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Understanding the relationship between human needs and the use of water in landscape design

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Abstract
Water, an ever-present and enduring element in the landscape, offers unlimited opportunities to its designer with the numerous characteristics that it has. In researches about the landscape design, water has always been shown to be a highly preferred element. But, regarding the reasons of this preference, or in other words, the meaning of water to people, same literature is relatively silent.

This research seeks to discover why people are connected to water, and the ways that human-made water feature design can enhance that connection. The use of water in landscape design is discussed from several perspectives, and is evaluated by applying the humanist paradigm. Consistently, characteristics of water feature design, which strengthen the people and water connection, are described, and a checklist is devised for the application part of the research.
In this research, psychologist Dr. Maslow's Model of the Need Hierarchy is used to define both human needs and desires that are necessary for survival, and the necessary elements of water feature design, which successfully connect people and water.

And finally, 75 designers from around world are surveyed through Facebook social networking website, to query which water feature they believe exemplify the people and water connection best, and why. Both the reasons they give and the characteristics of the water features they choose correlate very closely to the criteria found in literature study.

Keywords: *Water as a design element, need hierarchy theory, water features.*

1. Introduction

Water is referenced in different ways by many disciplines including design, planning, ecology, geology, anthropology, psychology, sociology, mythology, religion, art, literature and history. But the common thread among all the disciplines is that water is universally perceived as a favorable element. More than anything else, water is a source of life and great symbol for life (Moore, 1994). It is determined to be critical for human survival. It is considered powerful, and it has been here, in relatively the same quantity

and form since the planet's beginning.

In the landscape, water is a common and abundant element not unlike earth and rock. But what distinguishes water from other landscape elements is its unique ability to be molded, sculpted and re-channeled.

It is ever-present in the landscape and its malleable form provides the designer with unlimited opportunity. However, water features are generally placed in the landscape simply to fill an empty space or to reroute the water to a more convenient place with no forethought as to the meaning or value people place on water. Surely these uses of water do not enrich the environment, they merely fill a space. Yet, enriching an environment is the fundamental goal of all design and this premise will be acknowledged throughout this paper.

When an element, such as water, is designed for the landscape, in order to enrich the environment, the design should be driven by satisfaction of human needs, and also, people must feel connected to it. This connection causes people to experience satisfaction in an aesthetic, physical or psychological way.

Accordingly, the purpose of this research is to discover why and how people and water are connected, and that this connection is based on the meaning that water has to people.

2. Human Contact with Water

Historically, human contact with water has been in the natural landscape, in human made water features, and more recently, in commercial water parks and gardens. Because of its lasting quality, human are in contact, both actually and symbolically.

As architect, Christopher Alexander noted in his book, A Pattern Language (1977:324):

"...Our lives are diminished if we cannot establish rich and abiding contact with water. But of course, in most cities we cannot. Swimming pools, lakes, and beaches are few in number and far away. And consider also the water supply. Our only contact with this water is to turn on the tap. We take the water for granted. But as marvelous as the high technology of water treatment and distribution has become, it does not satisfy the emotional need to make contact with the local reservoirs, and to understand the cycle of water: its limits and its mystery".

He further explained the need for daily contact with moving and still water, and he suggested that people should unbury concrete covered streams, locate reservoirs so that people can get at them, and when possible, channel rainwater so hat it runs into pools and along garden paths where it can be seen and enjoyed.

Earlier civilizations had greater contact with water, simply because of its role in their basic survival. The Egyptian, Greek and Roman civilizations developed along river deltas, and they constructed decorative ponds and canals, which also doubled as irrigation canals and places to raise fish and grow food. They also used water to celebrate their social, ceremonial and play areas, shamelessly, with large, open, spectacular displays. Many of

their water features were adorned with elaborate sculptures or fanciful water features (Hall, 2001; Mumford, 1989).

The Chinese and Japanese focused on the naturalistic effects of water in their landscapes employing a wide range of mystical, medicinal, religious and aesthetic qualities in their fountains and pools. The meaning of water in these cultures cannot be disregarded. For example, Japanese beliefs held that the gods resided within nature. So bathing in a natural body of water was as close as one could get to the gods. It also works to cleanse people of evil and bad luck. Likewise, in Chinese feng shui, water is meant to help the flow balance, harmony and prosperity into one's life (Campbell, 1978).

The Islamic manner of water design was to use minimum amounts of water to maximum advantage. Islamic cultures used water as the central feature of the garden design, which integrated religious symbolism. Water, both seen and heard, was more indispensable to garden design than plant material (Plumptre, 1993). Their garden was divided into four quadrants created by water channels of the four rivers of paradise, as described in the Holy Qur'an (47:15):

"A Parable of the Garden which the righteous are promised: in it are rivers of water incorruptible; rivers of milk of which the taste never changes; rivers of wine, a joy to those who drink; and rivers of honey pure and clear. In it there are for them all kinds of fruits; and Grace from their Lord."

