

Assignments of the Botanical Garden Improvement in Nagoya

名古屋市東山植物園のエントランス庭園改修計画の課題

OKAMURA Yutaka

2012年7月に「東山植物園洋風庭園学生アイデア募集」が公表され、国重要文化財の温室の保存修理に合せた温室周辺の洋風庭園計画のアイデア募集があり、歴史ある東山植物園のエントランスにふさわしい魅力ある空間づくりとは何か？について考えることになった。

本報告では、デザイン都市名古屋にふさわしい植物園のあり方を探ることを目的として、東山植物園のエントランス庭園計画に至った経過を紹介した。参考としたパドバ大学附属植物園、Jardim Botânico やキュー王立植物園はユネスコが認定する世界文化遺産であり、世界中から多くの観光客が訪れる。魅力づくりのためには、名古屋大学や名古屋市立大学薬学部などと連携した種の保存や新種の開発を目指した研究植物園としての役割を加えることも必要である。

Key words: world cultural heritage, design city, garden innovation

1. Introduction

Although the “The Higashiyama Zoo and Botanical Garden Reproductive Master Plan” was released in 2007¹⁾, the present mayor withdrew the reproductive master plan, which the former mayor sanctioned in 2009. Thus, the future of this plan was opaque. The student idea competition of the western-style garden at the Higashiyama Botanical Garden was held in July 2012. An idea competition for the western-style garden plan was held around the greenhouse to restore the greenhouse as an important cultural site as specified by the Agency for Cultural Affairs of the Japanese government. The theme for the attractive production of space suitable for the entrance to the historical Higashiyama Botanical Garden will be considered (Photo 1).

This report explores what types of botanical gardens would be suitable for the design city Nagoya. After introducing the outline of botanical gardens in other cities, including the World Cultural Heritages that UNESCO has authorized, the progress that resulted in the garden entrance plan of the Higashiyama Botanical Garden of Nagoya is introduced.

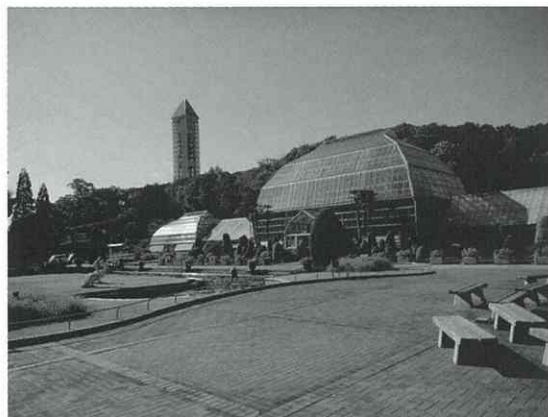


Photo 1: Entrance area of the Higashiyama Botanical Garden

2. The Creative City Network of Educational Institutions

Cumulus (an international society by the Institution of Higher Education of Art Design Media Systems) World Congress was held on the three campuses of Aalto University in Helsinki, Finland, from May 24 to 26th, 2012. The convention's theme was "Open participative city: How design knowledge can support public services in the development of open, participative city environment." Both presentations and exchanges of opinions were performed at the following five subcommittees: 1) open interactive city, 2) innovative services, 3) designing sustainability, 4) the function of art in contemporary society and 5) the meaning of artistic research, and the dialogue of art and design in education. An emphasis was placed on the necessity for the administration to demonstrate design power.

3. Activities of the Design City Nagoya

In 2008, much progress was made in design city authorization of Nagoya by UNESCO. It began with "the design city declaration" by the City Council of Nagoya in 1989. Both the world design meeting and the world design exposition were held in the same year. The International Design Center Co. Ltd. was established in 1992; the World Interior Design meeting was held in 1995; the School of Design and Architecture of Nagoya City University was established in 1996; the International Design Center was opened in 1996, accompanying completion of two skyscrapers—the Design Center Building and Business Center Building at Sakae 3-chome, Naka-ku ward in Nagoya; and the Graduate School of Design and Architecture of Nagoya City University was established in 2000. In 2003, the

World Graphic Design meeting was held. These progresses applied for authorization of the design city to UNESCO in September 2007 (Fig.1). In order to secure firm footing for design research, the Environmental Design Research Institute was collaborated with the Graduate School of Design and Architecture of Nagoya City University in April 2009²⁾.

