A Study on Socio-Ecological Cultural Complex in Urban Milieux

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Abstract: Japanese cities used to be landscaped fields integrated with a labyrinthine stream network similar to capillaries. However they have been lost with the growth of urbanization. Based on a number of on-site studies, the authors came to generalize such a tradition and to conceptualize a socio-ecological cultural complex without barriers between “nature” (ecosystem) and “society” (community), traditionally known as “Fudo” in Japanese. Beyond objective landscape, appeared to be opposed to subjectivity, we came to understand the importance of the combined sphere of body-field-language. In this context, the study was carried out and expanded into epistemological dimensions to suggest a revised concept of landscape, akin to the symbolic expressions of “Fudo”. The socio eco-symbolic landscape is attributed to the sense of life, stemming from human engagement in an expanse of field and society. Keeping its ambivalent structure in mind, the paper also intends to propose concerned aspects of landscape and the role of landscape management and education.

Keywords: Labyrinthine stream network, eco-symbolism, Machiniwa, field, place, body, Ma, meta-landscape, self-reference.

1. Introduction

1.1 Background
Since the 1960s, the close relationship between nature and society has been destroyed due to rapid urbanization in Japan, leading to the weakening of traditional community norms concerning the waterside and, in turn, to a loss of regional identity. A socio-ecological cultural complex refers to a system in which people can feel familiar with nature including water and greenery in an urban milieu, thereby advancing the establishment of more vivid culture with a sense of life through a combination of ecosystem and society. With importance placed on the interaction between “nature” and “community” through the mediation of “people,” nature in this paper is assumed not to be wild nature, but to be symbolic nature integrated in the community. We analyzed the background of the integration of nature into urban culture and studied the reconstruction of the socio-ecological cultural complex without barriers between “nature” and “artificiality.” The analysis of complex structure will lead to a concept of a socio-eco-symbolic city or “landscaped city,” within a sustainable society, which the contemporary world longs for, beyond modernity.

1.2 Research on notable types
Our research was based on the basic recognition of examples with high value placed on watersides and stream networks in Kyoto City (Kyoto Prefecture), Hino City (Tokyo Metropolis) and Edogawa Ward (Tokyo Metropolis), which have succeeded in maintaining the socio-ecological cultural complex system even in the face of modernization and urbanization.

1.2.1 Realization of amenity space in harmony with urban modernization
In Japan, a controlled labyrinthine capillary stream, for example in Takase River and Gion Shirakawa in Kyoto, is called “yarimizu”. The advancing spirit of waterside utilization concerning the improvement of Kamo River flowing down across an alluvial fan in Kyoto is worthy to note. The improvement of the river in the early Showa period (1930) modernized “Noryoyuka,” (a riverbed terrace enjoying evening-cool), successfully preserving the summer amenity up to the present, so as to keep the waterside nearby. Around Gion, the water of Biwa Lake Canal was introduced into the Gion Shirakawa capillary riverbed, integrating it with the streets, inviting an elegant flavor of remote mountains in the town (Fig. 1).

Fig. 1 Gion Shirakawa introduced from Biwa Lake Canal

1.2.2 Introduction of new value to water rights of channels
Hino, in a suburb of Tokyo, is a city blessed with abundant water from the Tama River and Asakawa River and used to be the largest rice field in Tokyo. The channels running across the alluvial fan to the urban area have been eliminated with the development of urbanization, but there still remain 126-km of channels, though most of them are provided with concrete walls. There is a wide range of civic activities in progress, for example - the amount of water flowing in the amenity channels is maintained throughout the year. People have close cooperation with experts and academics to develop the research on the “multifaceted value of channels.”

