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Georgi, Neratzia Julia

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## **Landscape Preference Evaluation for Therapeutical Gardens**

JULIA NERANGIA GEORGI\*, PETROS ANTHOPOULOS\*\*,

*\*Tutor of Hellenic Open University  
P.O. Box. 13680, 10310 Athens,  
GREECE*

*\*\* Forest Service, Prefecture of Rodopi  
3<sup>rd</sup> klm Komotini- Alexandroupolis, P.C.69100  
GREECE*

**Abstract:** The present paper deals with the usefulness of outdoor spaces of nursing institutions which we name "therapeutic" gardens. A therapeutic garden offers a locality where the patients and their healers might achieve the objectives of therapeutic process.

The research of present paper was based on the inclusion of various individual factors that concerns in the Hospital of Alexandroupolis. Thus, they were taken into consideration: (a) the opinions of workers and the students of Medicine (questionnaires), (b) analysis of environment, (c) aesthetics of landscape, (d) beginnings of Architecture of landscape (e) literature review. Some of the results of the research demonstrate that people need to work and be treated in a more humane and less stressful environment, with variation of landscapes included also several uses which could function as a multiple use "therapeutic" garden. Following the examination of views of the aforementioned groups of people, the designer – landscape architect is given the possibility to take into account the views of users and combining them with his personal identity, be able to create a representative master plan of the external area and a detailed design.

**Key words:** landscape architecture, therapeutic garden, hospital landscape design, healing garden.

## 1 Introduction

## 2 Therapeutic Gardens

In particular, green areas outside hospitals are considered not only to be necessary but also beneficial.

### 2.1 Healing gardens

Claire Cooper–Marcus [5] uses the term *healing garden* to determine seven (7) fundamental elements that totally characterize it: Visibility, Feeling of security, Natural support, Opportunities to chose- Seeking for privacy or meeting with others for social contact, be bound by the same problem, close contact with nature.

Generally, the profits that result from the "therapeutic garden" are:

- ✓ It contributes in the maintenance of good health with the paths of walk but also with its remainder departments that contribute in the energetic activity.

- ✓ It offers occasions for sociability.

- ✓ It gives the occasion for new and interesting activities as observation of birds.

- ✓ It contributes in the maintenance of rhythm of body in 24-hour.

- ✓ It decreases the stress and it contributes in better natural situation.

- ✓ It improves the psychology of personnel of nursing institution.

Another definition of "therapeutic garden" is:

A therapeutic garden offers a locality where the patients and their healers might achieve the objectives of therapeutic process. The garden offers localities in order to breathe fresh air, to feel the warmth of solar beams etc. The variety of vegetation offers alternation of colours depending on the seasons and the various perfumes.

Generally, all the elements of garden allow the patients to recover in a comfortable environment, contrary to a "cold" room of the hospital.

**2.2 Benefits of Therapeutical Gardens** It is presented some historical data, which prove that this was a basic principle in the construction of hospitals, so that the patients could feel more comfortable [6]. Ever since the Middle Ages, hospitals functioning in monasteries used gardens as therapy places. The patients' rooms had a view of the hospital's garden, which could provide exposure to sunshine, a small lake, seasonal flowers, rest areas or footpaths.

The Saragossa hospital in Spain, which was built in 1409, served as an example, which many later designers followed, particularly as regards the way patients could contact one another and was made known in the 19<sup>th</sup> century as "Ethical Therapy". In this institution patients were not shut in their rooms. Instead the hospital's garden was used for their treatment. The patients generally communicated with one another throughout the day. The European Romanticism Movement of the 18<sup>th</sup> century was the cause of important changes in the design of hospitals. The theory connecting medical therapy with the existence of natural environment around hospitals

