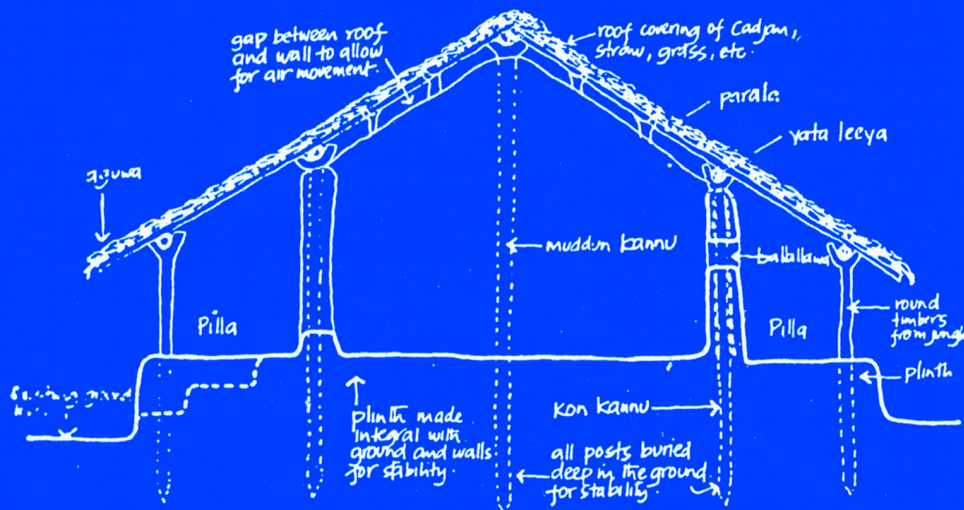


ARCHIVE

VOLUME 1 ISSUE 1

A Collection of Articles from Archive of the Sri Lanka Institute of Architects



Sri Lanka
Institute of
Architects



Published by Board of Architectural Publications

2023 August



Cover:

**Typical Section Through
Traditional Rural Dwelling Unit**

Archt. Ashley de Vos

Cover Design:

Archt. Sagara Jayasinghe

**This issue is compiled to give an
insight by Traditional Architecture
in Sri Lanka**

The Editorial

Volume 1, issue 1
August 2023

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**Board of Architectural Publications
Session 2023/2025**

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Archt. Susil Lamahewa, FIA (SL)

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Registrations

ISSN 1391-5363

Press Council P1460

EDITORIAL

This E-Archive is an attempt at preserving and recording priceless articles that have been previously published in early SLIA Architect journals. The four articles that have been republished here were original articles of the authors which were published in 80's and 90's. As a Teacher in Design during the years it was seen that architectural students, lecturers and colleagues have referred many articles that was published in the earlier Architect journals. The original hard copy journals still remain at the SLIA library and the BAP office.

This E-journal is a combination of scholarly articles written by Archt Nihal Bodhinayake, Vidya Jyothy Prof. Nimal De Silva and Vidya Jyothy Ashely De Vos. Prof. Nimal De Silva in his article discusses Systems of measurement in traditional architectural usage that have been used in the ancient days. Ancient Traditional Sinhalese Architecture used human scales for space measurement, with a ten-digit system. The Silpa Text and other sources in India and Sri Lanka shared a philosophy of measuring man's measurements or distances from nature. Linear Measurements were related to the body of an architect or craftsman, and depth was measured in BAMBA or fathoms. Time divisions included TRUTI, LAVA NIMESHA, KASHTHA, KALA, NALIKA, MUHURTA, PAKSHA, MASA (month), RTU (season), AYANA (solstice), SAMVATHSARA (year), and YUGA.

Archt Nihal Bodhinayake - This text explores the significance of symbolism, particularly visual symbols, in ancient architecture. Scholars like René Guenon, Frithjof Schuon, and others have extensively written on the topic. Symbols are divided into visual and auditory categories and serve as a pointer to the Truth, which is considered incomprehensible and intangible. Traditional architecture is multivalent, communicating at various levels and reflecting its luminosity in all directions. Understanding the symbolic language of great traditions is crucial, as it transcends physical and psychological realms.

Traditional concepts of site utilization in architecture by Prof. Nimal De Silva discusses of the Sri Lankan architecture heavily relies on site selection for settlements and buildings, considering technical aspects, future prosperity, astrological opinions, cosmic laws, and more. Rural settlements are planned around water sources, while industrial settlements are chosen based on proximity to raw materials. Defensive fortifications are designed for

specific locations, and monasteries are constructed systematically using natural or man-made or modified rock caves. Sites are typically rectangular or square, with important plan forms identified based on basic pictures. Astrological beliefs guide site selection, and the Kostha, a sacred rule in Hindu architecture, dictates the layout plan.

Some aspects of traditional rural housing and domestic technology by Arch. Ashley de Vos's paper explores traditional rural housing in Sri Lanka, focusing on settlement patterns, architecture, village concepts, construction methods, and technology. The earliest settlements were in areas with abundant water, leading to inland colonization and the construction of tanks. The city center was occupied by the King, his family, ministers, and artisans, while surrounding villages supplied the town's needs. Sri Lanka's architecture can be divided into public and private groups, with the greatest development occurring in the former. Villages in the Sinhalese region can be categorized into tank-fed, rain-fed, hill country valley villages, and temple-dewala villages. The floor plan consists of a single rectangle, with the kitchen located depending on the district's climate. Traditional mud architecture in Sri Lanka follows ecological principles.

Though these four articles focus on variety of topics the content of the articles are immensely valuable in learning the traditional methods and technology of Sri Lankan Architecture. Therefore, it is great value for academics, students and other interested parties in gaining knowledge to invent new methods and technology in built environment.

I would like to appreciate the former chairman of BAP Archt. Sagara Jayasinghe for the design of the cover page for this issue. And heartiest gratitude to the Assistant Manager of BAP Mr. Senaka Jayatunga and Manager Chinthika Gunawardana for the support provided to compile the journal and make it a reality.

Today Board of Architectural Publications successfully publishes the inaugural E journal "Archive". Four issues of the e-journal will be published during session 2024/2025.

Archt. Susil Lamahewa, FIA (SL)
Chairman - Board of Architectural Publications

PREFACE

Sri Lanka Institute of Architects [SLIA] published its first publication as a CIA journal in 1965 – 66. It was the Ceylon Institute of Architects before 1972. That was the year Sri Lanka became a Democratic Republic and, later, in 1978, she became a Democratic Socialist Republic.

The first chairman of the Board of Architectural Publications [BAP] was Dr Ranjith Dayarathne, a true scholar appointed during the term of Late Architect VNC Gunasekara's presidency. Since 1957 there were many valuable scholarly publications were produced by the members of this institution. Decades later, most of those papers, articles, research and essays published in SLIA journals became resources for the teachers engaged in Architectural education in Sri Lanka. The students rushed to the libraries looking for SLIA journals and periodicals for their research work. Many other foreign scholars visit the SLIA library for their research work and this resource center has a valuable stock of knowledge.

For instance, the first Journal of CIA carried the city planning principles of Anuradhapura, researched and published by Archt. Dr Roland Silva. The paper is used in almost all universities and colleges where they teach history, archaeology, planning and Architecture. Down the line, many members supported the academic arena within the institution sharing their new knowledge. The production of knowledge had happened elsewhere by our members and it was their generosity and love towards the profession that was showcased by parting knowledge through the SLIA journals to the members and future architects.

We have observed over the years that particular journals are in high demand with members and students. Those journals carried interesting and firsthand information from our scholars.

Unfortunately, the institute library has only one copy available for reference and those are also in dilapidating condition. The idea of re-publishing our members' articles is to preserve them and have them freely available for the Architecture students of all architecture schools in the country and beyond. The understanding is that newer generations are more used to the E system in all their endeavours,

including learning. Therefore, BAP formed a series of E-PAPER. The idea of sharing knowledge for educational purposes is the primary objective of this exercise.

All articles published in the E-papers are from archives of the Sri Lanka Institute of Architects. Our sincere thanks and gratitude go to all the original authors of the articles who had worked tirelessly to produce new knowledge decades ago without much technology and comfort that we enjoy in day-to-day life.

In the inauguration volume, there are four articles selected from SLIA Journal (Vol 100 issue 3, 4 & 5 Editor of the Journal Late Architect K. Ganesan) (Vol: 104 issue 1 Editor of the Journal Architect Dr. Ranjith Dayarathne) under the theme of "our Architectural Heritage"; E Papers Volume 2 is under compilation under the "Architectural Education in Sri Lanka".

Board of Architectural Publications
Session 2023 - 2025

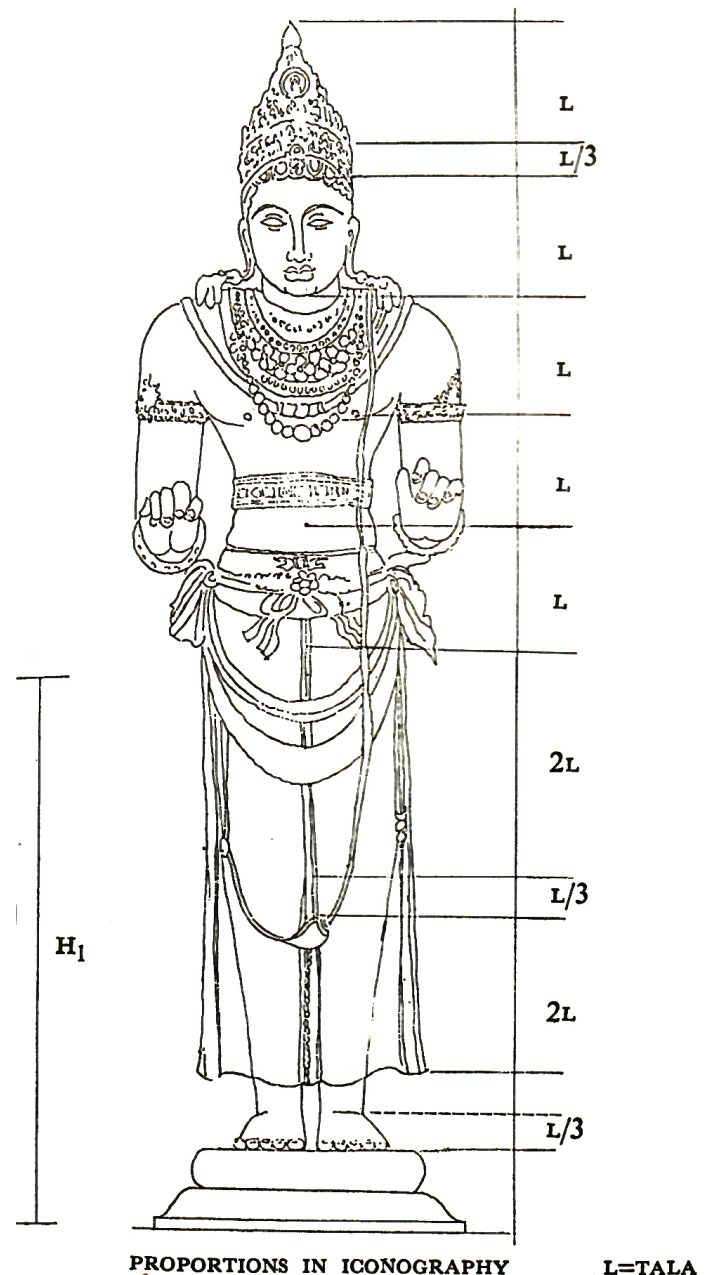
SYSTEMS OF MEASUREMENT IN TRADITIONAL ARCHITECTURAL USAGE

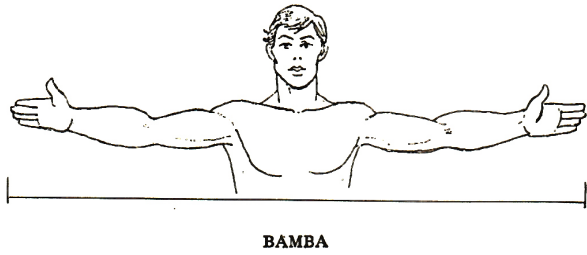
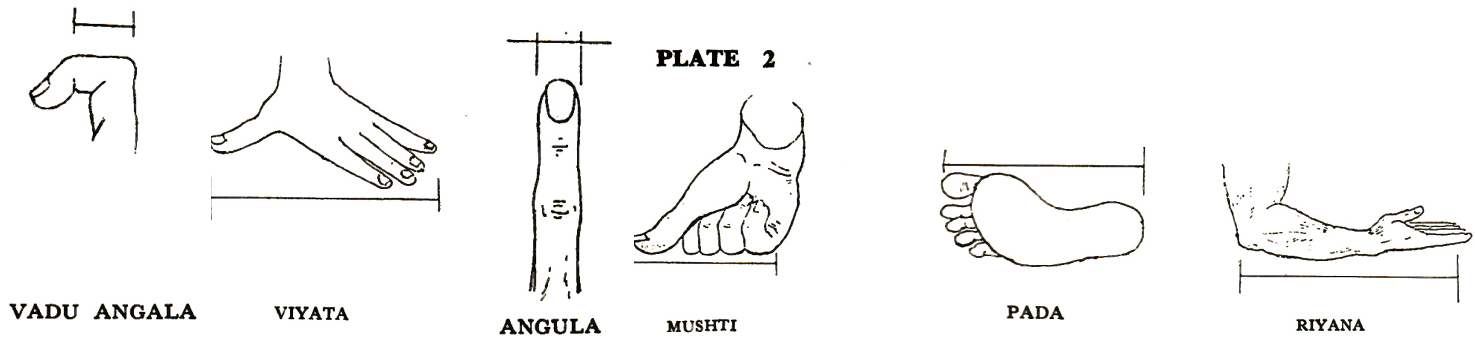
Archt. Prof. Nimal de Silva, FIA (SL)

Among all Arts, Architecture is the closest to man, because he created it and he lives with it. Architecture is the Art of constructing measured, sheltered space. In the measurement of such space, Architects use three systems. One such system is the use of units directly related to the human body. Another is a system where the unit of measurement is related to a particular conceptual idea larger than life. The third is a unit related to ease of calculation and convenience with only a secondary reference to the human scale.