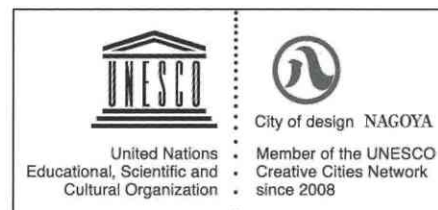


Fig.1: the logo mark of design city Nagoya

4. Reproduction Plan of the Higashiyama Zoo and Botanical Garden

The Higashiyama Zoo and Botanical Garden was established in 1937. Its predecessor was the Nagoya Municipal Tsuruma Park, which opened in 1918. The Zoo and Botanical Garden—at 59.6 ha, that is, a total area of 32.2 ha and 27.4 ha for the Zoo and Botanical Garden, respectively—was established in Higashiyama Park, newly established in the easternmost region of the city in those days. The then newly established zoo was called "the biggest zoo in the East." It was presented to the koala by the Taronga Zoo, Sydney, Australia, for the first time in Japan in 1984 and won wide popularity.

The front hall of the large greenhouse (12.4 m in height and 66 m in full length) in the Higashiyama Botanical Garden is the oldest existing Japanese greenhouse. Its steel skeleton construction of the trussed structure, which was assembled by electric welding, was called "the biggest Crystal Palace of the East" at the time of construction. Moreover, it was

designated as an important cultural property of Japan in 2006. About ten sorts of plants, including a coconut planted in the greenhouse at the time of opening, still exist.

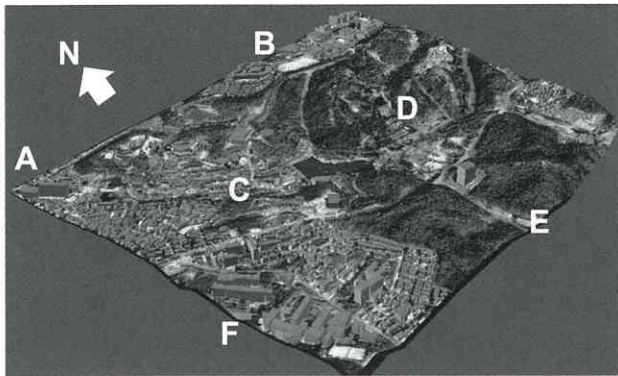


Fig.2: the neighboring area (800m width of north-south and 1600m of east-west) of the Higashiyama Zoo and Botanical Garden, drew using ArcGIS9.3.1. Legends: A: Higashiyama Park Subway Station, B: Hoshigaoka Subway Station, C: Zoo, D: Botanical Garden, E: Higashiyama Forest, and F: Nagoya University.



Fig.3: Repair plan area of the Higashiyama Botanical Garden (150m width of north-south and 300m of east-west) , drew using ArcGIS9.3.1

The Higashiyama Zoo and Botanical Garden Reproductive Master Plan (2007)¹⁾ followed in content both the basic philosophy of the fundamental plan of the woods of Higashiyama in Nagoya and the fundamental plan of the Higashiyama Zoo and Botanical Garden reproduction, and the master plan was decided upon them. Reproduction of the Higashiyama Zoo and Botanical Garden and the 410-ha

production of woods of Higashiyama, which made it a core, were performed, and the city planning of the circumference became the focus (Fig.2 & Fig.3).

