SRI HARMANDIR SAHIB:
A STUDY OF ARCHITECTURE, ENGINEERING, AND AESTHETICS

A THESIS
Submitted to the
FACULTY OF DESIGN AND FINE ARTS
PANJAB UNIVERSITY, CHANDIGARH
for the degree of

DOCTOR OF PHILOSOPHY

2007

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ACKNOWLEDGEMENTS

It need hardly be mentioned that an enterprise of this kind cannot be undertaken, much less completed satisfactorily, without substantial inputs from various professionals. My foremost gratitude is due to Dr Rajinder Bhandari who graciously agreed to supervise this study, and provided valuable insights into the Temple Architecture of India. His inputs have helped me articulate my own ideas concerning the subject, thereby giving this work the right thrust and direction.

Dr Arvind Krishan's response to my queries, concerning structural analysis of historical monuments, was both encouraging and professionally helpful. Mr Shiv Singh's forthright reply from the USA was supportive of my work's research thrust. Dr Ghuman and Gupta Geotech Consultants provided valuable inputs by way of laboratory-test reports on Nanak Shahi bricks. Er Manmohanjit Singh supplied plan of the *Amrit-Sarovar* and public-health data concerning it. I thank all of them whole-heartedly. My special gratitude to Dr Subhash Parihar whose generous help at the initial stages of this project was a great boon. Kanwar Surjit Singh, Chief Town Planner, HSIDC, got me started on the project by supplying crucial information regarding the proposal. I am very grateful to him.

Other professionals whose help I gratefully acknowledge are: Dr Gurbachan Singh Bachan, Prof Paramjit Singh Mahoora, Prof SS Bahl, Prof Manjit Singh, Prof Balvinder Singh, Ms Meenakshi, and Mr Gopal Jauhri.

I must thank Mr Gurjinder Singh and Mr Randeep Singh for helping me with AutoCAD drawings, and Dawn Studio and its proprietor Satpal Danish for several photographs of the Holy Shrine, which were bought from him.

My thanks are also due to Mr Praful Janbade and Mrs Bhupinder Kaur for helping me with important reference material. I am also grateful to the following officials of the Department of Fine Arts, Panjab University, for their help from time to time: Mrs Meenakshi Sharma, ASO (Stenography), Mr Rama Pati, Junior Assistant, and Mr Hoshiar Singh, Library Attendant.

And, finally, I would like to record my deep gratitude to my wife and my youngest daughter, who have patiently borne with me, and supported my thesis project, through the arduous course of research work which had put the household in disarray for so long!

Chandigarh

S Ŝ Bhatti

06-06-2007

INTRODUCTION

The Golden Temple is the popular name of *Sri Harmandar Sahib**, [1] the Temple of God, or *Sri Darbar Sahib*, Court of the Lord. It is situated in Amritsar, the City Sacred of the Indian Punjab. The city itself derives its name from the holy Pool of Nectar, *Amrit-Sarovar*, which surrounds the sacred shrine. To the Sikhs, there is no place more sacred than *Sri Harmandar Sahib* where the Sikh Bible, *Sri Guru Granth Sahib* (SGGS), is ceremoniously installed daily to mark the commencement of religious services. It is thus their most important pilgrimage site.

Sri Harmandar Sahib was built in 1604 AD by Guru Arjan Dev (b. 1563 AD, Goindwal, Punjab; d. 1606 AD, Delhi), the Sikh religion's fifth Guru (spiritual guide) and its first martyr. The Guru symbolically had the Golden Temple placed on a lower level, [as an expression of Humility which, founder of the Sikh Faith, Guru Nanak Dev (1469-1539 AD), made the Cardinal Principle of the new religion] so that even the humblest had to step down to enter it, and with entrances on all four sides, signifying that it was open to worshippers of all castes and creeds. The sacred shrine seems to rise like a lotus from the surrounding waters of the holy Pool of Nectar. The shrine is approached from the West through a gateway (*Darshani Deorhi*) by means of a causeway.

The foundation-stone was laid by Mian Mir, a Muslim divine of Lahore. The Temple was destroyed several times by Afghan invaders but rebuilt in marble and copper. *Sri Harmandar Sahib* was overlaid with gold foil during the reign (1801-1839 AD) of Maharaja Ranjit Singh, whence it took its popular epithet of "Golden Temple".

The Golden Temple is the most outstanding architectural monument of the Sikh Faith, which ushered in a new style that deserves to be treated as Sikh Architecture. However, in populist (though misplaced) perception, it is a

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[1] The word "Harmandir" on the title-page has been spelt in this study as "Harmandar", which is its most widely-accepted version among the followers of the Sikh Faith.

blending of Indian and Saracenic styles. Its chief motifs, such as the dome and the geometrical design, are repeated in most of the *gurdwaras* (literally, gateways of the *guru* or spiritual guide), or Sikh shrines. Mural paintings in some of the *gurdwaras* preserve specimens of Sikh Art. The Golden Temple itself is rich in gold filigree work of the most delicate kind and in panels with floral designs and marble claddings inlaid with semi-precious coloured stones.

The nomenclatures, *Sri Harmandar Sahib* and the Golden Temple, have been used interchangeably in the present study.

Sri Harmandar Sahib is the sheet-anchor of the art and science of Building Design which deserves to be called the "Sikh Architectural Style". The study of the Holy Shrine would focus on understanding its Architecture, Engineering, and Aesthetics, by illustrated analysis, on the comparative method.

The **aim** is to establish how the three stated disciplines distinguish the creative merit of the Golden Temple (the name by which this holiest of the holy shrine of Sikh Faith is now popularly known, and make it the sixth most favoured of places of tourist interest worldwide.

The **scope** of work would be limited to the study of the Holy Shrine and the *Amrit-Sar(ovar)*, from which the Vatican City of the Sikhs derives its name: Amritsar.

The Golden Temple, being the sheet-anchor of the Building Design characteristics which have been shown to form an independent style I call "Sikh Architecture" [in the same sense as all scholars distinguish historical architecture as Buddhist, Hindu, Islamic, Christian, etc.], has thus been exclusively put under the scanner.

Before I give an account of my Method of Approach used in the present study, it is necessary to emphasize the fact that the object of my investigation is the Form of Sri Harmandar Sahib as it exists today because, according to

historians, the Holy Shrine was demolished by invaders several times and was rebuilt by the Sikhs time and again. Unfortunately, no records of the original design and drawings are available, and, thus, to go into that uncharted territory of research would radically shift the focus of this project. It should, therefore, be clear that my aim is not to study the historical development of the *Gurdwara* form or the stylistic evolution of its architecture. I have concentrated primarily on how the idea of a given Place of Worship takes shape architecturally, and how the contemporary architectural elements are modified to further articulate the expression of that idea.

There are certain incidental features which normally appear in all kinds of Religious Architecture because of the devotion of the followers concerned who try to bring about a change in the Form of the Place of Worship according to their own faith and understanding of the subject that clearly falls outside the scope of non-professional human activities. Such, indeed, has been the case of Sri Harmandar Sahib which was got gilded by Maharaja Ranjit Singh as a personal act of devotion. Humility being the cardinal principle of the Sikh Faith, it is unlikely that the *Gurus* would have approved of such an expensive embellishment of the Holy Shrine. Fortunately, this gesture of royal extravagance has been neutralized beautifully by the vast expanse of the *Amrit-Sarovar*.

It must be reiterated that no comparative study of *Gurdwara* architecture is intended. The directive principle underlying this project is the comprehensive study of the three aspects: Architecture, Engineering, and Aesthetics, which together make Sri Harmandar Sahib the holiest shrine of the Sikh Faith. I have thus approached this project from a professional point of view concentrating mainly on the three stated aspects of the Golden Temple [the name by which this Holy Shrine has been known throughout the world since Maharaja Ranjit Singh got it gold-plated] and, in no way, have I tried to bring in religious or ritualistic aspects.

My approach is philosophical, and is clearly directed towards the exposition and evaluation of Architecture, Engineering, and Aesthetics, as related to the existing Building under study.

It is pertinent to point out how my Method of Approach is different from that of other scholars whose studies of the Golden Temple have preceded mine. Madanjit Kaur's *The Golden Temple: past and present* is a historical account of the circumstances and related factors which led to the building of the Holy Shrine. PS Arshi's *The Golden Temple: history, art and architecture*, is a sequel to his PhD thesis on *Sikh Architecture* in which he had documented the plan- and elevation-shapes of various *gurdwaras*. Though he has dealt with art and architecture, his emphasis is also on history. *The Golden Temple* by Mohinder Singh is a publication that carries introductory material to cater to the needs of tourists/visitors to the Holy Shrine.

In the areas identified above, the usefulness of the studies done by the three scholars cannot be denied. However, since these scholars are not architects, their work has only a nodding acquaintance with the complexity and creativity of the profession of Architecture, and has thus a limited value for students and practitioners of this "Mother of all Arts".

My approach, though theoretical, pointedly aims at the formulation of a system of analysis and evaluation of Architecture, Engineering, and Aesthetics, as manifest in the Building of Sri Harmandar Sahib. To this distinct approach I bring the knowledge and insights I have personally gained as a practitioner, researcher, and pedagogue in the three highly specialised, though interdependent, interlinked, and complementary, areas of study.

I have endeavoured to show through an illustrated analysis, how Idea becomes an image to eventually take shape as Form, and how the latter assumes a metaphorical and symbolic significance that sustains the devotion of those who continue to use and worship it.

The **method** of approach thus used in this project traces the three interdependent, interlinked, and complementary areas of study, namely: Architecture, Engineering, and Aesthetics, to their constituent Elements of Space, Structure, and Form, respectively. The fourth Element of Time has been studied to give historical context to the Holy Shrine.

Although the most outstanding architectural historian Sir Banister Fletcher has used the "Comparative Method", and many other scholars have also drawn comparisons between one "style" of architecture and another, their approach, in my considered opinion, lacks the profundity that could be accomplished only by going back to the beginning, that is, The Source, as embodied in the sacred Scripture(s) of the Religion concerned. To my knowledge, all forms of Creativity are often explained on the analogy of Human Biology, which I have tried to extend to what may be called the pre-conception stage of "birth", from where it is developed to full blossom through pre-natal, natal, and post-natal stages. This definitely helps in putting under check all tendencies of speculation about the "origin of things", as we see them today, and yet putting the material under study into distinguishable categories whose common source is possible to pin down. This must have been the reason which prompted scholars to class the members of species, *Homo sapiens*, under four distinct races, although all human beings are made of the same material and have the same constituent organs.

I have thus modified the "Comparative Method" into an "Illustrated Analysis" based on rational "Comparison". For such an approach I have identified these elements: Space, Structure, Form, and Time. **Space** is purpose-specific, and the purpose, especially in Religious Architecture, comes from The Source: the sacred Scriptures of a particular community. The concept of **Space** thus cannot escape the colour and overtones of a given culture. Christianity and Islam are based on the idea of "collective worship", but Hinduism is not. Thus, a church or a mosque can never be like a *mandir*. The Sikh Faith also approves of collective worship (*sadh-sangat* or the holy

company) but it is also conscious of the fact that the scale of the shrine must not become awesome in deference for the Religion's Cardinal Principle of Humility.

Structure, as support system, is a physical attribute of all that occupies Space, and is indispensable to the realisation of an idea (in the mind) into an object (on ground). Though it can be *customised* to meet the peculiar requirements of Space, **Structure** is essentially *universal*. It is the Grammar of the Language of Building Design. The intent and content of this unique language come from Space, and its expression is made possible by Form. Building Design, realised on site, becomes psycho-somatic in terms of Space and Form.

Form is the third dimension of Plan that "generates" the Space on a sheet of paper which has only two dimensions. Form is the Body of Building Design. Form, with its elements of Mass and Surface, tends to become Culture-specific, too. **Form** is what qualifies Building Design to be classified as a "visual" or "plastic" art. So strong is Form's visual impact that a vast majority of historians and scholars tend to mistake it for the final arbiter of what, in common parlance, is called Architecture.