In ancient Traditional Sinhalese Architecture, the primary system adopted was the one which was directly and closely related to the human body and hence the human scale. Measurements related to conceptual ideas such as Religion was also used in a subtle manner whereby both the higher concept and the human scale was maintained in proper balance.

The subject of this first article on Traditional Sinhalese Architecture is about its system of measurement. This deals with Numerals and Counting, Linear Measurement, Weight and Time, all of which concern the practice of architecture, then and now.





in abstract terms to constitute a “rational” system of measurement. It was found that many of the earlier scholars who tried to interpret the Sinhalese or Sanskrit tables in English feet and inches were not successful in bringing a rational comparison. In the past thousands of years of practice, different interpretations of the text have given different usage in practice. In Silpa texts the measurements were related to a well grown, well proportioned body of a man. It was not an average but it was a relative measurement when the theory is concerned, but in practice measurements used were related to

Numerals & Counting

In the Sinhalese method of counting they also adopted a ten digital system as counted with the ten fingers in one’s hands. In certain secular books a special form of figures is used and these are known as LIT LAKUNU or signs used in astrological tables.

In the moulded granite base of the Temple of the Tooth Relic in Kandy., it is very interesting to find masons marks clearly carved on the upper surface of slabs in numbering the joints, using Sinhalese LIT LAKUNU, or numerals (Plate. I). The form of these figures has no direct relevance with the Sinhalese alphabet but indicated a free flow writing system (Plate. I). In place of the above signs certain letters of the Sinhalese alphabet are also used for numbering purposes.

Linear Measurement-Length, Height And Breadth

The complex tables derived in Silpa Text and other sources used both in India and Sri Lanka had a common philosophy in its original thinking. Either it was related to the man and his measurements or the length or the distance experienced with nature. A remarkable feature of the measures in everyday use is the fact that they retained their “natural” basis and had not been standardized

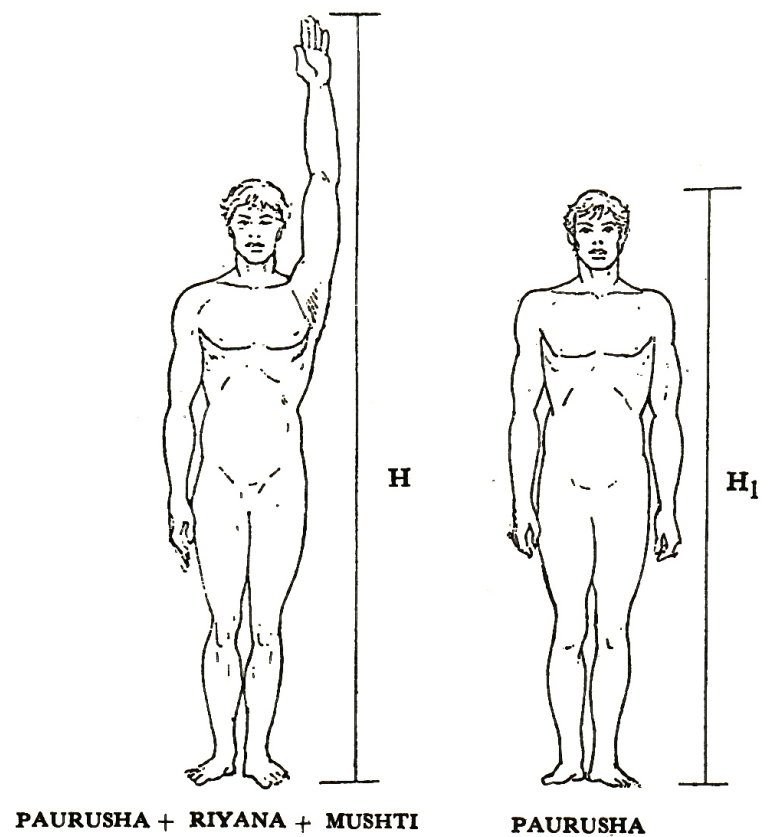
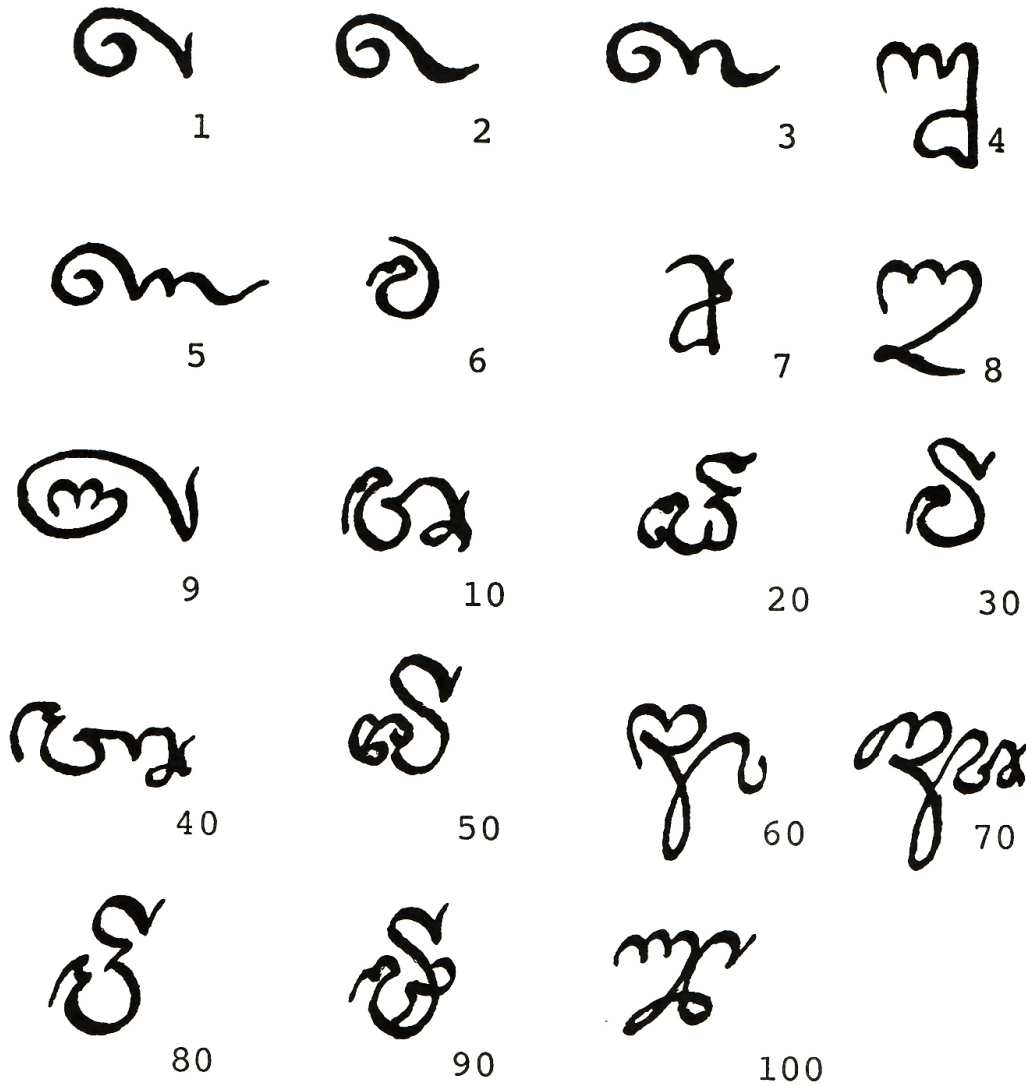


PLATE 1



Lit Lakuna as in Sinhalese Numbering

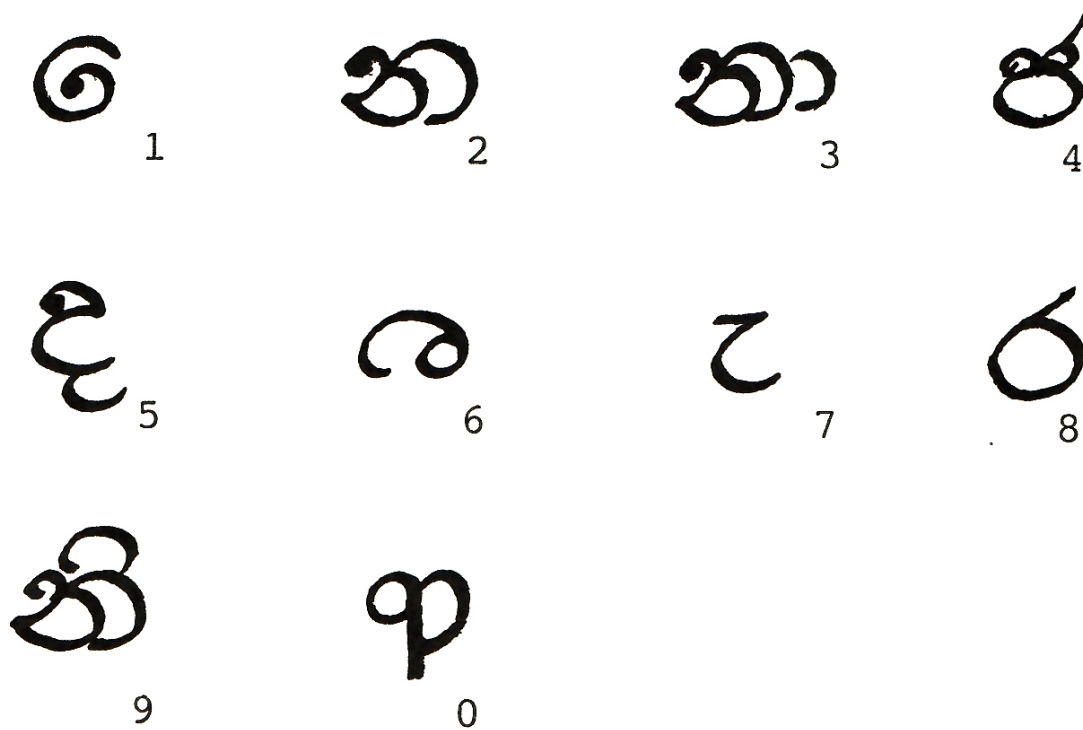
the measurements in the body of the Architect (Sthapati) or the Craftsman. It was understood that in some cases where a residence was constructed the measurements used were based on the measurements of the body of the occupant.

The term ANGULA was taken as the common basic measure and is equal to 8 YAVAS, i.e. barely of middle size. In Indian Silpa texts this ANGULA was taken as three fourth of an English inch. According to the commentaries the middle most joint of the middle finger of a man of medium size may be taken to be equal to an ANGULA.

In actual measurement, only the breadth of the said middle joint measures three-fourth of an inch. This description may be considered as correct because it says 14 ANGULAS i.e. equal to one PADA is the length of the foot of a medium grown man.

In actual measurement of the body it is 10 1/2 inches and it is equivalent to 14 number 3/4 inches.

In Sinhalese usage the interpretation is different. The Carpenters ANGALA or ANGULA, which is equivalent to 1/24 VADURIYANA was the length



Numbers from Sinhala Alphabet

of the third joint of the forefinger and it is equal to $1 \frac{7}{24}$ of an English inch. The ANGALA of the text however, is not merely a fixed measure, but also may be a translated 'unit,' as the instructions are intended to provide for the construction of images of all sizes, both large and small. Sinhalese VADU' ANGALA should not get confused with the ANGULAS given in Sanskrit texts.

PAURUSHA is the unit used and measures the standard height of a man as four ARATNIS (RIYANAS or cubits) or 96 ANGULAS = $96 \times \frac{3}{4} \times \frac{1}{12} = 6$ English Feet. In other words one PAURUSHA is equal to 6 feet. All other measures 1 DANDA, 1 DANU and 1 BAMBBA is equivalent to 1 paurusha. The term BAMBBA is the most common term used by the Sinhalese in their day to day work and it is measured as the distance between the two tips of the middle fingers when the two hands were stretched. apart, this is same as the height of the man i.e. equal to four RIYANAS. (Plate I).

As practised by Sinhalese there are three types of RIYANAS mentioned; the RIYANA, MITI RIYANA and VADURIYANA. The distance between thumb

and forefinger at full stretch form the VIYATA and two VIYATAS formed one RIYANA. This was the distance from the elbow to the top of the little finger. When the English yard measure was used in Sri Lanka., half a yard was generally accepted as a riyana i.e. the distance from the elbow joint to top of the middle finger and it measured 18 inches. These were variations derived from the tradition as an easy adaptation during the colonial era. The MITIRIYANA was the distance from the elbow to the top of the second joint of the little finger. The carpenters measure adapted in Sri Lanka, most probably during the Kandyan period was quite different from the measure ARATNI, PRAJAPATYA HASTA or the RIYANA as given in Sanskrit Silpa Texts. Carpenters measure or the Sinhalese VADURIYANA may be a special adaptation or the misinterpretation of the ANGULA given in the Silpa Texts. The VADU RIYANA or Carpenters cubit was the ordinary cubit + a span (Viyata) + the four fingers width. The Carpenters angula or "inch", $\frac{1}{24}$ of the VADU RIYANA i.e. the VADU ANGALA, the distance from first to second joint of fore finger when bent, and measures $1 \frac{7}{24}$ English inch. Ananda Coomaraswamy has given

a description of a cubit-rule or RIYANALELLA that was in the possession of Godapola Galadda, a descendant of Devendra Mulachariya the architect of the last King of Kandy., Sri Wickrama Rajasinghe, to whom it once belonged. "It is an iron rod, rectangular in section and exactly 31 (English) inches long. One side is divided into 24 angal (each equal to 17/24 English inches), the other two divisions measuring respectively 37/8, 27/12, 17/24, 31/48 inches respectively. These measurements are there in ordinary use amongst craftsmen." The VADURIYANA is the distance that is as much as will reach from one elbow to other, the thumbs touching one another at the tops and so stretching out with elbows."

