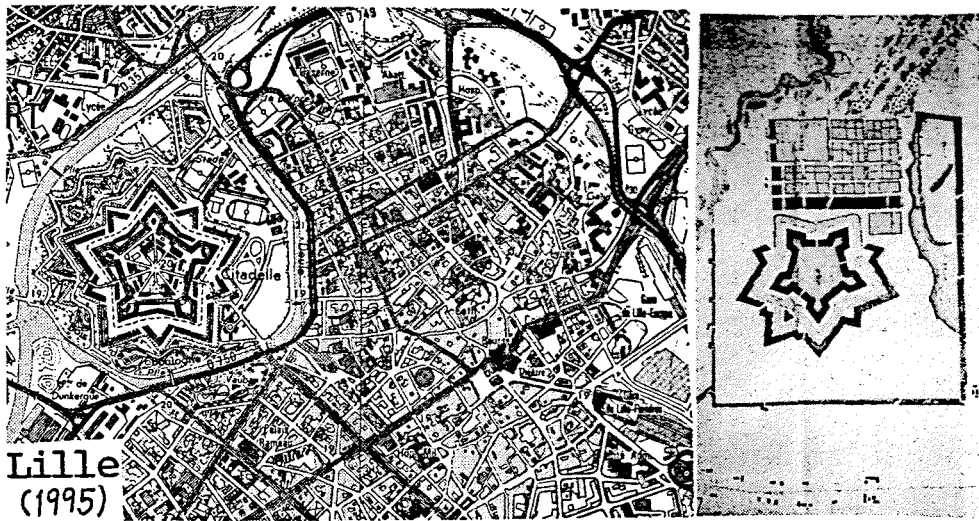
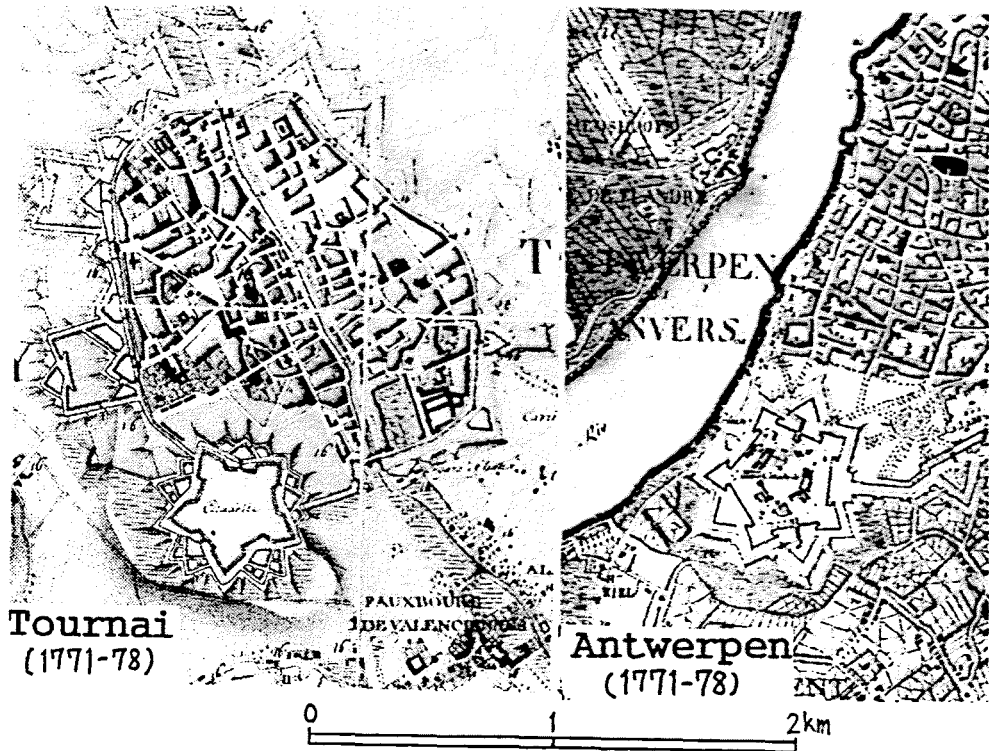