Because of its scarcity, water was confined to small channels or narrow pools in Islamic gardens. No waste was allowed. Run-off was sent through conduits, which ran from tree to tree for irrigation (Ruggles, 2003).

Water being such a multi-faceted design element, has been used in a myriad of ways over several millennia. Designed water has been used to weave function, symbolism, and beauty into the landscape. Overall, the primary focus of water design has been its utilitarian and symbolic uses, not direct contact. But, the focus has started to shift in recent years. Contemporary designers are becoming more sensitive to the need to connect people with water, in a direct way. Now, the goal is to strengthen the connection, and this situation is termed as 'immediacy', which was described by Architect, Charles Moore, as "*establishing the closest possible contact between the observer and the water"* (Moore, 2004:29).

Connecting people with water is frequently alluded to by designers with references to the sensual, cooling, or mood enhancing pleasure water brings, but little else is explored. From what it is known of water through recorded history, it can be inferred that it has deep meaning that it is significant and valued by all people, of all cultures, and has been perceived as an important element in the landscape since the beginning of time.

Fundamentally, the goal of any successful design project in which people will use, must be to satisfy the needs of the user. In doing this, water should always be weighed at the conceptualizing stage, because it offers such a rich opportunity to enhance an environment. Then, evaluating human needs

while acknowledging the mechanisms by which human interpret their world will assure success.

Themes of life, re-birth, renewal and energy resound through all the literary and scientific recordings. This leads one to consider that the meaning of water is intricately connected with the theme of survival or the perpetuation of human species. If this is so, then water in the landscape is a powerful symbol with universal appeal, since it conjures up very primitive notions.

This notion of celebrating life presents a unique opportunity to those who design the landscape, for it provides an enduring connection between people and water. Water in the environment will not go out of style. The imperative then becomes how we can design in order to impart the greatest and most enhanced meaning in the landscape, and evoke the most intense experience for the user. To answer this, it must be determined what an enhanced environment is, and from this, develop design criteria that ensures the most successful and meaningful connection between people and water.

3. Water as a Design Element

To successfully address all the factors necessary to design a water feature that people will connect with; a rational approach must be applied to any design situation where a water feature is being considered.

Humanist psychologist, Dr. Abraham Maslow spent much of his career examining human living environments, and the effect that the quality of that environment had on the wellbeing of human beings. In response to the data he collected, he developed a concept of a hierarchy of human needs, which defined physiologic requirements necessary to sustain life and promote health in human beings (Maslow, 1998). This information is relevant for the designer, because it will aid him in creating environments that are enhanced and that evoke a sense of place experience for the user.

Dr. Maslow divided the hierarchy into 5 levels (Figure 1). The lower two levels are the more basic survival needs, with the more refined needs toward the top of the diagram. From the perspective of this research, levels three and four, Belonging and Esteem, which address social needs will be discussed and applied. Since basic survival needs of food, shelter, clothing and safety needs are generally provided for society and since self-actualization behavior affects a fairly small portion of the population, they will not be addressed specifically in this research, although water is equally important in these areas as well.

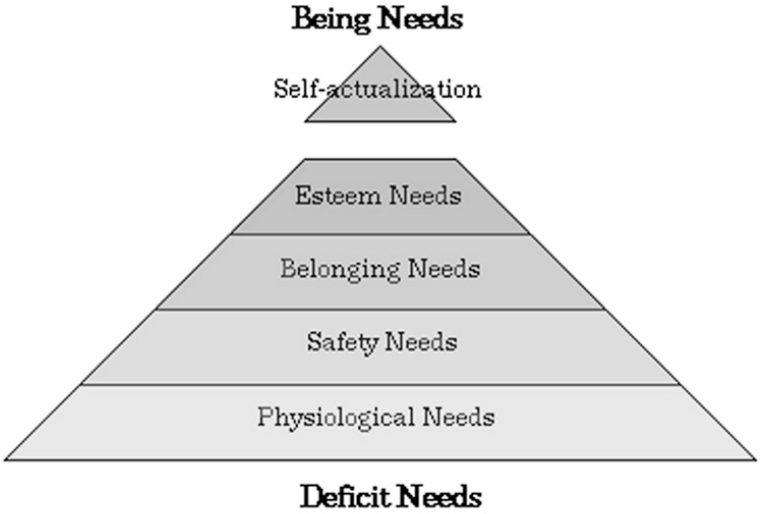

Figure 1. *Maslow's hierarchy of needs, represented as a pyramid*

The social needs, referred to as Belonging and Esteem, are satisfied through social interaction with other people, by belonging to a group, having the acceptance and affection of family and friends, self esteem, and the recognition and respect from professional peers. Inherent in the concept of meeting social needs is the notion of people interacting with others, or within groups (Deasy, 1990). A group would include family, friends, professional peers and colleagues. This is important information for the designer. It helps the designer to rumble what would please and satisfy the social user of his designs. The focus should be how designers of water features can address these specific social needs, and how these needs relate to design imperatives.