RIYANA was the unit used in common architectural practice to measure length, breadth and height of a building. The size of a house was identified according to the length in RIYANAS as NAVA RIYAN GE (nine cubits long house) etc. The timber members were also measured in RIYANAS., ATA RIYAN PARALA (eight cubits long rafter), DAHA RIYAN BALKA (Ten cubits long beam) etc. When thatching a cadjan roof the overlap is kept as the length of the palm by feeling the one underneath with tip of the palm. The depth of foundation or a pit is measured in cubits or RIYANAS as DERIYAN HAMARAK YATA (to a depth of two and a half cubits). The depth of a well is always measured in BAMBA or fathoms, BAMBA PAHAK GAMBURA (five fathoms deep). BAMBA is used to measure a short distance, as BAMBA PAHAK ATHIN (at a distance of five fathoms.).

In the common Sinhala usage, vague conceptions of distance made it impossible to say precisely what a specific linear unit signified. The 'HOO' an onomatopoeic expression for a loud cry, it was, moreover, the 'natural basis of larger units, although much depends on whose 'Hoo' it was. Two 'HOO' were supposed to be equal to a HATAKMA, roughly equivalent to a mile. Four HATAKMAS made a GAVVU and five GAV a days journey. Four GAV equalled a YODUNA estimated to be about 16 miles.

In measuring the girth, different parts of the human body were related; e.g. ANGILLAK VITARA MAHATA i.e. the girth of a finger. ATHAK VITARA or KALAVA VITARA MAHATA, size of the arm or thigh, further the girth of a coconut trunk or an arecanut trunk were also used to relate the size. The girth of a large tree is measured in VATA i.e. the length of the stretched hands or BAMBA. The Depth of water is measured as VALALU KARATA upto the ankle, DANAK VATURA water upto the knee, INAK VATURA water upto the waist etc.

Measurements of Weight

In measuring weight, units were derived by using natural seeds and the following table shows the method of defining the weight.

3 TALA ATA	= 1 AMU ATA
3 AMU ATA	= 1 VI ATA
8 VI ATA	= 1 MADATIYA
20 MADATIYA	= 1 KALANDA
12 KALANDA	= 1 PALAM

The weight gets converted to capacity and different multiples of PALAMA forming PATA, MANAVA, NALIYA, LAHA, PALA etc. When liquid is measured same terms were used with the PREFIX DIYA. i.e. DIYA PATA, DIYA NALIYA, DIYA LAHA etc.

Land surface measurements relate to the extent of land sown by a given quantity of seeds. Thus the sowing extent of an AMUNA of seed was an AMUNA of land. This was not so arbitrary as might appear, for the skilled cultivator spread his seed evenly over the surface of his fields and could quite accurately estimate sowing-extent at a glance. It is important to realize that all these measures methods of measurement historical are still the common man's practice among the Sinhalese people.

Time

The various expressions to indicate different times of the day in common use were based on the natural phenomena that was experienced in the day, e.g. ELIVENA VELAWA signifying the appearance of light at dawn; ATE IRI PENNE VELAWA, the time at which the lines of ones palm are visible, HARAK DAKKANA VELAWA, the time when cattle are driven to plough or for grazing, denoting the earth hours; MI KELINA VELAWA where bees gamble, IRA MUDUN VELAWA, the mid day in the afternoon. HENDIRIKKA MAL PIPENA VELAWA, the time when the flowers of the commonly known “four O’clock plant” blooms; IRA BAHINA VELAWA, the time of sun set; MINIHA PENNE NEPENNE VELAWA, when a man can hardly be recognised; KUKULA HANDALANA VELAWA, the time of the early morning cry of the cock bird. The significance in this usage is that the man has related his relative time to the happenings in the nature:

(1) There is another type of numbering based on Sinhala Alphabet used in Ola Leaf Books.

Usually, however, the people depended on ‘natural measures of time, for instance by measuring the PIYAVARA in PAURUSHA or sixteen ANGULAS and that is the foot of a man’s shadow. These HITI PIYAVARA VELAWA is the hour when a man’s shadow is under his foot, i.e. mid day. One who is using this system of measurement should study the length of the shadow in relation to the different hours of the day and also remember the variation factor that should be added or subtracted from the length of the shadow due to the movement of the sun. To obtain a precise measurement of the time an instrument called PA TATIYA was used.

“They have no clocks, hour-glasses, or Sun Dials, but keep their time to guess. The King indeed bath a kind of instrument to measure time. It is a Copper Dish holding about a Pint, with a very small hole in the bottom. This dish they set a swimming in an Earthen Pot of water, the water leaking in at the bottom till the Dish be full, it

sinks. And then they take it out and set it empty on the water again, and that makes one PA. Few or none use this but the King, who keeps a man on purpose to watch it continually. The people will use it upon some occasions, as if they are to sow their corn at any particular hour, as being the good lucky season, then they use the Copper Pan, to know the time exactly” (2)

As in SILPA texts the divisions of time are a TRUTI, LAVA NIMESHA, KASHTHA, KALA, NALIKA, MUHURTA, forenoon, afternoon, day night, PAKSHA, MASA (month), RTU (season), AYANA (solstice), SAMVATSARA (year) and YUGA.

2 Trutis	are equal to 1 Lava
2 Lavas	” ” ” 1 Nimesha
5 Nimeshas	” ” ” 1 Kashtha
30 Kashthas	” ” ” 1 Kala
40 Kala	” ” ” 1 Nalika,
12 Nalika	” ” ” 1 Muhurta
15 Muhurtas	” ” ” 1 Day or Night

(2) This is a description given by Robert Knox but there PA TATIYAS of different sizes are in use.

The day (DAVASA) is divided into 60 pa, 30 of light and 30 of darkness (1 pa = 24 minutes) the time is computed in terms of sun set, sun rise so that the fifteenth PA is mid day-DAVAL PALOS PA, the mid night-RA PALOS PA. There are 7 days in the week (SATIYA)-IRIDA (Sunday) SANDUDA, ANGAHARUVADA, BADADA, BRAHASPAPATINDA, SIKURADA, SENASURADA. Fifteen days and nights together make up one PAKSHA. The fifteen days of developing moon upto the full moon is PURA PAKSHA and the fifteen days of diminishing moon after the full moon is AVA PAKSHA. In traditional practice any new work is begun only in a day of PURA PAKSHA. Two PAKSHAS make one month (masa). Thirty days and nights together make one work-a-month (PRAKARAMAMASA) The same (30 days and nights) with an additional half a day makes

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one solar month (SAURA MASA). The same (30) less by half a day makes one lunar month (CHANDRAMASA) Twenty seven (days and nights) make a sidereal month (NAKSHATRA MASA).

There are 365 days in the year (AVURUDDA), the time occupied by the Sun's circuit through the fixed stars (the twelve signs of the zodiac). The year is subdivided into 12 solar months (SURYA MASA), as the Sun enters the respective signs;

There are;

1. Mesha ravi (Sun in Aries, April-May)
2. Vrshabha ravi (Sun in Taurus, May-June)
3. Mituna ravi (Sun in Gemini, June-July)
4. Kataka ravi (Sun in Cancer, July-Aug.)
5. Sinha ravi (Sun in Leo, Aug.-Sep.)
6. Kanya ravi (Sun in Virgo, Sept.-Oct.)
7. Tula ravi (Sun in Libra, Oct.-Nov.)
8. Vraccika ravi (Sun in Scorpio, Nov.-Dec.)
9. Dhanu ravi (Sun in Saggitarius, Dec.-Jan)
10. Makara ravi (Sun in Capricorn, Jan.-feb.)
11. Kumba ravi (Sun in Aquarius, Feb.-March)
12. Meena ravi (Sun in Pisces, March-April)

Besides, there are the lunar months, reckoned from one new moon to the next, or from one full moon to the following full moon. A lunar month consist of nearly 29.5 days. Hence about 12 1/3 lunar months make up 12 months of the year. The lunar months were named as follows: Bak, Vesak, Poson, Asala, Nikini, Binara, Vap, IL, Uduvap, Durutu, Navam and Medin.

According to the Eastern tradition there are six seasons a year. Two months make one season (RTU), starting from BAK-VESAK i.e. VASANTA, then GRISHMA, VARSHA, SARAT, HEMANTA and SISIRA. Further, five years make one YUGA. Sinhalese reckoned the years in terms of various eras. The SAKA era was made use of in all legal instruments, royal grants, horoscopes and other secular documents. It is said to date from a King Saka, and is the same as that of King

Salivahana of India, whose era is fixed at the seventy-ninth year of the Christian Era. Thus the Saka year is converted to the corresponding year in the Christian Era by the addition of 78 1/4 years. The era of the death of Buddha 543 B.C. is generally used in Pali and Sinhalese works in denoting time.

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TRADITIONAL CONCEPTS OF SITE UTILIZATION IN ARCHITECTURE

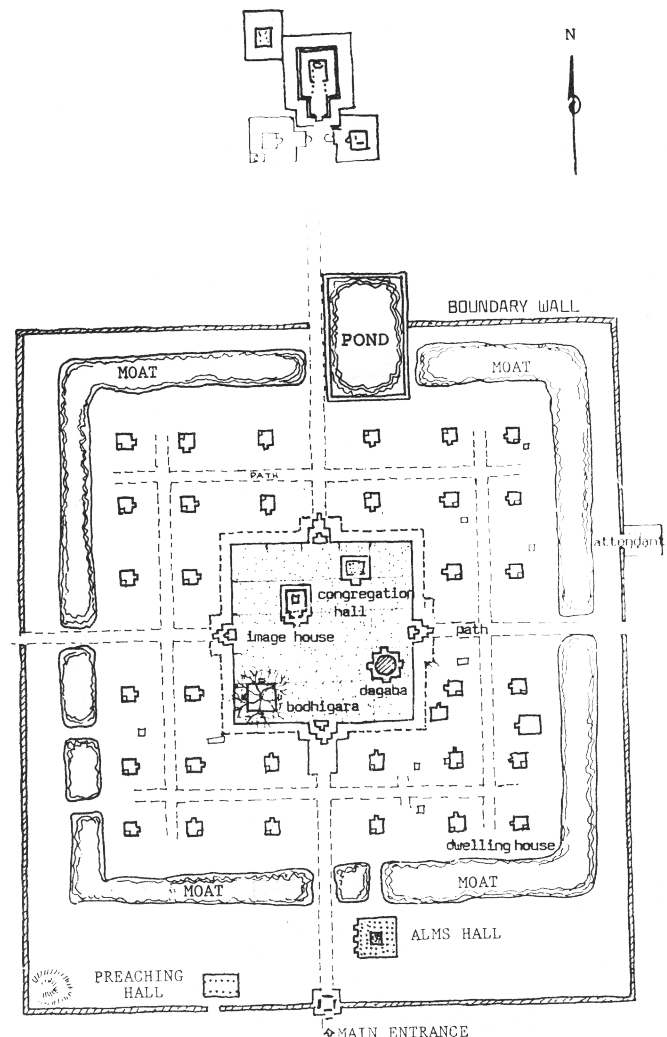
Arch. Prof. Nimal de Silva, FIA (SL)

Introduction

In planning settlements and buildings, the selection of site was given a special consideration in all classical and popular traditions in Sri Lankan Architecture. In the common practice, there were accepted principles, norms and theories followed by the Architect, according to the School or the Silpa Text that he was following. In addition to the technical aspects that were considered in selection of sites the future prosperity of the occupant also has given a greater emphasis, in which the astrological opinion played an important role in this traditional practice. The cosmic laws, orientation, hierarchy of space, proportions, chronology in approach, topography, natural elements and the social status of the occupant were some of the scientific factors that were taken into consideration in selecting and utilizing a site.

Settlement Planning

Sri Lanka being primarily an agricultural country, the water required for agriculture became the main consideration in selection and location of rural settlements. Dry Zone Areas in the country were the most populated in the past, due to the availability of a rich soil and seasonal rain suited



for agricultural work. The irrigation technology of the early settlers were so advanced, that they managed to collect water from seasonal rains into man made tanks, by constructing earth bunds across seasonal streams and rivers all over the Dry Zone. There were large reservoirs collecting and providing water required for agricultural and other purposes. Therefore the rural settlement sites were selected in relation to these tanks and in site utilization for these settlements, all irrigable land below the tank was kept for paddy cultivation and a suitable highland in the close proximity to the tank was used for construction of houses, which formed the village 'gangoda' adjoining the housing area a common open land 'tis bambé' was kept aside for social activities and for the cattle to gather at night.

Sites selected for industrial settlements were based on the availability of raw materials in close proximity for the people to use in their industry or the craft, that is, the areas with good clay deposits attracted potters, iron-ore, the Smiths etc. Village boundaries were known to the settlers and generally identified with natural elements like rivers, streams, rocks, large trees etc. The individual plots of land within the village also were demarcated with boundaries with or without a fence.

Urban settlements were mostly planned in relation to a water source; City of Anuradhapura was found in the banks of Malwatu Oya (kadamba Nadi), Polonnaruwa in the close proximity of the man made lake Parakramasamudra, or some times near a large sea port as in Mantota or 'Patunugama' port villages along the sea coast. If the city was designed with defensive fortifications against enemy, the selected locations were naturally best fitted for the purpose; water fortification (jaladurga), such as an island in the midst of a river, or a plain surrounded by low ground, a mountainous fortification (giridurga) e.g. Sigiriya, Yapahuwa, Kurunegala and Dambadeniya.

Cities surrounded by marsh (Pankadurga) e.g. Kotte, or a forest fortification (vanadurga) full of wagtail water and thicket According to the Silpa Text the demarcation of ground inside the fort shall be made first by opening three royal roads from West to East and three from South to North, some times you find only two main roads running East West and North South. The royal buildings to be constructed on strong ground in the midst of the houses of the people of all the four castes and to the North from the centre of the ground inside the city the King's Palace, facing either North or the East, be constructed occupying one ninth of the whole site inside the fortified city. The Eastern part of the city was allocated for merchants, expert artisans and the people of Kshatriya caste. South for Vaisya caste, to the North Brahmins shall reside and to the West or the North burial grounds were found, but some times Kings were cremated at special sites to the South of the City 2.

