



SEATING CULTURE WITH SRI LANKAN LANDSCAPE

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Abstract

Our seating culture acts as one of the factors that helps to establish the Sri Lankan identity. Cultural, religious, social, political and geographical features entwined with the life style of the people have made a lasting impression on the seating culture of Sri Lanka. This is not one that was introduced or extracted from the foreign lands, but one that was born and stabilized in this country it self.

The first chapter discusses about the day to day life of the people and its relationship to the life style. Further it touches upon the way how power religion and respect at different social levels have molded our seating culture. The second chapter focuses on how, anthropometries and ergonomics have affected the seating culture of Sri Lanka and the physiologically aspect and the materials used for seats. The seating systems and postures are adapted in populated areas and the way these changed according to the rural and urban environmental situations, will be discussed in the third chapter.

The fourth chapter discusses the positive and negative aspects observed in the case study areas and the response of people to variations in seating. The most suitable seating for a country like Sri Lanka with different urban situations and different life styles are discussed in the conclusion with the necessary actions and perspectives to make the seating culture of Sri Lanka one of our own again.

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Seating culture with Sri Lankan landscape.

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INTRODUCTION

Topic Explanation

The countries and kingdoms of the world have unique identities reflecting comprise many different aspects of their own culture, religions, and economic approaches. Such character and identity varies from one country to another. Among these countries and Kingdoms Sri Lanka is unique as the '*Therawadi*' Philosophy has been the primary factor that has influenced building up an identity particular to Sri Lanka. While development has been taking place in the social, economical and political sectors the natural environment also has changed distinctly.

This great philosophy has been brought to Lanka by Thero '*Mihindu*' the son of the great ruler of India King '*Dharmashoka*'. At that period Sri Lanka was ruled the King '*Devanampiyatissa*'. When the Thero '*Mihindu*' and his followers landed in Sri Lanka King '*Devanampiyatissa*' and his retinue hunted at the '*Mihinthala*' deer park. The Thero spoke to king '*Devanampiyatissa*', saying that "you are only the guardian of the country but not the owner". Further he said that each animal and plant has the right to live and we should respect it. This has been recorded in the '*Mahawamsa*' the ancient chronicle of Ceylon (now known as Sri Lanka).

Due to these events, the world's first Nature conservation Park was established and with '*Therawadi*' Philosophy the aspect of tolerance '*Awihinsawawadee*' penetrated society. Lord Buddha's '*Dhamma*' being followed and fully accepted by the society, as the true religion they took care not to harm any living being such as animals or even the branch of a tree which gave them shade. So people became used to be satisfied by just looking at the flowers of a tree rather than plucking it for their enjoyment.

According to a statement by a European, Douglas Burns, Buddhist people are accustomed to live with the environment in harmony, unlike the

European in western countries who, competes with nature and always tries to exploit and to dominate it.

Because of this '*Therawadi*' Philosophy, good qualities have been inherited by Sri Lankan society such as respect for elders, and correct behavior.

The manner and behavior in the company of elders ,the manner of behavior at the temple, or while meeting up in relaxation with a friend or taking a meal , showing respect to others are reflected in the manner of seating and the act of sitting. Since Sri Lanka has an agricultural economy people are actively involved in paddy cultivation and chena cultivation. When they were tired, or have to take their meals, they used to sit in order to rest and be comfortable.

Sri Lankan people, since ancient times have lived with the natural environment; have worked on their agricultural fields and plots and during religious ceremonies have spent time at the temple while the '*Pila*' functioned as the gathering place at home. It was the '*Ambalama*' that largely served them when they traveled from place to place. Thus as they were so much a part of the outdoor natural environment that they developed a tolerant attitude towards the natural environment while enjoying its ambiance.

As the people get tired through the working for long hours they look about and experience the natural environment and are uplifted both mentally and physically in the way nature and the life style of the people have become bonded to each other. Their behavioral patterns also change according to each place's activity. Seating behavior in a sacred area is thus different from seating behavior at home. Actually it has been used as a tool for respecting different groups and categories in society such as elders and clergy therefore and in an expressed seating culture. At present, this seating culture has been used within the landscape but many difficulties have arisen.

Identification of the issues

Though Sri Lanka is a small island, it consists of a natural scenic beauty which is different from one place to another, since it has variation in geographical terrain. Therefore visiting of such places is popular among school children, parents, youths and lovers. But they do not have proper seating spaces for enjoying the scenic beauty of the landscape and even to have meals. This causes some difficulty.

Sri Lankan people have a close relationship between kith and kin. So they like to visit such places as a group. Such groups look for and require an easy and proper place to sit, to rest and enjoy the landscape while also sharing their friendship in a close and enjoyable manner. However, what they find are seats constructed upon the land space which can accommodate only two or three people. These may sometimes be found to be broken, or may be dirty. Another major factor is that the 'naturalness' of the landscape is impaired, and the given landscape may not have enough space for such seats.



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Most people wish to experience the landscape and to feel that they are part and parcel of it. They may sit on a rock or on the ground. Some are fond of sitting alone and some like to be freely chatting with a group. Where there are children they will be running up here and there. In the mean time lovers are always willing to view the surrounding landscape, while whispering to each other. All in all, many people need to easily change their positions while seated and to be comfortable in this way.

Another point is seating materials like concrete may cause an injury or accident when broken, and also nobody can make use of it when it heats due to strong rays of the sun by day. Though timber is used as a seating material in some places, this may be viewed as a crime against nature, because it is also easily susceptible to degrading due to poor maintenance and environmental factors. Anyhow, all these causes cause visitors to use an option such as a rock or the ground. Instead of using constructed outdoors seating, due to their love for the natural scenic

beauty. Therefore, at present the use of constructed outdoors seats are declining, as they only serve to belittle the natural scenic beauty and freedom of the landscape.

Intention of the Study

In a country such as Sri Lanka, the rural lifestyle has been enriched by the climate, culture and the religion. Therefore, their behavioral pattern is also varied. Due to their varied form of sitting, a 'seating culture' has come in to being. This has a close relationship with nature due to existence over many centuries. Healthiness of seating culture in the past has been recorded in detail according to the medical sciences respect of the digestive system, the circulation and the breathing system as well.

The ancient seating culture has been practiced for many centuries. Unfortunately this culture of the past has not been practiced for over a century. For all of us indigenous people who have sat under the shade of a tree and experienced the up lift of the natural landscape, the trained use of a chair is seen as a curtailment of freedom. Sitting at a height unsteady above bare floors can be said to be disrespectful to the very surface of our land, Sri Lanka.

An alien culture has been forced upon us by the invaders of past Sri Lanka and which has no meaning to the indigenous culture. The chair is more suitable for a cold temperate country, Seating on the bare floor would be a matter of pride for us and in this sense it will make us to be close to the nature. Therefore we should once again remember with pride and use our former seating culture.

Scope and Limitation

When Studying about the Sri Lankan seating culture it can be considered as one that evolved according to the cultural, religious, Agricultural and the day to day life style as well as the climatic conditions. During ancient times Sri Lankans spent more time outdoors than inside the house,

because most of their activities revolved around outdoor spaces. This was the base for the outdoor 'seating culture'. This study focuses on this outdoor 'seating culture'.

Rock cut seat especially of granite used by the royals are the only remains that are to be found as evidence of our 'seating culture'. The cause for having no evidence of the seating used by the ordinary folk may be that they were made of wood , mud or any other easily degradable material as suggested by the ancient database such as rock carvings , mud plaster building platforms must also & still also user on seats. The case study will focus on the seating used in urban areas in the present, and several places in Sri Lanka.



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1.1 Cultural habit in the Sri Lankan context

Although there were locals who lived in Sri Lanka even before the arrival of the 'Aryans' , the civilization began to form systematically only after 'Vijaya' and his troops settled in this land and thereafter on various occasions as several groups of Aryans migrated to Sri Lanka . They settled along the river banks at different places. This resulted in the beginning of the first communities of Sri Lanka. Gradually these communities began growing towards the interive of the country. Due to this people of these communities accumulating the knowledge of various crafts, each community grew with this knowledge and often specialized in a specific craft, which they knew. Initially agriculture and pottery industries were the mainly done. As these civilizations developed rulers were appointed and later on the people were ruled at village level as well as provincially.