Figure 7 Typical citadels provided with star-shaped fortifications in Belgium and northern France: Antwerpen (1771/78), Tournai (1771/78) and Lille(1995) – in contrast to Japan's Hakodate Kameda (1862)

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characters of buildings and facilities in these fortifications, it is very important that there were many buildings and facilities for citizens in the fortress towns, in comparison with the inner part of Kameda Castle where only the magistrate's office and military facilities were located.<sup>20)</sup>

Figure 7 shows three typical citadels in Belgium<sup>21)</sup> and along the Belgium-France border. Antwerpen (Antwerp) has played a very important role as an active city at the east side of the Schelde River in northern Belgium, and its citadel was constructed about in the middle of the 16th century, and was destroyed in the 19th century. Tournai has had very long city history along the Escaut River in southern Belgium, and its citadel was constructed about in the latter half of the 17th century, and was destroyed in 1869. Lille was famous as a center of a growing metropolitan area in northern France, and its citadel was completed in 1670, and even now it is used as an army base. In this figure, the author used Belgian Cabinet Maps published in 1770's<sup>22)</sup> for the Antwerpen and Tournai cases with the same intention as in the above fortress towns, while he regrettably had to use a late topographic map for Lille. Judging from figure 5, Kameda's star-shaped fortification has nearly the same scale or is a little smaller than the citadels of these three cities. They are also similar in respect to the character of buildings and facilities in their fortifications; that is, there have never been homes or civilian facilities.

Therefore, the author would regard the inner area of Kameda as a kind of citadel found among European military settlements with star-shaped fortifications, and so he will call it Kameda Citadel from now on.<sup>23)</sup>

There is a second question about the type of fortification design adopted for Kameda Citadel from the European planners. According to Shiroyama (1966), Prof. A. Takeda made his plan on a basis of a French book on fortifications, which was given him by the Shogunate authorities in the form of a translation into the Dutch language. But, we should not suppose that Kameda Citadel was constructed only on the basis of a French type of fortification among various European models. Considering the complicated geographical conditions of Kamada Castle, which is located in marsh lowland between a hill continuing from the north and a small monadnock on the south end, these conditions were not suitable for a French type fortification which fitted to hilly areas. The fortification type of the Netherlands

was suitable to low marshland because low alluvial plains covered most of the Netherlands. Therefore, the following interesting possibility arises. Kameda Citadel may have been constructed as a compromise between two typical methods of fortifications in Europe: the French [Vauban's] method (see Figure 2A) and the Netherlands' [Coehoorn's] method (see Figure 2B). When we see Kameda Citadel (see Figure 4), glacis, regarded as important in the French method, surround the moats of the citadel except its north boundary. But the moats were full of water, that was characteristics of the Dutch method, while the moats were generally empty of water in the French method.<sup>24)</sup>

## 2) In the case of the outer square area of Kameda Castle

The questions about the outer square area are as follows: Why were linear walls constructed? What was their function? Why was the shape of the outer area nearly square? Two reasons are put forward. The first is that the walls were earthen and covered with woods. The second is that other magistrate's offices of the Tokugawa Shogunate were generally surrounded by earthen walls covered with wood or wooden walls and occupied nearly square areas when they were built on almost flat ground as in case of Kameda Castle.

The author will show another case of a magistrate's office established by the Tokugawa Shogunate: Nara Magistrate's Office. Figure 8A & 8B show the Nara Magistrate's Office both in a reconstruction map and in a part of the oldest topographic map printed in 1887.<sup>25)</sup> In the topographic map the previous wall of the office is shown as a linear earthen bank. When we compare these two magistrate's offices (Kameda Castle and Nara Magistrate's Office), they have two similar characteristics. One is the fact that they occupied square areas; the other is the fact that they were surrounded with linear earthen walls. In the case of the Nara Magistrate's Office the wooden walls with moat were made along the earthen wall. These wooden or earthen walls were, as mentioned above, made not only in almost every magistrate's office and remote offices of the Tokugawa Shogunate but also made for main remote offices of feudal clans in the Tokugawa period.<sup>26)</sup> For example, a remote office called Tsugaru-Jin'ya shown in figure 5, which was constructed as a headquarters in Hokkaido by the Tsugaru Feudal Clan as