Time is the most potent element as much of Creativity as of life on this planet Earth; so much so that Time creates its own Space! At any given point in the course of history, Time can be seen frozen as *objets d'art*. In its Present, it is fluid, and as Future, it tends to be nebulous or gaseous. Albert Einstein called Time as the Fourth Dimension of Space. To my understanding, Time has its own two dimensions: its linearity and its cyclicity. The two together constitute a *helix* which encompasses, as well as dwells in vacuity to create Time-Space Continuum. It should be evident that a proper study of Time as Historical Periods alone can yield material whereby one may *contextualise* both the "Act of Creation" and its myriad products called *objets d'art*.

SPACE accommodates.

It is a measure of Utility: use-effectiveness, making activities efficient, with flexibility for exigencies. Utility serves.

STRUCTURE supports.

It is a measure of Economy: optimal deployment of resources with respect to Utility. Economy saves.

FORM expresses.

It is a measure of Beauty: harmony and well being. Beauty elevates.

TIME creates its own space.

It is a measure of Appropriateness.

Space is the spirit called ARCHITECTURE.

It is what you do not see as much as you feel.

Form is the Body called AESTHETICS.

It is what you do not feel as much as you see.

Structure is the Skeleton called ENGINEERING.

It is what you neither see nor feel as much as you ought to.

In the sense in which I have deliberated on the three distinct disciplines, it should be clear that I have purposely substituted the phrase "Building Design" for Architecture, Engineering, and Aesthetics. Architecture becomes manifest as a Building, but all Buildings are NOT Architecture. All Buildings are NOT apt expressions of the art and science of Engineering. Nor can Aesthetics be ascribed to every Building. When a humanist like Geoffery Scott considers Architecture under three conditions: commodity, firmness, and delight, he is, in effect, alluding to what I have termed: **Space**, **Structure**, and **Form**, respectively. While these tools have been used to highlight the creative merit of *Sri Harmandar Sahib*, the singular example of the Holy Shrine comes handy to establish a new Method of Approach to the study of Places of Worship of different world religions.

Since measured drawings had to be prepared as base material for this study, the very nature of the project required me to make several visits to the Holy Shrine. These extended encounters gave me the all-important opportunity to make fresh on-the-spot observations of the Building in terms of its architectural ambience, engineering skills, and aesthetic charm, whereby I gained deep insights into my areas of study. It may be conceded that such authentic, firsthand knowledge would not have been possible by only looking at the photographs. At any rate, by adopting this somewhat inevitable technique, my philosophic Method of Approach has become substantiated by lots of corroborative evidence, which contains such observations as may well be the first ones of the kind in the study of the Golden Temple.

This study has been done as **Presentation** as written text, and in the form of measured as well as conceptual drawings, diagrams, photographs, and on-site observations, which together constitute the material necessary for illustrated analysis–critically developed in the body of the text as studious description. The drawings done on AutoCAD, though remarkable in certain ways, are not as satisfying as those made by human hands. But the latter species is now almost extinct, and I have to be content with whatever I have succeeded in accomplishing.

Chandigarh

S S Bhatti

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CHAPTER – I

HISTORICAL BACKGROUND

Sri Harmandar Sahib at Amritsar is a living monument of the spiritual and historical traditions[1] of the Sikh Faith founded by Guru Nanak Dev (1469-1539 AD) in the state of Punjab. By the unfailing power of the Revealed Word (*Dhur kee Bani*), Guru Nanak elevated the human psyche above the torpor of meaningless rituals and fruitless mandatory visits to places of Hindu pilgrimage (*teerathas*), and invested it with an invigorating spiritual power to enable the common man to become *sachiar*, one who would lead a life of truthfulness during workaday existence. His nine successors successfully introduced healthy and progressive practices which not only replaced the prevalent ritualism but also gave to the Sikh Faith its own distinct identity.

The establishment of new centres of Sikh pilgrimage was one of the primary ways in which the Sikh Gurus accomplished their unprecedented goals. Thus, according to Madanjit Kaur, "The founding of Sri Harmandar at Amritsar was a landmark in this respect. The Temple, in due course, became an unparalleled place of pilgrimage, sung by Sikh bards from time to time"[2]. Not only has the Golden Temple's* spiritual significance enhanced for the Sikhs through the centuries but the shrine has also become a major tourist centre (sixth in order of most-favoured sites) worldwide. According to a newspaper report, Amritsar is going to be directly linked to the United Kingdom to facilitate the flow of foreign visitors.

Guru Amar Das (1479-1579 AD), Third Guru of the Sikhs, is

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[1] KAUR, Madanjit (1983), *The Golden Temple*: past and present, Guru Nanak Dev University Press, Amritsar, p. 1.

[2] *Ibid.*

* *Sri Harmandar Sahib* became famous as Golden Temple (*Swaran Mandir*) worldwide when Maharaja Ranjit Singh (b. Nov. 13, 1780 – d. June 27, 1839) got the upper part of the Holy Shrine copper-gilded.

believed to have conceived the idea of establishing a place of pilgrimage, in order to extend the tradition of founding centres for Sikh congregations (*sangat*) pioneered by his predecessors. The Guru thought it fit that his children should stay at Goindwal, and Ram Das, his son-in-law and successor, shift to Amritsar, the new site, after his succession to the *gurgaddi* (seat of the spiritual preceptor).

The new Sikh centre was raised on the land lying between the villages of Sultanwind, Tung, Gumtala, and Gilwali which together formed part of the Jhabal *pargana*.

> The city takes its name, *Amrit-Sar* (Pool of Nectar) from the site of the Holy Shrine, which was a low-lying area with a small pond where *Dukh Bhanjani Beri* (*Zizyphus jujube*) stands even today. The pond was located in a forest of shade trees, surrounded by a number of hamlets, notably, Sultanwind, Tung, Gumtala, and Gilwali. The pond lay on the route of caravans to the north-west frontier. Its environment had a geographical importance, and provided a commercial link between India and Afghanistan. The site was, however, despite its legendary status, obscure until its rediscovery by the Sikh Gurus. With the Temple, as the nucleus, plans were made to develop and expand the existing settlements into a new town.[3]

The compilation of *Gurbani* (*Guru's* Word) into the *Adi Granth* (The Primal Book) was the next remarkable development connected with the construction of Sri Harmandar Sahib. This was accomplished by Guru Arjan Dev (1563-1606 AD), the Fifth Guru, son and successor of Guru Ram Das. The Golden Temple was built between 1588 AD and 1604 AD. The *Adi Granth* was ceremoniously installed in August 1604. Baba Buddha, a contemporary of Guru Nanak, who had blessed him as a boy with the title "Buddha", meaning the wise, was appointed the first *Granthi* (head priest) of the Temple. Since the

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[3] KAUR, *op. cit.*, p. 14.

installation of the Holy Book at the shrine, worship, *keertan* (hymn-singing) and prescribed religious services began to be held there regularly. And soon, the *Hari Mandir* (literally, God's Abode), or Sri Darbar Sahib (Court of the Lord) another name for the hallowed shrine, acquired the pride of place among the Sikh shrines. Guru Arjan Dev himself commemorated the spot as one of unparalleled beauty and glory in one of his hymns.

Since *Adi Granth*, now called *Sri Guru Granth Sahib* (abbreviated as SGGS), the Sikh Bible, is revered as a living Guru by the Sikhs, and plays a pivotal role in the psycho-social and spiritual life of the community, it is pertinent to say a few words about it at this juncture. The Holy Book is a standard volume of 1430 pages and contains, according to GS Talib, 5751 *shabads* (hymns), or verse-units of the first five Gurus: Nanak Dev (1469-1539 AD), Angad Dev (1504-1554 AD), Amar Das (1479-1574 AD), Ram Das (1534-1606 AD), Arjan Dev (1563-1606 AD) and the ninth and tenth Gurus, Tegh Bahadar (1621-1675 AD) and Gobind Singh (1666-1706 AD)*. The stated number includes the *shabads* by several *Bhaktas* and Muslim divines.[4]

The Adi Granth is written in the *Gurmukhi* (literally from the *Guru's* mouth) script which is believed by many to have been invented by Guru Nanak's immediate successor, Guru Angad Dev. This departure from the use of Devnagari script was necesary because the Revealed Word of the Sikh Faith was recorded in the language of the masses. Dwelling upon the various sources from which the "language of the Holy Granth" has been drawn, GS Talib states with conclusive evidence:-

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* Of the 10 Gurus of the Sikh Faith, the names of seven have been mentioned here by virtue of their hymns included in Guru Granth Sahib. The remaining three are Guru Har Gobind (1585-1644 AD), Guru Har Rai (1630-1661 AD), and Guru Har Krishan (1656-1664 AD).

[4] TALIB, Gurbachan Singh. (1984), *Sri Guru Granth Sahib, Volume One,* Publication Bureau, Punjabi University, Patiala. pp. xxxii-xxxiii.

> Thus Hindi and Punjabi with an admixture of philosophical terminology derived from Sanskrit on the one hand and Persian and Arabic in the current folk forms on the other, are the main linguistic warp and woof of Gurubani. In special contexts the Yogic, Brahmanical or Muslim doctrinal terminology may dominate, of which the careful reader should take account. Besides these languages, some of the dialects of the northern India, particularly Rajasthani Dingal, Sindhi and occasionally Haryanvi may be found used. The Bhaktas coming from different language regions, have naturally employed predominantly the idiom of their respective regions. Thus, in Kabir the Avadhi vocabulary predominates. So in Ramanand, Ravidas and Bhikhan. In Namdev may be beheld prominent touches of Marathi. In Jaidev, whose medium of self-expression is Sanskrit, an adaptation of Sanskrit predominates. The holy Gurus themselves have left small body of their compositions in this tongue resembling Sanskrit, probably in contexts where the message was meant for hermits and the common folk outside the language range of Punjabi and Hindi. A variety of Sanskrit was the universal India-wide medium of exchange of serious thought[5].

From the foregoing account, it should be clear that the three most important pillars of the Sikh Faith were raised by Guru Arjan Dev : place of pilgrimage (*teeratha*), the Holy Book (*Sri Guru Granth Sahib*), and the Holy Shrine (Golden Temple). The significance of the Pool

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[5] TALIB, *op. cit.*, p. xliii.

(*Amrit-Sarovar*), and the Sri Harmandar Sahib (Golden Temple) has been succinctly brought out by GS Talib in the following write-up:-

> Guru Arjan Dev built in the middle of the Pool made by his Holy father, Guru Ram Das, a temple that he named Hari Mandir, in which the One Formless Supreme Being, Ek Oankar, Akal Purakh of Guru Nanak Dev's revealed vision, should be lauded and worshipped and no diety, visible or invisible. This great Temple, now the centre of great concourse of pilgrims everyday and the holiest of holy of the Sikh faith, is known as the Golden Temple, because of its walls and domes being plated with sheets of gold in later times. This Temple and the Pool became to Sikhism what Mecca is to Islam, Jeruslaem to Judaism and Christianity, and Bodh Gaya to Buddhism. Besides establishing the Pool and the Temple, Guru Arjan Dev composed himself a large volume of sacred verse, re-enunciating the teachings of his predecessors, elucidating and amplifying them and adding visions and insights of his own. To the compositions of his predecessors he imparted an amplified form by adding to them elucidatory passages of his own composition or of some of these holy teachers themselves. This may be seen particularly in several Vars or long disquisitional compositions which form part of the sacred volume of the Granth Sahib[6].

PS Arshi has called the foregoing activities as the first phase of the architectural history of the Golden Temple. He states that from its

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[6] *op. cit.*, p. xxvi.

who were not favourably inclined towards the Sikh Faith. And they read ulterior motives in the establishment of the new centre of pilgrimage as a potential danger to their authority. Thus the Mughals, as well as the Muslim rulers of Afghanistan, started assuming militant postures against the Sikhs. Ahmed Shah Abdali demolished the Temple as many as seven times. The last demolition took place in 1764 AD.[7]

After installation of the *Adi Granth* in the Golden Temple in 1604 AD, Guru Arjan Dev envisioned the development of the holy shrine within "a sprawling, flourishing town" to make it the Mecca of the Sikh Faith. The Guru thus instructed the Sikh *sangat*, to begin with, to undertake the construction of the main gateway (*darshani deorhi*) to the Temple on the western side of the *Amrit-Sarovar*. This exhortation had a two-fold function: one, to enhance the architectural composition of the shrine and two, to help defend the *Mandir* from the persistent attacks of the invaders.