Monastery designs and their layouts are some of the most fascinating architectural achievements of the Sinhalese and they were constructed systematically and methodically according to the architectural principles given in the Silpa Texts such as 'Manjusri Vastuvidyasastra' where the buildings described in the text belongs to a type that existed well before the seventh century AD³ In selection of a site for a monastery, the Buddha himself gave guide lines as explained in 'Vinaya Sutra' identifying places suitable for monks to practice meditation. Forest monasteries were some of the most popular among Bhikkus in Sri Lanka where they used natural or man made rock caves as living cells with other buildings sited in a systematic way using a definite geometry, topography, natural elements like streams, boulders etc., and also by creating terraces and ponds. Mihintale, Kaludiya, Vessa Giriya 4 Situlpahuwa are some of the most beautifully designed and used sites by integrating the nature, function, architecture and aesthetics in a most perceptible manner. Similar concepts have been adopted in utilising rock sites like in

(2) Cremation of King Dutugemunu has taken place at the location of the present Dakkina Tupa., (3) Marasinghe E.W., New Light on early Sinhalese Stupa Architecture. Sri Lanka Journal of the Humanities. University of Peradeniya 1985. p.108., (4) See Vessagiriya Site plan., (5) Wickramasinghe DMDe2., Epigraphia Zeylanica Vol.1. London, 1912. p.31., (6) See Upapitha Plan., (7) Karunaratne T.B. "The Astmangala figure on an Attani Piler of Sena I, Studies in South Asian Culture. Edtd; by Van Lohuizen Deleeuw, Leiden, 1987. p.109.

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Sigiriya in creating a fortified city with an excellent landscape architecture, as far back as fifth century AD. In fact both Sigiriya complex and Vessagiriya monastery at Anuradhapura were constructed by King. Kassapa I⁵ most probably created by the same Architect.

Orientation

In the traditional practice the orientation of entrance to the site and to a building or the axial arrangement of the layout was given a special

	Vastu Devata	Astmangala	Animal Symbol
North	Soma	Sriiva Tsa	Elephant
North East	Isana	Chowry (Camara)	
East	Aditya	ElephantGod (Ankusa)	Bull
South East	Agni	A pair of fish (Matsya Yugala)	
South	Yama	Swastika	Horse
South West	Nirrta	Auspicious seat (Bhadrapitha)	
West	Varuna	Conch Shell (Sanka)	Lion
North West	Vayu	Filled Vessel (Purnaghata)	

emphasis and a devine status by assigning guardian deities or "Vastu Devata"⁶ auspicious objects and animal symbols⁷ According to the Silpa Texts the orientation of individual buildings have changed in relation to the orientation of the entrance to the site. Astrology also played an important role in orientation of entrance to a site, entrance to a building and some times laying out of roads etc. In Buddhist monastery architecture, the axix of the main entrance facing West was not considered unauspicious, like in Hindu architecture. But in domestic architecture the practice was to avoid entering a building from the west unless otherwise it was directly guided by the grid pattern of the road in an urban context.

Different methods adopted in the tradition to identify the correct North and South was well described in the Silpa Texts, of which following is one of the simplest methods; the site selected for

construction to be perfectly levelled and a circle is drawn on the levelled ground. A twelve inch high stick is planted vertically at the centre of the circle. The point that the shadow cuts the circle in the morning and in the evening is marked as West and East respectively. The line joining the above two points was not considered as the correct East and West line due to the changes occuring in Sun Path during different periods of the year. Therefore it was instructed to draw an arc taking the East point on the circle as the centre with the distance between the two points on the circle as the diameter and another arc with the same diameter and the West point of the circle as the centre. The crossing two arcs will form a picture of a fish. The line joining the mouth and the tail of the fish was taken as the correct North South' in orientation of buildings.

The form and Division of Sites

Eventhough that most of the sites were considered rectangular or square as commonly found, the different plan forms have been identified with different names according to the basic picture that the plan indicates.

The important site forms were identified as given in the plate "Different Site configurations". As given in the Silpa Texts the auspicious and prosperous site forms are the two ayata types, sama or diga sastares and Vrutakara⁹. In addition to periferal configuration the sites were also classified according to the configuration of the levels of the site, identifying the sites acceptable for construction, e.g. a Linear site with the two long boundaries at a higher level with the middle of the site in a depression is not recommended for house construction.

Vastupurusha

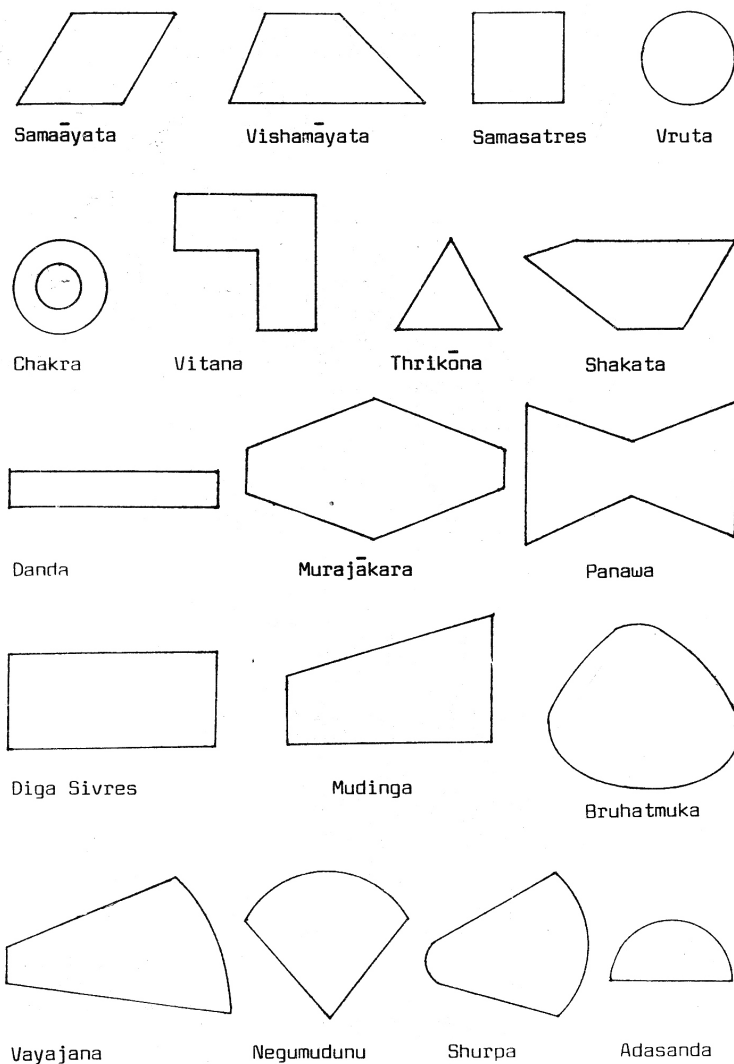
In site analysis adopted according to the astrological beliefs, a chart name 'Abhichala Chakra' or 'Bhumi Naga Chakra' is prepared by dividing the site into twenty eight parts by drawing eight vertical lines and five horizontal lines. The seven divisions in the top row was assigned the following nakatas Revati, Asvida, Berana. Ceti, Ma, Upulwan and Utrapal. In the second line Utraputu, Puwaputupa, Sisavasa,

(2) Cremation of King Dutugemunu has taken place at the location of the present Dakkina Tupa.

(3) Marasinghe E.W., New Light on early Sinhalese Stupa Architecture. Sri Lanka Journal of the Humanities. University of Peradeniya 1985. p.108.

(4) See Vessagiriya Site plan., (5) Wickramasinghe DMDe2., Epigraphia Zeylanica, Vol.1. London, 1912. p.31.

(6) See Upapitha Plan., (7) Karunaratne T.B. "The Astmangala figure on an Attani Piler of Sena I, Studies in South Asian Culture. Edtd; by Van Lohuizen Deleeuw, Leiden, 1987. p.109.



DIFFERENT SITE CONFIGURATIONS.

Rehena, Aslisa, Pusha, and Hatha. In the third line Abhijith, Suwana, Denata, Muwasirasa, Ada, Punawasa, and Sita and in the fourth line Utrasala, Puwasala, Mula, Deta, Anura, Viga and Sa Nakatas were assigned¹⁰ On this chart a Bhuminaga is drawn, as given in the plate. When the Bhuminaga chakra is prepared during the months of Binara, Vap and Il (September, October and November) the head should be oriented towards the East, in the months of Unduvap, Durutu, Navam (December, January and February) the head is towards South, in the months of Medim, Bak, Vesak (March, April and May) towards West and in the other three months Poson, Esala, Nikini the head should be oriented towards the North.

In the Silpa Texts it was shown the body of the 'Vastu Naga' is divided into following light parts or Talas, Hisa (head), Harda (chest), Udara (stomach), Nabhi (naval), Ghuhya (private parts), Dana (knees), Kenda (below the knee), Valiga (Tail). Further it was explained that if the house is located or extended towards the Hisa will destroy the wife and children. Udara area is the best and it will bring prosperity, power and wealth, fear in the nabhi area, ill health in Ghuhya, long disassociation in Dana, destruction in Kenda and Death in the Valiga area¹¹.

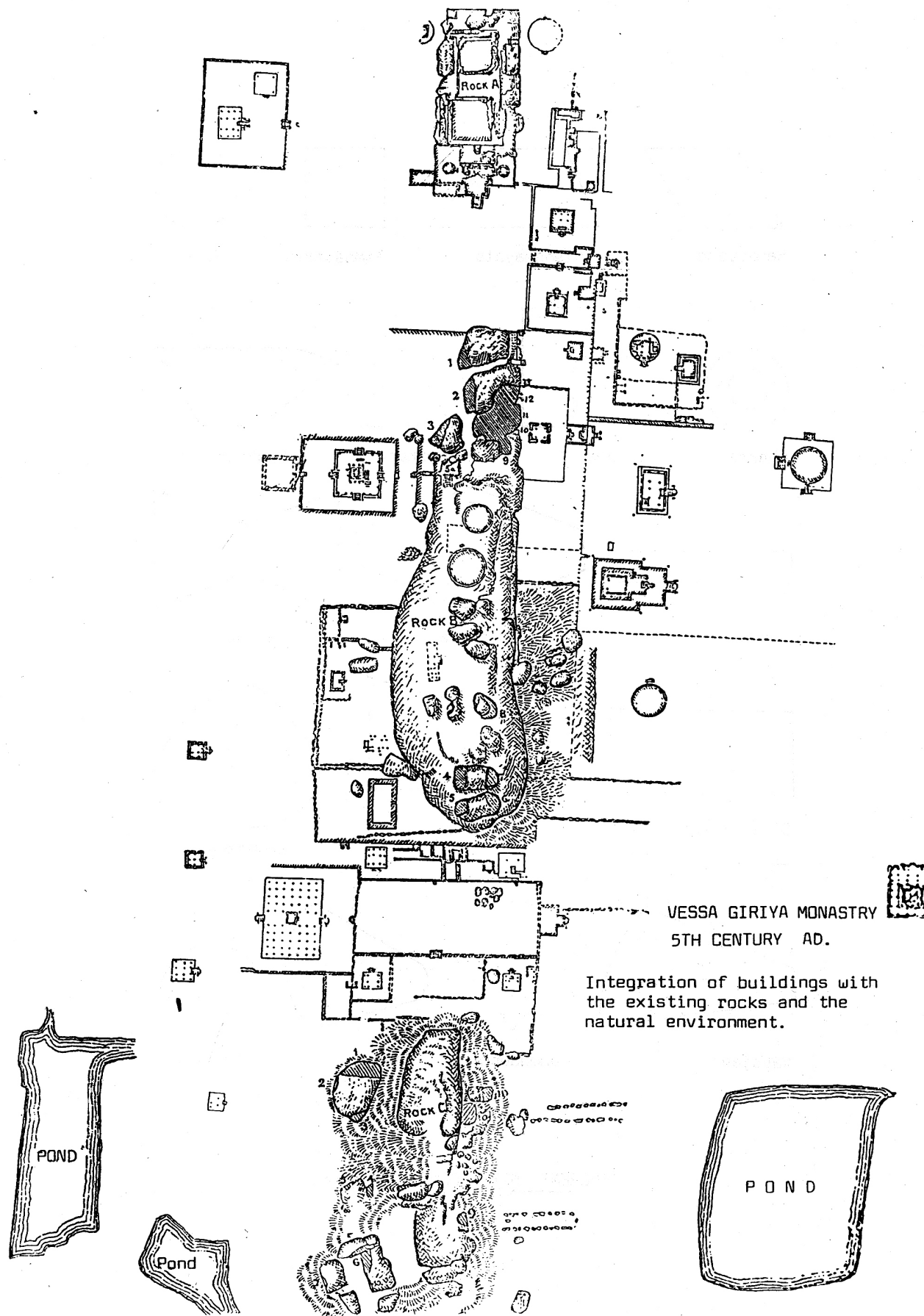
Site in Relation to the Immediate Environmen

In the traditional Silpa Texts it was recommended that a site to build a house should not be selected adjoining (a) a Minister's House (b) a thief's residence (c) a Shrine and (d) a road crossing¹². It was also advised not to select a site full of ant hills, a site covered with rough stones and pebbles, a site subjected to floods, a site with previously burnt down house, a site overshadowed by large trees etc.

Site Investigations

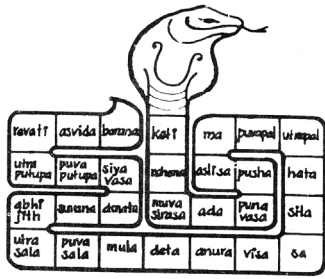
Further to the astrological and auspicious factors considered in selection of sites the traditional texts also recommended different following methods to carry out technical soil investigation.