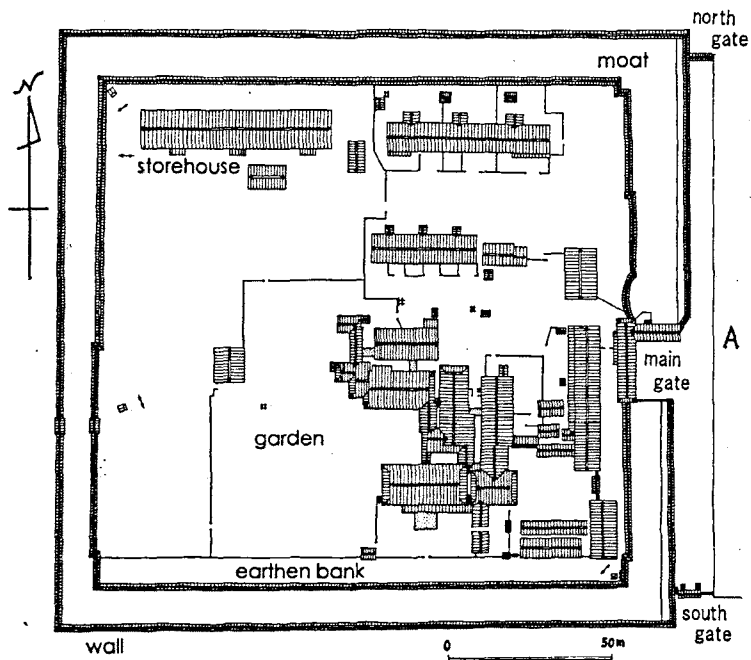


Figure 8A Reconstruction map of Nara Magistrate's Office  
Modified from Sugawara (1984)  
[A]: detached houses for police inspectors

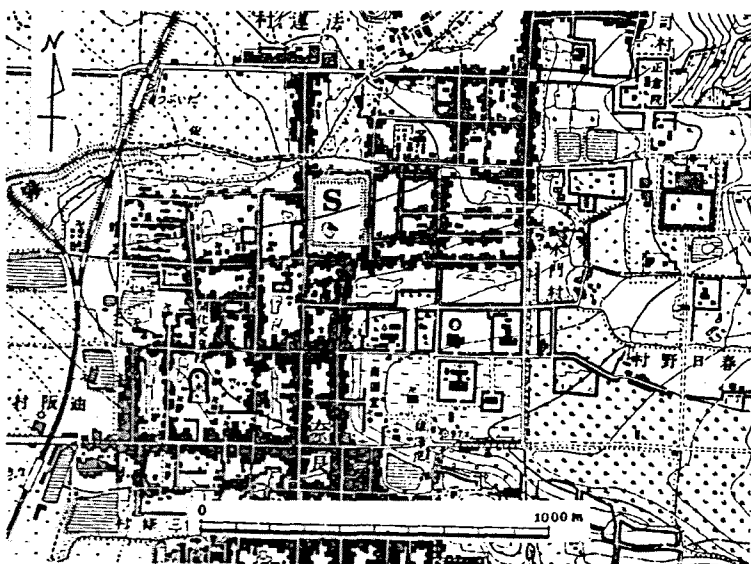


Figure 8B Nara town shown in a part of the oldest topographic map  
printed in 1887  
[s]: a vacant space surrounded by a wall is the site of the  
former Nara Magistrate's Office

mentioned in chapter IV, had a square area surrounded with wooden walls along a road connecting the port town and Kameda Castle.<sup>27)</sup> Concerning the policemen's quarters, they were built outside [to the east] of the magistrate's office in the case of the Nara Magistrate's Office, compared with Kameda Castle where they were built in the north section of its outer area. In terms of size occupied by the office, the outer area of Kameda Castle was much larger than that of Nara Magistrate's Office, and the pentagonal block of Tsugaru-Jin'ya was intermediate between these two offices in size.