Table 1 shows a listing of each of the categories, which must be addressed when designing a water feature with the focus of satisfying the human needs based on the Maslow model. The characteristics in Table 1 are not all-inclusive, but were chosen because they were consistently referenced in books and journals as elements that directly affect people's perceptions of water features. This checklist can be custom tailored to any design process, which focuses on meeting the social needs of people.

Table 1. *The checklist for assessing a water feature*

Categories	**Characteristics**
Potential for contact	*Interactive*
	Playful
Form	*Simple / non-artificial*
	Easy access
Scale	*Balanced in overall design*
	Presence of sub-spaces
Materials	*Multiple textures*
	Balance of hard and soft materials
Sound of water	*Loud masking*
	Audible
Presentation qualities of water	*Reflective quality*
	Lighting
	Open views of water
	Movement of water
	Engages more than one sense

3.1. Potential for Contact

Water features in the built environment provide opportunity for direct and indirect contact with water, regardless of whether the feature is human-made, or a re-channeling by the designer of indigenous water that is already on the site. Regardless of the form, the availability of frequent contact with water is the goal. Because contact, whether actual or perceived -such as heard but not seen- strengthens the bond between people and water (LaCour-Patrick, 1996).

Choices available for water feature design include a feature that is to be viewed, a feature that is to be interactive allowing the user to touch, or wade, or a feature allowing full participation such as immersion. Either way, all these types of features display different social benefits of connecting with water. Social benefits range from the opportunity to play and have fun, to the excitement of outguessing random surprise water jets.

3.2. Form

Generally, the setting of a water feature will be defined as casual, which interprets natural forms, having organic shapes and softer edges, or as formal, with angular and geometric hard edges.

The edge is a critical determinant in water feature design from the perspective of connecting people and water. It is the interface between the area surrounding the water feature and the water feature itself. If this part of the design is not carefully scrutinized and the edge is not well defined, the final result may produce a weak area with mixed messages. The user may interpret this as discouragement to interact, thereby causing him to withdraw. The problem with edges has already been illustrated in swimming

pool design where hard, artificial edges discourage easy access and use of the pool, again, weakening the connection between people and water.

3.3. Scale

This denotes the relationship between people and the built environment. It also relates to the relationship of the space that the feature occupies as a component of the larger area. Scale determines the feeling of one's experiences within the space. As space become larger, the more difficult it is to retain intimacy. Scale includes the use of subspaces for use by smaller groups in large designs. Often sub-spaces within a large space will create a comfortable feeling of intimacy, promote social interaction and facilitate the user's feeling of connection to the space.

3.4. Materials

Materials used to construct a water feature play a major role in facilitating the connection between people and water. Because there is such a large variety of materials available which offer the 'touch and feel' attribute. Since materials have a physical form and texture, they appeal directly to the user's senses of sight and touch. Since simultaneous use of more than one sense intensifies the experience, if the user can see, touch and hear the water, the experience will be enhanced: the greater the contact, the greater the connection.

Textures and finishes are cues that give the user immediate information about his surroundings. For example, textures, which are refined such as polished surface lends themselves better to a formal feature, or multiple textures are more stimulating to the user than a single one. Textural uses of materials also give the user additional information through the tactile qualities of the material itself. For example, the texture of the floor of a pool could become rougher as the depth of the water increased. This would alert the user that the depth was changing and would thereby satisfy his need for safety and security in his surroundings.

Another way to enhance the experience is by choosing materials that users prefer, based on the results of preference studies and research. For example, when hard materials are used extensively, balancing them with softer materials will decrease the negative impact of the overall design. Flowing water, whether as a sheet, free-fall or cascade will soften large areas of concrete in a design, as will vegetation when placed adjacent to hard or rigid edges.

3.5. Sound of Water

The sound of water serves several purposes. Most commonly it is presented in a high-energy form, by way of large jets and cascading waterfalls, which stimulate the user. Conversely, quiet or low energy water forms can be used for a soothing, calming effect on the user. Whether presented as a trickle or a gush, the amount of sound generated by water displays can be precisely manipulated to meet the specific objectives of the design criteria.

Additionally, the sound of water informs the user of the presence of water. This provides the user with a sense of being secure in his surroundings and

from the design perspective that of presenting water, which is heard and enjoyed, but not viewed.