- (a) The chief occupant of the house was advised to dig a pit one cubit square and one cubit deep at the middle of the selected site in an evening and fill it with water. When it is inspected next day early morning, if water is found in the pit, the site was very good for construction; it indicated a well compacted soil. If the pit remains with mud, he may construct with good foundations and it is not bad soil. If the pit is empty with cracks and holes the site is not acceptable for construction¹³.
- (b) A similar pit as above to be excavated at the selected site and fill it with water. The household is instructed to walk 100 feet away from the pit and return. If the reduction of the water level is minimal, site is auspicious

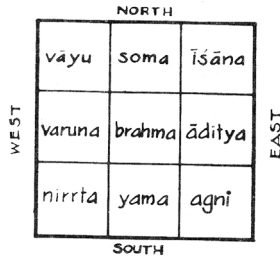


(12) Vruhasta Samhitap.405., (13) Vasturatnavaliya p.47., (14) Vruhasta Samhita p.406., (15) Vasturatnavaliya - p.50.

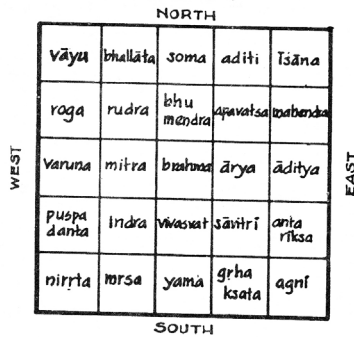
(16) Marasinghe E.W., Manjusri- Vastuvidya Sastra and the Ancient Sinhalese Monastic Architecture. The Sri Lanka Journal of the Humanities - Vol. XI.NO.1. - University of Peradeniya. 1985. p.52.



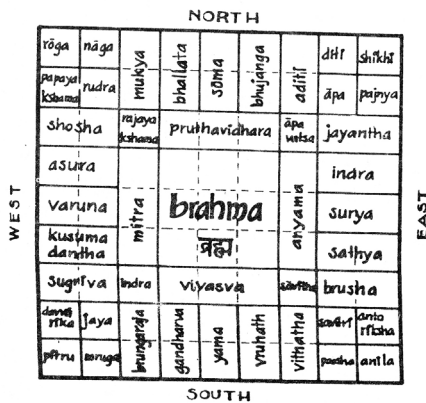
NAĠA (ABHI) CHAKRA



PĪTHA PLAN



UPAPĪTHA
PLAN



CŌASHITA (81)
PLAN

and good. If the water in the pit has got totally absorbed into the soil, the site is not acceptable and unauspicious to construct a dwelling ¹⁴.

- (c) The household is instructed to dig a pit one cubit square and one cubit deep; while excavating the soil at one quarter level to be put on to each side of the pit and

refill the pit with some soil in the same order. After filling the pit if you are left with excess soil; the site is very good for construction. If the pit is just filled the site is acceptable with good foundations and if the excavated soil is not sufficient to fill the pit, the site is unacceptable for house construction. This test is again a very simple and scientific investigation to study the compaction of soil ¹⁵.

Use of Site in Classical Architecture

The site utilization in early Sinhalese classical architecture could be mostly understood by studying available layouts of the archaeological remains in Anuradhapura and Polonnaruwa. But it would have been a difficult task or an impossible task to do without understanding the Silpa Texts used by the Architects of the early periods. It was fortunate that there was one classical text of the Sinhala Buddhist architecture that came to light, providing us with valuable information on specially Buddhist Monastic Architecture. This manuscript of the “Manjusri - bhasita - Vastuvidya Sastra/ Citrakarmasastra” would have composed at a date not later than the 5th or 6th Century A.D. ¹⁶

As given in many other Silpa Texts, the site was taken as square or rectangular and it was divided into different grid patterns. The grid of nine squares is called the pitha and that of twenty five the Upapitha. Each square or Kostha in the Vastumandala is dedicated to a Vastudevata or deity presiding over the site, by whose name the Kostha is generally known. Thus the Kosthas of the pitha grid are named after the eight deities, Isa, Aditya, Agni, Yama, Nirrta, Varuna, Vayu and Soma, with Brahma occupying the central Kosatha. In the twenty five square grid Brahma remains in the centre, while the dikpalas are pushed to the four corners and four middle Kosthas on the periphery. Thus the deities occupying the 16 outer Kosthas in clockwise direction starting from the north-eastern

Kostha are as follows: Isu, Jayanta, Adiya, Bhrsa, Agni, Vitatha, Yama, Bhrngaraja, Nirrta, Sugriva, Varuna, Sosa, Vayu, Makhya, Soma and Aditi. The eight inner Kosthas are occupied by Apavatsa, Aryaman, Savitr, Vivasvat, Indra, Mitra, Rudra, and Prthividhara¹⁷.

In the preparation of layout plan they followed a sacred rule governing the location of buildings within a monastery in such a way that any particular edifice in the complex should confine itself to one Kostha, only and never encroach upon a neighbouring Kostha. If done so the consequences will be disastrous. As a general rule, a single Kostha in the Upapitha plan holds only one edifice, particularly if it is of the major type. The location of the edifice is generally determined by the position of the main entrance. One can take the Pubbarama monastery at Anuradhapura as an example to understand the application of the text in its site layout.

The square raised platform at the centre in Pubbarama monastery layout was divided into an Upapitha grid, with the main entrance towards the south and the four important and sacred buildings, Uposatha gara, Image House, Stupa

and the Bodhigara were placed at Aditi, Rudra, Bhrsa and Nirrta. respectively. This monastery layout was classified in Manjusri Vastuvidya Sastra as a Hastyarama monastery with the gate to the south. If one looks at the rest of the monastery layout at Pubbarama, it shows an axial plan, symmetrical in outlook with a rectangular moat around the area occupied by residential buildings and the main complex was made to a rectangle by constructing a brick wall in the periferal boundary. There were four. entrances at the four cardinal points with internal roads layed in a rectangular grid. The image house that was found outside the wall would have been a later addition but embraced into the main complex by extending the road along the northern axis. A disciplin was observed in laying out the site by strictly followi...g the Silpa Text in the central sacred square and by developing an axial symmetry but on a free grid soften with water and trees. In larger sites the layout pattern of the residential and other ancilliary buildings have shown a much more flexibility. It was found that even in organic monasteries like Vessagiriya, Kaludiya etc., the discipline imposed by the Silpa Text was exhibited at all possible places.

SOME ASPECTS OF TRADITIONAL RURAL HOUSING AND DOMESTIC TECHNOLOGY

Arch. Ashley De Vos, FIA (SL)

Introduction

This paper has been divided into three parts in order that as broad a picture of traditional rural housing could be formed. Part 'A' deals with the settlement patterns, architecture and village concepts. Part 'B' deals with construction methods and technology. In part 'C' an attempt is made to look at how some of these common sense principles of Building have been introduced into the system as astrologically necessary.

PART "A"

Settlement Patterns; Village Concepts & Rural Architecture

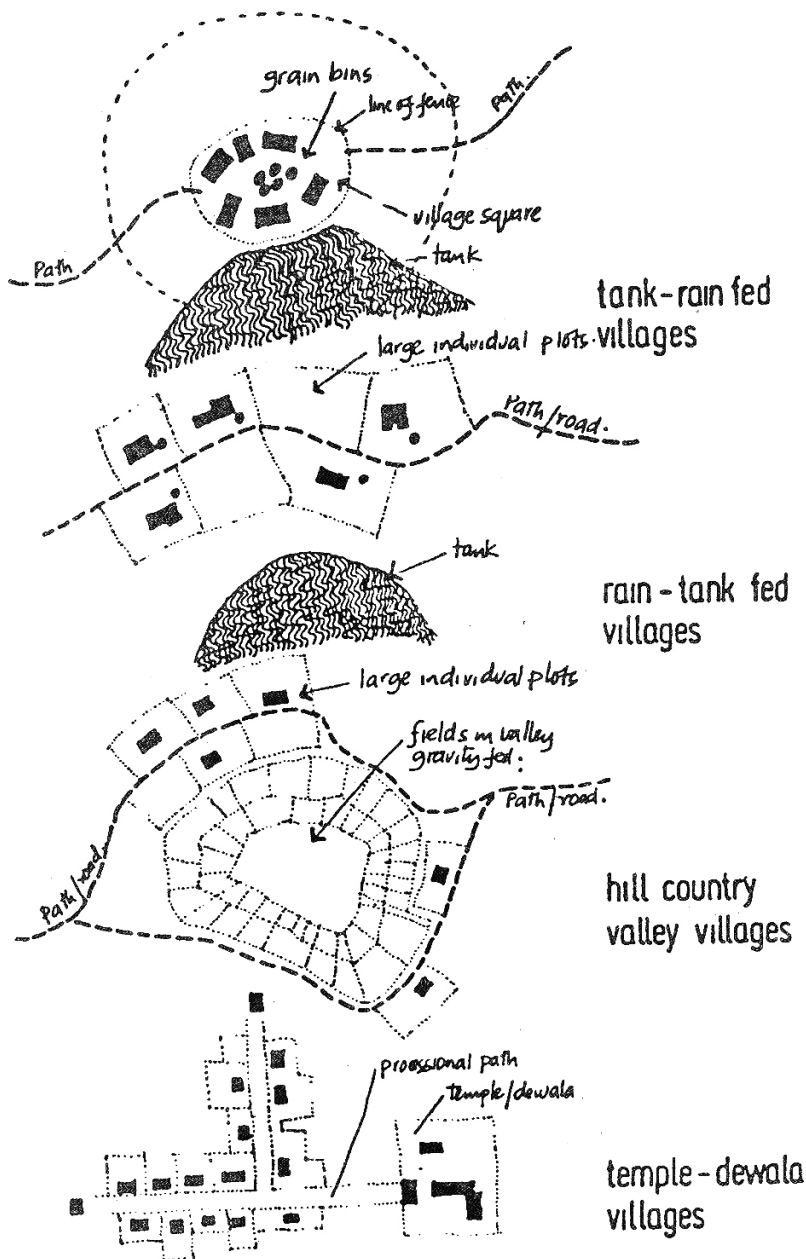
A Study of migrant settlement patterns reveal that the earliest settlements were located in areas where water was readily available. Therefore, the river basins of Sri Lanka formed the first base for these settlements or 'gamas'. The natural expansion of these settlements or 'gamas' prompted a movement inland, in various directions. The northern, western and north-central province saw the first inland colonisation.

The lack of rain in this area brought about serious experimentation into the field of water conservation. The experiment was successful and we find the first inland tanks being constructed. It would be reasonable to state a major feature of the early 'gamas' was its

source of water or tank. With the combination of a series of 'gamas' to form self-supporting communities we see the foundations being laid for the first 'Nagara' or town. These developed further into cities or 'puras'. The Anuradhapura and Polonnaruwa that we know, would have developed from such a task fed settlement.

The centres of the early towns were fortified, an idea brought down from the early village, where it was necessary to protect it from wild animals and human invaders. The city centre was occupied by the leader, later called the King, his immediate family, his various ministers and artisans. The residents of the surrounding village supplied the needs of the town. These villages were either inhabited by people engaged in similar or different occupations. These occupational groups performed specific necessary functions, without which the society could not exist. Some villages, due to their location satisfied certain special functions, for example, at a convenient point between various villages, market villages or 'Niyamgam', the first commercial centres developed.

The king was all-powerful. Even though he was guided by various customs and traditions, he was at liberty to act as he wished. However, the villagers enjoyed a certain amount of freedom in the management of their own affairs, with the village headman or village older being consulted only when taxes were due.