Future issues to be considered include: (1) the partnership and division of roles between the administration and citizens, e.g., by whom and how maintenance and management should be conducted; (2) further development of the “Ordinance for preservation of the environment,” settled prior to the rest of the country; (3) approaches including “scenic value,” “historical cultural value,” and “environmental cleanup functions” for the multifaceted value of channels.
1.2.3 Renewal of amenity channels in the alluvial plain
The agricultural channels in the suburbs of Edogawa Ward in Tokyo had decreased sharply in agricultural use until the 1960s, and have been used as sewers with the progress of urbanization, resulting in water contamination. Edogawa Ward, which settled the “Plan to create beautiful water and greenery” in 1972, has been working on projects focusing on the theme of revival of amenities in city life. The plan is featured by simultaneously planning rainwater drainage and the realization of amenity channels. Since then, it has been executed for over 30 years to realize an amenity channel network, by renovation of culverts across the entire region of the ward. There are few wards with such amenity channels in the densely-populated urban center. It should be noted that the waterside and stream network plan in a low-lying area requires enormous expense, e.g., cost for securing a water source and setting a channel gradient, and also requires a system equivalent to that for park management in terms of maintenance and management.

2. Design study of the socio-ecological cultural system
A study was conducted to extract design elements in the “socio-ecological cultural complex” system, in which a labyrinthine stream network is integrated in a populated urban milieu, so as to flow among the houses.

2.1 Preservation and utilization of the stream network as urban infrastructural heritage
“Yamagata-goseki” in Yamagata City (Yamagata Prefecture), which was built about 400 years ago for the purpose of securing daily water and irrigation water, used to have a close relationship with civic lives and industries, as it was mentioned that “There were two water mills at Gotenseki, one of which was at the corner of Jyozenji, where the first factory was located, …” (record from the early Showa period). The stream network across the alluvial fan of the Mamigasaki River runs down while threading among houses (Fig. 2).

The channels were changed into culverts or concrete channels in the postwar period, in order to prevent accidents, but there was a growing civic demand for the revival of the former stonework channels. In a private redevelopment project of the city center several years before, Gotenseki was restored to revive the city center, for “passing the heritage from the previous generation down to the next generation” (Fig. 3). The project involved: (a) reconstruction of stonework channels by changing culverts into open channels, (b) construction of a multipurpose facility called “Nanokamachi - Gotenseki” in the style of a traditional building integrated within a square, and (c) creation of cozy semi-public space - “Machiniwa” around the channels (see section 3).

2.2 Stream threading among houses to enter private gardens
Kaneyama-machi in Yamagata Prefecture is a town, which is in “development of a scenic town over 100 years”, based on the entire park-town plan, with houses using the excellent building material of Kaneyama-Cedar. The town spreads over a small alluvial fan among the mountains and keeps a labyrinthine stream network taking water from the skeletal river - Kaneyama River, which is used as snow melting ditches in winter as well (Fig. 4). The “labyrinthine capillary rills” are situated all around the town and integrated into premises across the boundaries between public and private, forming the fundamental basis of life and culture in the town. Water is distributed like a hierarchical network - from the skeletal river to narrower channels to symbolically draw the breathing deep mountains near from the background of nature to the neighboring of nature.

The stream network functions as capillaries in the ground to breathe life into the “field” of the town. This “labyrinthine-networked stream town” is the archetype of the socio-eco cultural complex (Fig. 5).
3. Cozy eco-symbolic corners - “Machiniwa”

3.1 Ambiguity of “Machiniwa”
This neologism consists of two words: “Machi”, which means a town, and “Niwa”, which means Japanese modern private garden. Nevertheless, the latter was etymologically a semipublic and open free field in an urban milieu, used for community events, street performers, markets and different kinds of collective works, and it used to be seen as an “alley”, “crossroads”, “firebreak open space”, “hashizume” (bridge end), “waterside”, or “shrine or temple precincts”. Among those, a place facing the waterside and stream network, with nature deep in an urban milieu, yields a “cozy” field, as a result of deep interaction between nature (ecosystem) and community (society). Let us call it “Machiniwa”. With this neologism, we expect our public space to regain the animated vitality of the etymological sense of medieval “Niwa”. With ambiguous irregularity in form, its fundamental properties are as follows: (a) There is an inspired interval “Ma” which blurs boundaries between “public” and “private” both in space and time. (b) An enchanting view can be enjoyed from a cozy niche for body, like an “eave” or from outdoor benches forming the blurred boundaries between public and private. (c) Nature in “Machiniwa” integrated within a water channel is the archetype of the socio-eco cultural complex; e.g., here nature juxtaposed beside artificality, through the mediating symbolic manner of “Ma” (an inspired interval) is not ecological but highly eco-symbolic (Fig. 6, Fig. 7).