Another more basic purpose is that water can successfully mask loud, unpleasant ambient noise and although it may become very loud in doing so. Therefore, the effect of the sound of water should be carefully considered.

3.6. Presentation Qualities of Water in Design

The manner in which water is presented is crucial for success of the water feature. Incorporating the reflective quality of water in the design, preferably with vegetation, sky or natural forms confirms the presence of life in the user's surroundings. For example, lighting both daylight and night lighting, is an element, which will add excitement, dimension and usability to a water feature. While night lighting adds drama to the feature and extends the number of hours that the feature can be used, underwater lighting adds an intriguing dimension to the feature.

Integrating vegetation throughout the project adds the same value, as well as making a site appear cool, comfortable and inviting. The use of long, open views of water and the water's edge mimicking a natural form is also a desirable characteristic because it helps user to feel safe, and offers him easy contact. Moving water in the feature will be an advantage because it is associated with energy and stimulation. And finally, if the total composition balances the amount of hard elements such as granite, concrete and rock, with soft elements such as water, vegetation and light, this will give the user the feeling that water feature is interpreting naturally-occurring water, and the feature will emerge as a metaphor of nature.

The success of any design has to be judged solely by the user's understanding and acceptance of it. Without integrating the needs of the user throughout the design, the design process merely becomes an isolated exercise in a vacuum. Human needs are requirements that must be met in order for the user to accept the feature. As the world becomes more and more user-friendly, so must land-use design. Designs in which, only the designer appreciates and understands the concept, not only miss the mark, but diminish design as an entity. Designs that are not 'need-oriented' only weaken and damage the user's understanding and appreciation of them. Additionally, in water feature design, the connection between people and water suffers.

After presenting the criteria that strengthens people's connection with designed water, now it is the time to discuss water features that practicing designers have identified as good examples of water features that demonstrate a strong connection between people and water.

4. Description of Selection and Evaluation Method

The information for determining the good examples of water features gathered from a survey of designers. A two-question survey was sent to 90 designers from different countries around the world through Facebook, requesting their choice of a human-made water feature that strongly connects people and water. 75 questionnaires were returned. Table 2 shows the results of the survey-questionnaire (Figure 2).

Table 2. Results of the survey-questionnaire.

Name of the feature	Designer	Poll
Canal in Lurie Garden, Millenium Park, Chicago	*Kathryn Gustafson*	*14*
Diana Memorial Fountain, Hyde Park, London	*Kathryn Gustafson*	*11*
Waterscape in Potsdamer Platz, Berlin	*Atelier Dreiseitl*	*9*
Buckingham Fountain, Grant Park, Chicago	*Jacques Lambert*	*6*
Crown Fountain, Millennium Park, Chicago	*Jaume Piensa*	*6*
Canal Park, Washington	*Kathryn Gustafson*	*4*
Ira Keller Fountain, Portland	*Lawrence Halprin*	*4*
Concave Fountain, Getty Museum Gardens, L.A.	*Robert Irwin*	*3*
Fountains of Bellagio, Las Vegas	*WET*	*2*
Japanese Hill and Pond Garden, Brooklyn, NYC	*Stantec*	*2*
Jet D'Eau, Geneva	*Engineer Butticaz*	*2*
Street Fountain, Rotterdam	*Helmut Smits*	*2*
Trevi Fountain, Rome	*Giuseppe Pannini*	*2*
A water fountain in a traditional house	*Anonymous*	*1*
Khettara, Rissani, Morocco	*Anonymous*	*1*
Lake Ouachita, Hot Springs	*U.S.A.C. of Eng.*	*1*
Panama Canal	-	*1*
Roman Aqueducts	-	*1*
Sea Organ, Zadar, Crotia	*Nikola Basic*	*1*
The Basilica Cistern, Istanbul	-	*1*
Weiss Lake, Cherokee County	-	*1*

The humanist paradigm is the research method that was applied to this research project, because it is the most sensitive approach available for gathering qualitative information in the search of meaning. It is an approach that validates people's perceptions and experiences of the landscape, and recognizes the importance of a sense of place experience. This approach lends itself well to determine the meaning of water in the landscape, because water is an element which people experience through interaction and contact.

Figure 2. *The Crown Fountain in Millenium Park, which was named as best example by 6 of 75 participants, Yasin Cagatay Seckin Archive.*

Applying the humanist paradigm, the meaning of water in the landscape was evaluated and discussed from several perspectives. Consistently, characteristics of water feature design, which strengthen the people and water connection, were described. So, the design criteria established and a checklist is devised for application.