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Figure 1.1
The village 'Veddah'
Early Peoples Life Style
(*'Eda Heladiwa'*)



Figure 1.2
Fishing
Early People's Hunting System
(*'Eda Heladiwa'*)

Figure 1.3
The village Life
Early Village People's -
they had an Agricultural Life.
(*'Eda Heladiwa'*)



As times went on, a religious group led by 'Mihindu Thero' the son of Dharmasoka(Asoka) the emperor of India , was sent by the emperor himself to the country . Later on king Asoka's daughter , 'Sangamittha Theraniya' came to Sri Lanka bringing a branch of the 'Sri Maha Bodhiya' under which Lord Buddha had been sheltered as he gained enlightenment . Along with her came a group of people who belonged to several grades of crafts. These people were given various duties and services which resulted in the caste system of Sri Lanka.

The society was categorized according to caste and power status, where each category's participation was taken into account, even in the ruling system. The people were honored according to their accepted social status. The ruling party, including the king was chosen from the castes considered as high and also the well-educated people and philosophers who were given a higher status in society. Other than for these, the most honored category was and is the Buddhist monks. All the citizens from the highest to lowest caste honor them. They also show their honor in different ways, for example; worshipping prostrate, bowing, worshipping sitting on a lower seat or on the ground honoring the person in front.

Such practices emphasized respect to the elderly, or authority, or the Clergy & their aim was to maintain order of society and to lift Sri Lankan culture to greater standards.

1.2 The seating in the Sri Lankan context

Seating varied according to social status, duties and to geological or climatic conditions. According to ancient sources especially when observing the sculptures, carvings and paintings of those days the sitting positions of that time may be identified. In recent times , amongst all carvings the rock carvings best depict the social status , structure and the day-to-day lives of the people of the past . The various body postures expressed while sitting show the social status of the person or people and their behavior. The following are some examples.

- **The “ Man and Horse head” carving**

This stone carving is placed at the museum in the “ Isurumuniya viharaya”, ‘Anuradapuraya’. Many scholars hold different views about this carving, yet the most popular view on this carving are that it is a soldier who is resting after battle. The sitting position which he adopts at this situation shows his tiredness.



Figure 1.4

“Minisa saha Ashwa Hisa Katayama”

Sri Lankan famous stone carving
(Isurumuniya Temple at Anuradhapuraya)

- **The carving of the royal family**



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Some say that this carving depicts the members of the royal family of king *Dutugamunu* , including the king himself , while others say that it is the king spending his free time with his wife and children.



Figure 1.5

“Rajapavula Katayama”

Sri Lankan famous stone carving
(‘Isurumuniya’ Temple Museum at
'Anuradhapuraya')

- **The lovers of ‘Isurumuniya’**

This very famous stone carving was said to have been found in front of the “Nana Thatakaya” (swim pool) in the ‘Ranmasu uyana’ and later on

taken to the museum of *Isurumuniya viharaya* to be preserved. One of the popular ideologies about this carving is that the couple was known to be Saliya and 'Asokamala' , 'Ranmasu uyana', being a Royal garden yet allowed lovers to this place, and by their posture of sitting we could especials how enjoyable it would have been for them.

The three immensely popular stone carving s mentioned above have captured three situations which are totally different to each other as well as being three special instances which are depicted by different sitting postures.



Figure 1.6

"Isurumuni Pemyuwala"

Sri Lankan famous stone carving

(Isurumuniya Temple Museum at Anuradhapuraya)



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1.2.1 Authority

The king and his officials who handled the main system of government in the society at that time, is always depicted seated in the act of ruling over the people or while being engaged in any royal duties. Appointments The qualities each of them possessed were revealed through the way in which they were seated. Another observation is that these officials never sat at the same level as the people but rather on a higher seat, than the rest. It shows that the royal officials of that time were treated with respect and honor. Therefore the way they sat and their posture as well as the height from the ground level resulted in the creating a continuous respect in the minds of the people towards the rulers of their society.



Figure 1.7

King and his official

The King handled the main System of Rule in the society. ("Eda Heladiva").

1.2.2 Hierarchical order

The lowest level of social order and its core was the family. The head of the family acted on behalf of the family. His position as head of the family is expressed in 'the Pila' (a small wall at the front of the house, or seat made of wood called the "Lanu ada" and which is reserved for him. The height of the family the height of the seat is clearly seen have as well. The rest of the members of the family would sit on mats on the floor. when a visitor came, he too would be given the "pila" to be seated on as it is considered a great honor to be seated on this seat

Figure 1.8

English Governor with Villagers

This image show the Hierarchical-Situation in those days.

(Thesis Collection University of Moratuwa)



Because, this place is surrounded by the garden and the outside of the house. it is a place which is also closely linked with nature . If a person of a lower caste arrives to the house he would have to sit on the front step of the floor, or on a bench or on a mat which is spread on the floor.

1.2.3 Religious context

On walking into a temple a visitor would initially meet the chief priest, He would be seated on a short bench or on a floor mat after allowing a monk to be seated on a chair in the verandah. During worship at the 'Bo Maluwa' the chief priest sits on a low bench whereas the others sit on the ground of the 'Wali Maluwa' in the half lotus posture , or any posture which is comfortable. The idea of being seated on a higher level does not even enter into the minds of these people , mainly due to the deep respect and reference shown in a place of worship , which is inbuilt in their hearts. The "Bo" tree which is centered on the natural surroundings of the temple creates an atmosphere which results in this kind of behavior.

Figure 1.9

Chief priest and Student

The Temple was The school " Piriwena"
(Kelaniya Temple, Wall painting)



With their devotion to the religion, their behavior also gets very calm and quiet. This kind of situation prevails because of the calm and quiet surrounding environment of the major educational institutes, temples and monasteries. The responsibilities of educating the masses were

taken up by the monasteries. This education system stabilized basically in the Buddhist infrastructure, mainly for studying and teaching Buddhism. Kings, other high ranking civilians all received their education from the monks. These schools were conducted in open areas. There was a very close relationship between them and the environment. This is indicated in the book "Kawyashekara Maha Kawya" written by Sri Rahal Thero.

කසුනින් කරන ලද මුහුණ
 සුදුසු වන අසුනේ මුහුණ
 නිසැකවම බලා සිටියේ
 දැනුණු මෙන් මෙහි මුහුණ

" Kasunin karana la da
 Sudatura ehi asur-ma da
 Piyumasanaya ba da
 Uda guru men teunawada hi da "

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"On a seat made of gold, a white cloth laid upon it he sat there being like the sun in the posture of lotus" ('Kawyashekaraya') 1

when one is attending the *Thaksalawa* institute for studies , or when in the temple , to show gratitude , people would sit in the sand compound seating on the floor of the , verandah of temple . the Institute for monks also had low level seating in order to show respect to the teaching monks.

1.2.4 The Manner of sitting

The sitting posture is a situation which expressed respect to a person. A younger person seated at the same level of an adult or even have one leg on top of the other was uncommon. Taking the above details in to consideration it could be concluded that amongst the various movements of day-to-day life, the sitting postures due to the fact of these postures communicate disrespect and dishonors to the adult and the society. What is communicated by the sitting postures where the adult sits on a higher level than the young and the behavior of males and females when sitting together reflects the systematic and appropriate behavior of the culture at that time .

Figure 1.10

The prince of 'Siddhartha' with his Teacher Sarwamithra Thausa

The Prince of Siduhat's Child hood.

The Teacher was ' Sarwamithra Thausa' (Kelaniya Temple Painting).



Figure 1.11

The King offers the Palmyra fan.

The image show the Honor affairs (Kelaniya Temple Painting).



If at any point these accepted norms were violated in any way, those persons would have to face punishment from the society by being ostracized by society or being put to shame and so on. Hence to avoid such situations which affect one's character people would follow correct practices very consciously.