The construction work of the complex was completed with the voluntary services (*Kar Sewa*) rendered by people of all shades and sensibilities. *Kar Sewa* is a socio-cultural principle of the Sikh Faith which makes it truly a religion I call "Pragmatic Spirituality". It is enjoined upon all Sikhs to observe three injunctions with undiminished zeal : (a) earn by honest, hard work (*kirat*), (b) share the fruits thereof with the under-privileged (*wand chhakna*), and (c) constant contemplation of the Holy Name (*naam japna*). Thus, the completion of the sacred project warranted a celebration steeped in prayers of thanks-giving to the Lord God. The following *shabad* sprang spontaneously from Guru Arjan Dev's soul on such a unique occasion:-

> God Himself hath come to fulfil the task of the saints

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[7] ARSHI, P.S. (1989), *The Golden Temple: history, art and architecture*, Harman Publishing House, New Delhi. pp. 13&14.

Yea, He Himself hath come to do the work.

And, now blessed is the earth, the Tank and the nectar with which it is filled.

Perfect is the blessing of God, and all our wishes are fulfilled.

And our victory resounds through the Universe, and all our woes are past.

Eternal is our perfect Lord, the Purusa, whose praises the Vedas and the Puranas sing.

And Nanak contemplates the Lord's Name. Thus doth God manifest His innate Nature.

By bathing in the tank of Ram Das

All the sins that man committeth shall be done away,

And he shall become pure by his ablutions.

The perfect Guru hath given us this boon.

When we meditate on the Guru's instructions,

God bestoweth all comfort and happiness,

And causeth the whole cargo to cross over safely.

In the association of the saints uncleanliness departeth,

And the Supreme being abideth with us.

Nanak by meditating on the Name.

Hath found God the primal Being[8].
(quoted by PS Arshi)

Chequered was the history of *Sri Harmandar Sahib* during the Mughal regime. The holy shrine achieved its highest architectural glory when the Punjab was under the Sikh Rule(1802-1849 AD). Maharaja Ranjit Singh's assumption of power as a sovereign ruler stabilised the political condition of the province. According to Madanjit Kaur, when he occupied the city (ie Amritsar) in 1805, he went to Hari

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[8] ARSHI, *op. cit.*, pp. 8&9.

Mandir to offer his homage by making large cash offerings at the Akal Takht as well as the Hari Mandir. The Maharaja built his *bunga* (rest-house) towards the north-west of the Hari Mandir, close to the sacred tank, for his stay whenever he came from Lahore to visit the holy shrine. The Hari Mandir became popularly known as *Swaran Mandir* (Golden Temple) when its upper part was covered with gold-plated copper sheets during the reign of Maharaja Ranjit Singh. Most of the architectural design of the present building of the Hari Mandir as well as decoration of the holy shrine, however, is believed to have been completed in the 19th century.

The contribution of the British regime to the physical development of the Holy Shrine was confined to its electrification. According to Madanjit Kaur:-

> The elcctrification of the Golden Temple was achieved towards the closing years of the nineteenth century. The issue had been a subject of bitter controversy between two rival Singh Sabhas, one of Amritsar and the other of Lahore. The Lahore Singh Sabha vehemently opposed the electrification of the Temple, whereas the Amritsar Singh Sabha strove hard for getting it. The resolution in favour of the installation of electricity was moved by Sardar Sunder Singh Majithia on 26 January 1896 at the 23rd annual session of the Singh Sabha at Amritsar. An eleven-member Lighting Committee was set up under the presidentship of Sardar Arjun Singh. A campaign for raising funds was started in towns as well as villages. Maharaja Bikram Singh of Faridkot, through his representative, announced a cash grant of twenty thousand rupees at the Akal Takht on 25 April 1897. On

the occasion of the Diamond Jubilee of the rule of the Queen Victoria on 22nd June 1897, arrangements were made to display electricity with the help of a generator installed temporarily for the purpose. Later on, Maharaja Bikram Singh of Faridkot donated one lac of rupees for installing electricity and for raising new building for the langar. A generator and its accessories were purchased out of this fund.

Some people and parties inimical to these developments embarked on a vicious propaganda against the scheme through tracts, pamphlets, letters and editorials in dailies. They were, however, brought round and the scheme to electrify the Temple, was pushed through in 1898. Strangely enough, electricity was used for lighting the exterior parts of the Temple only, it was not admitted inside the central shrine and the Akal Takht. Complete electrification of the Temple, however, came much later, in the earlier years of the twentieth century[9].

The Golden Temple, beginning as a somewhat modest project at the turn of the 16th century, has been developing to highly elaborate grandiose schemes, which make it truly the Mecca of the Sikh Faith.

Since *Amrit-Sar(ovar)*, or Pool of Nectar, is a very important component of the Golden Temple complex, it is necessary to say something about its maintenance. This has been done by *kar sewa* (service from voluntary labour). The *kar sewa* rendered for the desilting of the tank in the summer of 1923 was a memorable event in the history of the Temple. Undertaken by SGPC (Shiromani

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[9] KAUR, *op. cit.*, pp. 82&83.

Gurudwara Parbandhak Committee) the project was inaugurated with gold spades and silver baskets after the *ardaas* (invocative prayer addressed to the Lord God) had been performed and prescribed religious ceremonies observed. Thousands of Sikhs from India and abroad came to partake of the consecrated operation. It was a massive gathering of the Sikh *sangat* drawn from all ranks and classes. The desilting operation was completed in 22 days(June17-July8). The whole scheme was executed in accordance with the plan. The Holy Tank was properly desilted, repairs of the substructure carried out, and the tiles laid. The *sarovar* was refilled with water on 9 July 1923. A similar event took place on 31 March 1973.

Islamic Architecture, which is always alluded to in any discussion of Sikh Architecture, had its beginning in India with Qutab-ud-din Aibak (d.1210), the founder of the Slave dynasty. Introduction by the Muslim builders of the *arch*, an indispensable element in building construction, was accepted hesitantly by the Indian masons who continued to combine "the system of bridging a space in the indigenous manner by means of a lintel" with the arcuate system, apparently because "they were not convinced of the latter's bearing capacities". A major achievement of what is historically designated as the Imperial style of Delhi was the use of "squinch" (an arch-vault device) in the "phase of transition" from a square base to a round support for the dome. The squinch system, according to Percy Brown, consists of projecting a small arch or similar contrivance across the upper part of the angle of the square hall, thus converting its square shape into an octagon which again, if necessary, may be transformed in the same manner into a sixteen-sided figure, a convenient base on which the lower circular rim of the dome may rest without leaving any portion unsupported. In this instance, the squinch takes the form of small vault or half dome, with an arch on its outer and diagonal face. The Indian masons were using their own brand of arch by the corbelling method of overlapping courses of brick

or stone, and then cutting the jagged shape into an arch of the desired curvature. This was not "true" arch and therefore technically "unscientific". The production of true arch by means of radiating voussoirs (wedge-shaped bricks or stones) is thus a fact of extraordinary significance, structurally speaking, to Indian architecture.

A recurrent problem was that the *dome* would be hidden for the most part by the spread of the rectangular or square structure under it. This remained unsolved until the building of Humayun's Tomb in Delhi in 1564 AD, when a *drum*, or collar-circular wall on which the dome rests, was introduced as an ingenious structural solution. Contemporaneous with the building of the Golden Temple(1588-1604 AD) are buildings of the Mughal period during the reign of Akbar the Great(1556-1605 AD) and those of the provincial style of Bijapur (16th and 17th centuries). The style of building that evolved under Akbar's patronage was chiefly executed in red sand stone, with insertions of white marble often made for architectural emphasis. According to Percy Brown:-

> In principle the construction was of the trabeate order, although the "Tudor" arch was often used but mainly in its capacity as decorative arcading; as a matter of fact in its appearance but not in structure the style was arcuate and trabeate in almost equal proportions. It is also possible to see by its character that it was not far removed from a wooden archtype, a method of construction that was still practiced in the more northern parts of Hindustan as may be observed in the secular architecture of the Punjab at such places as Lahore, Chiniot and also in Kashmir. During this earlier Mughal period the dome was of the "Lodi" type, sometimes

built hollow but never technically of the true double order. The pillar shafts were usually many-sided and the capitals were almost invariably in the form of bracket supports. As to ornamentation, carved or boldly inlaid patterns were common while painted designs were often introduced on the interior walls and ceilings[10].

The architecture of Akbar's period that remains in the fortress at Lahore is similar in style to that at Agra, as it is mainly in red sandstone with a combination of beam and bracket forming its principal structural system. There are certain characteristics in the fully matured architecture of Bijapur which are unmistakable. Chief among these is the all-important feature, the dome, which, in buildings of average proportions, is almost spherical in shape, and rises out of a band of conventional petals at its base. These forms, writes Percy Brown, were repeated to a small scale as an ornamental finish to the turrets also prominent elements in the style and which surmount the principal angles of the building like slender minarets. The shape of the arch, too, is distinctive; it has lost the angularity and forced ogee outline of its Bahmani (rulers at Bidar during 14th and 15th centuries) prototype, and assumed contours of more suavity and grace. Evidences of the expressive low impost in the archways, derived from Gulbarga (1347-1422 AD), are still observable, but this feature in the course of its transfer has been converted into a form of considerable shapeliness.

Percy Brown adds that the typical Bijapur arch is of the four-centred variety, not unlike that of the Tudor Gothic (the late perpendicular style which flourished in England from the reign of Henry VII to that of Elizabeth, 16th century), fuller in its curve. In common with all the Deccan styles, largely owing to the design and

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[10] BROWN, Percy., *Indian Architecture (Islamic Period),* DB Taraporevala, Bombay. P. 92.

manner of construction, the pillar is rare in the architecture of Bijapur, its place being taken by substantial masonry piers, usually rectangular in section. Finally, there is the cornice or *chhajja*, a characteristic architectural ornament in most of the buildings, remarkable for its size and projection and for the closely-ranked decorated brackets by which it is supported[11].

Percy Brown notes four representatives examples of Bijapur architecture : the Jamia Masjid, one of the earliest to be constructed and therefore, the most powerfully simple; the Ibrahim Rauza, one of the most elaborate; the Gol Gumbaz (the correct Persian word is Gunbad), showing the style in its most grandiose form, and the Mihtar Mahall, depicting it in its miniature and, at the same time most refined and delicate manner[12].

Two examples of great technical interest are the ceiling of Ibrahim Rauza and the construction of Gol Gunbad at Bijapur. In the former case, it is a room 18-feet square with a gracefully curved and coffered ceiling. This device gives the room elegant proportions while separating it from the large void of the dome above. The masonry of the ceiling is joggle-jointed and thus appears to have no visible support. Such a skillfully-built hanging ceiling shows that, in structural technique, the Bijapur masons were masters of their craft.

The second example is the interior of Gol Gunbad which consists of one chamber only, but it is a hall of majestic proportions. Like the Pantheon at Rome (118-119 AD), and St Sophia (or Hagia Sophia) at Istanbul (573 AD), is one of the largest cells ever constructed. The grand vaulted hall has tall pointed arches which support the circular platform above, to receive the base of the dome. The system of construction is simple, and begins with a square plan. As the walls gained in height the square was changed into an octagon,

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11&12 BROWN, *op. cit.*, p. 74.

and thence into a circle. This was achieved by ingeniously arranging each arch so that its feet stood within the sides of the square plan, but its plane of surface at an angle, the intersection above producing the eight-sided figure on which the circular cornice was projected. The interior surface of the great dome is set back some twelve feet from the inner edge of this circle, so that a proportion of its weight is transmitted directly downwards on to the four walls, the remainder being carried on the intersecting arches which also receive and counteract any outward thrust.