Now, to compare the data gathered from the survey with the design criteria established above, the checklist in Table 1, which is based on Maslow's model, would be applied to the top selected feature to determine how well it meets human needs and desires.

5. Case Study: Canal in Lurie Garden, Millennium Park.

In the survey, Canal in Lurie Garden was chosen more than any other for its ability to connect people and water. The Lurie Garden, designed by Kathryn Gustafson, is a rooftop garden in downtown Chicago's Millennium Park (Figure 3). The Garden expresses Chicago's distinct, urban landscape history as a bold, contemporary landmark that also offers quiet respite for people and urban wildlife. It distinguishes itself from other Millennium Park attractions by utilizing the media of plants and natural materials to create a memorable cultural experience.

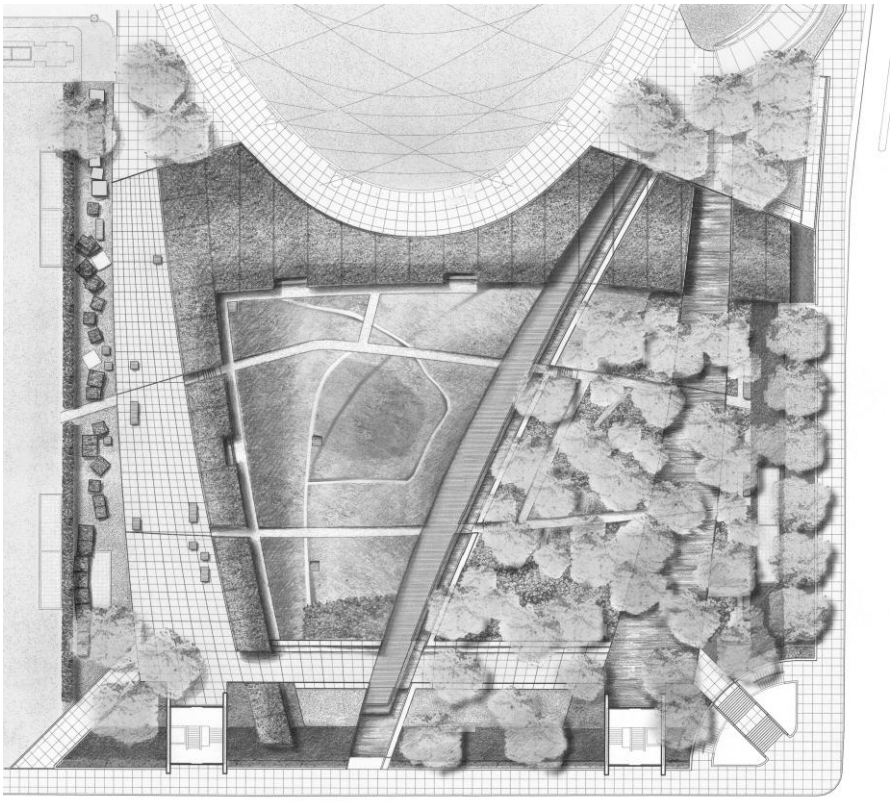

Figure 3. *Plan of Lurie Garden, Gustafson Guthrie Nichol Archive*

The park's design consists of four principal elements: the Shoulder Hedge, the Light Plate, the Dark Plate and the Seam (Figure 4). The Shoulder Hedge is a living wall that frames the garden's interior. A metal framework that shapes several plants into a monumental hedge and provides people a sense of entering a secret garden structures it (Freeman, 2004).

The plates beyond the Shoulder Hedge, called the Dark Plate and Light Plate, strongly contrast with each other. The dark plate depicts Chicago's history by presenting shade-loving plant material. The dark plate has a combination of trees that provide a shade canopy for shade-loving plants. The light plate, which includes no trees, is covered with sun-loving perennials that thrive in the heat and the sun.

The Seam is the diagonal division between these two plates. It is composed of a wooden boardwalk that floats over stepped pools that expose a 1.5 m wide seam of water, which runs between the boardwalk and a limestone wall. The sound of water lapping against this seam is a subtle reminder of the nearby Great Lake. While the boardwalk is for casual strolling, the steps along the water provide places for resting and experiencing the water in an intimate and relaxing atmosphere. Visitors are allowed to sit and dangle their feet in the water (Raver, 2004).