1.3 Sitting postures



Figure 1.12

Different kinds of seating postures according to countries and Societies.

80 – 101 South Asian countries, 102 – 104 Japan, 106 – 108 Mohawk Indian Society, 109 – African Society, other different groups live in world
(Anthropometrics Data of Sri Lankan Workers)

When observing the sitting posture it is beneficial to categories it into two areas such as the traditional way of sitting and the postures when sitting at ease.

1.3.1 Traditional sitting postures

Some of the postures belonging to this category are the " Half Lotus Posture " the posture made when worshipping the sun god etc. Moreover there are also several postures which are used in dramas. These postures help improve man's physical and the mental state, and because it is done in the open air surrounding with nature he is able to accumulate a power. Of natural forces.

1.3.2 Normal sitting postures

The postures of those involved in day to day activities, such as when eating, conversing with people, relaxing and so on, Varies from each activity as it differs due to the surrounding atmosphere, the mental state of the person and the place in which he is sitting.



Figure 1.13
Village women's Day today Life
attitude time ('Sinhalese Village').



Figure 1.14
Sinhalese people's Lunch
('Eda Heladiwa')

1.4 Climatic and geographical factors which effect sitting postures.

The geography of a country usually acts as one of the key elements which help shape the political, economical, social and cultural systems of that country. This is evident in Sri Lanka. Amongst the various aspects of the geography of the country; the location of the land, the diversity of the land and the natural resources are of importance. These aspects affected the different points of the evolution of culture and the system of living either directly or even indirectly.



Figure 1.15


World Map – Equator , The Equator is very close for the Sri Lanka.

(Sri Lanka National Map Collection, Survey Department)

Sri Lanka is situated just above the equator . This results in a warm and equalized temperature throughout the land. In responding to this climate, the people of Sri Lanka adapted in various ways especially in aspects of their clothing, shelter, and behavior patterns. Likewise, while eating as well as accommodating guest in their houses, they generally used to sit on mats on the floor. This account is also mentioned in Robert Knox's (a European slave in Sri Lanka) book.

" They sit on a mat on the floor and eat their food. When visitors come, they were given a seat which was higher than the rest and then given to eat." 3

The homes of the people who belong to the high class had a small wall-like seat preceonslymentioned called the 'pila', which was made out of mud and cow dung and sometimes made in a way with another wall as the backrest. When visitors arrived they used to lay a mat on it and prepare it as a seat.

According to archeologists and sociologists, this 'pila' was made in this way so that people could sit together and be involved in conversation where they were surrounded by the natural environment with excellent ventilation. Even when partaking of meals they sit on the mat, out in the verandah in order to avoid the difficulties which occur due to the environment. Therefore it is evident that their way of sitting was shaped in order to suit the natural environment.  University of Moratuwa, Sri Lanka.
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The reason for the use of natural resources such as mud and cow dung, for building their houses, was in order to create a comfortable and suitable atmosphere in the living space. This helped in cooling the atmosphere. The application of limestone on these walls was to reflect the sun light rather than absorbing it. They had their upper bodies bare and wore cotton clothes to obtain this comfort.

Taking the above details in to consideration it could be concluded that amongst the various movements of day-to-day life, sitting postures were shaped by cultural as well as natural aspects. Hence, sitting postures were created to obtain good ventilation.

When considering the houses built in geographical locations such as rocky areas, platforms on mountain slopes, in the religious areas, farming areas the seating wear created using the topographical arrangements.



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2.0 CHAPTER TWO - Seating culture formed in contemporary era.

2.1 "Seating Culture"

The culture of sitting and the provision of seats for this function may be expressed by the term "Seating culture". The word of "culture" was denoted by one word to vast meaningful word to explain the humanities and their sociological aspects. Different type of concepts and imagination were included in defining the concept of culture from the 15th century to the modern period.

E.B Tylor gives a rather patronizing scientific explanation about culture. In his book primitive culture published in 1871. he refers the term to cover the cult, ethics, customs and taboos, information, law and activities of humans and the influence of there on their society.

When analyzing the culture of the Sinhala society, it can be recognized that the Buddhist culture and Sinhala culture and identified sub cultures influenced the development of later epochs. The behavioral cultures have significant importance when considering the humanities. The book "Our Cultural Heritage", (1976) which was written by Bandula Sri Harischandra also depicted the etiquette system from generation to generation.

To the sociologist with Behavior patterns and etiquette systems, Seating culture and its specific cultural aspects for Sri Lanka society and specific identity is categorized under the etiquette system. The concept of seating culture reflects the behaviors and discipline in the society. For example, when the religious and auspicious activities are sought. The seats are definitely arranged to generate more respect towards the priest. It is considered in society a bad habit to sit on the same level or on a elevated is the level of parents or teacher or adults either male or female. This behavior is still continued today.

The term of seat is turned neutrally into the occupation of a seat by the king, head, president or chairman at the location of on the occasion of a festival, a meeting or other special auspicious moments. It is natural to convert that seat into a 'High chair' or 'Throne' as a seat of importance in a classroom the teacher's chair occupier a sittings elevated position.

In addition to that climatic and environmental condition of our country is a reason to establish the seating culture. The influences from outsider migrants and invaders were a reason to change the culture. However, some aspects still remain to wards showing the identity of Sri Lanka.

In traditional Sri Lankan village life tea shop , the *Ambalama* and other points are place where villagers gather to discuss matters with each others , and in their festival celebrating the cycle of the agricultural calandos seating positions express their reference or respect low authority, religious and scalar .



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'Pila' can be taken as the most utilized place in a private residential, where both friends meet and guest gather. It is an important gathering space. Different types of seating were available relative to guests and visitors of all kinds. There is a seen linked to relationships between hospitality and seating culture.

Auspicious activities, hospitality, friendship, respectfulness etc... are the main features that are considered when examining the seating culture in Sri Lanka. The etiquette is passed down continuously from one generation to the next by adding new interpretations and concepts. Different class hierarchies in the socio-milieu are expected to respect the behavior pattern or etiquette. Society rejects citizens who do not respect the behavioral code of the system. According to the sociologists the seating culture is perpetuated from generation to generation and followed by society in the name of cultural pattern and etiquette.

2.2 Outdoor seating space in rural society.

In the country side in Sri Lanka seating also soon residential and religious places, roads, agricultural lands such as chenas and paddy fields. Apart from that, nodes, 'Ambalamas' are main gathering places in non-urban areas and in each and every place they have their own characteristics and functions. Rural man has a relaxed attitude to such activities & sits to rest, relax & rejuvenate. (Mentally and physically) while working the land or praying in religious places or chatting in gathering places such as nodes. In such instances, men are sit simply on what is available and enjoy their surroundings.

2.2.1 Village homes

Significant characteristics can be identified in the past by examining the activities of the villages and village residences. It is important to analyze the day to day activities, and identify the seating culture which relates to the village residents. The book 'Sinhalese village', (date not known) was written by Bryce Rayan. It describes how villagers behave in society with regard to their daily life style. The indoors and the verandah are two important parts of a village house. The verandah is the more highly active and functional space in a village house. 'Pila' as described previously was considered as the space to welcome newcomers and outsiders, in earlier times in Sri Lanka. When someone comes, who is a stranger to the house the, householder or chief of the house requests him to sit on the 'Pila' . The 'Pila' is constructed by use of cow dung. A woven of 'pung' was laid on the 'Pila' for outsiders. The cow dung 'pila' has given way to the use of a bed woven with ropes and while is similar to their used widely widly in India.



Figure 2.1

People getting their Meals

When they getting the meal,
(Book name not known)



Figure 2.2

'the "Pila" in the home'

Plinth were a people's
(Book name not known)

" Henry Marshall in 1846 describes the manner of eating of the Sinhalese as follows : " The men always eat alone, and the mother and children in a separate apartment. They sit on a mat on the floor and eat with their fingers off plantain leaves; the people of distinction have saucers to hold their numerous curries. " 4

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The verandah or 'pila' having a higher number of house members when compared to the interior of the house. 'Pila' is more useful with its links to the outdoor landscape.