Percy Brown has classified Indian Architecture of the "Islamic Period" into three styles: (i) The Delhi or Imperial style(1200-1526 AD) beginning under the Slave Kings (in AD1200-1246) and ending with the Lodhi Dynasty(1451-1526AD), (ii) The Provincial styles (1150 AD–from 15century) and the buildings of Sher Shah Sur at Sasaram (1530-40 AD) and Delhi (1540-45 AD), and (iii) the Mughal period (1526-1707 AD), beginning under Babur and ending with Aurangzeb[13].

Characteristics of the Imperial style, along with those of the provincial style of Bijapur, relevant to the scope of this study, have already been highlighted. It should be helpful if a brief account of the provincial style of the Punjab(1150-1325 AD) is given. Percy Brown has dated the eight principal provincial styles as follows: Punjab (1150-1325 AD), Bengal (1203-1370-1573 AD), Gujarat (1300-1572 AD), Jampur (1376-1479 AD), Malwa (1405-1569 AD), Deccan (1347-1617 AD), Bijapur (1499-1656 AD)/Khandesh (1425-1650 AD), and Kashmir (1410 AD onwards)[14]. This classification is convenient in so far as it designates separate and self-contained developments in Islamic Architecture in India as "provincial", even though they may be considered subsidiary to the main style termed "Delhi" or "Imperial". Provincial styles were affected chiefly by two factors : (i) Degree of

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[13&14] BROWN, *op. cit.*, pp. ix-x.

influence exercised by the parent art at Delhi through a relatively longer period of association with the Central power, and (ii) Character of the indigenous arts which prevailed within the area of the province concerned, where these actively flourished and the guilds of local artisans had produced in the past the finest temples, there developed the most elegant mosques and tombs. Besides these, unusual climatic conditions in certain parts of the country necessitated special treatment and finally there were technical differences, one kind of building materials being common in some regions and rare in others all of which naturally affected the character of the building art[15].

The earliest provincial style to emerge was on the territory of the **Punjab**, as here the first contacts with Islam were made through principal centres : the cities of Multan and Lahore, situated about the 320 kilometres apart. According to Percy Brown, although two cities of Lahore and Multan received their Muslim attributions from different sources, with the result those of Lahore were of Ghaznavide-Saljuqian origin while those of Multan were of an Arab-Persian derivation, it is more than likely that on the whole the Indo-Islamic art culture at both centres had much in common. Such building art as these two cities produced may be regarded as one style, that of the Punjab. Since suitable stone was not readily available in the alluvial plain of the Five Rivers **(Punj+Ab)**, pre-medieval architecture of this province was constructed mainly of brick.

Though in Lahore, with the exceptions of the remains of timber construction, there are no examples of the building art of this period, but in Multan a group of five tombs is there to throw light on the style which immediately succeeded it. These tombs are (1) Shah Yusuf Gardizi (1152 AD);(2) Shah Bahau-l-Haqq, died 1262 AD; (3) Sadna Shahid, died 1270 AD; (4) Shah Shams-ud-din Tikrizi, died 1276 AD; and (5) Shah Rukn-i-'Alam (1320-24 AD). All are built of brick and

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[15] *op. cit.*, p. 30.

there is a certain amount of woodwork in more than one of them, while glazed tiles find a place in the decoration. The first four are square in plan, but the largest and most important of all and the final example of the series, according to Percy Brown, is that of Rukn-i-'Alam, which has an octagonal plan, and a pronounced sloping outline in its lower storey. This mausoleum of a famous saint was built at Multan to the order of the Delhi ruler Ghiyas-ud-din Tughlaq (1320-1324 AD) and, therefore, contemporary with the construction of his royal sepulchre at Tughlaqabad. The lowest storey, though octagonal in plan, like the middle one, has a pronounced slant with the structure emphasised by the addition of tapering turrets at the angles. This is a prominent architectural feature which attracted the attention of the enthusiastic builder Firoze Shah Tughlaq, who some twenty-five years later reproduced it in his own style of architecture at Delhi.

PART - II

PRECURSOR OF THE GURDWARA

Gurdwara, as the most important building-type of Sikh Architecture, gradually evolved from its earliest counterpart called *dharamsala*, which remained the nucleus of the community life of the Sikhs. It proved to be such a perfect precursor of the *gurdwara* that it unperceptibly slipped into the latter's role. Guru Nanak, the Prophet of the Sikh Faith, has proclaimed in the 34th *pauri* of *Japuji*: "He (ie God) created Night and Day, seasons and occasions; So also Air, Water, Fire and the Nether Regions: Amidst there has He fixed The Earth, the place for Righteous Action" (ie *Dharma-saal*). The Guru himself established the first *dharamsala* at Kartarpur (founded by him) where he finally settled after his extended tours (*udasis*) spread over nearly three decades. It is said that the founding of *dharamsala* was an act of submission to God's own Edict-Fiat (*hukam*) which Nanak received in his Revelation: "...Inculcate men's devotion towards me and strengthen their obedience to *dharma*. As Vaishnavas (followers of Vishnu, the provider in Hindu trinity) have *ramsal* (temple), the Jogis (ascetics devoted to a yogic way of life) have their *asanas* (seats) and the Muslims their *masjids* (mosques), so your followers shall have their *dharamsala*."

In the light of the foregoing exposition, therefore, theologically speaking, for a Sikh (*Guru*-guided seeker of Truth) whole of this earth is veritably a *dharamsala*, a place to practise *dharma* (Cosmic Moral Law). From this position, two significant points emerge. Firstly, for the Sikhs, the *dharamsala* was a divinely-ordained institution. Resultantly, to build it, or to make contribution towards it in any manner, was to participate in a divine mission. Secondly, it provided the Sikhs with an alternative locus for worship which was quite distinct from places of worship of other religions. Thus, to evolve as well as to preserve the Sikh identity in the early phases of Sikh

history, the institution of *dharamsala* had played an important role such as eventually led to the development of an entirely new (ie not derived from other religious buildings as many a scholar wrongly presumes) building-type: the *gurdwara*.

Balwant Singh Dhillon has written that

> The evidence at our disposal suggests that the institution of *dharamsala* was introduced in Indian sub-continent almost simultaneously with the foundation of Sikhism. In the century that followed with the active involvement of the Sikh Gurus and the hard work put into by the Sikh missionaries the *dharamsala* became an essential and distinctive symbol of Sikhism. Within a short span of time the entire country, especially the Punjab and trade routes running between Chitagong and Kabul on the one hand, Agra and Burhampur on the other, were found studded with the Sikh *dharamsalas*.
>
> —*The Institution of Dharamsala : origin and development*[16]

The term *gurdwara*, in terms of its historical development, is a near-synonym for the term *dharamsala*. The Sikh chronicles frequently mention the establishment of *dharamsalas*. According to the *Janam Sakhis* (hagiographic accounts of the lives of the Sikh Gurus and events pertaining to them), after Guru Nanak's visit to a particular place, a *dharamsala* was established by the devotees there to hold their daily religious discourses. The institution of *gurdwara* thus germinated in the time of Guru Nanak himself but its proper development as an unprecedented institution took place after him.

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[16] SOCH, & KAUR. (1998), *Guru Nanak: Ideals and Institutions*, Guru Nanak Dev University, Amritsar, p.186.

The laying of the foundation-stone by his successor, Guru Angad, of a *dharamsala* at Khadur, was thus a forward step in that direction.

According to Dalbir Singh Dhillon :-

> *Shabad-kirtan* and *Guru ka langar* became two integrated parts of the *dharmsala* under the second Nanak. *Dharmsala* at Khadur also acquired some other special features. It also functioned as a school where 'Gurmukhi' script was taught. Under Guru Amar Das, the third Nanak, a *dharmsala* at Goindwal was another addition to the number of the *dharmsalas*. It also gave a new dimension to the functioning of a *dharmsala*. It now became an important center of all Sikh activities. Under Guru Amar Das, the addition to *dharmsala* activities started a definite phase in the building of the Sikh Church. The fourth Nanak, Guru Ram Das, dug a tank over the land lying between the villages of Sultanwind, Tung, Gumtala and Gilwali. The neighborhood of tank developed in the form of a town, known as Ram Das Pura, and it became the religious capital of the Sikhs.
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> —*The Institution of Guru (Guruship), Gurdwara, Sangat and Langar*[17].

Shabad-Keertan is the singing of hymns from Guru Granth Sahib strictly in prescribed *ragas*, tune, and style. *Guru ka langar* is the Holy Preceptor's community kitchen where all partake of food prepared by an unremitting labour of love whereby voluntary service is sanctified. Guru Nanak himself, after the daily congregational prayer, sat with the *sangat* to take his meals in the *langar*.

Guru Ka Langar has two interrelated aspects of *pangat* and *sangat*. *Pangat* means a row in which all those partaking of the food from the community kitchen have to sit on the floor regardless of

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[17] *op. cit.*, p. 209.

caste, creed, colour, race, and rank. *Sangat* is the hallowed assembly of all such devotees. Thus the institution of the *gurdwara*, as the Abode of the Holy Preceptor (*Guru*), developed in the later half of the 16th century during the pontificate of Guru Arjan Dev, the fourth successor of Guru Nanak Dev. Guru Arjan Dev laid the foundation of many new *gurdwaras* and transformed the old *dharamsalas* into *gurdwaras* where large congregations (*sangats*) were henceforth continually held. During this period *gurdwaras* were built at Tarn Taran, Ram Sar, Kartarpur, Goindwal, Khadur, Amritsar, and Lahore. These *gurdwaras* eventually became important centres of the Sikh missionaries of the Punjab.

The growth of the institution of the *gurdwara* was accompanied by a new development in another institution. The *sangats* set up by Guru Nanak became the holy assembly or the *sadh sangat*. The *sangat* was the "organized fellowship" of the Sikhs. The Guru dwelt in the *sangat*. It was engaged in collective worship and organised *sewa* (voluntary labour) for the functioning of the *gurdwara*.

According to Dalbir Singh Dhillon:-

> The subsequent transformation of *sangats* into *Sadh Sangats* was facilitated by the original intention of Guru Nanak in setting up these *sangats*. It has been rightly observed that the "original idea of Guru Nanak himself in setting up the *sangats* appears to have been Sat or *Sadh Sangat*, i.e. association of the pious". Guru Nanak in one of his compositions says: "The *Sangat* is the society of the holy men. The Name of God is mentioned there". For his Sikhs, *sangat* was an association of an individual with the '*Gurmukh*'. For such a *sangat* to become a *Sadh Sangat* was just a revered step. The holy

sangats were holy congregations enjoined by Guru Nanak and his successors as a commingling of holy people, which had manifold advantages. Sitting in the *sangat* had great influence on one's personality for even bad and wicked people could be reformed in the company of good people. This was more so because *sangats* of their conception repudiated distinctions of caste and birth and advocated the worship of only one God. They saw in the institution of *sangat* as the assembly of truth seekers and worshippers of God getting encouragement for the "Nam". Guru Amar Das stated that "associating with the Truth, one attaineth truth and loveth the True Nam[18]."

The *Sadh-Sangat* was truly a revolutionary institution. It established one of the fundamentals of the social milieu of the 16th century when it removed from among those constituting the *Sadh-Sangat* all distinctions of caste, creed, colour, gender, and race. All were treated as equal in the true sense of the word.

Khushwant Singh has aptly highlighted the ethico-spiritual significance of *Guru Ka Langar*. He observes: "Guru Amar Das made the *langar* an integral institution of the Sikh Church by insisting that anyone who wanted to see him had first to accept his hospitality by eating with the disciples". It is said that when Akbar the Great came to see Guru Amar Das at Goindwal, he had to take meals in the *langar*. The Mughal Emperor was so much impressed that he made a grant of revenue-free land to the Guru as his contribution to the success of the *langar* institution. The contribution of the institution of *langar* and *sangat* to the growth of the Sikh Faith in the 16th century was great. They became two integrated constituents of the *gurdwara*

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[18] *op. cit.*, p. 211.

activities. Wherever the *sangat* was established it led to the emergence of *langar*. Underscoring the spirit of social welfare among the Sikhs, developed by the institution of *langar*, the Sikh Gurus have pointedly referred to it in their *Bani*. Guru Nanak avers: "He alone, O Nanak, knoweth the Way (to God-realisation) who earneth/By the sweat of his brow and shareth it with others".