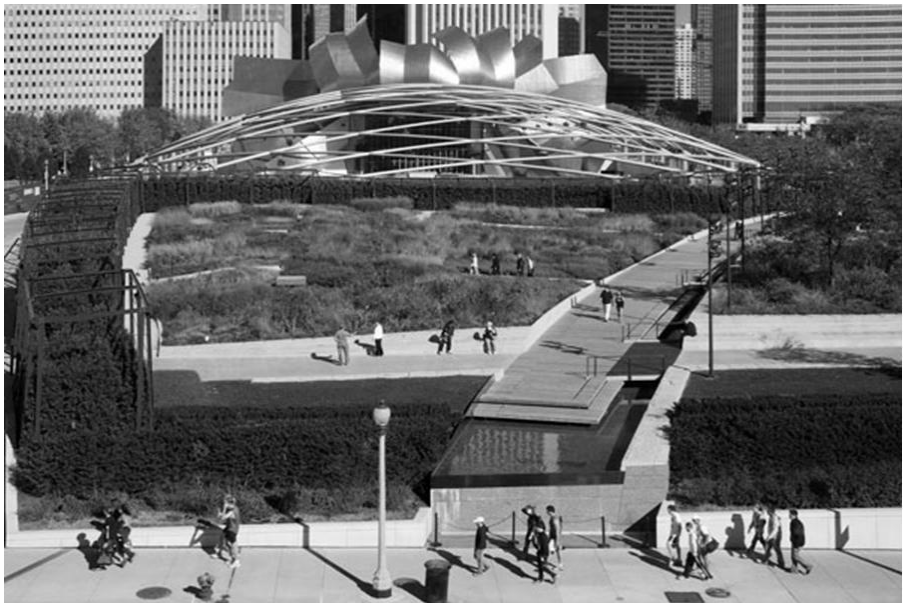

Figure 4. *The Seam splits the Light Plate and the Dark Plate, while Shoulder Hedge frames the Lurie Garden in the foreground. Linda Oyama Bryan Archive*

In assessing the strength of connections in this feature, Canal in Lurie Garden received a total score of 14. For scoring the feature, each characteristic in Table 1 was judged. One point was added for every characteristic and thus, total feature score was obtained. Attempting a grade or assess a water feature by use of a scoring system is not a fail-proof exercise, but it attempts to standardize the way water features are evaluated, so that the user's needs are treated as the driving force behind the design.

Canal in Lurie Garden fairly exemplifies a feature with a lot of important elements necessary to connect people and water. For example, this feature encourages participation from dangling one's feet to wading (Figure 5). The water feature also allows people a place they can put their hot and tired feet to cool off after walking around the city.

Figure 5. *Taking a break on a hot day in the Lurie Garden, Nelson Wu Archive*

Form of the feature is simple and wide step near the boardwalk invites visitors to sit down, take their shoes off and dangle their feet in the cool water. This step/bench leads down to the running water giving easy access and encouragement to visitors to try it. In this way, the feature allows people to see, hear, touch and experience water. Through this accomplished design, users feel like they are in the design, an integral part of it.

The feature's scale is balanced in overall design and sub-spaces are also available on different levels for different activities by different group of users. This is an important social benefit, because it affords some degree of intimacy to different group of users.

Two types of stone were used for both paving and wall cladding. Limestone was used for all wall coping and wall cladding, outside of the water feature. The limestone has either a saw cut -all vertical surfaces- or a modified rock-face -all horizontal surfaces- finish. Granite was used as paving and wall veneer in the water feature. All exposed granite surfaces have a flamed finish. Flamed granite has a highly textured surface, making it ideal for areas where slip resistance might be a concern, like wet areas. The boardwalk and all wood benches in the Garden are fabricated from ipe-wood. In addition to

all these materials, patinated naval brass was used in all metal plates in the Seam.

Lush vegetation through the boardwalk gives the user the feeling of walking along a natural path with running water throughout, and provides a balance between hard and soft materials, as well.

This balance between multiple materials and textures, with contribution of both lighting design, which creates a great effect when viewed through moving water, and the sound of moving water present a multi-sensory situation, which intensifies the experience (Figure 6). Long, open views ease the feeling of situation, and also provide an overall sense of safety and security. Eventually, this feature is very effective in maintaining a strong people and water connection.

Figure 6. *An evening shot from Lurie Garden, Gustafson Guthrie Nichol Archive.*

6. Conclusion

After comparing the data gathered from the survey with the design criteria, it is seen that there is quite similarity between the survey results and the design criteria, which is established with the information gained from literature review.

The facebook survey method had a return rate of about 80%, and 75 participants named 21 different water features as the best example that connects people and water most effectively. This diversity in the water features may be related to how many water features they have personally seen, or have read about. But, the one thing that was absolutely consistent in all of the responses, was that the participants had good feelings about the features that they chose.

Besides naming the best example of a human-made water feature that connects people and water most effectively, surveys also included comments about the feature users chose. Actually, more significant than the features that were chosen in the survey, were the comments describing why

participants felt that the feature connected people and water. Their reasons correlated very closely to the reasons assembled from the information gained from literature review, which is also shaped the design criteria. The participants used words like "the way the water reflects, the moisture in the air, the touch-feel scale, the way sound echoes in the space, cool and refreshing, interactive rather than merely a spectacle, very dynamic and utilizes multiple senses, directly accessible by people, fun and safe". These all described the many experiences that they enjoyed, which were essentially the same as those described by Maslow in his hierarchy.