The above-mentioned facts lead to the conclusion that the outer area of Kameda Castle belongs to the same category as other magistrate's offices and remote offices. In the case of Kameda Castle, the Tokugawa Shogunate considered that it needed to be provided with much more fortifications with respect to defense, so that its size became larger than other magistrate's offices. Even the policemen's quarters were large and surrounded with walls.<sup>28)</sup>

## **VI. The Meeting of Two Cultures of Military Architecture: the European and Japanese Ones — Conclusion**

From the above-mentioned facts, two types of fortifications were provided when Kameda Castle was constructed. The inner fortification was a star-shaped citadel with five bastions; the outer fortifications were linear earthen walls planted with woods, which surrounded a vast square area of the castle. The former originated from traditional European styles, and the latter from the style adopted by Japanese magistrate's offices. Moreover, another two facts support this compound character of Kameda Castle as military architecture. One fact is that the Oriental traditional system of belief in directions (the way of *Yin* and *Yang*), which had been already introduced into ancient Japan and was popular in every social class of Japan,<sup>29)</sup> is seen in the construction of the inner fortifications. The main entrance of the citadel with only one demilune was situated at the southwest corner of the citadel, and a shrine called Toshogu dedicated to the first Shogun, Tokugawa Ieyasu, was constructed to the northeast of the castle. These two directions (northeast and southwest) are those of great importance in the Oriental traditional belief. The other fact is that one of typical European military architecture can be

pointed out around Kameda Castle from the old map named “*Hakodate Kameda Ichien Kiri-ezu*”. Linear walls both on the west part of the outer fortifications and along the way to the southwest towards the port town look like those of European defense line called ‘*Lignes*’ (see Figure 4).

The author reached the following conclusion: Kameda Castle, constructed as a new Hakodate magistrate’s office by the Tokugawa Shogunate, was a castle very unique in the world as a compound of military architecture of the two styles, the European and Japanese.<sup>30)</sup>

## **VII. Necessity of Preservation of the Site in the Face of Urbanization — an Appeal to Society from Academics**

After the Shogunate was overthrown in 1867, Kameda Castle was controlled by the Japanese army, and the citadel remained as military architecture. On the other hand, the quarters for policemen’s housing soon disappeared and their block area became agricultural fields (Tomatsuri, 2002a).

After the World War II, the site of the citadel became more famous as a National Special Historic Site, while the vast square of the outer area was used for agriculture and later for housing due to the onrush of urbanization. Figure 9 is a part of a late air-photograph covering the former area of the castle. Most of the walls surrounding the outer area of the castle have been divided into many residential parcels and streets by land readjustment projects during urbanization. Only the southeast part of them remains as national scenic-preserved forests (see Figure 10).

The author sincerely hopes that the complete site of Kameda Castle will be preserved because of its uniqueness and specific character in the world, and also hopes that the site will be listed as a cultural historic site of the World Cultural Heritages of UNESCO, along with, if possible, the area of Hakodate port town that has many and various historic buildings, and with a small four-bastioned fort called Shiryokaku which was constructed in 1869 by a military group opposed to the Meiji Restoration.

**Acknowledgement.** This paper was based and revised on a manuscript read at the Session 4-C (Natural and Cultural Heritage – Architectural modes in time and space – ) of the 11th International Conference of Historical Geographers held at Université Laval, Québec City, Canada



Figure 9 Former area of Kameda Castle taken from the air on July 6, 1999  
Goryokaku Citadel with five bastions in the center part, and the walls on the southeast  
remain as national scenic-preserved forests (at the lower right) (©NTT-ME & TE Group Ltd.)



Figure 10 Former walls of Kameda Castle remain as national scenic-preserved forests  
Above : northeastern end;  
below: [left] : southwestern end; [right]: Locations shown on the board.



during 12-18 August, 2001.

The author would like to express heartfelt thanks to Mr. Tahara Y. for his academic advice, to Tokiyo & Associates, Inc. for its English revision, and to the National Archives of Japan, Hakodate City Central Library, National Geographical Institute of Belgium, National Geographical Institute of France, and Wolters-Noordhoff Atlas Productions for their permission.