Similarly, the 'pila' is often used as the place for house holders to take their meals. At other times of the day food is taken by sitting directly on the ground or on woven mats. Others may take the meal by sitting on the 'Pila'. The father of the house can be identified as the respected chief according to the Sri Lankan socio-culture. For monks a white cloth was placed on the 'pila' as a mark of respect for their Horner's. The inmates of the house partake of their meals only after the respected elders.

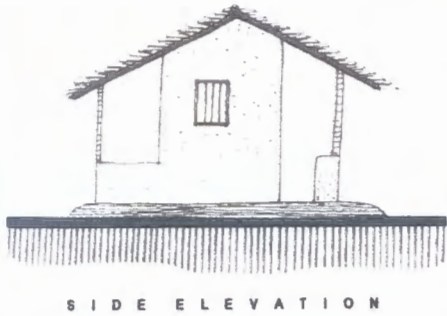


Figure 2.3

Side elevation of a village Home

When they getting the meal,
They wear sit on the Flow.

(Sketch credit - Nirman Rathnayake)

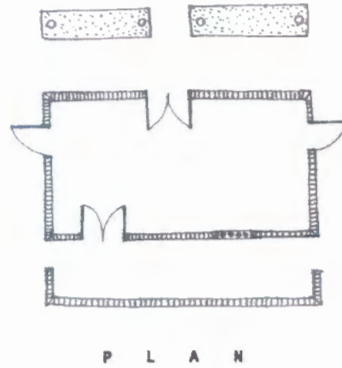


Figure 2.4

The plan of a Village Home

(dotted area is plinth)
Gathering Place in the Home.

(Sketch credit - Nirman Rathnayake)

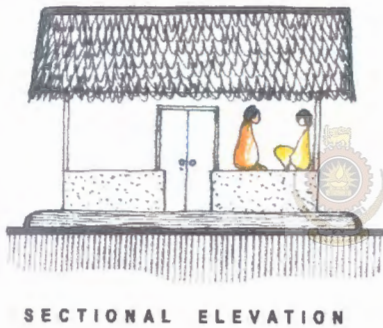


Figure 2.5

Front elevation and Plinth

People are sitting on the 'pila'

(sketch credit - Nirman Rathnayake)



Figure 2.6

Sectional elevation of the Plinth

People are sitting on the 'pila'

(sketch credit - Nirman Rathnayake)

2.2.2 Agricultural area

The chena and paddy fields are the convenient places to analyze the function of seating in landscape areas in rural areas.

To each location there does not appear to be an exact place or equipment for the function of seating. They always use places for dual functions. For example it can be taken that sleeping and seating can make use of one place. The location of such a multi function at space

can be in a chena or paddy field. This occurs at night when the farmers protect their paddy from the wild animals, as well.

Figure 2.7

People sitting on the hut in the paddy

“Kumbure Pala”

(Sketch credit - Nirman Rathnayake)



The 'Kamatha' is used to eat the food when the process of harvesting or other auspicious activities have been completed in the paddy fields. The woven mat is laid on the ground and all food items placed on that. The particular thing is that can be identified the respectfulness when arranging the seating on the in the landscape of “welyaya” (paddy fields).



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Figure 2.8

Chena area Hut “Hene Pala”

Mainly dry zone farmers make these types of

Tree hut their chena areas

(Sketch credit - Nirman Rathnayake)



“kamatha” food items are not taken on the elevated space. And shoes or sandals are removed when entering the 'Kamatha' .



Figure 2.9

The Seating on the 'Kamatha'

People sitting around the
'Kamatha'

(sketch credit - Nirman Rathnayake)



Figure 2.10

**The picture of a Kamatha , -
- 200 years ago.**

(An Historical account
Of Ceylon by Robert Knox)

This is because the farmers treat the crops with respect, even as given to a deity. When considering the landscape of Kamatha and paddy fields, the people gather around the 'Kamatha'. The lunch is taken by sitting on the 'Kamatha'. Food that is taken on the 'Kamatha' is identified as the 'Ambula' (Lunch). The 'Ambula' is served by using banana leaves. In Sri Lankan seating culture, The 'Kamatha' is the gathering place for discussion & collaboration and to work as one with the landscape area. When considering the landscape seating in the 'Kamatha' and paddy field, it can be seen that the seating culture signifies respectfulness and unity. The seating culture which represents the landscape seating in 'Kamatha' has generated the cultural rules and respect of the people.

2.2.3 Behaviors during religious functions

The strong relationship between the village and temple is part and parcel of the Buddhist cultural and Buddhist society in Sri Lanka. The villagers gather in the temple daily for auspicious and religious activities such as 'Bodhi Puja' (pray for the Bo Tree) and 'Poya' day programs. The word of the temple grounds gives the sense of sacredness, respectfulness and serenity to our mind. The importance of Buddhist cultural characteristics

can be identified by how the Buddhist religious activities are done on day-to-day activities. Examination of the seating culture on the temple landscape can be seen to have changed. The landscape seating culture in the temple is totally different from the "pila" concept in rural residences and the Agri-based landscape in paddy fields or chenas discussed earlier. Particularly when entering the monasteries or temple, the respectfulness of the Buddhist mind of the sacredness of the place causes them to remove their headgear and slippers. Good behavior silence, discipline and respect fullness are imbued characteristic of the mind of the followers. The book " The monk and the peasant", 1993 by J.B.Dissanayake depicts the feelings that exist in the mind when approaching the temple.

Figure 2.11

'Temple Education'

"Walipilla" was a writing media – and it has relationship with the Seating system.

(Mahalloluwa Tampita Viharaya).



" My grand mother, kiri amma , had set up her own little shrine room in the house and performed the same rites that we did at the temple ,though on a smaller scale . Whenever a monk visited our house ,

a white cloth,piruwata ,was spread on a pila before the monk who was invited to occupy it, saying : Ape Hamuduruwo mehen Veda hitiyanan (if you would be so kind as to be seated here,venerable sir".) 5

Figure 2.12

'Chief Priest with Students'

Discussion with Chief Priest with
Sunday school Children.

(Mahalloluwa Tampita Viharaya).

(photo credit - Nirman Rathnayake)



2.2.4 Other seating spaces

2.2.4.1 'Kopi Kade'

When studying the novels 'Gamperaliya' , 'Kaliugaya' , 'Yuganthaya' written by Mr. Martin Wickramasinghe , one can understand how the people used to gather in to the small stalls to quench their thirst.

Figure 2.13

Village 'Coffee Shop'

Out side of coffee shop, a

Game of Draughts

(Seating spaces)

(Sketch credit - Nirman Rathnayake)



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SIDE ELEVATION

A little bench fixed in front of the 'Kopi kade' between the main about up main road and the stall. Have been used by the people for drinking and chatting and to play the game of Draughts or as known Sinhalese, " Dan". These activities have been described & referd to in many books & novels. The other most interesting place was the 'Ambalama'. This place combined the road the landscape and the people who were traveling and it served as a resting place.

Figure 2.14

Peoples are at Village Coffee Shop

This is a main gathering place in the
-Village areas.

(" Kandy Museum ")



2.2.4.2 Kadamandiya

We can classify the "kadamandiya" like the village "kopi kade" as one of the places where people gather and spend their time. This place is a Verandah with sides covered by short mud walls. As this place is opened to the environment one can feel that it is a part of the landscape it self, as one feels the wind heat and cold from the surroundings.