The Sikh Faith is a Religion of Pragmatic Spirituality developed on the principle of practical, individual and public morality or *dharma* (Cosmic Law of Ethics) by the Sikh Gurus themselves. To spread this unique, divinely-ordained message of the Brotherhood of Man and the Fatherhood of God *dharamsalas* were established as addition of a new building-type to the repertoire of Indian architecture. In fact, *dharamsalas* steadily grew into well-knit centres of far-reaching ethico-spiritual import.

According to Balwant Singh Dhillon: "Towards the close of the 16th century, besides Kartarpur, founded by Guru Nanak, there were Khadur, Goindwal, Ramdaspur, Tarn Taran, Kartarpur (Doaba) and Sri Hargobindpur, which developed into important Sikh centres primarily because they had been founded by the Sikh Gurus themselves... With the introduction of the institutions of *manji* and later on the *masand* system, the Sikhs appointed on these institutions played significant role to build up *dharamshalas* in their respective areas and zones[19]".

Design Criteria for Dharamsala: For the Sikhs, the entire world is a *dharamsala*, sacred because it is God's own creation, and, as mentioned earlier, they are supposed to perform their religious and secular activities in accordance with the Cosmic Moral Law (*dharma*). The Sikh Faith does not subscribe to the belief, as other religions do, that God resides at a specific place or in a particular direction. Therefore, the Sikh *dharamsalas*, unlike the Hindu *mandir* and the

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19 *ibid.*

Muslim *masjid*, were not built on axis oriented in the direction of any prescribed cardinal point. The early *dharamsala* may have been a small and simple structure usually consisting of a single room large enough for a congregation of the local Sikhs most of whom belonged to the working classes and were not financially well-off. One may conjecture that the local or community *dharamsalas*, which had come up in the countryside, small towns, and *qasbas* were simple oratories for daily prayers. With the compilation of the Sikh scripture, the *Adi Granth* became the most prized possession of the *dharamsalas*, and was ceremoniously installed and prominently displayed in the congregational hall. These *dharamshalas* were generally without big, complex, and decorative furnishings such as are a familiar sight in modern-day *gurdwaras*.

Other integral rituals of everyday Sikh way of life have provided important building elements to *gurdwara* architecture.

Balwant Singh Dhillon writes :-

> Since, Sikhism has enjoined upon its followers to observe external as well as internal purity, eventually, *isnan*, customary bath in the early morning has developed into an essential religious practice. Early Sikh literature abounds in evidence about the merits of *isnan* and its popularity among the early Sikhs. That was the basic reason that the *dharamsala* complex often included provisions for public bath. Wherever natural sources of water were not available, the *dharamsala* complex had a *baoli*, well or *rehat* (Persian Wheel) in its court-yard or a water-pool adjoining to it, which besides supplying water for customary bath, overcame the scarcity of water of the locality[20].

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[20] *op. cit.*, p. 189.

As a World Religion of Revelation, the Sikh Faith has sought to show a way and view of life that is at once wholesome and holistic, synergising Body, Mind, and Soul into an eager receptacle of God's grace, by honest livelihood, social sharing, and an unremitting *Naam*-contemplation to sanctify one's thoughts, words, and deeds. In such a scheme of things, *humility*, which Guru Nanak has described as the virtue of all virtues, becomes a psycho-spiritual *superconductor* of Grace for an unfaltering performance of socially-beneficent actions during a Sikh's workaday existence. Such a life is the lot of a *Gurmukh* (ie Guru-oriented) devotee who constantly seeks the commandents for his multifarious activities from the Fountainhead of Divinity: the *Adi Granth*.

Dalbir Singh Dhillon has underscored the indispensability of the *Adi Granth* as follows:-

> The *Adi Granth* became an everlasting institution of 'Guru in Sikhism'. Through the Guru's word man attained perfection. The concept of Guru in Sikhism was not an incarnation. He was God's trusted servant and messenger sent to the world, to encourage righteousness and to uproot evil. The Guru in Sikhism was a perfect man, who could convert a human being into his like. "The Guru resides in the Sikh. It is this belief which makes a Sikh a Superman". Guru Ram Das said: "The Guru is the Sikh and the Sikh who practices the Guru's word is equal to the Guru". It deserves notice that the Guru's word preserved in the form of scripture later came to be put in a revered place called *Gurdwara* an integrated and indispensable part of Sikh way of life. The Guru and finally his 'Word' as preserved in the scripture became the living feature of the Sikh

tenets. The Tenth Master Guru Gobind Singh had invested the *Adi Granth* with guruship, and commanded the Sikhs to accept it as their future Guru. As such Guru's 'Word' [scripture] was given status equal to the Guru himself and was placed on the raised place in the *Gurdwara*. The institution of *Gurdwara* not only originated but also got its development to honour the Guru's 'Word' or scripture[21].

From the foregoing exposition, it should be evident that the *dharamsala* was, indeed, a new building-type *tailor-made* to serve befittingly the requirements of a new religion: the Sikh Faith. Thus the *Adi Granth* (*The Sikh Bible*) became the presiding Guru, as a living force, to charge the entire ambience of the *dharamsala* with palpable divinity. In other words, a spiritual environment was created in and around the *dharamsala* whose nucleus became the *Adi Granth*.

Balwant Singh Dhillon has summed up this subject beautifully:-

> The *dharamsala* always served as a centre of Sikh spirituality. It led the way to achieve summum-bonum while residing in the family and society. It was a place where higher values like *dhiraj* (serenity), *dharama*, truth etc. dominated the environment. Guru Arjan Dev refers to atmosphere at *dharamsala* where instead of rancour, humility prevailed all around. In the words of Bhai Gurdas, the *dharamsala* alone possessed that spiritual tranquility which a seeker longed for in atmosphere of worldly tension. He is very emphatic to state that the disturbing effect of worldly wealth (*maya*) on the minds of the men could be removed only by experiencing the

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[21] *op. cit.*, p. 207.

spiritual environment of the *dharamsala*. He compares it with *Mansarover* lake where *Gursikhs* like swans assemble in the congregation. Throughout the Sikh literature the *dharamsala* and its successive institution, the *gurdwara* has been referred as the abode of God. According to Bhai Gurdas, the *dharamsala* served as an earthly residence for God and atmosphere designed to replicate His celestial kingdom. It was perfectly natural therefore that the Sikhs who were disgusted and frustrated with their personalities torn by inner conflicts, thronged to *dharamsala* in search of spiritual solace. A cursory glance at the *Sikhan di Bhagtmala*, affirms that the spiritual atmosphere of *dharamsala* not only soothed their excited nerves but (also) integrated their personalities to the highest point of inner harmony to transform them into *Gurmukhs*[22].

With absolutely no restriction as to caste, colour, creed, gender, race, and rank, the *dharamsala* and its allied institutions were open to all throughout the day. Significantly, unlike the Muslim mosque, the *dharamsala* did not have a separate space screened off for the women devotees. The Sikh Faith enjoined upon the women not to observe *purdah* while visiting the *dharamsala*. The Sikh *dharamsala*, according to Bhai Gurdas, the maternal uncle of Guru Arjan Dev and a Sikh savant of exceptional learning, was such a unique religious place where the Guru and the disciples (The Sikhs), men and women, high and low, young and old, all worshipped together. By contrast, in some religions, the *sanctum sanctorum* of the shrine is a prohibited area for the laity. Only the clergy, priests or a few socially-privileged persons, have an access to it. Contrary to such a custom, every nook

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[22] *op. cit.*, p. 199.

and corner of the *dharamsala* was open to public view. Besides, there is no fixed quorum for performing religious services.

Balwant Singh Dhillon writes :-

> Unlike the synagogue and mosque of the Jewish and Muslim community respectively, to hold the religious service at *dharamsala* no specific quorum has been fixed. The underlying idea behind it was that *dharamsala* services are continuous process. It should not distinguish between a small and large assembly. Even the needs of an individual visitor should be taken care of. However, to decide the community matters five Sikhs comprised the quorum to constitute a representative body of the community[23].

In summary, the *dharamsala* emerged as a new *building-type* to serve the unprecedented requirements of the Sikh Faith. The installation of the *Adi Granth* in it made the *dharamsala* a prototype for the *gurdwara*, which, by incorporating the institution of *langar* and allied amenities, grew into a comprehensive complex of great psycho-social, spiritual significance. Its design criteria, such as no preference for any specific orientation, sprang from the deeper meanings of the Revealed Word (*Gurbani*). Besides celebrating the congregational worship, the *dharamsala* has also been the favoured place for public assembly. It was here that the Sikhs gathered to contemplate religious exhortations and to debate secular issues concerning their new-fangled community. Primarily, therefore, the *dharamsala* was the Fountainhead of Spirituality which inspired the Sikhs to cherish the higher values and to live up to their intrinsic divinity through socially-beneficent action in utmost humility during workaday existence.

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[23] *op. cit.*, p. 200.

SRI HARMANDAR SAHIB : ABODE OF THE LORD GOD

Guru Nanak has called God by several epithets such as *Wah-e-Guru*, which means: Hail the Holy Preceptor, for, He alone can and does guide a seeker of Truth (His Own Essence) on the long and arduous journey of spiritual liberation. *Wah-e-Guru* is an acronym of four words: Vishnu (The sound of the letter 'W' is identical with that of 'V'), Hari, Gobind, and Ram, and is believed to refer to the Presiding Deity of each of the four *yugas* (traditionally taken to last together for 43,20,000 years). Guru is a compounding of two sounds: 'gu' and 'ru', and means one who dispels the darkness of ignorance. The Temple was originally named *Hari Mandir* ie Hari's Abode. The appellation *Darbar Sahib,* ie Court of the Lord, was in currency for a very long time. The Holy Shrine of the Sikh Faith became known as the Golden Temple when Maharaja Ranjit Singh had it copper-gilded and the Britons coined for it the new name by which it is now known throughtout the world. If the Golden Temple is the Abode of the Lord God, His Presiding Presence is the Holy Spirit embodied in the *Adi Granth* (The Primal Book), which is the Sikh Bible.

The *Adi Granth* was compiled by Guru Arjan Dev, Guru Nanak's fourth spiritual successor, and is a 1430-page standard volume. While compiling the Holy Book, Guru Arjan took care to include in it the hymns of devotion composed by some of the so- called untouchable (*shudra*) *Bhaktas* (literally, those imbued in the colour of God). This was meant to demonstrate that, in the eyes of the Guru, not only should an untouchable receive religious ministrations, but should he have in him piety and enlightenment, be also set up as a spiritual teacher. Out of such *Bhaktas* of the lower castes were Kabir, a weaver, Ravidas, a cobbler, Namdev, a dyer; and Sadhna, a butcher. In their own pronouncements the Sikh Gurus have thus left their testament[24]:-

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[24] TALIB, Gurbachan Singh, *Sri Guru Granth Sahib,* in English Translation, Volume One (1984), Publication Bureau, Punjabi University, Patiala, p. 1xxxiv.

God's teaching to all four castes,

Khatri, Brahmin, Shudra and Vaish may be imparted,

Whoever by the Master's guidance utters the holy

Name is liberated.

Saith Nanak: In each vessel does the Lord abide.

(Suhi, Guru Arjan Dev, 50, page 747)

Khatri, Brahmin, Shudra and Vaish — any may utter

God's holy mantra.

Worship ye the holy transcendent lord—

Serve Him day and right.

(Bilaval, Guru Amar Das, 5, page 800)

Installation of the Adi Granth in the Golden Temple[25]: When the *Adi Granth* was ready in 1604 AD, Guru Arjan Dev appointed Baba Buddha, a contemporary of Guru Nanak, as the first *granthi* (priest) of the *Hari Mandir*. The *Holy Granth* wrapped in silken scarves (*rumalas*) was carried to the *sanctum sanctorum* (*parkash asthan*) in a palanquin on their shoulders by the devout Sikhs while Guru Arjan Dev waved the fly-whisk (*chavar*) as a mark of reverence, with barefooted devotees following in a ceremonial procession. The *Holy Granth* was installed in the *parkash asthan* on a cot with Baba Buddha in attendance and the congregation (*Sangat*) sitting all around with great devotion. Guru Arjan Dev then asked Baba Buddha to open the *Granth* at random and read out a hymn to the holy assembly. The Guru also introduced the institution of *kirtan* (literally, to sing hymns of praise to the Glory of the Lord God) according to prescribed *ragas* (musical modes) and tunes.