was revived. Romanticism was a “pervading cultural movement, aiming at the unification of human emotions with morals and nature” [7]. However, in the 20<sup>th</sup> century the progress in Medical Science, civilization and other economical forces led to the dereliction of the external areas of hospitals [8]. The situation of American hospitals in the 17<sup>th</sup> century was horrendous. Buildings were small, rooms had no windows, there were no gardens and the treatment of psychopathic included the “tying of patients on piles” or the use of a type of “gallows”. In the 18<sup>th</sup> century the first to be interested in the amendment of the patient’s therapy methods and by extension in the hospital environment were Dorothea Linde Dix (1802-1887) and Horace Mann, who proposed certain basic principles to the American Legislative Assembly concerning the arrangement of area in these institutions. The distinguished psychiatrist Thomas Kirkbride (1809-1883) suggested how hospitals should be constructed and indeed indicated “26 preconditions” that need to be met (hospitals should be located close to the city, have a garden of at least 10 acres, provide patients with rooms with a view etc.).

Many hospitals in Europe added a method called *Horticultural therapy* (Gardening) to their therapeutic programs, aiming at keeping the patients’ mind away from disaster and drive it to creative action”. The same method of *Horticultural therapy* started to be followed by the American Therapists in 1920. A well-designed hospital garden offers security, reduces stress, nourishes social contact and interaction, allows visitors to enjoy nature and helps in the development of senses, which cannot be developed in the structural environment of a city [9]. R. and S. Kaplan [10] support the view that the hospital environment is stressful because it is considered to be complex and not friendly. They believe that continuous exposure to such an environment leads to mental (spiritual) exhaustion. In cases like that, they recommend the exposure to a less complex natural environment, which would enable them to rest, develop companionship and burden them with a smaller amount of information. Men have a natural tendency to the natural landscape in relation to the built environment, particularly when the latter presents an absolute lack of vegetation and water [11] [12]. Generally, people who are under stressful pressure, wish to find shelter in the natural environment, which could made them feel better [13]. Landscapes consisting of trees, grass, water, stone formations, flowers and birds are

considered to be very useful for those occupied in hospitals [14].

Cooper–Marcus and Barnes [13] proceeded with the evaluation of various hospital gardens in the U.S.A. with the use of a questionnaire and interviews of patients and staff. During an investigation conducted by Cooper–Marcus [15], a sample of students in California was asked to answer as to where they go when they wish to escape from a stressful situation. The great majority (75%) answered that they go to find a natural environment and not an inhabited area. The conclusion of many researches is that blood pressure is reduced and recovery is precipitated [9]. The hospital staff can also benefit from it [16], by having access to windows viewing a garden. An indirect proof of the aforementioned is the satisfaction that patients and staff express when they find themselves in a natural environment in relation to when they find themselves in the hospital [13]. The work of the researcher Richard Ulrich [9] in the University of Texas has proved that the recovery of patients, who have had an operation, is quicker, when their room has a view to a natural environment. Using experiments that he carried out, he proved that patients, who could see a natural landscape during the stage of recovery, needed less painkillers and their recovery was quicker in relation to patients who had a view of a built environment. The contact of patients with nature arouses their immune system, activates hormones that help them to be cured, helps in the production of neuropeptides that relieve pain and generally enables them to simply feel better [9]. Hartig and his associates first produced stress in individuals with a demanding cognitive task, and then measured recovery effects of either (1) a fortyminute walk in an urban fringe nature area, (2) a forty-minute walk in an attractive urban area, or (3) reading magazines or listening to music for forty minutes [17]. Findings suggested that persons assigned to the walk in nature reported more positively toned emotional states than individuals assigned to the other two activities.

Nakamura and Fujii performed studies in Japan [18] that also recorded brainwave activity as unstressed subjects viewed either vegetation or human-made objects. In an innovative experiment, they recorded the electroencephalogram (EEG) in a field setting while subjects viewed either a hedge of greenery, a concrete fence with dimensions similar to the hedge, or a condition consisting of part hedge and part fence (1992). Results showed that the ratio of alpha activity to beta activity was high when persons viewed the

hedge; the ratio reversed, however, when the same persons looked at the concrete fence.

### 3 Methodology and area of Research

The research of present paper was based on the inclusion of various individual factors that concerns in the Hospital of Alexandroupolis (fig. 1).