Eventually one will take his coffee or tea seated on the plank fixed amongst the trees which form the bench outside. And although It will not be a comfortable chair, for the purposes of chatting, playing a game "Dan" there will be no better place than this. Many would prefer this landscape seat as they can sit the way they like on it and to stay a longer period chatting and playing .When a distinguished person arrives into the shop, he will be given a suitable chair. And he will sit inside the " kopi kade" where there will be benches and a couple of chairs inside the boutique. One will invite him, saying

" Honorable sir, please come and sit here" 6

They will talk with him with great respect. The others will take a bench or take a seat some where else giving space to the visitor. The village 'kopi kade' has become a distinctive community place due to its connection with the landscape and through the environment. This can be described as a relaxed seating space for those who experiance that place. It is the

landscape that has given this status. In a song sung by Prof. Sanath Nandasiri this is further elucidated,

" *Game kopi kade denna depatthey..... D...an adinawa.....*"

" *Gatau kawatakamata kadaelipatthey ranchugasenawa*" 7

" Two individuals are playing " Dan" side by side in the village " kopi kade"....." . "Young guys are gathering in front of the "kopikade"..."

This is a place where people gather as well as a communication center, and also a relaxing space. Therefore according to the psychologist the main idea of this place will be chatting, drinking tea or coffee, spending time under a tree enjoying the cool comfortable climate .

They will be satisfied mentally rather than spending time sitting luxuriously. Any place that can be used for sitting purposes in a landscape centered on the boutique can be a seat. This can be a part of a fallen tree or a rock or it can be taken out as a sudden or impromptu seating space in a landscape, therefore it will be a place where one can sit as one wishes to relax according to the Sri Lankan Seating culture.

2.2.4.3 The 'Ambalama'

It has been stated in the ancient text that the 'Ambalama' was used as a traveler's rest. Among them 'kadugannawa ambalama', 'Koskadawala Ambalama' , 'Radawana Ambalama' are very famous resting place in history. These are resting places in a street landscape and have been used to spend the night, rest and relax. There are as well 'Ambalamas' specially erected for distinguished people. The ancient builders have erected these places with a concept beyond simple rest and relaxation according to Dr. Pandula Andagama a Sri Lankan social

scientist, 'Ambalama's were erected in places very close to Buddhist shrines, as it would be possible for those staying in these 'Ambalamas' to prepare themselves to worship in the temple and experience the beauty of the landscape. This place is surrounded with a short wall and in the center can be used for functional purposes such as sleeping and relaxing, while many travelers have used that short wall around the 'Ambalama' for seating purposes.

"The villages after their day to day routine will go to the 'Ambalama' and having chewed of betel will meet travelers and will have chat, sometimes a deep discussion about their leaders or their Governance, villagers and their activities. If a stranger comes across, they will definitely ask about their relevant law and orders, taxes etc". 8

This part appearing in Sinhalese has been taken and translated into English from the book "Eda heladiwa" which is a translation of Robert Knox. Spending a little time chatting with each other would be an enjoyable thing for them to do.



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At their leisure when their affairs will permit, they commonly meet at places built for strangers and way-faring men to lodge in, in their language called Amblomb, where they sit chewing betel, and looking one upon the other very gravely and solidly, discoursing concerning the Affairs at court, between the king and the great Men; and what Employment the people of the city are busied about. For as it is the chief of their business to serve the King, so the chief of their discourse is concerning such matters. Also they talk of their own affairs, about Cattel and Husbandry. And when they meet with Outlandish-men they enquire about the Laws and Government of their Countrey, and if it be like theirs; and what Taxes and Duties we are bound to pay, and perform to our King, &c. 9

An examination of the 'Ambalama' ,which is both a resting place and wayside rest combining both road and landscape is a reflection of the images of friendship and mutual understanding in Sri Lankan society.



Figure 2.15

'Ambalama'

Ambalama was a best resting and sitting Place when people go on a Journey. ('Ambalama' book,

Thesis Collection University of Moratuwa)



Figure 2.16

'The Drawing of Ambalama'

Ambalama had a on of point feel the Landscape.

('Ambalama' book, University of Moratuwa)

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" They wear used principally by travelers as resting places and also to stay over – night during long journeys by foot. The Ambalama has also functioned as a meeting place for villagers. It is also suggested that the Ambalama was used for state activities such as the collection of taxes, judicial inquiries etc. Ambalama are always located in open airy sites by the side of frequented roads and in close proximity to a source of water. They can be identified under the following categories in respect of their locations;

Figure 2.15

Panapitiya Ambalama at Panapitiya

Present situation of the panapitiya

Ambalama and interior seating arraignment

(Photo credit-not known).





SIDE ELEVATION OF AMBALAMA

Figure 2.17

Elevation of Traditional 'Ambalama'

Seating system of the Ambalama
And sitting Place when people -
-go on a Journey

(Sketch credit - Nirman Rathnayake)



SECTIONAL ELEVATION

Figure 2.18

Sectional Elevation of 'Ambalama'

Timber structure was on the four Boulders
and below the seating timber panel had
the foot rest. When people used the -
- Seating timber panel for the sleep.

(Sketch credit - Nirman Rathnayake)

- Ambalama's located facing or amidst of paddy - lands -
(Panvitiya - Karagahagedara)
- Ambalama's located at junctions of several roads meet (Pitakotte
, Daulagala)
- Ambalama's located near temples or Devala
(Aluthnuwara , Mediliya)
- Ambalama's located at intersections where small roads from places
of religious worship meet main roads.
(Mawela)

This location indicates the range of uses provided by Ambalama's and implies the nature of traditional village. Ambalama located at road intersections were used as way - side resting places. While those located in the middle of paddy fields additionally provided meeting places for

village folk. *Ambalama* located near temples or *Devalas* were more significant in their use, because they integrated the above mentioned uses with additional religious activities; daily or seasonally, thus becoming dynamic catalysts for community living.

Tampita type *Ambalama*, the wooden beams resting on boulders were used as seats but they failed to provide comfortable sleeping spaces. In *Plinth* type *Ambalama*, it may be noticed that built in seating arrangements had been made out of masonry. The existence of different heights of seats may be identified as a significant feature. In certain *Ambalama* seats were fixed at two or three levels. (Ex – *Daulagala*, *Naramwala*)”

The basic foundation for building these types of friendship pavilions in our Sri Lankan seating culture is that the system of chatting with each other is achieved by sitting. The inner meaning of this chatting style with sitting is to develop new friendship or to strengthen friendships that already exist, and to allow contemplation of the surrounding landscape.

2.2.4.4 Street and Avenue

In books like '*Eda Heladiwa*' and '*Upavana Vinodaya*', there are details about the roads where there were trees on both sides and places to rest from mile to mile. It's easy to imagine how the ancient people used to rest under these trees in a calm environment and have things they prepared to eat from home. But in our modern world it has become for unpleasant to do this. The roads are full of dust and noises with no place to rest near them. The street landscaping at present is rough and unamenable. Especially in Colombo city area the seating spaces created near the '*Gangarama Viharaya*' for example has become just another creation only. No body uses them and it can be seen that the users reject these things.

Also landscape seating can be seen in Colombo near the road and the area near the 'Nuwara Wawa' in Kandy. These are also made from crude Cement. The Tank and the road can be seen very clearly from here but to a limited neighbor of people. It's hard for parents and children to enjoy the view of the 'Dalada Maligawa' and the beauty of the cool environment. So the present seating system is poor & needs to address.

2.3 Out Door Seating Space In Urban Society

Sri Lanka is an island of 65525 square miles surrounded by the Indian Ocean. There are beautiful beaches all around the country, some of them are world famous like 'Nilaweli' , 'Pasekudah' , and Galle Face Ground which is near the Capital of Sri Lanka. So a beach is not an unusual thing for most Sri Lankans. Many people come to visit the Gall Face ground; among them are Lovers, Young People, Children, Parents and people who come for exercises. Those people can be seen in different places, lovers can be seen mostly on the benches near the beach facing the sea and on the steps. So even if most of the children want to go near these places their parents like to take them away to other places.



Figure 2.19

Galle face ground Earlier

In European times the Galle face Ground was a huge space with many Uses.