Religious Services at the Golden Temple[26]**:** The Golden Temple remains open throughout the day except between 12:00 night and 4:00 a.m. when the Holy Book is put to rest at *Kotha Sahib*

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[25] SINGH, Mohinder. (2002). *The Golden Temple,* UBS Publishers' Distribution Ltd., *et al.,* p. 21.
[26] *op. cit.,* p. 25.

(Lord's Resting Chamber). The *Darshani Deorhi* is closed at 11:00 p.m., and reopened at 3:00 a.m. During this period, a few volunteers stay inside for washing and cleaning the Temple, and dusting and changing the floor-sheets. The washing is done with *kachchi lassi* (milk diluted with water taken from the *Har-ki-Pauri*). The floor is then wiped dry with towels. While the operation clean-up lasts, non-stop singing of hymns continues outside. Also, non-stop reading of the Sacred Scripture continues on the upper storey of the Golden Temple.

After the opening of the doors and installation of Guru Granth Sahib in the *sanctum sanctorum* every morning, non-stop kirtan renditions are made by a chain of ragi jathas (approved groups of hymn-singers trained in the Sikh musical tradition). The kirtan starts one hour after the opening of the gates in the morning and is followed by recitation of Asa-di-Var, and then the Holy Book is installed. At 12 noon the raagis melodiously recite *Anand Sahib. Charan Kamal Arti* is performed at 3:00 p.m. From 5:00 p.m. to 6:15 p.m. the raagis recite Sodar, and from 6:45 p.m. to 8:00 p.m. they perform aarti through *keertan*. After the evening service, *keertan* is resumed and it goes on till 9:45 p.m. With this ends the devotional singing and religious services for the day when, after prescribed ceremonies, the Guru Granth Sahib is carried back with ritualistic reverence to *Kotha Sahib* for rest during the night[27].

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[27] *op. cit.*, p. 51.

CHAPTER – II

ELEMENTS OF BUILDING DESIGN
SPACE

Space is, indeed, fundamental to all forms of physical existence–and, along with Time, constitutes a continuum in which the entire Objective World finds refuge. The word Space to an architect's understanding has a quite distinct connotation from what a scientist or an artist thinks of it. Let us call it, for such a distinct function as Architecture, the great void above the planet Earth's crust. An architect fashions from out of this Great Void many diverse forms of shelter for multifarious human activities. Shelter is one of the three basic necessities of all peoples of the world, the other two being Food and Clothing. Shelter is constructed by *enclosing* Space by means of four walls and a roof–which, with the exception of the foundations, is primarily built on and above ground. When the need arises to extend it underground, Shelter is fashioned by digging up, with the undug earth around constituting the natural enclosure. It is not difficult to appreciate that the size, volume, and shape of Shelter are determined primarily by Utility which is one of the two basic aspects of architecture, the other being Aesthetic.

Utility constitutes the physical or measurable attribute or tangible aspect of Architecture while Aesthetic represents its metaphysical or immeasurable attribute or intangible aspect. An exclusive focus on Utility will produce Shelter that is as inert as the materials of which it is built. But this mere Building becomes Architecture when areas i.e., sizes are transformed into spaces to give birth to Aesthetic which expresses the Architect's notions of Beauty with a power to stir our souls. In this special sense, Space in Architecture becomes the "Great

Ineffable" as Le Corbusier put it or "Continual Becoming" as Frank Lloyd Wright defined it. Space, in such a case, is then a micro-Void (re-)constituted from the Macro-Void by man-made methods and means.

When Structure is introduced into the Great Void–by way of walls and/or columns–"it begins to be something on which you can hold something. It's kind of realization of the beginning of containment" (Louis Kahn). A micro-Void emerges as enclosure–an empty place in which material bodies will have extension. Space thus becomes the raison d'etre of Architecture.

Supremacy of Space, as a value of Building Design, is paramount, for Architecture alone of all the arts can give Space its full importance. It can surround us with a void of three dimensions, and whatever delight we may derive therefrom is essentially the gift of Architecture alone. Painting can depict space; poetry can recall its image; music can give us its analogy; but Architecture deals with Space directly. It uses Space as a material and sets us in its midst.

From the utilitarian point of view, avers Balram Srivastava, Space is the logical end of Architecture. And to enclose Space is the primary end of Building Design. Space undergoes qualitative changes by the manner in which it is shaped by its enclosure. A symmetrical Space, duly proportioned invites optical movement such as is necessary to impart an equipoise to our consciousness. The concept of space not only provides the opportunity and expressive power to the architect's imagination, but also gives the spectators the optical illusion of various kinds leading to different experiences of aesthetic delight.

Though fixed in proportions and actual dimensions, under the concept of Space, Architecture is affected by lighting and

the position of shadows; it is affected by colour; a dark sanctum and a lighted roof; it is affected by our own expectancy. And it is affected by the character of the predominating lines: an emphasis on the verticals gives an illusion of greater height, and an emphasis on horizontals gives a sense of greater breadth[1].

Space is the necessary medium of movement. The solids are essential for support, pressure, and resistance. Besides, they convey the aesthetic feeling of dignity, poise, and grandeur. Space and solids are interdependent, and contribute not only to physical firmness and security but also to contour and composition of decorative elements and figural scheme, which, unaffected by the solidity of the mass(es), actually appear with their own aesthetic identity and entity[2].

STRUCTURE

Structure is an attribute of all that has physical existence. Structure is to Architecture as skeleton is to human body. Structure is the single most indispensable element of Architecture. Without Structure, there is no Architecture. According to Heinrich Engel, however, the necessity of Structure has its own unique cause. The cause is a conflict of directions, or rather several such conflicts that have to be resolved in order to generate Space for human living, working, and recreation. He elaborates this thesis as under :-

> These directional conflicts have one thing in common: they are all subjected to a phenomenon that, if it did not exist, would

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[1] SRIVASTAVA, Balram. *Nature of Indian Aesthetics,* Chaukhambha Orientalia, pp. 101&102.
[2] *ibid.*

There are many views, both controversial and contradictory, extant on this delicate subject among which may be noted : (i) Form follows Function, (ii) Form and Function are one, and (iii) Form actually determines Function.

In my opinion, such controversies and contradictions spring from a basic confusion that exists between notions of Building (which is a creation) and Building Design (which is a process). A process, by its very nature, is sequential, whereas a creation, at bottom, is holistic.

"Architecture has no presence", avers Louis Kahn[5], and goes on to add, "Only a work of architecture has presence, and that at its best is an offering of architecture itself." This concept is mystical, and beyond the reach of the formula: Architecture = Buiding + Aesthetics.

Before proceeding further, it may be pertinent to distinguish between Form and Shape[6]. Form is the most general of the words which can refer to the whole pattern or ordering of something, its make-up or constitution, or its enclosing surfaces. It has application in all these ways: the sonnet *form*; Ice is water in solid *form*; rectangular in *form*. At one extreme, it can merely indicate external appearance: A *form*-fitting dress. At the other, it can contrast with *content* all the interrelated patterns and techniques that make of something an organic unity: The author's keen sense of *form* sustains him through a subject that could easily have gone awry.

Shape more readily suggests a three-dimensional bulk, but it is not restricted to this reference: The gnarled *shapes* of century-old cypresses. The word can also apply to the enclosing

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[5] WURMAN, Richard Saul. *What Will Be Has Always Been. The Words of Louis Kahn,* Access and Rizzoli, New York. p. 27.
[6] Reader's Digest, *Use the Right Word,* p. 227.

surface of both a plane or solid object: an elliptical *shape*; a dress to show off her lovely *shape*. When Form and Shape are contrasted *form* usually suggests a prescribed or typical pattern, whereas *shape* suggests the individual interrelationships that a specific thing exhibits: the startling variety of *shapes* with which the sculptor had fleshed out the human and animal *forms* he had chosen as his subjects.

For our purposes, however, apart from fulfilling its basic purpose of enclosing Space, Form expresses the Structural unity of all modes of artistic creation: music, literature, Architecture, etc. Also, philosophically speaking, Form is that which the mind itself contributes as the condition of knowing– as well as that in which the essence of a thing consists. If this were not the case, different people would not have different notions of Form, and apprehension of the physical aspect of objective Reality would be totally devoid of the colour and charm of subjectivity. When Space, Structure, and Form meld into each other, as if by a conscious choice of their own, the outcome transcends the limitations of a mere Building to become Architecture–a psycho-emotional force that stirs the soul of Man. At this juncture, it will be interesting to see what Louis Kahn has to say on this subject :-

> If I were to try to define architecture in a word, I would say that architecture is a thoughtful making of spaces. It is not filling prescriptions as clients want them filled. It is not fitting uses into dimensioned areas. It is nothing like that. It is a creating of spaces that evoke a feeling of use: spaces which form themselves into a harmony good for the use to which the building is to be put.

I believe the architect's first act is to take the program that comes to him and change it. Not to satisfy it, but to put it into the realm of architecture, which is to put it into the realm of spaces.

An architectural space must reveal the evidence of its making by the space itself. It cannot be a space when carved out of a greater structure meant for a greater space. Because the choice of a structure is synonymous with the light which gives image to that space. Artificial light is only a single, tiny, static moment in light and is the light of night and never can equal the nuances of mood created by the time of day and the wonder of the seasons.

A plan of a building should be read like a harmony of spaces in light. Even a space intended to be dark should have just enough light from some mysterious opening to tell us how dark it really is. Each space must be defined by its structure and the character of its natural light.

When a personal feeling transcends into Religion (not a religion but the essence religion) and Thought into Philosophy, the mind opens to realizations. Realizations of what may be the existence will of, let us say, particular architectural spaces. Realization is the merging of Thought and Feeling in the closest rapport of the mind with the Psyche, the source of what a thing wants to be. It is the beginning of

Form. Form encompasses a harmony of systems, a sense of Order and that which characterizes one existence from another. Form is what, design is how. Form is impersonal and belongs to nobody. Design is personal and belongs to the designer. Design is a circumstantial act: how much money there is available, the site, the client, the extent of knowledge. Form has nothing to do with circumstantial conditions. In architecture, it characterizes a harmony of spaces good for a certain activity of man.

But architecture has limits and when we touch the invisible walls of the limits, then we know more about what is contained in them.

A great building, in my opinion, must begin with the unmeasurable, go through measurable means when it is being designed, and in the end must be unmeasurable. The design, the making of things, is a measurable act. At that point, you are like physical nature itself, because in physical nature everything is measurable–even that which is yet unmeasured, like the most distant stars which we can assume will eventually be measured.

But what is unmeasurable is the psychic spirit. The psyche is expressed by feeling and also thought and, I believe, will always be unmeasurable. I sense that the psychic existence will call on nature to make what it wants to be. I think a rose

> wants to be a rose. Existence will, man, becomes existence through nature's laws and evolution. The results are always less than the spirit of existence[7].

In sum, Form is that which deals with inseparable parts. If you take one thing away, you can't have the whole thing[8].

HINDUISM AND THE TEMPLE

(Ref.: Sketch I)

Hinduism consists of the beliefs, practices, and socio-religious institutions of the South Asia people known as Hindus, principally the peoples of India and parts of Pakistan, Ceylon (Sri Lanka), Nepal, and Sikkim. Hinduism also has a following among overseas Hindu communities that are situated in parts of Southeast Asia, East and South Africa, Surinam, and in Islands such as Fiji, Mauritius, and Trinidad.