Development was scheduled for completion in 2016, which would mark the 80th anniversary of the opening. Among the collection of the public's comments in March 2007 were 1,340 opinions from 624 persons. Opinions varied on the following subjects (parentheses contain the number of opinions): master plan on the whole (394); exhibitions of both the Zoo and Botanical Garden (573); surveillance study (3); environmental education (22); preservation of genes (12); institution maintenance (126); management (135); production of Higashiyama's woods (10); how to advance to the future (21); and present conditions of institutions (44). There were, however, 28 opinions about the botanical garden. The characteristic opinions were as follows: (a) it will be not an Italian but an English garden if the greenhouse of an important cultural property is harnessed in a historical garden (Fig.4), and (b) the greenhouse that is the old Crystal Palace should be more conspicuous.



Fig.4: Figure of an Italian style garden published in the master plan (2007)

5. Reproduction of the Higashiyama Botanical Garden

In the botanical garden repair plan for the "Higashiyama Zoo and Botanical Garden Reproduction

Master Plan (2007),” four investigations and research concerning the following stages were established as the main theme. The plan is to have a sculpture, a monument and relief to decorate the garden in front of the greenhouse of an important cultural property—with the botanical garden’s history or the western-style garden’s history—with plants that symbolize the history of sister cities or international exchanges.

The surveillance study theme was primarily made up of the following four items: (1) both the decipherment of the diary of Keisuke Ito (1803–1901, the botanist from Nagoya and first Japanese doctor of science) and the research of his achievements in cooperation with the researchers of universities and museums; (2) investigation aimed at preserving the circumferential Isewan-gulf element plant population on the basis of plant geography; (3) research on the environmental education program using GPS (Global Positioning System); and (4) research on the cultivation multiplication technologies aimed at the preservation of genes.

The outline for a western historical garden included the following three items: (1) an existing greenhouse and backyard are repaired as a place where exhibits and cultivation techniques are explained, while serving as a place of preservation of the vegetable species of tropical or subtropical zones; (2) after deliberations with the Agency for Cultural Affairs, the greenhouse of the important cultural property will be used as a floral cafeteria; and (3) the western-style garden will be made into the dignified historical garden as a full-scale Italian garden.

6. References examples for creating the reproduction

proposal

The target regions for planning are the western-style garden in the Higashiyama Botanical Garden and its surrounding area. The contents of the proposal include (1) the basic design policy for the entire target region; (2) design around the western-style garden, which is adjacent to the greenhouse; and (3) the policy for both application and practical use. There is no observance of the “reproduction master plan (2007)” in decision requirements. In creating the reproduction proposal, the following four botanical gardens were referenced:

1) Graz University’s botanical garden of the Design City Graz: Graz in Austria is the University City where the old city was registered into the World Cultural Heritage in 1999. The attached botanical garden of the Graz University Botany Research Institute, which will continue after establishment in 200 years ago or more, centers on the glass greenhouse. It was a hard-core institution in favor of the design city authorization in 2011 (Fig.5).



Fig.5: The botanical garden of the Graz University was one of the main institutions for authorization of the design city GRAZ (2011)³⁾.

2) The botanical garden (Jardim Botânico) in Rio de Janeiro of the World Cultural Heritage: The Carioca’s

Scenery Group inserted into the mountain and the sea in Rio de Janeiro of Brazil was authorized by the World Cultural Heritage in 2012. Along with the hill of the Corcovado with the huge Christ statue, the mountains surrounding Guanabara Bay, and the Copacabana seashore, this botanical garden was the main subject of the authorization (Fig.6).