3.2 Sign of “field” in “Machiniwa”
Another aspect of “Machiniwa” relates to a flavor of a “field.” It is noteworthy in this connection that Japanese “Bo” (field) is believed to be derived from the above mentioned etymological use of “Niwa”. “Machiniwa” is characterized by an embracing atmosphere and dynamic expressiveness of the field, rather than solid shapes or rigidly outlined forms of things. When one places oneself in “Machiniwa” integrated with a shallow rill, in a closely built-up city, he or she can hear a babbling sound of a stream and, with clouds flying, wind breezing, and moonlight, he or she can perceive the subtle signs of mountains and valleys.
and changes of seasons around the city, even with no view of the mountains. Furthermore, he or she may sense signs of human life from flowerpots under eaves or a windbell hanging on a verandah, or from well-trimmed branches of pine trees seen over a wall. Such “Fubutsu” (seasonal symbols), through their symbolism, change the milieu into a poetic ambiance.

3.3 Community formation
The existence of a stream network in an urban milieu fulfills the following community formation functions: (a) Communal execution of maintenance and management; citizens’ self-management, e.g., management of snow melting ditches in Kaneyama-machi, and a rotation system of cleaning duty for washing places in Gujo City; (b) Learning of history through festive rites in the waterfront area; e.g., at the river in Hiroshima a traditional event of river cleaning carried out by citizens as a rite; (c) Cafés and restaurants in the waterfront, serving as community social places; (d) Communalization of private gardens around entrances of houses along channels; e.g., in Edogawa Ward; (e) Naming of channels, e.g., in Kaneyama-machi; (f) Use as collaborative workspace for dishwashing, cleaning of vegetables, and washing of clothes; e.g., in Gujo City and Kaneyama City.

Because of the activities and uses described above, the spaces along the channels form the foundation of social interaction and communication places, through exchanges such as rits, entertainment, tasks in daily life, cleaning and maintenance works. Thus it may be said that the landscape and atmosphere resulting from encounters of the “field” along the stream network, “bodies” and “language” come to acquire sociability or sociability. “Machiniwa” is thus the core of the townscape.

4. Epistemological reflections

Socio eco-symbolism attributed to the sense of life
A labyrinthine stream network spreading like capillaries in an urban milieu is neither a thing as substance or nature, nor an object detached and opposed, but rather it creates a vital “field” in sympathy with human bodies, while producing a socio-ecological cultural complex without barriers between nature and society. This section summarizes the epistemological features of the eco-symbolic landscape expression inherent to the sense of life, or the symbolism of nature.

4.1 “Field” and “body”
4.1.1 Sense of “field” against “thing” as object
An object is the appearance of a substance emerging from its visual outline, whereas a “field” has little outline but is lived by our body with the rhythm of time. The human lives within the bosom of the “field”. The depth or the fluctuations of the “field” are rather close to an interior sense of the body abundant with the sense of life. However in the world of landscape, a “thing” is an ambivalent figure that can also act as a part of the “field”. It is not a self-sufficiently complete form but is integrated in the “field” appearing as an expressive figure. Here, the word “field” is applied in the sense of physical sciences, e.g., “gravity field” or “electromagnetic field”. It is an expanse of space supporting propagation of some effects, instead of a substantial thing.