Temple (*mandir*) is the place of worship of the Hindus. Their tradition demands that they strictly follow the guidelines laid for the religious organisation of their sacred architecture. Thus, temples must be erected on a site that is *shubha* (i.e., suitable, beautiful, and auspicious), in the neighbourhood of water, because the gods will not come to other places. Temples are not, however, designed to be congenial to their surroundings because a manifestation of the sacred is an irruption, a break in phenomenal continuity. Since temples are said to constitute an opening in the upward direction and thus ensure communication with the gods, they are visible representations of a cosmic pillar and their site is said to be a navel of the world. Their outward appearance must raise the expectation of

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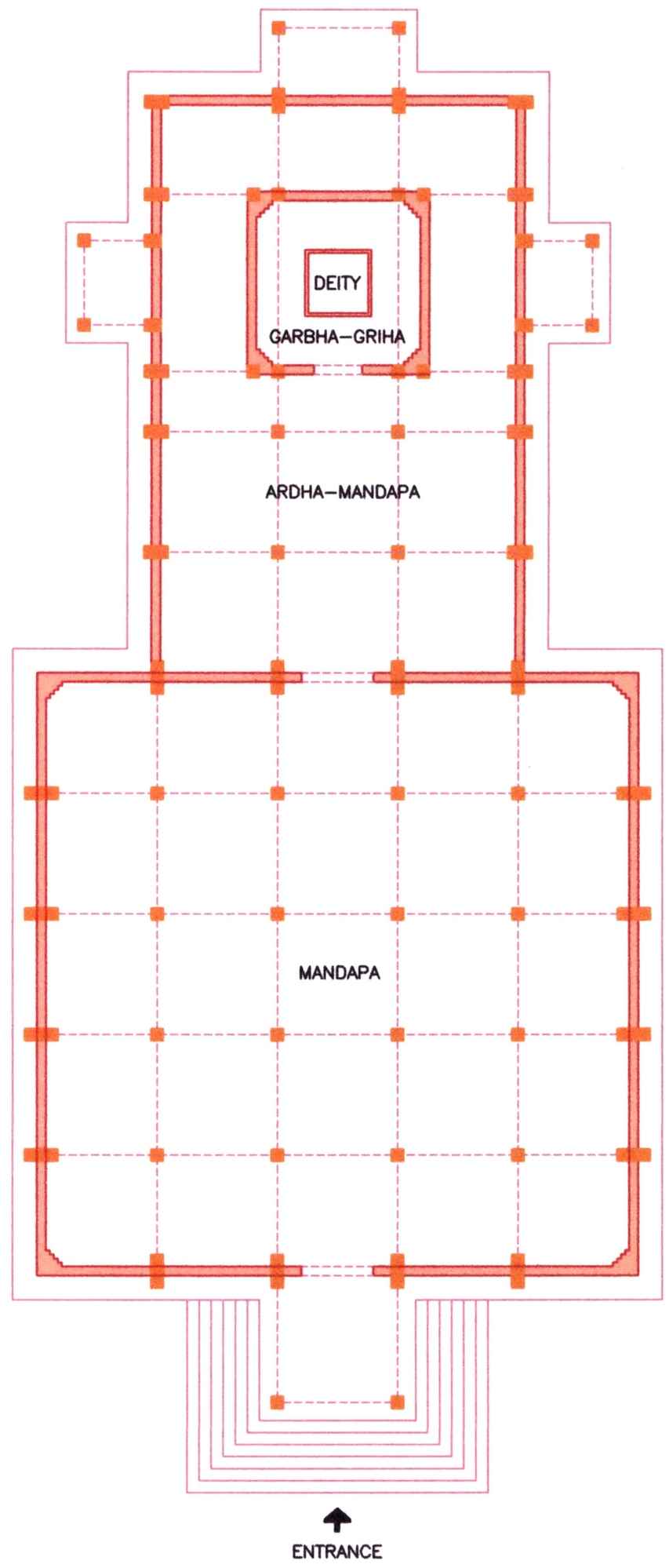
[7] *op. cit.*, p. 89.
[8] *op. cit.*, p. 13.



HINDU TEMPLE : conceptual plan

SKETCH I

meeting with God. Their erection is considered a reconstruction and reintegration of Purusha-Prajapati enabling him to continue his creative activity, and the finished monuments are "symbols" of the universe that is the unfolded one. The owner (i.e., an individual or community that paid for its construction, and the descendants) of the temple–also called the "sacrifices"–participates in the process of reintegration and experiences his spiritual rebirth in the small cella, aptly called the *garbhagriha* (the womb room), by means of meditative contact with God's presence, symbolised or actualised in his consecrated image. The cella is in the centre of the temple above the "navel"–i.e., the " foundation stone"–a jar filled with the creative power (*shakti*) that is identified with the goddess Earth (who bears and protects the monument), three lotus flowers, and three tortoises (of stone, silver, gold) that represent earth, atmosphere, and heaven. The tortoise is regarded as a manifestation of Vishnu (the sustainer of the world among the Hindu Trinity) bearing the cosmic pillar, and the lotus as a symbol of the expansion of generative possibilities. The vertical axis or tube (coinciding with the cosmic pillar), which connects all parts of the building and is continued in the finial (*kalasha*) on the top, corresponds with the mystical vertical "vein" in the body of the worshipper through which his soul rises to unite itself with the Highest.

The principal architectural features of the temple, as identified by Percy Brown, are enumerated below :-

> Throughout the greater part of the country, the sanctuary as a whole is known as the *vimana* of which the upper and pyramidal or tapering portion is called the *sikhara* meaning tower or spire. Inside the *vimana* is a small and generally dark chamber or

cella for the reception of the divine symbol. This cella is the *garbha griha* or "womb-house", and was entered by a doorway on its inner, and usually, eastern side. In front of the doorway was a pillared hall or *mandapa* actually a pavilion for the assembly of those paying their devotion to the divine symbol in the cella. Some of the earlier temples indicate that the *mandapa* was a detached building isolated from the sanctuary by a definite open space, as in the "Shore" temple at Mamallapuram, and originally in the Kailasanatha at Conjeeveram, both near Madras, and built about 700 A.D. A little later it became the custom to unite the two buildings, thus forming an inter-mediate chamber, or vestibule and called the *antarala.* Leading up to the main hall, or *mandapa*, is a porch or *ardha-mandapa* while there may be a transept on each side of this central hall, known as the *maha-mandapa.* The most complete illustrations of the fully formed and co-ordinated temple structure are the tenth century examples at Khajaraho, Central India , especially that known as the Kandariya Mahadeo. In this class of temple, each portion named above, has its separate pyramidal roof raising in regular gradation from the lowest over the porch (*ardha-mandapa*) to the lofty spire over sanctum. In some parts of the country it became the practice to enclose the temple building within a rectangular courtyard by means of a continuous range of cells, facing inwards, the whole forming a substantial containing

wall and thus ensuring seclusion. One of the first temples to combine all these attributions and to present a co-ordinated plan was that of the Vaikumtanath Perumal at Congjeeveram (cir. A.D. 740). Most of these early temples have a processional passage or *pradakshina patha* consisting of an enclosed corridor carried around the outside of the cella[9].

Percy Brown[10] has also noted that "the basic intentions of the Greek and Indian temples were not dissimilar as neither was designed for congregational worship, each being a sacred monument, and an object of devotion in itself. The Indian temple was, in the language of the people, a "dwelling place of the gods", for, in addition to the symbol of the deity within the cella, numerous niches, recesses, alcoves, and altars, were provided as part of the architectural scheme, within which were enshrined sacred images of the immortals, so that the whole structure resolved itself into a place of assembly of the *Devas*, or "Shining Ones". By this token, "the religious, philosophical, and metaphysical qualities of the production (i.e., Temple Architecture) take first place, the artistic hereafter being regarded as secondary."

BUDDHISM AND THE STUPA

(Ref.: Sketch II)

Buddhism is a pan-Asian religion and philosophy founded by Siddhartha Gautama in Northeast India in the 6th century BC. Spreading from India to Central and Southeast Asia, China, Korea, and Japan, Buddhism has played an influential role in

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[9] BROWN, Percy. (1956), *Indian Architecture (Buddhist and Hindu Periods)*, DB Taraporevala Sons & Co. Private Ltd., Bombay, p. 75.
[10] *ibid.*

the spiritual, cultural, and social life of much of the Eastern world. Ashoka, one of the most significant early devotees of Buddhism, was the last major emperor in the Mauryan dynasty of India. Most enduring were Ashoka's services to Buddhism. He built a number of *stupas* and monasteries and erected pillars on which he ordered inscribed his understanding of religious doctrines.

Stupa is a Buddhist commemorative monument usually housing sacred relics associated with the Buddha or other saintly persons; an architectural symbol of the Buddha's *parinirvana*, or death.

The hemispherical form of the stupa appears to have been derived from pre-Buddhist burial mounds in India. As most characteristically seen at Sanchi (2^{nd}-1^{st} Century BC), it consists of a circular base supporting a massive solid dome (the *anda*, "egg", or *garbha*, "womb") from which projects an umbrella (*chhatra*). The whole structure is encircled by a railing and four gateways (*toranas*), which at Sanchi are richly decorated with relief sculpture depicting *Jataka* tales, events in the life of the Buddha, and popular mythological figures.

The Indian conception of the stupa spread throughout the Buddhist world and evolved into such different appearing movements as the bell-shaped *dagaba* (heart of the *garbha* (womb) of Ceylon (now Sri Lanka), etc. The basic symbolism, in which the central relic is identified with the sacred person or concept commemorated and also with the building itself, is retained. Worship of a stupa consists in walking around the monument in the direction taken by the path of the sun (*pradakshina*). **Even when the stupa is sheltered by a building, it is always a free-standing monument.**

Buddhist stupas were originally built to house the earthly remains of the historical Buddha and his associates and are almost found at sites sacred to Buddhism. The concept of a relic was afterwards extended to include sacred texts. Miniature stupas and pagodas are also used throughout Asia as votive offerings.

Stupas were also built by adherents of Jainism to commemorate their saints. Jainism is a religion and philosophy of India, founded in about the 6th century BC by Vardhamana Mahavira–24th of the Jinas (conquerors), or great religious figures on whose example the religion is centred in protest against the orthodox Vedic (early Hindu) ritualistic cult of the period . Of the very few examples that have survived, the remains of Kankali Tila, a great Jain stupa at Mathura in Uttar Pradesh, are the most important.

Banister Fletcher has averred that

> Stupas are the most spectacular of Buddhist monuments. They originated as prehistoric burial mounds at the bases of which important personages were interred. Subsequently, burial chambers were added centrally within the mounds above the sarcophagi to conceal and secure sacred relics. In due to course, the whole structure of stupas was given monumental form in brick or stone masonry. An umbrella or canopy was placed above the mound to add to the symbolism and as a mark of respect and distinction. The single umbrella shape grew into a number of superimposed canopies and eventually took the shape of a cone, known as a chatravalli. The protective fence around the stupa mound

also became a major feature. Originally made of timber, these fences retained their timber form even when constructed in stone or brickwork. There are four entrances or gateways (thoranas) through the fence and these face the cardinal points. Thoranas are used on ceremonial occasions in south Asia even today. Stupas reached colossal dimensions and are among the largest of all architectural monuments. Usually simple and unadorned, they rely upon outline and served for certain focal points. What began as burial mounds are now often thought of as domes, as stupas have assumed a number of domical shapes from the simple convex curve with various degrees of elevation to diameter, through a range which includes cylindrical, bell-shaped, vase-shaped, paraboloid and stepped pyramidal forms. They have a number of subsidiary elements: terraces on which devotees gathered for ritual and worship (in early examples imposing thoranas gave access to the terraces and in later suptas formal flights of steps led to terraces paved with plastered brick or faced with stone slabs, and more elaborate buildings sometimes had outer terraces used for processions): the 'berm', which consisted of one, two or three steps at the base of the dome itself, was originally intended for walking around it when offerings were placed at the altars facing the cardinal points, but was used as the flower terrace when the ritual was

> modified to exclude the original use; relic chambers, which might be numerous (whilst the main enshrinement was usually at the base of the dome, relics were also deposited in sealed chambers, often plastered and delicately painted, one above the other on the central vertical axis of the stupa, the last one immediately below the crowning chatravalli); the protective fences described above eventually developed into a square base for the dome and the crowning cones were often surmounted by a gilded finial with a crystal at its tip which flashed spectrum colours in sunlight or moonlight. But the focal point of the stupa was the altar its base upon which, originally, the devotees placed their offerings but which eventually became an elaborate centeral niche for an image of the Buddha's and a repository for the ashes of royalty[11].