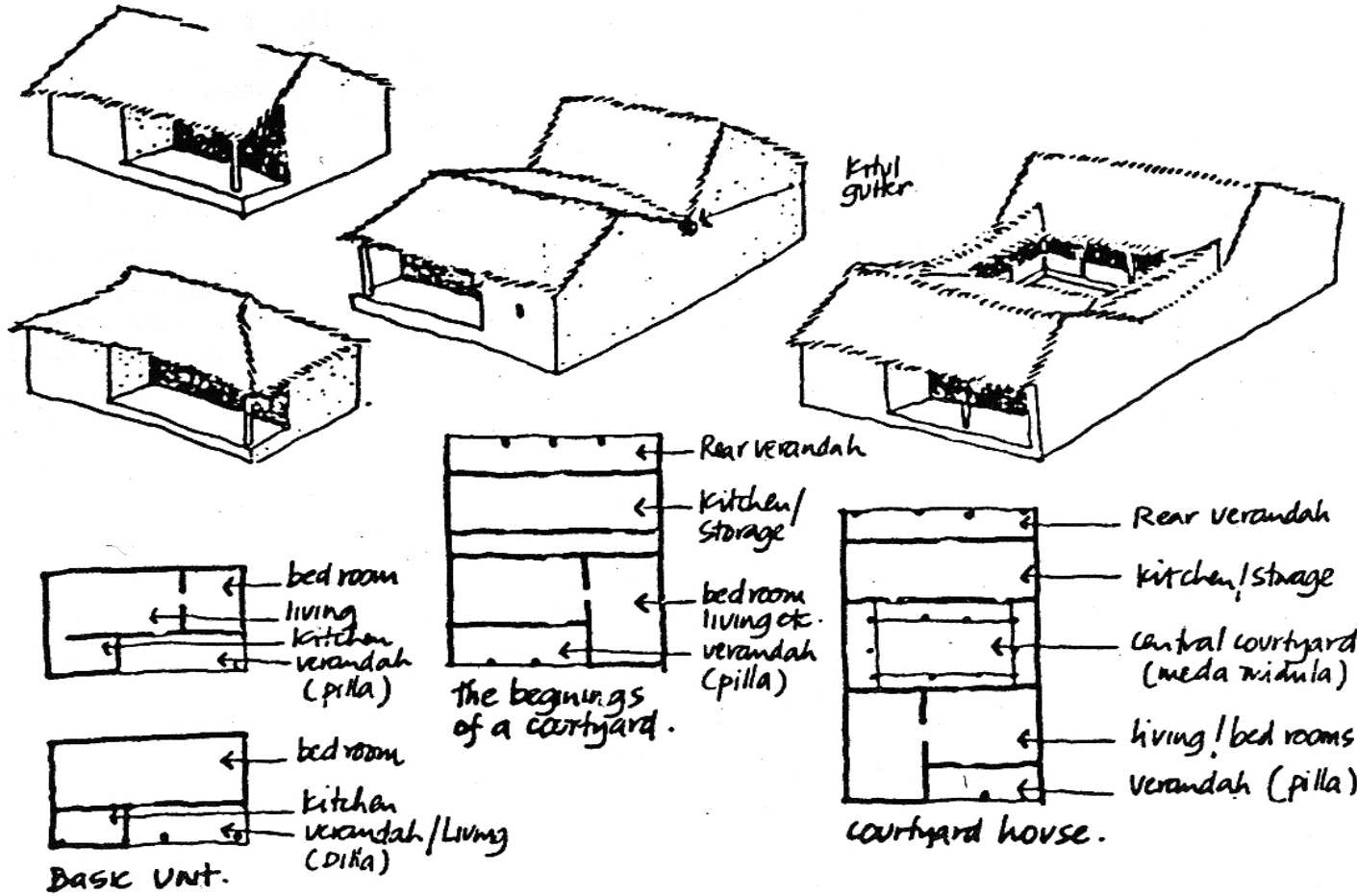


Diagrammatic Representation of Traditional Village Types
fig.1 not to scale

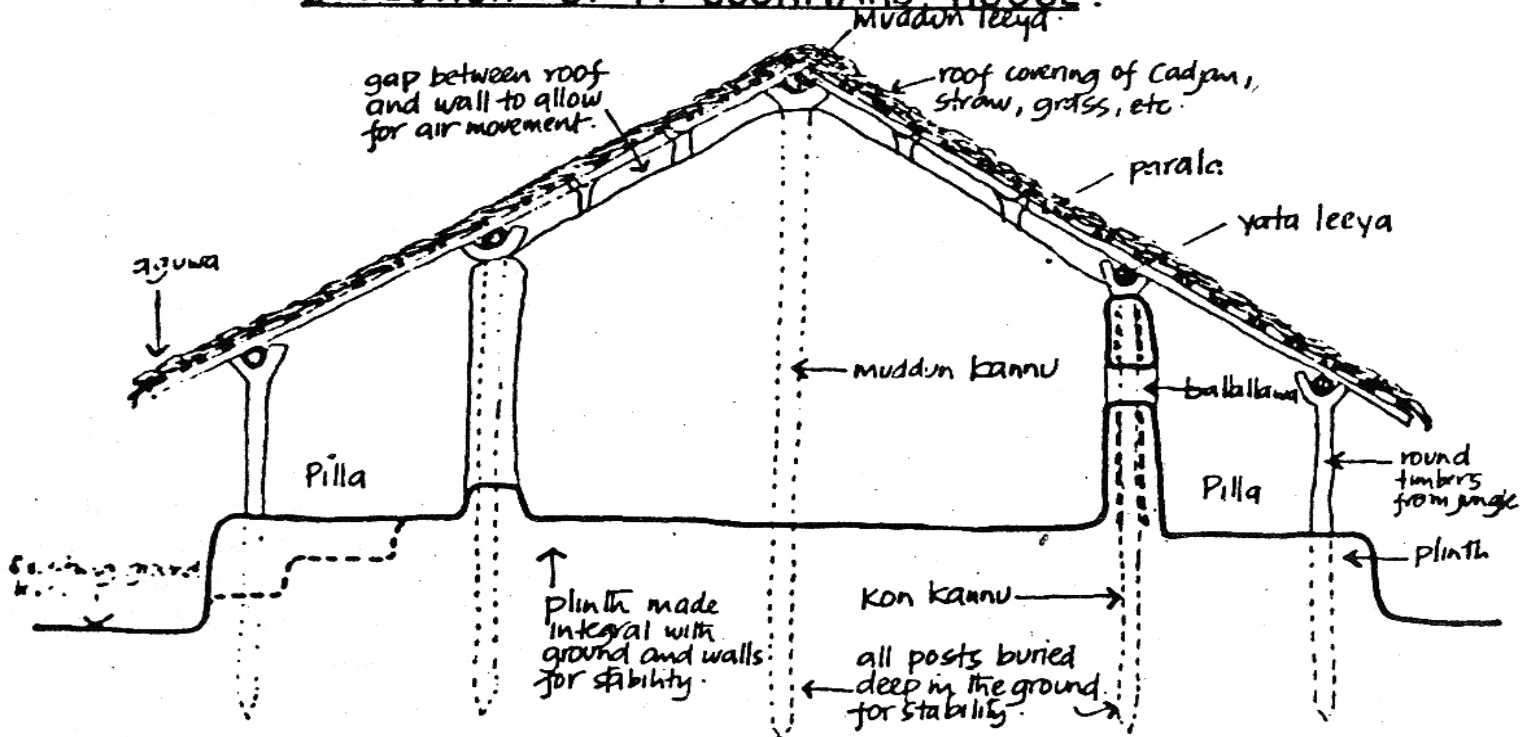
The architecture of Sri Lanka could be divided into two basic groups, namely, the public and the private. Historical evidence shows that the greatest development took place in the former. Civic architecture could be further sub-divided into buildings for the king, which included royal palaces and buildings for his leisure activities and the monastic complexes for the sanga. The kings of Sri Lanka caused the building of palaces for their pleasure and monuments to their faith, the general populace contributed by way of direct labour or by way of taxes.

Private architecture could be sub-divided into the dwellings of the ordinary folk and those of the elite or chiefs. We shall define elite as those individuals who were given elevated status because of their special standing or relationship with the king. Due to a lack of detail information, I shall not venture to spell out what these dwellings were like prior to the Kandyan period, but judging from the various writings of the Kandyan period a reasonably clear picture could be acquired. John Davy reports that the dwellings of the ordinary folk were of mud and straw, humble, unpretentious, in which appearance is sacrificed for convenience and economy. The houses of the chiefs or elite were of mud with tiled roofs, for which the special permission of the king was required, raised on low terrace and of a single story, built in the form of hollow squares, presenting externally a dead wall, internally bordering an open area (meda-midula) or verandah, with which the side rooms communicated by narrow doors. A large establishment consisted of many such squares". Examples of this building type exists in the feudal walauwas, the best present day examples of which come from the Matale district. However, the oldest dwelling of this type is not more than 300 years, due to the rapid change in fortunes, as was the usual case.

The inward oriented plan form, though often used by the elite in villages, is urban in attitude, and may have been very close in concept to an urban housing type that existed in ancient Anuradhapura and Polonnaruwa.²



EVOLUTION OF A COURTYARD HOUSE.



TYPICAL SECTION THROUGH TRADITIONAL RURAL DWELLING UNIT

Many of our villages are agricultural or craft based. Today as a result of industrialisation certain towns and villages have changed, but there still exist villages which have not come completely under its influence. These we shall term, Traditional, Rural, and deal with in greater detail.

Traditional Rural Villages

These villages could be divided into the following types--the tank fed, the rain fed, the hill country valley villages, and the temple--dewala villages.

of these the tank fed is the most interesting. A good example is the village of Ehetuwewa, about six miles from Galgamuwa. The land around the tank is divided into the paddy fields or 'mudda-bima', located below the spill level of the tank bund. The chenas or 'goda-bima' and the residential area which was located well above the highest flood level. The dwellings were located around a central village square³ which formed the extended living space, play area, community centre, etc. This area was always kept well swept and clean, each household being responsible for the section immediately opposite the dwelling unit. There were two entrances to the central square over a low fence or 'kadulla'. The effect of the two entrances on opposite sides was to create a thoroughfare through the village. In the centre of the courtyard were located the wealth of the village, the paddy and kurakkan storage bins or 'bihi'.

In this type of village the central village square is the focal point. Outside the courtyard and beyond the residential belt was an area called 'tisbamba'. This was an area, containing large forest trees but devoid of undergrowth. This area which was reserved for the tendering of cattle, was also a protective belt through which unannounced entrance was difficult. It served as the theatre for the staging of the various

pujas, 'wewa mangalyas' and the events associated with rural life. This was a sensible and definite method of demarcating the extent of the village. Today, however, the actual extent of this area varies from village to village. There was no formal system, the whole jungle fulfilled this need. The tank provided water for drinking, washing, bathing, and also irrigation of the fields.

In the rain fed type, the village houses are located along the village footpaths and road systems. The paddy fields are located immediately behind and the chenas further away. The residential plots are large and scattered. This attitude is also predominant in the newly colonised areas. The toilet is only a pit in the ground located away from the house.

Majority of the hill country villages are located in the valleys. The paddy fields are terraced and gravity fed by channeling and diverting a nearby stream. The residences are located along the village footpaths, roads or overlooking the paddy field in individual plots. Knox had the following observation to make: "The Sinhalese or Kandyan, do not care to make streets by building their houses together in rows, but each man lives by himself in his own plantation, having a hedge (fence) it may be, and a ditch round him to keep out cattle." Marshall, writing later, states that, "the dwellings are built separate from one another, each hut being, in a certain degree, independent". Each house was surrounded by a clump of trees, fruit and food bearing types, such as Jak, coconut, mango, etc. The village temple was the focal point. In village like Kehelpannala, the banamaduwa⁴ was located in the centre of the field.

The temple villages have the temple or devale⁴ at the end of the processional path as the focal point. The dwellings which were normally occupied by individuals who performed 'rajakariya' to the temple were located on either side of this path. The paddy fields like in the earlier cases are terraced and gravity fed.

2. A large concentration of these courtyard houses, 'Hatara Andapu geval' are seen at Udunuware in the hill country.

3. 'Gamgoda'-clustered housing with dwelling unit around common courtyards. 4. Embekka is a good example.

A study of these traditional rural villages reveals that most of the houses were built by the villagers themselves to suit their immediate requirements. No payment is offered or solicited. In return for labour food is provided. The construction materials like mud, timber, straw or grass came from the immediate environment. The dwellings were organic and blended with the environment, and as such this architecture of tradition would have taken the same form as in the earliest 'gamas'.

There are a number of dwelling types used by these rural folk. They range from the very basic tree house in the chena which is nothing more than a platform suspended across two branches of a large tree, to the multi-courtyard walauwa of the feudal chiefs.

(a) Unit The basic floor plan consisted of a single rectangle which was enlarged or extended as the need arose. of the many combinations available the single room and colonaded verandah is the most common. The columns in this case being made of round poles.

The location of kitchen differs, depending on the climatic conditions of the district in which the dwelling is located. In the cold hill country, the kitchen is located inside the house while in the hot North Central province, it forms an additional space projecting beyond the four walls of the house. Most rural dwellings can be divided into two distinct areas by nature of use, a private area and a public area. This is true of even the most sophisticated house. The inner room or rooms which constituted the private area was reserved for the women folk and children, while the public area, the verandah or 'pilla' was used by the males for sleeping and for recreation and entertainment by all. The surrounding walls of the verandah were built broad to form seats, beds, etc., commonly called 'kotta-pilla'.⁵

(b) Plinth

All plinths are raised about 2 – 3' above the ground. Of the many reasons given, the main one seems to have arisen out of a necessity to raise the level of the floor as a protection against rising damp, a phenomenon which becomes a health hazard during the rainy season. This high plinth also protects the dwellers from various crawlers who live in the immediate vicinity of the neighbouring forests, at the same time reducing the amount of conducted heat being absorbed into the dwelling from the surrounding ground. The plinth also eliminated the use of foundations as the walls were made integral with the plinth. This assured that the walls and the plinth formed one monolithic mass.

(c) Roof

The subframe for the roof was of timber invariably rough cut from the neighbouring jungle. While the larger establishments used whole trees made rectangular by shaving the surface with an adze. The roof covering was made of either cadjan, straw, grass (illuk) etc., or used in combination. The use of straw as a roofing material ideally suited an agricultural people as stocks were readily available. Due to the hollow air space in each strand of straw, its insulation value is much higher than that of tiles. Any leaks in the roof was rectified by piling additional heaps of straw. This accumulation of rotting straw created ideal growing conditions for paddy and other plants and also was the haven of the mapilla, karawalaya and habara. The roofs were steeply pitched, using either a single pitch, double pitch (gable) or 'pala deke' or hipped type (atta-vahala) of roof. The steep pitch helped to shed the rain water quickly off the surface. In the hill country, the pitch changes to almost a silhouette of the surrounding hills. All roofs have wide overhangs, which help protect the walls from getting wet. The overhang in the North Central province served an additional

5. A rather interesting custom which prevails in some of the villages is the spreading of a mat in the pilla, as a sign that the husband is at home. No sooner he leaves the mat is rolled up, taken into the house and the main door closed. This was a subtle indication or sign that others should keep off. 6. See Marshall, Henry--Ceylon--A General Description of the Island and its inhabitants. KDCCO XLVI, P. 20, London.

purpose. The eaves at times reaching down to between 4' - 5' from the ground. This low roof was essential to shield the dwelling from the very high winds that prevail in the area. If the height of the eave exceeded 5'0", it was impossible to maintain a lighted lamp. These houses have only one entrance, which is entered in a crouched position.

(d) Windows

Even though the only source of light was either the door or the window, they were of minimum size. As the inner space or spaces were used only for sleeping and related activities, it was not necessary to bring in much light, therefore, the window or 'balallawa' was made only big enough to see through.⁶ New tastes in furniture and changed use patterns of rooms have led to the increase in the size of openings. In the west, due to reduced natural lighting conditions, the amount of light penetrating a space is dependent on the amount of sky or the sky component that can be brought into the room, this calls for larger openings to bring in more light. In Sri Lanka, however, the amount of light penetrating the space is not dependent on the earlier factors, therefore, very much smaller openings would bring in sufficient and a better quality of light. The larger openings not only bring in more light, but also increase the heat and the glare.