4.1.2 Expressive appearance and comfort
Our “field” is full life’s scent in terms of “comfort” imprinted there with traces of a body. Such a body – traced experiences named “affordances” by James J. Gibson – has also an aspect of “usability” reflecting the virtual conduct of the body (Gibson 1979). The former may be referred to as “passive affordance”, while the latter as “positive affordance”. Jay Appleton also manifested body-related landscape experience in terms of the refuge-prospect principle (Appleton 1975). Both theories are based on ecological or biological thinking.

Our perception world is a “field” with depth imprinted with a corporeal kinesthetic image. The human interests typified by people, houses, trees, roads, and bridges appearing in the “field” are not necessarily substantial “things” but rather like mediator signs, inducing corporal behavior of selves.

The “field” experienced as depth, which is discriminated from spatial distance, is imprinted with the trace of body. In fact, the conversation between them is not causal but yields an inspired situation generated spontaneously by the ontologically co-susceptive complement of them, which is referred to as “Mo” (Nakamura 2012). A place is a structured “field” described by such previously mentioned lived traces of body inscribed in a field or also by other types of cognitive scientific mapping with orientation, edge of domain, path, node, animated district, etc., typically illustrated in the Lynchian cognitive map (Lynch 1965). A “Machiniwa” is here a distinguished example.

However can these structured images of a place given by ecological or cognitive sciences be sufficiently identical to the “landscape”? For further discussions, refer to Section 5.

Fig. 8 A landscape scene of people enjoying a waterfront landscape from a niche in a café
4.1.3 Meta-landscape
As described above, the landscape elements reflecting traces of the body of the self are self-referential and thus are not objects isolated from the self. In this context, persons appeared in a scene as human interests are of particular importance, because they induce and enhance affordance power as a substitute observer.

A person viewing a landscape can act as a substituted ego inviting us to enjoy landscape. This scenic situation is therefore designated as “landscape on landscape” and can be called a “meta-landscape” (Fig 8). The site is desired to be arranged so as to draw people to be settled in cozy corners to enjoy landscape. This type of meta-landscape promotes powerful animation of the site.

4.2 Time-space inherent to “field” and its landscape expression
Firstly, the experience of the field is featured by “Ma”, as the corporal perception, or the sense of depth, as described in Section 4.1 and secondly, it is induced by a temporal fluctuation of the field as well.

4.2.1 Symbolic expression of the depth of “field”
The experience of depth discussed in the corporeality paradigm called “affordances” can also be extended to the following problem.

A panorama and a “borrowed landscape” (“shakkei”) of mountains are classical techniques to symbolically emphasize or modify the depth of the “field” or “Ma”. Moreover, the familiar gardening techniques, such as bonsai (Japanese art of cultivating miniature trees) and ikebana (Japanese flower arrangement), symbolically suggest the depth or “Ma”, as an interval between body and wild nature. In the same way, the capillary channels in the urban milieu originating from deep mountains and wetting the ground around citizens in front of their houses, are also a symbolic expression of depth or “Ma”, to induce the body living in the urban milieu to imagine the deep mountains. A historical heritage can be construed as an expression of the depth in time in a “field”.

4.2.2 Fluctuation and flickering in “field”
(a) Circular promenade in a field-time
Japanese circular promenade gardens may possibly follow the mystic tradition of esoteric Buddhism, as an attempt to be bathed in an ethereal atmosphere of a land, while circulating through it. Such a tradition can also be found in pilgrimages in early-modern cities. Many painters, e.g., Hokusai left many series of pictures of typical circular promenades. It can be said that, while “things” are perceived by their appearance from a fixed outside point of view, the atmosphere and sign of the field, emanating from internal depth without outlines, can only be experienced by the circular promenade. Cyclic temporal structure inherent to such circular promenades is also observed in repetitions of annual events highly developed in classical gardening.