Figure 2.20

Galle face ground steps

present day Galle face with its stepped seating area

(Photo credit - Nirman Rathnayake)

There are many benches built on the Galle Face Ground at present, but it is not enough for the number of people who visit the place, the benches are not large enough for families. As a result, people mostly use the concrete steps behind. Some times parents with their children can be seen enjoying and having chats in the middle sitting, on the ground. When people want to get together in groups they mostly use the ground and the masonry walls to sit on. But in rainy days it is difficult to sit on the ground. Most people who come to visit the Galleface want to get together and have a good time. This is a main point in the Sri Lankan Seating Culture, as it creates a gathering space. Because of this there is not enough space for most of the people to get together. In the present situation it can be seen that the chance the people have to enjoy the beauty of the beach landscape is limited.

2.3.1 Parliament Ground



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The parliament ground which is situated near the parliament of Sri Lanka gets very crowded in the evenings and in the weekends. There are lovers, children with parents and groups who play various sports among the crowd. People who are watching the games and people who are playing can be seen to be sitting on the ground sometimes. According to the geographical conditions of the place, small mountain types are there, and people use these also. Sometimes parents with their children can be seen to be sitting on carpets they brought and having a good time. Also groups of friends mostly use to sit under the trees or in the middle of the ground. Some people who come by vehicles sometimes drive them in to the ground and stay in them keeping the doors and windows open.

Mostly the people who come here like to stay by them selves and they don't like to get mixed up with the crowd. Another point is there is not enough space for the people who come for sports and exercises. There is

not enough space for the crowd because the seating areas are not prepared according to a plan.

2.3.2 Viahramahadevi Park

There were world famous gardens in ancient Sri Lanka; some of them are 'Mahamewna' and 'Nadun Uyana'. They were built for the Kings and other people's entertainment. The 'Mahawanshaya' says that the ancient Sri Lankan people knew the correct gardening techniques.

A garden built in the middle of a city like this is like an air cleaning machine. To a person who gets tired of the city, the gardens in them make a fine place to rest. From ancient times people used to sit or sleep under the trees when they got tired. The cool softness under the trees is very comforting and helps to calm the mind. The best example is the 'Lord Buddha' and other *Bhikkus* used to sit under the trees to meditate.

The seating systems are changed at present. There are chairs and concrete benches. European in origin & character. There are limited spaces now for people to rest their minds and bodies. If the seats are not maintained then it becomes more uncomfortable. Some times they are open directly to the sun making them hot and uncomfortable. But the people who visit the garden are forced to sit on these seats even if they are good or poor, but if they can sit under the trees there will be more freedom. They can enjoy their time as much as they like with their family and friends. Even if the lovers can enjoy this freedom, it's difficult for others like children and their families because the background is not prepared comfortably. Also there is limited freedom because the seating culture has changed, not like the ancient times.

2.3.3 Religious open spaces

The other open spaces are 'Bodhi maluwa' and 'Dagab maluwa'. Special attention will be focused on 'Bodhimaluwa' due to the religious ceremonies (*Bodhi puhja*) taking place in the evening and for the

presence of huge devotees in the evenings. For these activities sermons address by a priests sitting on a very short stool .The sand floor (ground) will be used by the others. This system of sitting on the sand floor is a posture based seat, not a landscape seat. It will be a posture based seat. The seating material will be a white sand flow. The other landscape seats are not permanent but it is made up of using natural material according to religious activities. Other people who come to worship the place will undoubtedly understand that it is a seating space. It will be quite suitable to use natural and clear material like sand for the purpose of seating as it reflect the calm and quiet atmosphere of the temple landscape as well as the seating style and culture prevailing in the Sri Lanka society. Even when we are studying the space surrounding a pagoda, one can realize that stones and sands have been used for seating purposes.



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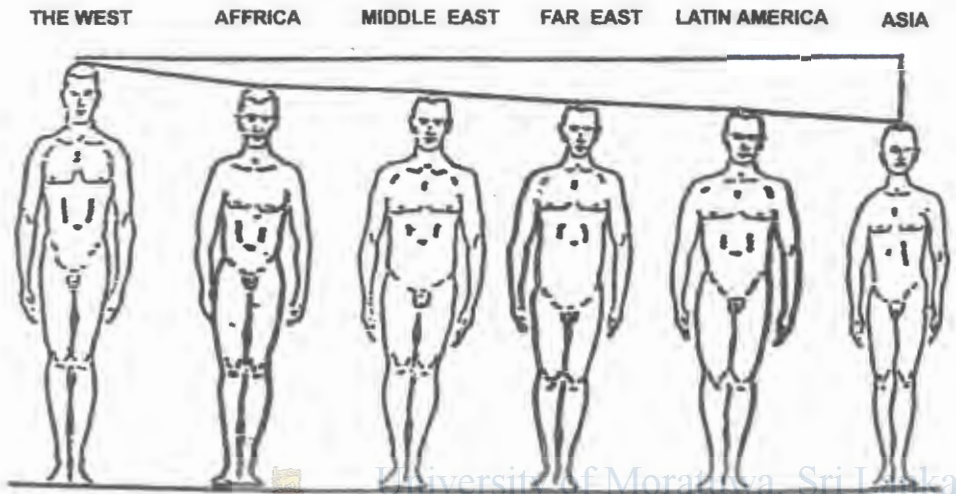
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The *Ambalama* building of Sri Lanka

3.0 CHAPTER THREE - Physical and physiological relationship of seating and Seating posture.

3.1 Anthropometric data.



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Figure 3.1

People's Anthropometrics according to the Different Countries.

(Sri Lankan workers Anthropometrics)

The word of anthropometrics refers simply to the dimension including the height of human beings & their body proportions. A much better explanation of the term is given by a Sri Lankan Prof. John Abesekara . He is an expert on the subject of anthropometrics and ergonomics and has done several experiments in Sri Lankan anthropometrics and ergonomics the above illustration is from one of his books It shown that, Asians have a smaller body shape when in comparison With other people of the world – reducing their body area exposed to the hear of the tropical sun.

3.2 Sitting and seating - Fundamentals of seating

The purpose of a seat is to provide stable bodily support in a posture that is:

- (i) Comfortable over a period of time;
- (ii) Physiologically satisfactory;
- (iii) Appropriate to the task or activity in question.

All seats are uncomfortable in the long run, but some seats become uncomfortable more rapidly than others, and in any particular seat, some people will be more uncomfortable than others. Comfort may also be influenced by the task or activity that the user is engaged in at the time. In other words, comfort (or more strictly the rate of onset of discomfort) will depend upon the interaction of *seat characteristics*, *user characteristics*, and *task characteristics* (Table 4. 1).

In matching the seat to the user, anthropometric factors are of major importance - but by no means uniquely so. An appropriate match between the dimensions of

Determinants of sitting comfort.

Seat characteristics

- Seat dimensions
- Seat angles
- Seat profile
- Upholstery

Task characteristics

- Duration
- Visual demands
- Mental demands

User characteristics

- body dimensions
- body aches and pains
- circulation
- state of mind

- Physical demands
 - hands
 - feet

The seat and those of its users is necessary for comfort, but not sufficient. We shall return to the anthropometric aspects of seating in due course.

In general, a seat that is comfortable in the (relatively) long term will also be physiologically satisfactory. In one sense it is difficult to see how this could not be the case - given that the neural events that tell us that we are 'uncomfortable' may in physiological terms be regarded as warning signs of impending tissue damage. We might suppose therefore, that in the absence of such warnings, no damage is imminent. It may not be as simple as this, however. There are those who believe that extensive covert damage due to 'poor sitting posture' may occur in the absence of subjective discomfort. This is actually a very difficult argument to settle either way. To gain some further insight into these matters, we turn now to a consideration of the physiology and biomechanics of the sitting posture, with particular reference to the structure and function of the lumbar spine.



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3.3 The spine in standing and sitting

The human vertebral column (backbone) consists of twenty-four movable bony vertebrae separated by deformable hydraulic pads of fibrocartilage known as inter vertebral discs. (Up to 10% of people possess a greater or lesser number of vertebrae but these 'anomalies' seem to have little functional consequence.) The column is surmounted by the skull, and rests upon the sacrum. Which is firmly bound to the hip bones at the sacro-iliac joints. The vertebrae can be naturally grouped into seven cervical (in the neck), twelve thoracic (to which the ribs are attached) and five lumbar (in the small of the back, between the ribs and the pelvis). The spine is a flexible structure, the configuration of which is controlled by many muscles and ligaments (Figure 4.1).