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**Keyword:** historical geography; fortified settlements; Kameda Castle; Hakodate magistrate's office; mid-nineteenth century; the end of the Tokugawa period; Hokkaido Island, Japan.

## Note

- 1) The results of the research on the following subjects were shown in some reports on the Research Project subsidized by Grants-in-Aid for Scientific Research (Takehisa, 1989, pp.14-15, 40-47; Takehisa, 1992, pp.9, 26-29; Senda, 1994, pp.9, 32-37; Takehisa and Ogata, 1996, pp.11, 48-53; Tomatsuri, 1998b, pp.1-2, 30, 40-62, 239-271).
  - a) Moated settlements in the southern part of the Kyoto Basin
  - b) Small castle towns in the Nara Basin
  - c) Fushimi Castle, Yamashiro Province
  - d) Castle towns in Fukushima Prefecture
  - e) Tottori Castle, Inaba Province
  - f) Fortress site in the southern part of Oshima Peninsula, Hokkaido
  - g) Castles called gusuku in Okinawa Island (with Ideta, K. et al.)
- 2) During the Tokugawa period there was a rigid system that each feudal lord, called *Daimyo*, was generally able to have only one castle in his fief. And later, all *Daimyos* were classified hierarchically into five ranks, and many *Daimyos* classified into the lowest rank were not allowed to have their own castle.
- 3) The name of Himeji castle derives from a hill called Hime-yama.
- 4) Among these feudal lords, HASHIBA Hideyoshi (later TOYOTOMI Hideyoshi, the supreme minister and chancellor to the emperor) and IKEDA Terumasa (son-in-law of TOKUGAWA Iyeyasu, the first shogun of the Tokugawa Shogunate) are famous in Japan's history.
- 5) Strictly speaking, Matsuo Castle was constructed not in the Tokugawa period, but during the time between the Meiji Restoration (1867) and the abolition of feudal clans system (1871) by one of former ministers of the Tokugawa Shogunate.
- 6) Feudal lords constructed a headquarters and a few branches along the seashore. Both the headquarters and branches were called *jin'ya* and were fortified generally with walls. The author (Tomatsuri, 2000) has already presented not only the size and shape of many *jin'ya*'s but their distributions. It is noteworthy that Hekirichi-Jin'ya constructed by Matsumae Feudal Clan in 1855 had a star-shaped fort with bastion in rectangular ground on the end of the hill.
- 7) The previous Hakodate Magistrate's Office was drawn in old maps in those days. According to the old maps it was situated around the south border of Hakodate port town, that is, at the foot of Mt. Hakodate, and was surrounded with wooden walls. The shape of its ground was nearly quadrilateral.
- 8) He was ordered to design and supervise the construction of two fortifications to protect the Hakodate Port. One was Kameda Castle and the other was Benten-misaki Daiba, a strong hexagonal fort that was situated at the west front of the port.