Briefly, the comparison between the design criteria and the users' view contributed to create a better understanding of the relationship between water and human; and applying the design criteria throughout the creation process will notify the designer early whether an element is being used in a way that enhances or diminishes the connection.

Finally, water is not an element that will ever go out of style, or will ever become unimportant and there is no doubt that water becomes the oasis of a landscape, when it is used as a design element.

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Surah Muhammad, **Holy Qur'an**, 47:15.

Peyzaj tasarımında suyun kullanımı ve insan ihtiyaçları arasındaki ilişki

Peyzajda sürekli olarak çeşitli form ve büyüklüklerde bulunan su, sahip olduğu birçok özelliğiyle, tasarımcısına sınırsız imkanlar sunmaktadır. Peyzaj tasarımına yönelik araştırmalarda, su, her zaman yüksek oranda tercih edilen bir malzeme olarak gösterilmekte; fakat, nedeni ya da bir başka deyişle, insan için anlamı konusunda aynı kaynaklar oldukça sessiz kalmaktadır.

İnsanın su ile ilişkisi, tahmin edilebileceği gibi, ilk olarak doğada başlamış; daha sonra bu ilişki, insan yapımı çeşitli su elemanları ve su bahçeleri ya da parkları aracılığıyla devam etmiştir. Mısır, Yunan ve Roma gibi eski medeniyetler, yaşamlarını sürdürebilmek ya da en basit anlamıyla hayatta kalabilmek için, su ile çok güçlü bir ilişki kurmuşlardır. Çin, Japon ve benzeri uzakdoğu medeniyetleri, bu ilişkinin ötesine geçmiş ve suyun doğal özelliklerine odaklanarak, mistik, tıbbi, dini ve estetik açılardan suyu kullanmışlardır. Islami yaklaşım ise suyu, Kuran'ın belirlediği bir dini sembolizm çerçevesinde, bahçenin merkezi öğesi olarak belirlemiş ve dinin geliştiği coğrafyaya da bağlı olarak, minimum su kullanımı ile maksimum avantaj sağlayan çözümler üzerine yoğunlaşmıştır.

Bu birkaç örnekten de anlaşılacağı gibi su, çok yönlü kullanıma müsait yapısıyla, ilk medeniyetlerden bugüne çok çeşitli şekillerde kullanılmış ve tasarlanmıştır. Tasarlanmış su öğeleri, başta bahçeler olmak üzere, insanın yaşadığı mekanlara fonksiyon, sembolik anlam ve güzellik katmak amacıyla kullanılmıştır. İlk dönemlerde faydacı ve sembolik kullanımları tasarımların odaklandığı noktaları oluştururken, su ile doğrudan temas konusu çok dikkate alınmamıştır. Bu durum, özellikle son yüzyılda değişmeye başlamış, çağdaş tasarımcılar, insan su ilişkisinin doğrudan gerçekleştirildiği çalışmalar üzerine yoğunlaşmışlardır.

Bu araştırma, insanların neden su ile iletişim içinde olduklarını ve su öğesi tasarımı aracılığı ile bu iletişimi geliştirmenin yollarını ortaya çıkarmaya çalışmaktadır. Peyzaj tasarımında su kullanımı çeşitli açılardan tartışılmakta ve hümanist paradigma yaklaşımıyla değerlendirilmektedir. Bununla bağlantılı olarak, araştırma kapsamında, insan ve su bağlantısını kuvvetlendiren su öğesi tasarımına ilişkin özellikler açıklanmakta ve araştırmanın uygulama aşaması için bir denetim listesi geliştirilmiş bulunmaktadır.

Araştırmada, hem yaşam için gerekli olan insan ihtiyaç ve isteklerinin, hem de insan ile su iletişimini başarılı bir biçimde kuran su öğelerilerinin tasarımı için gerekli elemanların belirlenmesi amacıyla, psikolog Dr. Maslow'un İhtiyaç Hiyerarşisi Modeli kullanılmıştır.

Dr.Maslow'a göre insan, 5 kademeli bir hiyerarşik yapıya sahiptir. Bunlardan tabanda yer alan ilk ikisi yeme, içme, barınma gibi fizyolojik ihtiyaçlar ile güvenlik ihtiyaçlarıdır. Bunların gerçekleştirilmesi halinde daha üst kademelere geçilebilmektedir. Bu çalışmada, peyzaj tasarımı ve sosyal yaşam ile bağlantılı olarak, üçüncü ve dördüncü kademeler olan sevgi ve aidiyet duygusu ile saygınlık ihtiyacı üzerinde durulmaktadır.