In the upright standing position the well-formed human spine presents a sinuous curve when viewed in profile. The cervical region is concave (to the

rear), the thoracic region convex and the lumbar region again concave. A concavity is sometimes

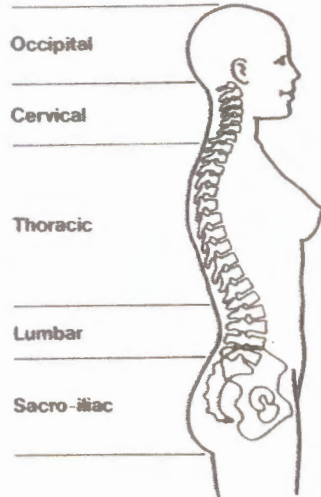


Figure 3.2 the well-formed human spine presents a sinuous curve when viewed in profile.

Known as a 'lordosis' and a convexity as a 'kyphosis'. These are enclosed by the convexities of the occiput (back of the head) above with the sacro-iliac region and buttocks below; making five curves in all.

In the upright standing position, the pelvis is more or less vertical and the first lumbar vertebra and sacrum make angles of about 30° above and below the horizontal respectively (see Figure 4.2). Consider what happens when you sit down on a relatively high seat (such as a dining-room chair). You flex your knees through 90° and make another 90° angle between your thighs and trunk. Most of your weight is taken by the ischial tuberosities - two bony prominences which you can feel within the soft tissue of your buttocks if you sit on your hands. Part of the right angle between the thighs and trunk is achieved by flexion at the hip joint. After an angle of 60° is reached this movement is opposed, unless we are very flexible, by tension in the hamstring muscles (located in the backs of the thighs) hence we tend to complete the

movement a backward rotation of the pelvis of 30° or more - as shown on the left-hand side of Figure 4.3.

This back war (rotation must be compensated by an equivalent degree of flexion in the lumbar spine - if the overall line of the trunk is to remain vertical. Hence in sitting down we tend to flatten out the concavity (lordosis) of the lumbar region.

In relaxed unsupported sitting, the lumbar spine may well be flexed close to the limit of its range of motion. In this position, the muscles will be relaxed, because the weight of the trunk will be supported by tension in passive structures such as ligaments. This is achieved, however, at the expense of a considerable degree of deformation of the intervertebral discs, the pads of fibrocartilage or 'gristle' which separate the bony vertebrae (see Figure 4.4). This is widely thought to be a bad thing. (The reasons that this should be so are beyond the scope of the present discussion. Suffice it to say that in the author's view they are good ones.)

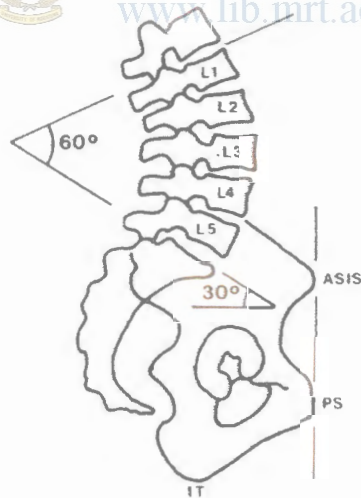


Figure 3.3 Typical orientation of the lumbar spine and pelvis in the standing position. ASIS = anterior superior iliac spine; PS = pubic symphysis; IT = ischial tuberosity. (From S. Pheasant, *Ergonomic., Work and Health*, Macmillan, 1991, Figure 5.2, p. 102, reproduced with kind permission.)

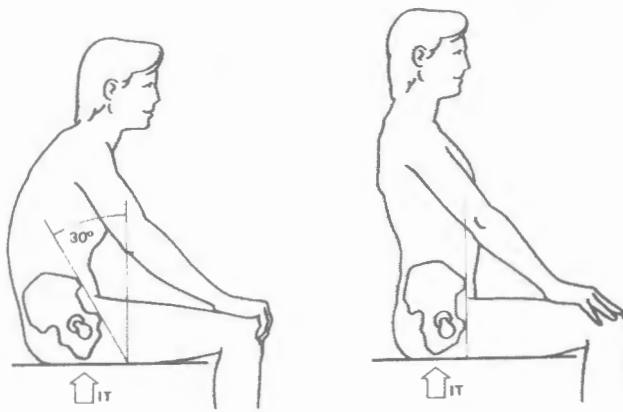


Figure 3.4 In relaxed sitting (left) the pelvis rotates backwards and the spine is flexed. To straight (right) requires muscular exertion to pull the pelvis forward. The ischial tuberosities (IT) act as a fulcrum.

In order to 'sit up straight' and regain our lost lordosis we must make a muscular effort to overcome the tension in the hamstrings. (The effort probably comes from a muscle deep within the pelvis called iliopsoas.) We cannot merely relax the hamstrings since their tension is a passive one, caused by the stretching of tissue (just like an elastic band) rather than by actual muscular contraction.

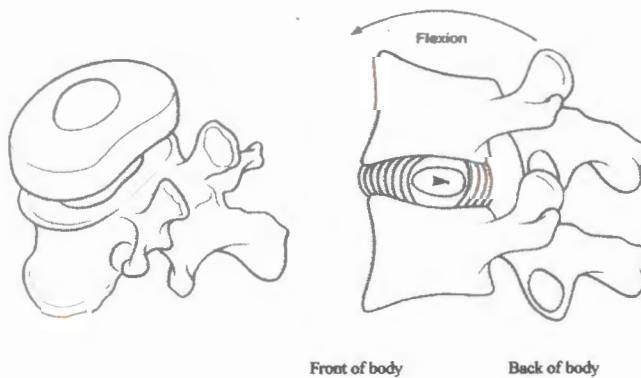


Figure 3.5 Left: lumbar vertebra surmounted by intervertebral disc, showing outer and inner parts. Right: deformation of the disc during flexion of the spine. (Redrawn from Kapanji (1974).)

Also need to activate our back muscles to support the weight of our trunk. If prolonged, this static muscle loading may become a major source of postural discomfort, particularly in someone who has a pre-existing tendency to suffer from back trouble.

In designing a seat therefore, the objective is to support the lumbar spine in its neutral position (i.e. with a modest degree of lordosis) without the need for muscular effort, thus allowing the user to adopt a position that is *both* physiologically satisfactory *and* comfortably relaxed. In general this will be achieved by:

- (i) A semi-reclined sitting position (to the extent that this is permitted by the Demands of the working task);
- (ii) A seat that is neither lower nor deeper than necessary (see below);
- (iii) A backrest that makes an obtuse angle to the seat surface (thus Minimizing the need for hip flexion) and is contoured to the form of the User's lumbar spine.

The extent to which the backrest of the seat supports the weight of the trunk (and thus reduces the mechanical loading on the lumbar spine) is a direct function of its angle of inclination to the vertical. This may be predicted theoretically (as a simple matter of cosines) - and it has been confirmed by Andersson *et al.* (1974) in a series of experimental studies in which the hydrostatic pressure within the nucleus pulposus was measured directly using needle-mounted transducers. Andersson *et al.* (1974) also found that for any given angle of backrest inclination the intra-discal pressure was measurably less if the backrest was contoured to the form of the lumbar spine (Figure 4.5).