Thus, they were taken into consideration:

- ✓ The opinions of workers and the students of Medicine (questionnaires).
- ✓ Analysis of environment.
- ✓ Aesthetics of landscape.
- ✓ Beginnings of Architecture of landscape.
- ✓ Literature review



Figure 1. General view of the Hospital of Alexandroupoli (aero photography).

### 4 Results and discussion

The research gave interesting results concerning preferences and views of people working in the hospital of Alexandroupoli

The great majority of them is not satisfied with the current situation of the site surrounding the hospital, to which no intervention has been made, with the exception of the construction of pavement and parking area.

They express a great wish for a well design of the landscape that surrounds the hospital, because it would greatly positively affect their psychology and offering them the opportunity to spend part of their free time there.

The results of the research demonstrate that people need to work in a more humane and less stressful environment, as opposed to the interior of the hospital, which demands high workload and pressure

rates. However, if we examine some of the results, we observe an indifference to the presence of a garden by the nurses' staff (29.2%), administrative staff (22.7%) and medical students (19.4%), while the respective percentage of the medical staff is particularly low (10%). A possible explanation for the aforementioned results is that nurses and administrative staff have a high working load, due to lack of staff, which directly results in not allowing them to spend some time outside of the hospital building itself. As regards to students, we believe they prefer to spend their free time in places presenting more briskness, rhythm and intensity. Is has been gathered important information concerning the interventions they would wish for the external area of the hospital. The great percentage of people working in the hospital wish for the planting of various types of plants and would like certain areas to be isolated with high vegetation.

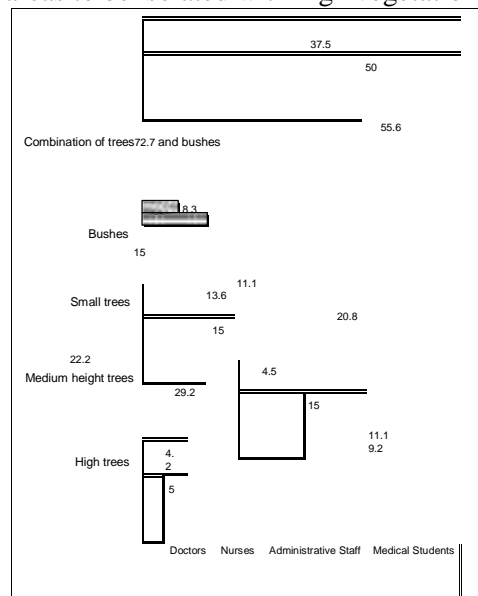


Figure 2. What kind of vegetation would you wish to be planted in the hospital's garden?

As it can be seen in the fig. 2 the majority of staff (54%) wish to see vegetation of different sizes grow (mainly focusing on the characteristic of its height), meaning tall, medium size and short trees and bushes. This variation in size of trees and bushes provides a natural character to the garden, a feeling of a natural environment in a situation of unevenness. The landscape is formed by bushes, short, medium size and tall trees, which form a complex, unpredictably evolving natural environment.

In this case however, the designer should be very careful as regards these interventions, so as to maintain the unobstructed view to the see from certain places, which plays a determinant role in the psychology of both patients and visitors of the area. They also prefer plant species that provide a good shade during summer and could create an improved microenvironment. Some types of trees which could serve this purpose are *Acer negundo*, *Acer platanoides*, *Aesculus hippocastanum*, *Celtis australis*, *Cercis siliquastrum*, *Platanus orientalis*, *Morus alba* [19] [20], which would adapted to the ecological conditions of the area where the hospital is located. Native species of local origin should generally be preferred and non-indigenous plants should be avoided [21].

The users of the area seem also to favor the construction of footpaths, rest areas, refectories, water features (eg lake) and stone formations (fig. 3).