- 9) According to Classified catalogue of foreign books in the Naikaku Bunko (a division of the National Archives of Japan) there are contained sixty-two Dutch books, of which thirty-one [No.3342-3372] are classified as applied science.
- 10) This handwritten book in Japanese binding is cataloged into Vol.159-76: No.43007, and is classified as the section 2 [the art of war] of military/material arts in Classified catalogue of Japanese books in Naikaku Bunko.
- 11) Both Hakodate Port and Shimoda Port (Izu Province) were opened in 1854 in accordance with the treaties entered into with the Great Powers.
- 12) The old map consists of three parts in manuscript copied in 1862, and all parts folded because of its large size are kept by Hakodate City Library (No.002901, 1-513, 7-003).
- 13) This office is described again in the chapter 5.
- 14) The police inspectors called Yoriki served as upper class officers under the magistrates of the Shogunate. The police sergeants called Doushin served as lower class officers under the magistrates of the Shogunate.
- 15) The old map printed from woodblocks is composed of three parts. The first part covers Hakodate port town and its surroundings; the second part is a bird's-eye map of Hakodate Port; the third part covers only the port town on a large scale. Kameda Castle is drawn in the first part, and the previous magistrate's office and a new fort named Benten-misaki Daiba are drawn in the third part. Its copy has been kept in Hakodate City Library (No.002901, 1-762, 3-001).
- 16) The author visited the area to research castle towns in 1993, 1995 and 1998.
- 17) After the Netherlands alone gained independence from Spain in 1648, Belgium continued to be controlled by the dynasty of Hapsburg of Spain and turned in 1713 to be controlled by the same dynasty of Austria. After annexed to the Kingdom of Netherlands in 1815, Belgium finally accomplished its independence in 1830.
- 18) The author wrote papers on castle towns in the Netherlands (Tomatsuri, 1997; Tomatsuri, 1998a; Tomatsuri, 1998b). Coevorden and Willemstad were treated individually in these papers (1998a, pp.180-182, and 1998b, pp.7-8, 28-29).
- 19) The reason why these maps are selected is that they are the first official topographic maps of the Netherlands. Their original scale was 1:25,000. Their copies were published conveniently into four volumes of book with introduction to the history of mapmaking in the Netherlands by Dutch company, Wolters-Noordhoff Atlasproducties, whose titles were "*Grote Historische Atlas van Nederland 1:50,000*". And later, a series of "*Grote Historische Provincie Atlas 1:25,000*" has been published by the same company.
- 20) A few old maps remain where the inner part of Kameda Castle is precisely drawn, and excavations were made there so that an official report to the excavations was published by Hakodate City Board of Education in 1990. Main old maps and pictures stored at Hakodate City Library including the above old maps were kindly published in an atlas by Yoshimura (1988). The latest research results including those of excavations are briefly summarized in Tahara (1999 and 2000), and a reconstruction of inner part of Kameda Castle was planned from a viewpoint of both architecture and civil engineering by Obayashi-gumi Project Team (1999).
- 21) The author wrote papers on castle towns in Belgium (Tomatsuri, 1998c) including two planned fortress towns (Mariembourg with four bastions and Phillipville with five bastions) in the south border zone of Belgium, and also wrote a brief introduction about Tournai (Tomatsuri, 2002b).
- 22) The series of Belgian Cabinet Maps are reproduced and published by the National Geographical Institute of Belgium.
- 23) According to Oxford English Dictionary (second edition on CD-ROM version3, 2000) the first meaning of "Citadel" is as follows: The fortress commanding a city, which it serves both to protect and to keep in subjection.

- 24) Imamura(1999) gave us an interesting view about the roots of Kameda Citadel.
- 25) The land occupied by the Nara Magistrate's Office was given to the Nara Higher Normal School for Girls in 1905, and now it is used as main part of school area of Nara Women's University, successor of the school. Excavation surveys were undertaken when new school buildings of the university were built. (Nara Women's University, 1983, 1984, 1986, 1989, 1995, 1999) A topographic map printed in 1887 was the first map surveyed through modern method around Nara city.
- 26) The Tokugawa Shogunate had about ten magistrate's offices (including Nara Magistrate Office) called Bugyo-sho and more remote offices called Daikan-sho for itself, and feudal clans generally had their own remote offices.
- 27) "*Hakodate Kameda Ichien Kiri-ezu*" shows that Tsugaru Jin'ya was composed of two parts: a square area with walls in the center; and a vast pentagonal area, be it a little deformed, surrounding the square area (see figure 3). The square area of Tsugaru Jin'ya is shown in "*Kankyo Hakodate Zenzu*".
- 28) Official letters exchanged between Hakodate magistrate and ministers of the Shogunate show that the police inspectors and sergeants under Hakodate magistrate were treated better than those under other magistrates of the Shogunate (Hakodate City, 1990).
- 29) The area to the northeast of ancient capital of Japan was treated as serious and sacred. Also in the Tokugawa period there was the belief that a great temple called Kan'ei-ji was constructed on the hilly area to the northeast of Edo Castle to protect the Castle and the Tokugawa Shogunate itself.
- 30) This conclusion leads to a future and more intensive and extensive study to the fortified settlements not only in the Benelux countries but also in their former colonies in the world. For example, Ashworth (1991) and Funo (2005) gave excellent suggestions to this study.

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\*: in Japanese

\*\* : in Japanese with short summary in English