(e) Wall

The walls were either timber framed with wattle and daub infill, rammed earth, compressed earth blocks, kabook (a laterite block) or cadjan. The use of mud or earth as a walling material produced a structure which was ideally suited for the climate. The natural insulating property of mud helped to keep the interior of the house cool and livable. Cadjan was used for dwellings of a temporary nature, and if available in the area was used to establish the homestead, but as time passed the dwelling was made permanent by the use of mud for walls.

(f) Furniture

The furniture was limited, there were no tables or chairs, at the most a bench or 'kolombuwa' or the coconut scraper (hiramana) was used to sit on. Large clay pots and rattan baskets or wewal petti were used to store water, food and clothes. In addition there were a couple of extra mats the usual ambulketha, giraya, pihya, pan kathi (for making mats), rack for spoons (handi anna), the mamoty (udella) mud leveller (poruva), and plough (nagula) the betel tray (illaththatuva) was normally made of woven reeds. Every bit of furniture was functional and constantly in use and in this way conditioned the dwelling unit.

PART 'B

A Traditional Technology

There are five basic construction techniques used in the building of these dwelling units. The method is invariably dictated by the materials available in the immediate neighbourhood.⁷ In the North Central province and hill country where mud, stone and timber is readily available, wattle and daub or 'warichchi' stone walling or 'sakka bammi', compressed earth blocks of 'mordegal and rammed earth (Pise de Terre) or 'thappa-bammi' are used. In the laterite belt which extends from Negombo right down to Matara, building with 'cabook' blocks is common.

(1) **THE WATTLE AND DAUB** or 'WARICHCHI' wall, the father of reinforced concrete, is the most commonly used walling type for rural dwellings. A feature of all these dwellings is the timber subframe that carries the roof. The main vertical members, the 'muddun kannu' or post to carry the ridge and the 'kon kannu' or post to carry the wall plate are the main vertical load bearers. These posts were normally round 'milla' timbers brought in from the jungle, even though timbers like satin was available in large quantities, it was not used. This was not due to any superstition, but to the fact that satin wood rots in damp mud. To stabilise the main posts, they are planted deep into the ground.

On completion of the planting of the main posts and the wall plate or 'Yataleeya', additional vertical posts are planted in between the 'kon' and 'muddun kannu' at about 9" centre to centre. These posts stopping 6" short of the wall plate, helped to keep the white ants away from the roof. This space in addition allows any heat generated within the dwelling to escape, by creating a continuous stream of cross-ventilation just below the roof.

A gap is left between the vertical posts to allow for the placing of the main door frame, which is an important ceremony called 'ulluhaw pannima'.

After placing of the door, straight branches brought in from the jungle are placed 6" apart horizontally and lashed to the vertical posts using jungle vines, such as '*porta*', '*kabarossa*', '*wewal bandura wel*', etc. I examined pieces of "bandura wel" taken off a house built in 1880, and found the 'wel' still serviceable. In more urban areas, bamboo, '*batta*', '*puwak-pathi*', etc.. are used for the horizontal members.

To complete the roof, rafters made of round poles brought in from the jungle, are lashed to the ridge plate or 'muddun leeya'. The eave or 'aguwa' is projected about three feet beyond the face of the wall to afford as much protection from the elements. On to these rafters are tied straight slender branches at four inch centre to centre normally in two's, for added strength.

The roof covering was of either woven cadjan, various grass like illuk and maana or straw. If straw or grass is to be used it was made into bundles of about 2" each and laid lapped, starting at the eave and working up towards the ridge. Each layer of bundled straw was made secure by sandwiching it between the reepers using another slender, straight branch. The ridge is built up by laying piles of straw. An additional timber frame is placed on the straw till it gets 'padan' or settled. In the use of cadjan, long

lengths of woven cadjan is laid lapped as in the case of straw and secured to the reepers. Like in most mud construction, the roof is built first so that the wall could be built under cover protected from the elements.

In the meanwhile, clay for construction of the walls, quarried from a nearby pit, is brought to the site, water is added and it is trampled till it forms a uniform and homogenous mass. This is left for three days to mature, before it is put to use.

Here again, foundations were not necessary as the mass of the plinth weighs it down. The 'Kaivoruwa' or plinth is built as a perimeter wall about 2"0" thick by placing 'matti undi' or mud balls one on top of the other to the required height. This is left to dry for a week. The centre section is then filled with earth, which is dampened and trampled to create a homogenous mass.

After the plinth is completed, mud balls or 'undi's' are placed and pressed in-between the warichchi or wattle framework. This process of 'kattumatti gehima's or fixing in position of the mud balls is done to a maximum height of 3"0" and left to dry before the height was increased further. The application of the second coat or 'dematti' was done using "buuweli", a mixture of fine 'boralu' or coarse sand and 'matti' (Clay) At times paddy husk was used in addition to sand. This was applied by hand as the finishing coat to level off the surface of the wall. In the case of a house belonging to a chief or a very important person, the walls are later painted with a coat or two of white clay or 'kiri-matti'. In most dwellings the terra cotta colour is maintained so that it sits in harmony with the environment.

The floor is levelled off with a mixture of ant-hill clay and sand. The proportion of which is determined by the stickiness of the mixture, and was correct when it did not stay adhered to one's hand. A mixture of cow-dung and ant-hill

7 75 % of the houses in Colombo are of mud or mud based, but as they have now acquired a respectability in a coat of white wash, their mud origins are forgotten. Many of them are over 150 years old.

8 Kattumatti gehima--name given to the rough levelling coat Dematti--the second or final coat.13

clay is then applied by hand as a second coat. The last and final finish was a mixture of pure cow-dung and water. Here cattle or 'Elaharak' dung was preferred to buffalo. It is customary to purify the dwelling twice an year, during which the old cow-dung paste was removed and a new paste applied. Today we may look down on the use of cow-dung as a floor finish, but it was totally hygienic, it did not encourage the breeding of insects and did not generate any dust or smell.

(2) **'MORDEGAL or COMPRESSED EARTH BRICKS** are made in a mould, they measure about 8" x 8" x 12" in length which is a size easily handled by one person. The mixture of clay earth and water is first cleaned of all organic material and is trampled till all the particles get bound together, this mixture is then kept covered for about 3-4 days. The four sides of the mould are made out of timber planks roughly about 3/4"-1" thick. The top and bottom of the mould is left open. This is then placed on a flat surface and lumps of this matured clay is pressed into it. After the brick is formed the mould is struck and the brick left in the shade to dry. Care should be taken that this mixture of clay is not too moist as this would prevent the brick from leaving the mould. The most suitable soil would be clay with a mixture of coarse sand. Once the brick is well dried it is used for construction work. The bricks are laid in courses and bonded together to form the walls. The bonding material is again a mixture of clay and water. The whole is finished smooth with a mud plaster. If this brick is prevented from getting wet, the wall is stable for many decades.

(3) **Another type of walling is the 'THAPPABAMI, RAMMED EARTH or PISE de TERRE CONSTRUCTION.** The mixing and preparation of the earth and clay is very similar to the manufacture of Mordegal, the main difference being in its application. There are basically two methods of building such a wall. One is by pressing unformed lump of this premixed clay one on top of the other. The bond is completed

by using a mixture of clay and water as a mortar. The other uses two moulds, one for the straight sections and another for the corners. The mould is placed on either side of the future wall and the premixed clay/earth is pressed and rammed till a solid integral mass is formed. To economise on the mixture any stone available in the area is also pressed into the wall. In this type of construction, the maximum vertical lift per day is about 12" - 18" This is left for a few days to dry before the next lift is attempted. It has been found that if the lift increases in height it becomes exceedingly difficult to maintain the wall to plumb. A feature of this type of construction is the thickness of the walls. The thickness increasing with any height increase in the structure. Here again, if the walls were to get wet during the construction process, the bonding is lost, so as a pre-caution, the roof is constructed prior to the building of the walls. The roof is built and supported on a series of double columns normally called 'Borukanu' or false columns. The compressed earth wall being built in-between. After the wall has dried out and it has been established that the wall is capable of carrying the roof load, the 'Borukanu' are removed. The smoothing out of the wall surface is done by applying a mixture of clay and water with a wooden float. Care should be taken to ensure that the mixture does not contain an extra amount of clay as this could increase the hair cracks which are brought about due to drying shrinkage. Deep foundations are not required because the high plinth was integral with the walls of the dwelling. As an added precaution, the plinth at the bottom of the two short side walls are buttressed, this added to its stability.

(4) **'Sakka Bammi'** or stone walling is extensively used in the hill country as a walling material for houses and retaining structures. Carefully selected stones of varying sizes gathered from the neighbourhood are fitted together to form the wall. In the building of retaining structures, no bonding material is used, because of its exposure to weather. This well knitted dry wall

is ideal for external use. In case of its use as a walling material for dwelling, a mixture of clay, sand and water is used for bonding. The wall was finally plastered over with duweli' and a final coat of mud plaster.

(5) Cabook or Laterite blocks (8" x 8" X 12") are quarried off the face of a laterite hill with the use of special tools. The blocks harden when exposed to the sun. In construction, the blocks are laid in courses and bonded with a mortar of sand and mud. The quarrying of cabook has an undesirable effect on the environment. As it leaves behind deep pits which get filled with water and end up as general hazards to life.

All these methods of construction are mud-based, and their lasting qualities are dependant on the degree to which the walls are protected from the weather. On exposure, the mud wall disintegrates and is recycled into the ground. This is the main reason why there is no overground evidence of our ancient mud Architecture.

PART "C"

Astrology and Principles of Building

Over the centuries, many principles for an ecologically perfect existence has been laid down, through the traditions of astrology. Many are socially and structurally necessary and in combination has the effect of producing a dwelling which suits the people, the environment, and the climate of the country. These commonsense principles for building are now accepted as astrological norms. In this part, it is hoped to examine them in further detail. Most of the information has been the results of a series of interviews with elderly members of various villages.

Before a house is constructed, the astrologer who is an important and respected individual in the village. is consulted. His first duty is to demarcate an area within the plot on which the dwelling could be located. This dividing of the site or 'Paadha bedima' divides any plot into a

number of equal parts. The four basic paadha are as follows:

- | | |
|--------------------|---------------------|
| (1) Peretha Paadha | (2) Manushya Paadha |
| (3) Deva Paadha | (4) Brahma Padha |

The whole site is first divided into four equal quarters each quarter is in turn divided into the four Paadhas. Starting first with the Peretha Paadha along the boundry and the Brahma Paadha at the centre of the site, the Manushya Paadha and Deva paadha are buildable areas and normally used for the siting of dwelling units. The Brahma Paadha is used for the siting of devalas and of the religious buildings. This method of dividing the site produces four possible residential building locations on any one site. In some villages, the centre of the plot consisting of the Brahma Deva and Manushya paadha was used for residential buildings. This was a very positive way of avoiding, congestion of the environment. It is fair to say that PaadhaBedima becomes slightly difficult in the present day attitude towards allocation and division of land. This is unfortunate as we are laying the foundations for a great big future slum, some of the effects of this congested living pattern is already noticeable.

The size of the dwelling was based on a multiple of a Riyana, a length equal to the distance between the elbow and the tip of the small finger. The riyana used was different for every house, The hand of the owner being used as the measure. This method assured that the house was in scale with the occupant. A taller or bigger made person had a larger house. This method, however, is used less frequently today, with the resident's economic status being reflected and expressed in the size and fabric of the dwelling unit.

New thinking, a lack of time and non-availablity of skills has introduced the specialised builder, who normally uses his hand as a measure. Most houses range from 5 riyana and above. The following combinations are common - 5 x 7, 7 x

9, 9 x 11, 11 x 13 etc. care being taken to ensure that the number chosen is not divisible by 2.

The personal horoscope of the owner is consulted to choose the orientation of the building. However, it always ends up a few degrees East of North or a few degrees East of South in most areas and orientated North/South in the central highlands. Tradition says that the North/South orientation is to keep the hot East and West sun out.

The orientation of the main door is worked out by considering where the 'Booma Nagayas' stomach faces at the particular times of the year. It may be a coincidence but it generally is limited to a Northern, Eastern or Southern facing. The normal rural life pattern was based on an early rise and early to bed which meant that the light was required most in the morning. As Sri Lanka is only 5 - 6 degrees North of the equator, with the traverse of the rising sun extending to the North by 17 degrees and to the South by 23 degrees at different times of the year. With the main entrance door facing an Easterly direction ample light was assured, with the early morning sun penetrating the interior of the dwelling.

It was 'Vas' or inauspicious to use timber like Na and Satin for the doors and windows. This hardwood has been used extensively in the construction and fabrication of temples and devalas. This superstition which taboos the use of similar timber in domestic construction, assures a steady supply for future temple construction, and saves the carpenters tools from the naturally hard timber.

In larger establishments, no three doors are placed in a straight line. This was to avoid being able to see right through into the private medamidula or court-yard of the house. The

doors were constructed using solid sections of timber. As the frame encircled the door it was necessary to step over the bottom rail or 'Aleepatha' to gain access into the house. The traditional hinges were made of timber. Holes were made in the top hinge plank or 'Udalleepatha' and the bottom hinge plank or 'Baapatha' to form the female component of the timber dowel door hinge. This method of hinging doors is extremely sensible and simple with very little wastage and stresses on the moving parts. It is a great pity that this is not used widely today. The main entrance door of the larger rural dwelling was made up of nine components, namely, the two side vertical rails or ('Gukkaruwa'), the top rail ('Dhekandha'), the bottom rail ('Aleepatha'), the top *hinge* ('Udaleepatha') *bottom hinge* ('Baapatha') *the door sash* ('Riyana'), *normally made up of a single piece of timber, the lock rail* ('Agul Kanuwa') *and the lock* ('Agula'). *The use of large sections of timber as framing members made the use of a lintel to carry loads generated above the opening redundant.*

At the auspicious time, instead of planting the main vertical posts or 'Kon' and 'Mudun Kanu', a symbolic planting is done, for which a branch of a milk-bearing tree, a 'Kiri-gaha' like Jak is used. To this branch is tied a coconut flower and two coconuts. At the given time this branch or 'Magul Kanna' is planted in the centre of a future wall. The branch is later built into the wall and the coconuts planted. These coconuts give rise to the first fruit trees in the garden.