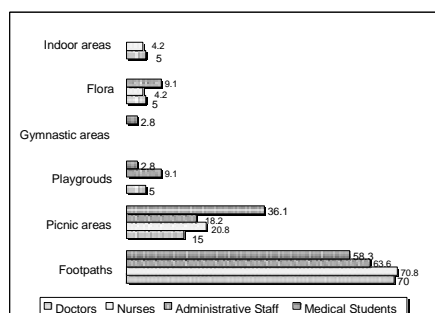


Figure 3. What kind of constructions would you wish to be done in the outdoor space of the hospital?

This means they would wish for a surrounding landscape, which is characterized by all elements found in the natural environment, which could function as a multiple use “therapeutic” garden. We believe that the findings were predictable and absolutely reasonable, because of the imperative need to escape from the stressful environment of the hospital. A “garden” is expected to provide people a convenience to walk, stand and also rest in areas, especially arranged for this purpose, where people have the possibility to enjoy their lunch or the cool breeze.

People asked wish (92.2%) to see several colors prevailing in the garden and do not favor uniformity and monochromie (fig 4).

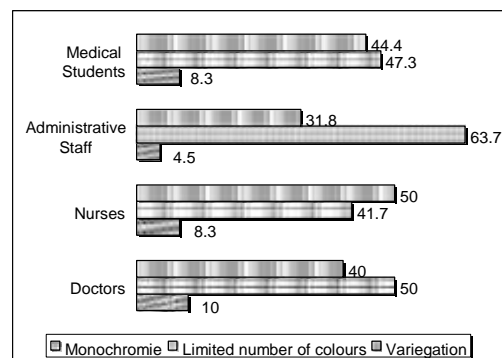


Figure 4. What combination of colors would you wish to see prevailing in the hospital's garden?

Finally, the staff understands to a large extent the importance of green landscape for the psychology and cure of patients. They understand that the presence of planted landscape helps conventional therapy methods, ensuring faster and better results. The answers we got we believe were expected from people who live and are actively involved in a hospital. It should be pointed out that the total percentage of doctors (100%) gave a positive reply. Consequently, the proposals that are based on the conclusions of our research are following:

✓ Existence of *green areas* in the exterior environment of hospital for functional, aestheticians but mainly for psychological reasons.

✓ Use of plant types adapted in the *ecological data of region*.

✓ *Placement of garden* in such place so that exists optical contact from the rooms of patients and from the public spaces (entries, rooms of waiting etc).

✓ The planning of garden should *be focused* in the patients and in their own needs.

✓ The *plan of the garden* must be simple so that becomes immediately perceptible from the users.

✓ *Perception of operation of garden* from the nursing personnel.

✓ It is required to take into consideration the *future situation* and the needs of space.

✓ Existence of various types, forms and size of trees.

✓ Planting of trees and thicket that has *intense characteristics* in their form.

✓ Existence of *aquatic element*.

✓ Existence various size and form of *stone shaping* which lends a unique naturalness in the space.

✓ Existence of big height trees and small bushes for the exterior fencing of Hospital so that is isolated the space from the wider region.

✓ Easy *use* of garden from individuals with special faculties and in children with decreased senses.

✓ Creation of *natural obstacles* (fencing) from total thicket that will separate some space from the remainder abroad.

✓ Existence of *turf* because its existence gives the sense in the patient that it is found in familiar space and more specifically in his house.

✓ Existence also specifically shaped *paths of walk* in environment space of Hospital that provides the possibility in the users of space walking comfortable.

✓ Guarantee of *activities* as walking, observation of landscape etc.

✓ Existence vegetation that will ensure in the users of space shade in summer, sunlight at the wintry months, alternation of shade and sunlight, privacy, reduction of wind and quietness.

✓ Existence of special garden where psychopathes will be activated coming in contact with the natural environment (*therapeutic garden*).

✓ Creation of spaces where will be given the possibility in the workers of Hospital "of be isolated" and of passing some time interval of free time.

Following the examination of views of the aforementioned groups of people, the designer – landscape architect is given the possibility to take into account the views of users and combining them with his personal identity, be able to create a representative master plan of the external area and a detailed design. Professionals of the landscape design, who are more sensitive as regards the quality of landscape, considered able to express their emotions in a clear way and thus judge and evaluate landscape [22].

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