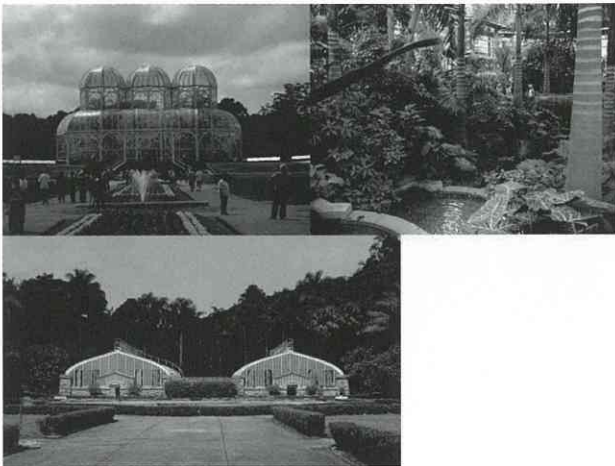


Fig.6: Greenhouses of the Jardim Botânico which was a main institution for the World Cultural Heritage authorization of Rio de Janeiro, Brazil (2012)³⁾

3) Padova University's attached botanical garden in Italy of the World Cultural Heritage: Padova University's attached botanical garden in Italy was registered into the World Cultural Heritage in 1997. It was established as the oldest in the world in 1543 for medicinal herb research. In order to avoid vegetable thefts, it has been enclosed within a wall since 1552. It contributed to the development of modern natural science as a prototype of all botanical gardens in the world³⁾. The university exchange agreement was made between Padova University and Nagoya City University in 2008.

4) The Royal Botanic Gardens, Kew of Britain of the World Cultural Heritage: It registered with World Heritage in 2003. The greenhouse of the important

cultural property of the Higashiyama Botanical Garden was modeled and built based on the central greenhouse of Royal Botanic Gardens, Kew (Photo 2).

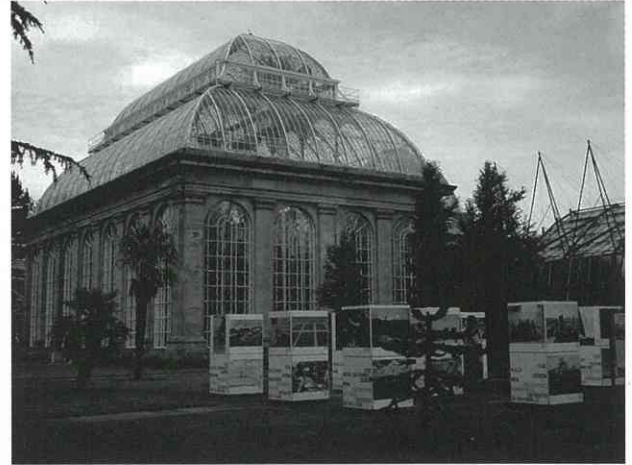


Photo 2: Greenhouse of the Edinburgh part of the Royal Botanic Garden to which it referred in order to take earthquake resistance and the tolerance to load into consideration for the purpose of planning the new office building which served as the entrance.

7. Reproduction Proposal of the Higashiyama Botanical Garden Entrance

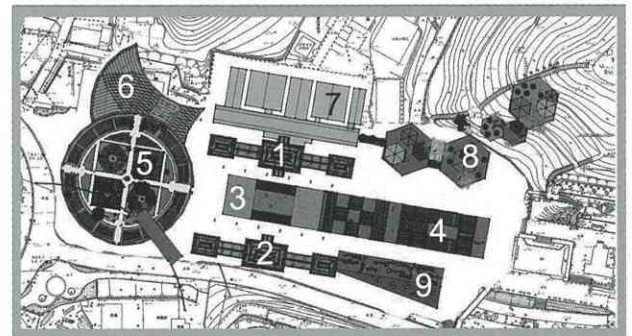


Fig.7-1: Ground plan of the entrance area of the Higashiyama Botanical Garden, Legends: 1) Greenhouse of important cultural property, 2) Replica of the Greenhouse, 3) Water pool with reflecting mirror surface which passage is under the water surface, 4) Cascade, 5) Replica of the Padova University's attached botanical garden, 6) Outdoor stage, 7) Greenhouse for exhibitions, 8) Tree houses, and 9) Rock gardens



Fig.7-2: Sketch of the entrance garden planning drawn based on the ground plan.