(b) Flows and ephemeral flickering in “fields”
The closest temporal variation in “fields” are changes in weather conditions, due to atmospheric circulation and the cycle of the seasons. It results in fluctuations of wind, rain, snow, cloud, and temperature. The second variation may come from shallow streams flowing down from mountains. Japanese gardens involved methods of changing a faint aerial flow into the rustle of bamboo leaves or, converting and amplifying it into a tinkle of a bell under the eaves to create an atmosphere of coolness. It is expected to further develop and generalize the methodology of sensitively capturing and amplifying the signs of fluctuation in “fields” to symbolically express them.

All of these experiences of time, tied with space fluctuation or movement, seem to be more or less leading us to a symbolic sense of life.

5. Concluding remarks

5.1 Revising the philosophy of landscape
The socio-ecological cultural complex involving nature, society, and the individual corresponds to the vernacular anthropological system traditionally called “Fudo” in Japanese. The importance of its “mesological” or intermediary character has been often stressed by Augustin Berque (Berque 2012). This system might be called the “universe of Fudo”. The above three elements are neither independent nor opposed but mutually intertwined. Moreover, in more practical steps in design, “Fudo” must express itself more concretely as “place” in the fused sphere of body-field-language. “Machinura” is one of the important “places” or episodes of “Fudo”, like architecture and gardening. In fact, “body” is at the same time natural and of individual subjectivity. Language connects society with the individual. Society organizes itself in the bosom of the field, embraced by nature.

Landscape is an experience and reading of a place through intervention of a “body” (all senses) and “language” (knowledge). In order to make this synthetic and symbolic process more effective, sensitive and persuasive, a landscape design is needed. Without this refinement or poetical process, recognition of cognitive maps and arbitrary assignment of ecological or biological symbols might fall into mere chaos and bad taste. The socio-eco cultural complex becomes a reality and could be sublimated only through these interpretations into the supreme realm of landscape with human dignity, beyond scientific thinking whether ecological or cognitive.

To do so, landscape management and design need personal creativity but always with careful reference to the framework of scientific insights. Summing up the above discussions for attempting to revise the concept of landscape, the following points can be made:

(a) Beyond substantiality, landscape should be understood rather as socio-eco symbolic.

(b) Landscape is not independent and detached from us but is self-referring. Our body is tightly engaged in the surrounding field. In this field-body compound and interactive system, even a mountain is not always an object to be seen, but gazes at us.

(c) Our body tends to be well integrated in the “field”, when it moves and goes around.

(d) Both the collective (our landscape) and individual aspect (my landscape) must be taken into account.

(e) Landscaping process is to be considered as an infinite process initiated by management and/or design, followed by endless reading and experiencing conducted by community members.

(f) Synthetic experience of all corporal senses must be mobilized. For people enjoying landscape at a table, even culinary art is relevant, if it is conveying indigenous flavor.

(g) Semiotic or hermeneutic reading and knowledge is also an important dimension in enjoying landscape, in addition to sensual and phenomenological experiences.
Based on body-field synthetic principles, the design process must be conceived not only to manipulate objective environmental elements but to induce metamorphoses in the sense of value among citizens.

Landscape research and education systems might include a wide range of issues as listed below:

(a) Hermeneutic reading of “Fudo”:
1. Semiotic reading with regard to historical and social meaning of places;
2. Text analysis of landscape-related materials including names of places and/or other distinguished geographical interests;

(b) Adjustment of field – body relation as exemplified in preparing observers’ comfortable body niche and other affordance related issues.

(c) Symbolic expressions of fluctuation in field and depth (“Ma”), including symbols of seasonal changes and also management of circuit promenade.

(d) Re-editing or weaving cognitive context of towns, as a story of lived traces of citizens before designing visual expressions of its strategic points.

(e) In order to promote community formation, it is expected to encourage on site engagement of citizens in a process of handling all the above mentioned issues, not only in the decision-making process, but in joining together to animate meta-landscapes by them.

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