Grandjean (1988) reported the results of a series of fitting trials using what he called a 'sitting machine'. This was an adjustable test rig by means of which it

was possible to determine the preferred seat profiles of experimental subjects (or more specifically, the profiles that minimized reported aches and pains during sitting). The reported preferences of subjects who suffered from back trouble were much the same

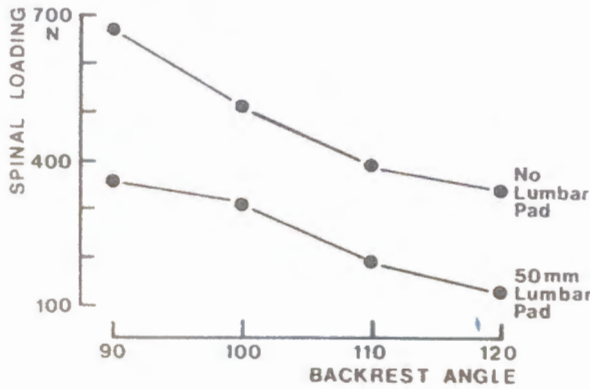
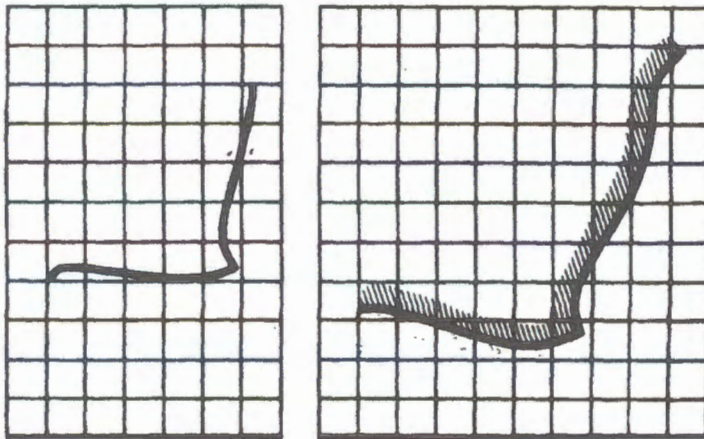


Figure 3.6 Spinal compression measured directly by needle-mounted transducer at seat back angles from vertical (90°) to reclined (120°), with and without a pad in the lumbar region. Data from Andersson et al. (1974). From S. Pheasant, *Ergonomics, Work and Health*, Macmillan, 1991, Figure 11.3, reproduced with kind permission.)



Grid: 10 x 10cm

Figure 3.7 Seat profiles of a multipurpose chair (left) and an easy chair (right), both of which caused a minimum of subjective complaints. (From E. Grandjean, *Fitting the Task to the Man*, Taylor & Francis, 1988, 4th Edn, Figure, 52, p. 60, reproduced with kind permission.)

as those of people who did not. Figure 4.6 shows the overall preferred profiles (for both groups of subject) for a 'multi-purpose' chair and an 'easy chair'.

Andersson's pressure measurements and Grandjean's fitting trials confirm therefore that a seat that enables the user to adopt a semi-reclined position and has a backrest that is contoured to the shape of the lumbar spine will both minimize the mechanical loading on the lumbar spine and maximize the overall levels of reported comfort (both for users who suffer from back trouble and for those who do not).

A problem arises, however, in tasks such as writing - which entail forward leaning and in which the support of the backrest will tend to be lost. The backrest remains important in these activities, however, during rest pauses. Grandjean (1988) describes a study of office workers using time-lapse photography, which showed them to be in contact with the backrest for 42% of the time.

3.3.1 Forward tilt seating



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In recent years a radical new approach to seat design has been proposed. Mandal (1976, 1981) argued that the seat surface should slope forwards, hence diminishing the need for hip flexion (particularly in tasks such as typing and writing) and encouraging lumbar lordosis. A number of seat designs now incorporate a 'tilt' mechanism (see Figure 4.7). The disadvantage of such a design is that if you sit on the chair without thinking, you will tend to exert a backward thrust with the feet in order to stay in the seat - this is a particular problem if the chair is on castors. High-friction upholstery is not really an answer since female attire (in particular) generally provides a low-friction interface between the outer and inner garments - women, therefore, tend to slide out of their skirts. Experience suggests that balancing correctly on the forward slope seat is a skill that needs to be learned. According to Mandal (1981), users may take 1-2 weeks to get used to such chairs.

3.4 Comfort

(Comfort of the seating)

When the body of a person gets tired, he feels that he needs to sit down. This feeling arises to give some rest to the body. This differs according to the person, to the time and the situation. But, the main idea is to give some rest to the body.

Human body is created according to a descant shape, and there are movements in each born according to the movement of the body. When a person sits down, the important bones connected to this movement are the backbone and the femur. Shown by the pictures below is the positioning of these bones of a standing person and of a seated person.



Figure 3.8 Seated people born shape

Source: Ohara. Jiro , Interior Design



Figure 3.9 standing person born shape

Source: Ohara. Jiro , Interior Design

The nature of a seat makes it comfortable or uncomfortable to sit. The materials, the technical method and the anthropometric must match together to create a comfortable seat.

3.4.1 A comfortable sitting is?

In a seat the bottom part and the back rest is equally important. A seat is described as comfortable or uncomfortable according to the pressure from the seat to the body, when some one sits on it. If the pressure given to the back side of the body is not very high, it is comfortable for the body. (a) But if the pressure is given from the seat to many numbers of places of the body (b) this pressure differs from place to place, and then it becomes uncomfortable.

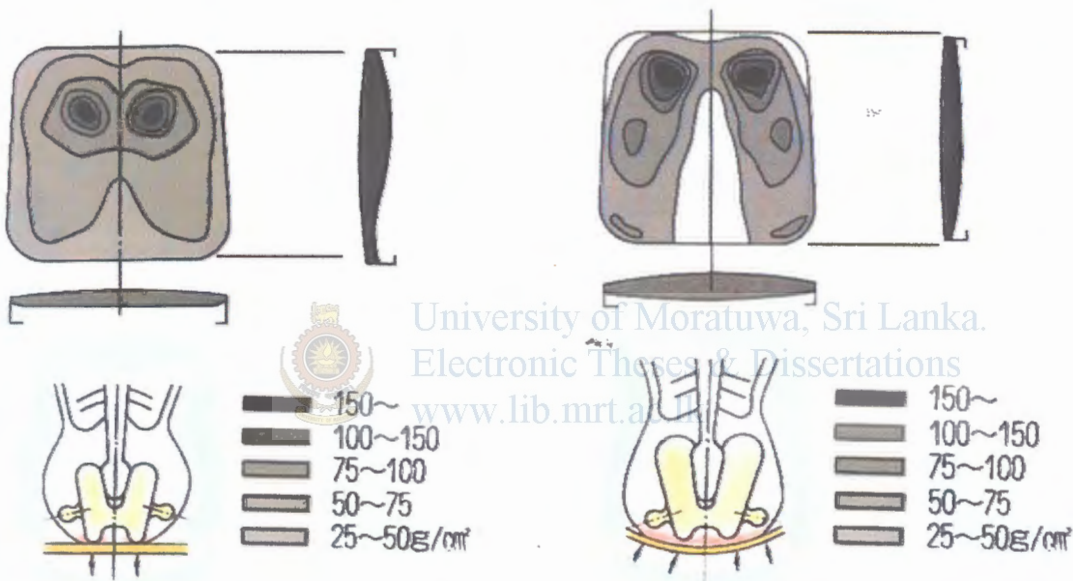


Figure 3.10 Comfortable seating Pressure.

Source: Ohara. Jiro , Interior Design

Figure 3.11 Uncomfortable seating Pressure.

Source: Ohara. Jiro , Interior Design

Dark colors are used to shown the places, where the highest pressure are received. Shown from the light colors are the places where the pressure received is low.

3.5 Materials

The seating used for resting purposes in day to day lives of ordinary people didn't use any special material. They used elements naturally found in the environment for this. But seating materials differed from each other according to cast and status of the person considered. The following were the commonly used materials.

- Rock and bolders
- Clay , sand , cow dung mixture
- Sand laying
- "pan" mat


Seating done using rocks and boulders wear used in royal palaces and temples. The sand covered ground of the temple premises called the "weli- maluwa" was used by the ordinary people for seating.

The ordinary households had a short mud covered wall ("pila") for seating. A mat ("pedura") was used as a covering on the "pila" when a visitor arrived. Mostly the ground was used to sit on with using a mat or without.

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