With the plan background, six proposals were made with the premise of preserving the greenhouse as an important cultural property (Fig.7-1 & Fig.7-2). (1) The entrance will be moved so that visitors can get on and off a sightseeing bus in case of rainy weather. The replica of the greenhouse that can utilize the first-floor portion in an entrance gate, an office, a hole, and so on, will be built in front of the historic greenhouse (Fig.7-3 & Fig.7-4). (2) A pond with a depth of 2 cm and a width of 60 m x 20 m will be installed between a greenhouse and an entrance, and work will be carried out so that visitors can enjoy the greenhouse reflected on the water's surface (Fig.7-5). (3) By building a replica of Padova University's attached botanical garden on the west side, visitors can experience, as a starting point, the vegetable exhibition. Also, an outdoor stage will be set up, and image exhibitions will be held (Fig.7-6 & Fig.7-7). (4) A tree house will be installed using trees and a sloping ground (Fig.7-8). (5) A cascade will be repaired (Fig.7-9). (6) A rock garden will be moved and repaired.

Many tourists from all over the world visit Padova University's attached botanical garden, the Jardim Botânico, and the Royal Botanic Gardens, Kew. The purpose of this proposed plan is not to increase the number of visitors. However, a research botanical garden in collaboration with Nagoya University, the College of Pharmacy, Nagoya City University, and so on

is also required. The repair plan aims for enhanced design.

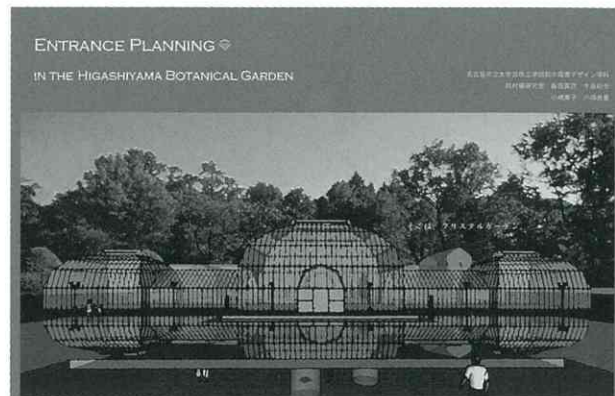


Fig.7-3: Sketch of a comprehensive image immediately after entering from the entrance moved south. The underground passage where people can walk under the reflecting pool and the water surface which were shown by the second proposal is drawn.



Fig.7-4: Sketch of the new entrance will be moved south so that visitors can get on and off a sightseeing bus in case of rainy weather which were shown by the first proposal. The image photograph of the pool in front of the castle in Bordeaux was shown above⁴⁾.

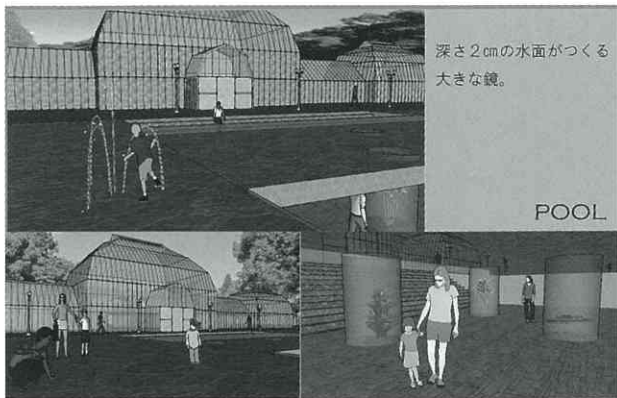


Fig.7-5: Sketch of pond with a depth of 2 cm and a width of 60 m x 20 m will be installed between a greenhouse and an entrance, and work will be carried out so that visitors can enjoy the greenhouse reflected on the water's surface. In an underground passage, three-dimensional exhibitions of many water lilies currently grown can be appreciated⁵⁾.