Dr. Maslow'un modelindeki bu iki aşamanın gerçekleştirilmesi için karşılanması gereken ihtiyaçlardan hareketle, üzerinde durulması gereken

özellikler belirlenmiştir. Bu özellikler, **ilişki kurma potansiyeli**, **form**, **ölçek**, **malzeme**, **su sesi** ve **suyun sunum kaliteleri** başlıkları altında ele alınıp, **ilişki kurma potansiyeli**, interaktiflik ve eğlence olanakları; **form**, basitlik, suni olmamak ve kolay erişim; **ölçek**, tüm tasarım içerisindeki denge ve alt bölgelerin varlığı; **malzeme**, çok sayıda dokuyu barındırma ile yumuşak ve sert zeminlerin dengesi; **su sesi**, gürültü perdeleme ve işitilebilir olma; **suyun sunum kaliteleri** ise, yansıtma, aydınlatma, açık görünüm, hareketlilik ve birden fazla duyuya hitap etme açılarından incelenmiş ve tartışılmıştır. Bu tartışma ve incelemelerin sonucunda şekillenen tasarım kriterlerinin ve bunlara bağlı olarak geliştirilen denetim listesinin test edilmesi aşamasına gelinmiştir. Test örneği, anket yöntemi ile belirlenmiştir.

Bu amaçla, dünyanın farklı bölgelerinde yaşayan, farklı milletlerden 90 tasarımcıya, internet üzerinden, sosyal iletişim platformu Facebook aracılığıyla ulaşılmış; bu tasarımcılardan, insan ve su ilişkisini en iyi biçimde örneklediğine inandıkları su öğesini ve nedenini belirtmeleri istenmiştir. Bu 90 tasarımcıdan 75'i belirtilen süre içerisinde anket sorularını cevaplandırmış; geri kalanı ise çeşitli nedenlerle herhangi bir fikre sahip olmadıklarını belirtmişlerdir. Gelen cevapların değerlendirilmesinin ardından, Chicago Millennium Park'ta, Kathryn Gustafson tarafından tasarlanan Lurie Garden içindeki su kanalı, 14 tasarımcı tarafından, insan ve su ilişkisini en iyi gerçekleştiren örnek olarak tercih edilmiştir.

Su kanalı, "Shoulder Hedge", "Light Plate", "Dark Plate" ve "Seam" şeklinde adlandırılan dört faklı bölümden oluşan Lurie Garden içerisinde, Light Plate ile Dark Plate'i birbirinden ayıran "Seam Boardwalk" isimli ahşap yürüyüş yolu boyunca yer almaktadır. Bu ahşap yürüyüş yolu ile su kanalı arasındaki kotta, yine yol boyunca devam eden teras tipi bir basamak oluşturulmuş; bu sayede kullanıcı ile suyun iletişimi kolaylaştırılmaya çalışılmıştır. Güzergâh boyunca, 1.5 m genişliğinde ve farklı kotlarda basamaklandırılmış bir yatak boyunca devam eden bu kanalın diğer tarafında, onu Dark Plate'den ayıran, kireçtaşı kaplı bir duvar bulunmaktadır. Bir yanı kireçtaşı kaplamalı duvar, diğer yanı ahşap döşeme olan bu kanalın tabanı yanık granitle kaplıdır. Kanalın her iki yanındaki, birbirine zıt karakterde düzenlenmelere sahip Light Plate ve Dark Plate'de kullanılan farklı özelliklerdeki bitkisel materyallerle, sert ve yumuşak zeminler dengelenmiş, farklı ama birbiri ile uyumlu dokuda malzemelerle, ölçekli, kolay ulaşılan, sunum kalitesi yüksek bir su öğesi meydana getirilmiştir.

Lurie Garden'da bulunan su kanalının incelenmesi sonucunda, su öğesinin sahip olduğu özelliklerin, literatür çalışmasından elde edilen kriterlerle oldukça uyumlu olduğu tespit edilmiştir. Katılımcıların söz konusu su kanalına ya da diğer seçimlere ilişkin değerlendirmelerinde ifade ettikleri, insan-su iletişimini örnekleyen deneyimler de, Maslow'un hiyerarşisinde yer alan ihtiyaç ve isteklerle örtüşmektedir. Bu durum, insan ile su arasındaki ilişkinin anlaşılmasına önemli bir katkı sağlamakta; ve sözü edilen kriterleri tasarım sürecinde göz önünde bulundurmanın, insan-su iletişimini kuvvetlendirme konusunda tasarımcıya yardımcı olabileceğini ortaya koymaktadır.