The location of the ridge at the centre of an opening for a door or a window is avoided due to excessive loading problems. In earlier methods of construction no lintels were used to carry loads. The load of the wall above was carried on the door or window frame,, with the whole frame itself acting as a lintel.

In a hipped roof, a rafter was never fixed in line with the ridge. If done it was supposed to bring death to the head of the home. In carpentry terms this junction detail is extremely difficult to execute. It, however, has been successfully done at the Embakka Devale by using an elaborately carved boss to take the ridge and rafters.

The cardinal points play an important part in the location of walls, cooking facilities, etc. The well is best located to the North East or Easana of the property, the worst being the South East or Ginikona. The South East or Ginikona is the best location for cooking facilities. The rising sun which lights up the South East for the greater

part of the year obviates the use of additional light sources.

Conclusion

From this paper it should be evident that our traditional mud architecture, a tradition which has been continuous from the dawn of our civilisation has been based on very sound ecological principles. The dwellings have been self-sufficient in that they were built with materials available on the plot of land or in the immediate environment. These traditional mud dwellings disintegrate when exposed to the elements, hence only Sri Lanka's ancient monumental architecture remains.

SYMBOLISM THE TRADITIONAL APPROACH

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In the following pages there is an attempt made to understand the meaning of Symbolism, specially the visual symbol. It was felt indeed necessary to throw some light into this subject, as we often read articles on architecture where the word symbol is used quite frequently. It is our opinion, nevertheless, that a student of architecture will benefit immensely in comprehending the exact meaning of such a term, for ancient traditional architecture is based predominantly on symbolism, rather than so called 'function'. It is not the intention here to discuss all ramifications of symbolism in traditional architecture which would need many volumes to expound, this, on the other hand, is rather a "hint" in its fundamental aspect to comprehend symbolism.

Many monographs and papers regarding the theme of symbolism have been written by eminent scholars such as René Guénon, Frithjof Schuon, Ananda K. Coomaraswamy, Titus Burkhardt, Marco Pallis, Stella Kramrisch and the like. In their wake, others have expressed similar thoughts. What is attempted here may be regarded as a reflection in their wake, and we constantly refer to their theses.

The most common misunderstanding of symbolism stems from the supposition that symbol is synonymous with sign. Coomaraswamy observes that "A 'sign' ... is an analogous or abbreviated expression of a definitively known thing" (Transformation of Nature in Art, p.126). In other words, sign designates something already known. For example, as sign corresponds strictly as in Chemistry, Physics or in Algebra, to a referent which we know of, a referent which lies

in the same physical plane, as the sign. Whereas, "A symbolic expression is one that is held to be the best possible formula by which allusion may be made to a relatively unknown "thing", which referent however, is nevertheless recognised or postulated as "existing" (Coomaraswamy, *ibid.* P.126).

For example, the Buddha "is", but He "cannot be taken hold of", and also "Him neither men nor gods can see" (Samyutta Nikaya I 23) "postulates" Buddha as "existing" but is "relatively unknown", because to "see Him is to see Dhamma". "Relatively unknown"

indicates that the comprehension is beyond the physical senses, for to "know" is to know in the mode of the "Knower"- the Buddha Himself. It is to this relatively unknown, incomprehensible truth, that the symbol refers to - the Nature (GUNA) of the Buddha, or to use a different terminology, to see the Nature of God.

Symbols are twofold, according to Guénon. "There are not only figurative or visual symbols but also auditory symbols, a division into two fundamental categories that in the Hindu Doctrine are those of the YANTRA and MANTRA (Rites and Symbols, in, The Sword of Gnosis ed. J. Needleman P.367). As we are primarily concerned here with the visual symbol, we do not intend to dwell here even in summary fashion to expound the nature of the auditory symbol. But as a passing remark we would like to state, in the words of Guénon "... it may be said that rites are symbols "put into action", that every ritual gesture is a symbol'acted'" (*ibid.*, p.369).

Further, "... Symbolism is a support of contemplation and a means of intellection ... the goal of intellection, ... is union or identity with that which we never ceased to be in our existential and intellectual essence; in other words, the supreme goal is the reintegration of man in the Divinity, of the contingent in the Absolute, the finite and the infinite". (Schuon, *Transcendent Unity of Religions*, p.48), and "Symbolism... has no other reason for existence and no other function; ... they are supports and nothing else" (Guenon, *Oriental Metaphysics in The Sword of Gnosis*, ed. J. Needleman, p. 42).

A symbol is a "pointer", an indicator to remind us of the Truth. It is employed when all discursive means of expression fail to convey the intended qualities of the Truth. Generally, such Truth, is considered to be incomprehensible, intangible, inexpressible, or in other words, Metaphysical, because it transcends all physical modes of expression.

Guenon calls what is transcendphysical as Metaphysical. "I think the best course to take with words that can give rise to ambiguity is to reduce them as far as possible, to their primary etymological meaning. Now, according to its composition, this 'metaphysics' mean literally 'beyond physics', taking the word 'physics' in the accepted meaning it always had for the ancients, that is, as the science of nature in its widest sense". (ibid. p.42). And also, Coomaraswamy observes - "Whatever is thus in the world can be named and perceived (NAMA and RUPA) and is accessible to a physical and statistical science; the unmeasured being the proper domain of the metaphysics" (*Measures of Fire*, in *Coomaraswamy II: Selected Papers*, P. 164).

In other words, metaphysical Truth cannot be measured, limited or demarcated. It is not difficult to understand that to limit to measure or to demarcate is to define. Once defined, demarcated, measured or limited, it is the quantitative aspect that one limits. On the other hand, the Qualitative aspect (GUNA) escapes definition because, by 'definition' quality is

undefinable, unlimited and immeasurable. As mentioned earlier, a symbol refers to a "thing that cannot be taken hold of", because to hold is to limit and, limit is to measure. Thus it is possible to understand that, unlike the sign, the symbol refers not to the limiting quantity but to the limitless quality of the intended referent.

Further, the symbol being a spring board contain an "idea of the intended referent" (Coomaraswamy. *The Nature of Buddhist Art*, in *Coomaraswamy I: Selected Papers* p.159), an idea in the sense of a "hint" - a hint, an indicator pointing at an "unknowable thing". From the point of view of the physical manifestation a hint is the only possibility by which one can obtain an idea of the supra-physical manifestation, because, "... the unseen (ADITTA) is inferred (ANUMANA) from the seen (DITTA). (*Visuddhimagga*, XVII 202). The symbol adequately remind (re-mind) us of the intended referent; adequately in the sense of reflecting an "idea" of the intended referent.

The intention of a symbol could be comprehended by considering an analogy. Conceive two lines parallel to each other; the lower of the two representing (re-presenting) the "tangible symbol" and the upper, the "intangible truth". The lower line has on it the corresponding analogical points of the upper one (parallel lines by definition never 'meet' unless by analogical transposition of one, on the other), that is to say that the lower of the two lines, so to speak, is a reflection of the upper, and that any point of the lower line, by reflection corresponds to analogical of the upper. With our eyes (AKSI) we 'see' the lower of the two lines, the symbol. On the other hand, the eyes (AKSI) fail to 'see' the upper line, that is, what the symbol analogically represents, since the symbol (the lower line), by nature, 'covers' or 'obscures' the vision of the referent. It is when one 'sees' through the "third eye", the intellect (BUDDHI) that the symbol reveals or yields to the spectator what is "above" it. In other words symbol "crystalises" the idea of the Truth. To reveal what is being "crystallised" or "frozen"

in its “shape” (RUPA), then the symbol has to be penetrated from the “inside” by the intellect to perceive what lies “behind”, “above” or “within” its appearance.

In other words, the “shape” of a symbol to be properly understood and in a way that a symbol ought to be understood, it should be viewed with respect to its “form” (from FORMA = idea). The “shape” the quantity is, then, the vehicle (YANA) in which the “form” (NAMA), the “quality” dwells. To use a different terminology, the shape is the “substance” in which the form, the “essence” manifests. Then, it may be said that the interaction of these two principles, “form” and “shape” (NAMA and RUPA, essence and substance, subtle and gross, PURUSA and PRAKRTI) brings the symbol, so to speak, into “play” (LILA), into “life” (JIVA). Thus, on the one hand the symbol crystallises and contains the Truth, and on the other it radiates and expresses what it contains within it. Therefore, the symbol embodies in a tangible manner the intangible, the inexpressible, the incomprehensible. And, also, to “see” the metaphysical Truth contains in a symbol one has to look into “himself”, “inwardly” and “upwardly”.

Metaphysical realities transcends all measures of the physical manifestation, including the languages. Categorically and literally the words of a language refer to the “expression” of ideas; allegorically they inhere primary referents. As St. Bonaventure says (as quoted by Coomaraswamy I: Selected Papers, p.323, (originally from Theologium 18)) “It never expresses except by means of a likeness”. Aristotle observes “even when one thinks speculatively, one must have some mental picture with which to think” (ibid., p.323). And, Coomaraswamy observes “such picture are not themselves the objects of contemplation but “supports’ contemplation” (ibid., 2.323). In representing abstract and metaphysical ideas, “Likeness” (SADUSSA, Sanskrit, SÁDR YA = see with), does not depict a visual resemblance. Similarly, the symbol expresses in the “likeness” of the intended referent. “In representing abstract ideas, the symbol is “imitating” (ANUKARANA, ANUKRTI) in the sense that all art (including architecture) is mimetic something invisible

(ibid.p.323) (cf.”All arts, without exception are imitative - Coomaraswamy, A Figure of Speech or a Figure of Thought, in Coomaraswamy I: Selected Papers, p.20, and also, with Rene Guenon, Symbolism of Cross, p.xii). Therefore, the symbol is “imitating” in sense of being a “likeness” to a Divine Model, (cf. the story of the origin of the Mahathupa and Lohapasada of Anuradhapura in Mahavamsa). Further, imitation (ANUKARANA) in its essence (SARA) embodies a “likeness” (SADUSSA), not a xerox copy or a counterfeit, but an “image” (CAYA, PRATIMA, where MA means to measure in the Likeness) akin to its Divine model.

In finding an image akin to its model, the artist - the architect - seeks an analogy, because the “unseen is inferred from the seen”. In a traditional society the norms by which the artist works are handed down as a continuous source of knowledge from father to son. “It is the tradition that transmits the sacred models and the working rules, and thereby guarantees the validity of the forms”. (Burckhardt, Sacred Art in East and West, p.8). “The text books Vástusastra, the science of architecture, are records of oral traditions which go back into an unidentified past”. (Kramrisch, The Hindu Temple, p.5. footnote 7). And also, the origin of the Vastusastra is considered to be divine. (See Visvakarmaprakasaya xii 78-79).

Art (architecture) is ‘mind’ made, and therefore, it aims directly at “mind” - in other words, to one’s intellectual contemplation. “The whole purpose of contemplation ... is to reach that state of being in which there is no longer any distinction from knower from known, or being from knowing”. (A Figure of Speech or a Figure of Thought, p.35, footnote 87). The purpose of the artist’s entire ritualistic operation is to transpose the divine model “as accurately as possible” in terms of an “adequate” (adequate) symbolism”. In this regard his understanding of “beauty” corresponds not to the “aesthetic” but to the accuracy of “imitation”. “Most of the features that we call “decorative” are so in a secondary sense only their primary appeal being not aesthetic but intellectual”. (Pallis, The Way and the Mountain, p.16). Thus from the point of view of the artist, “aesthetic” is secondary and coincidental; “accuracy” of imitation to its

architypal model being primary and intentional. Therefore, the “beauty” of a symbol is not an “aesthetic virtue” but an “accuracy” of the intended referent from which it derives its form.

In its symbolism, the symbol is multivalent rather than monovalent. The symbol communicates at various levels, in the sense of horizontal layers. Its meaning could be comprehended according to the capacity of understanding of the comprehender. Like well cut and polished diamond the symbol reflects its luminosity, in varying degrees of intensity, in all directions. Hence, all objective interpretations of a symbol in terms of the various layers of its meaning, according to the doctrine in which it found its tangible expression, are true. In other words, any worthwhile interpretation of a traditional symbol, to be true, must be based on religious truth. The point of departure for true appreciation of a symbol, must, essentially lie within the doctrine itself; any other point of departure, on the contrary, must prove tangential and fruitless because, the point of reference, then, is misplaced and misconceived.

However strange and remote it may sound, a proper and serious investigation into traditional architecture, whether JudeoChristian, Islamic, Brahminical or Buddhist, cannot be undertaken without serious study and reference to the relevant doctrine. The doctrine is the “store house” of “intangible truths” (AVYAKATA SACCA) and traditional architecture, in its proper meaning, is

purely a “tangible” three dimensional execution” of that Truth. In other words, traditional architecture is the “means” (UPAYA) employed by the ancient architects (SILPIN, STHĀPATI) to educate or remind (re-mind) the “ordinary ignorant men” (ALPABUDDHI-JANA, PUTUJJANA) of a truth.

To conclude, we would like to quote a paragraph from, No Activity Without Truth, by Frithjof Schuon, that appears in the Sword of Gnosis, ed. by J. Needleman, pp. 28-29, :

“The symbolical language of the great traditions of mankind may indeed seem arduous and baffling to some minds, but it is nevertheless perfectly intelligible in the light of the orthodox commentaries: symbolism - this point must be stressed - is a real and a rigorous science, and nothing can be more naive than to suppose that its apparent naivety springs from an immature and prelogical’ mentality. This science, which can properly be described as “sacred’ quite plainly does not have to adjust itself to the modern experimental. approach, the realm of revelation, of symbolism, of pure and direct intellection, stand in fact above both the physical and the psychological realms, and consequently lies beyond the scope of so, called scientific methods. If we feel we cannot accept the language of traditional symbolism because to us it seems fanciful and arbitrary, this shows that we have not understood that language, and certainly not that we have advanced beyond it.”

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