Fig.7-6: Sketch of a replica of the Padova University's attached botanical garden on the west side which was shown by the third proposal. Visitors can experience, as a starting point, the vegetable exhibition. It was established as the oldest in the world in 1543 for medicinal herb research. In order to avoid vegetable thefts, it has been enclosed within a wall since 1552. It contributed to the development of modern natural science as a prototype of all botanical gardens in the world. Here, the fundamental view and posture over a botanical garden can be learned³⁾.

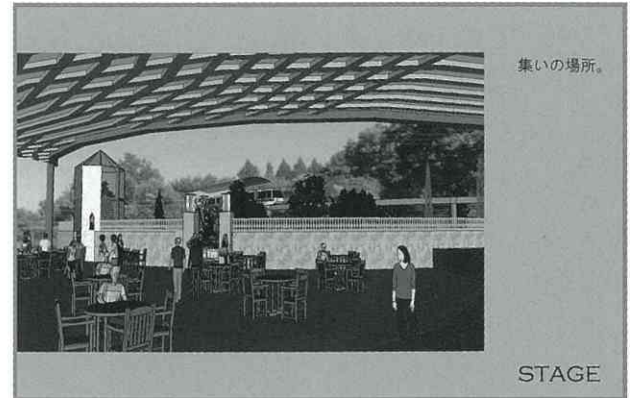


Fig.7-7: Sketch of an outdoor stage will be set up, and image exhibitions will be held. This is built at the place which closed the present entrance. It considered so that a backyard could use goods carrying in and a performer conveniently.



Fig.7-8: Sketch of the tree house will be installed using existing trees and a sloping ground which were shown by the fourth proposal. The space which can be used for shopping or a break can be made also on a slope. This serves as a flow line which guides people to the restaurant on the hill already planned.

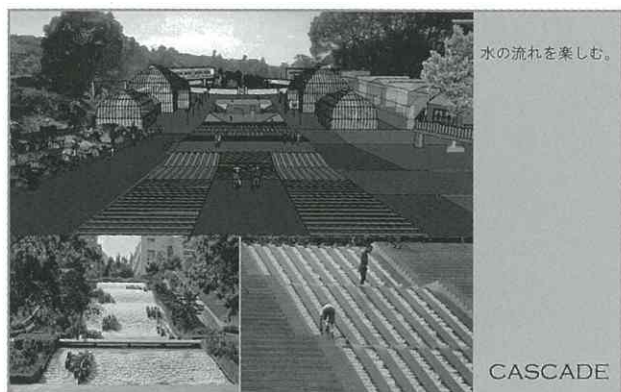


Fig.7-9: Sketch of the cascade will be repaired which was shown by the fifth proposal. By water's flowing on the finely split stage, saving of amount of water and expansion of a scale are expectable⁶⁾.

Acknowledgement

Author is thankful to four students, Masahiko Iida, Mika Tojima, Yoko Kojima and Yusuke Ushijima, who drew our ideas on the visible images of Fig. 7 using the

Google Sketch Up.

References

- 1) Nagoya City (2007) the Higashiyama Zoo and Botanical Garden Reproductive Master Plan.
- 2) Nagoya City University (2010) the history of 60 year of the Nagoya City University.
- 3) <http://www.unesco.or.jp>, 2012.Sep.
- 4) KOTTAS Dimitris (2007) Place de la Bourse, Urban Spaces SQUARE & PLAZAS, Linksbooks, pp.36-45.
- 5) RAZZELL Chris, AZCARATE Cezar & PILGREEN Todd (2011) Bordeaux Mirror D'eau, NATURE + SCAPÉ! , Phoenix Publishing Ltd., pp.278-281.
- 6) ICI Consultants (2007) Diderot Park, Courbevoie, France & Bercy Park, Paris, France, Water in Form and Light, Page One Publishing Private Ltd., pp. 34-39 & 92-97.