According to the same author, in India few free-standing indoor stupa-halls remain, but there are rock-cut halls at Bhaja (250BC), Nasik (129 BC), Karli (78 BC), Ellora (C. Seventh century), and Ajanta (AD 250). They are rectangular, apsidal-ended halls with closely-spaced pillars at each side, forming aisles or ambulatories. A stupa is placed in the apse, furthest from the entrance. The roofs are semicircular in section, and ribs representing the original timber member of the prototypes are cut from the rock. The façade usually contains, above a low entrance portico, a horseshoe-shaped window filled with rock-

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[11] FLETCHER, Banister. (Nineteenth Edition), *A History of Architecture,* CBS Publishers & Distributors, Delhi, p. 751.

cut or wooden tracery which admits light to the interior. At Karli, the hall in 38.5 m (126 ft) long and the height and width are 13.7m (45ft.). The octagonal columns are of the Persepolitan type and the capitals take the form of elephants. The bases, shaped like inverted vases, are an indigenous form. The roof ribs in this case are actually of wood, inserted after the roof was cut[12].

CHRISTIANITY AND THE CHURCH

(Ref.: Sketch III)

Founded in the 1st Century AD by Jesus of Nazareth (the Christ), Christianity has become the largest of the world's religions.

Early Christian architecture was an integral part of the architecture of the later Roman Empire. Before its formal recognition by the Roman emperor Constantine, Christianity was a persecuted religion. It was this ruler who initiated the evolution of the Roman Empire into a Christian state and prepared the way for distinctively Christian Western and Byzantine mediaeval culture. Architecture in the service of the Christian church, however, did not begin with him. The first Christians already had the synagogue as their place of worship, and, believing as they did in an imminent end to this world, felt no need of anything more. When that expectation receded and they grew in numbers and largely severed their Jewish ties, they met for prayer and for their central act of worship–which gradually developed into the formalised liturgy of the Eucharist–in whatever rooms could be made available to them by members of the group.

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[12] *op. cit.*, p. 752.

The commonest form of the early church was a rectangular hall, timber-roofed, usually with one or two aisles to each side of the central nave, and with an apse at one end facing the principal entrances at the other. Corresponding roughly to the sacred enclosure in front of the temple, and to the atrium of a typical early Roman house, was a courtyard which was also referred to as an atrium and frequently had a fountain in the centre. One or more semicircular rows of seats were set against the wall of the apse for the clergy, with a raised throne in the centre for the bishop. An open screen in front of them marked off a sanctuary from the rest of the nave, and within this area was set the altar. To give it greater emphasis and dignity, it was usually surrounded by four or more columns and surmounted by a canopy, known as a baldachin or ciborium (a canopy supported on four pillars over the high altar).

The impression given by the interior of one of these churches today, in comparison with surviving but less well-preserved Roman buildings, is of great richness. Banister Fletcher has described it in graphic detail as under:-

> Looking down the length of the nave, one sees long rows of marble columns, sometimes, carrying flat entablatures, and sometimes rows of arches. Above these, and between the clerestory windows, the walls may be faced with marble, or sometimes with mosaics made up from small tesserae of coloured glass. There may be further iridescent mosaics on the 'triumphal arch' which terminates the nave proper, and on the semidome of the apse which opens into it. These mosaics, if surviving from the early period, will mostly be either narrative scenes from the

Bible or single figures seen against stylized landscapes or plain gold grounds. There is likely to be a coffered and richly gilded ceiling to the nave, while on the floor there will be a pavement of grey-white and black marble, inlaid with geometric patterns of coloured marbles.

But it should be remembered that much of what is seen is often the result of later changes. The ceiling, for instance, is likely to be a Baroque refurbishment and the marble paving from the eleventh or twelfth century. Much of the facing of the walls will probably be of a later date[13].

ISLAM AND THE MOSQUE

(Ref.: Sketch IV)

Arising in Arabia in the 7th century AD as a result of the preaching and teaching of Prophet Mohammed, Islam, with its emphasis on an uncompromising monotheism and strict adherence to certain religious practices, spread rapidly all the way from the Atlantic to the Pacific Ocean, from Africa and Europe to China and Indonesia.

Architecture is by far the most important expression of Islamic art, particularly the architecture of mosques. It illustrates both the diversity of cultures that participates in the Islamic civilisation and the unifying force of Islamic monotheism that is represented by the spacious expanse of the

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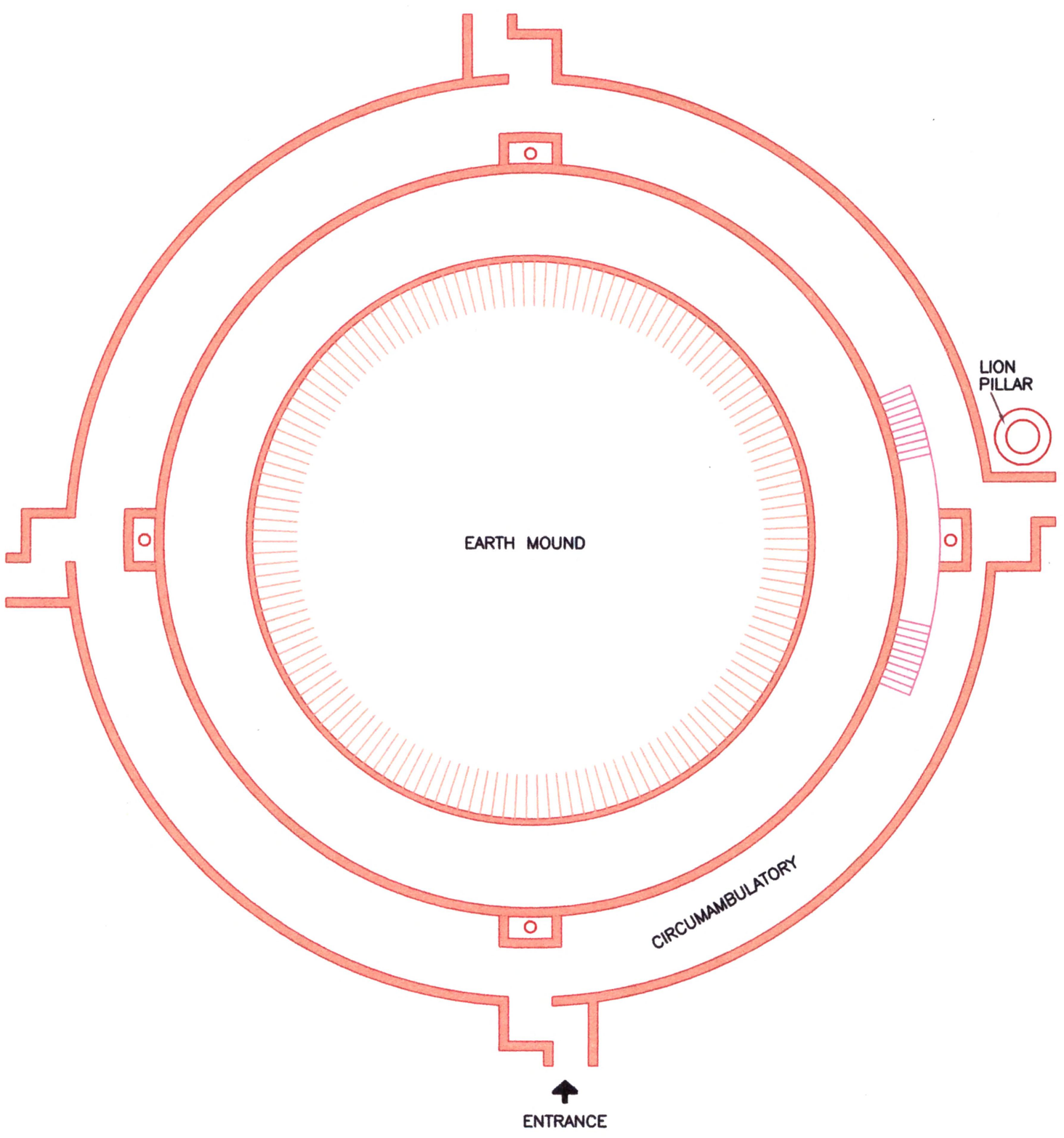
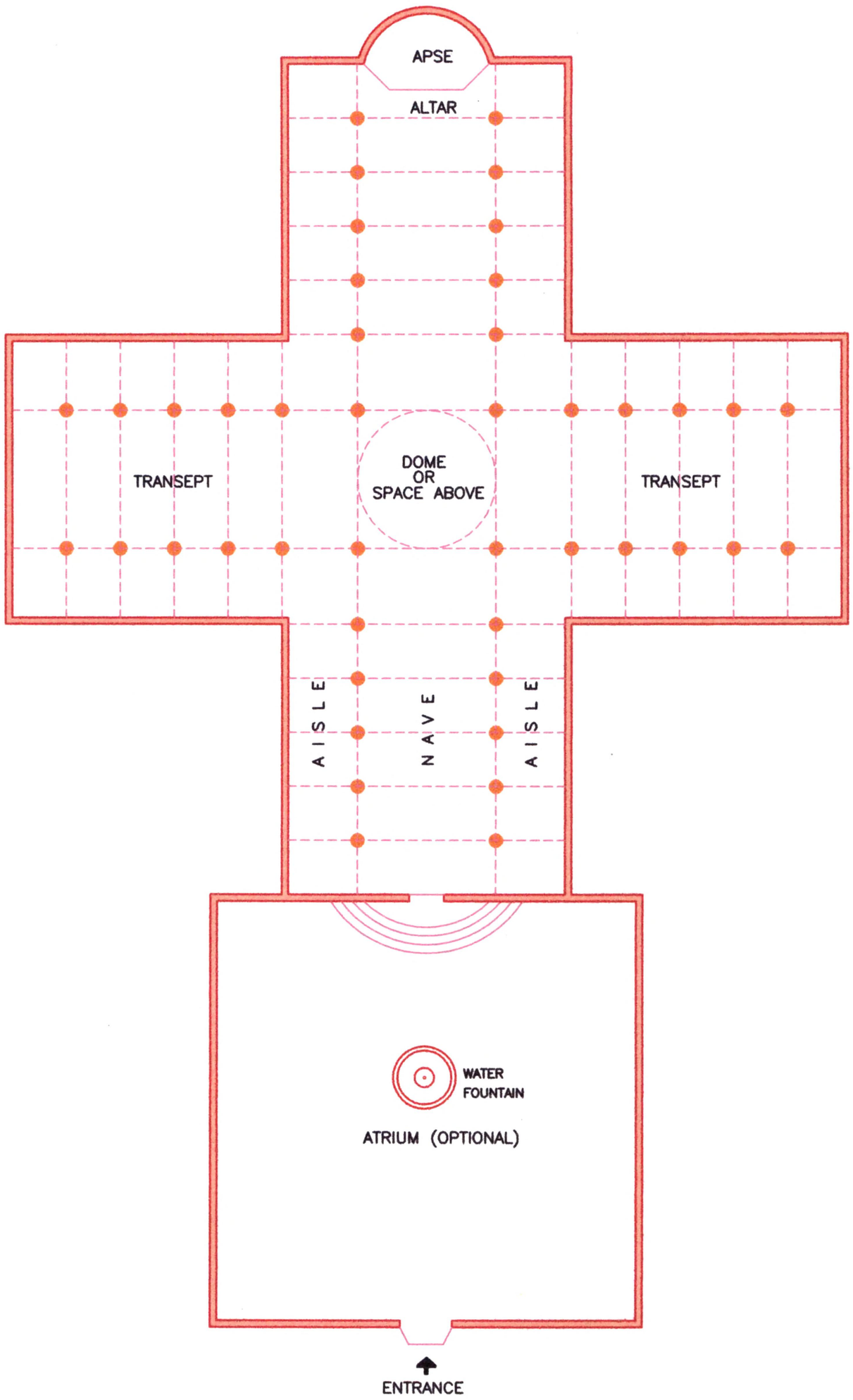
[13] FLETCHER, *op cit.*, pp. 269-270.



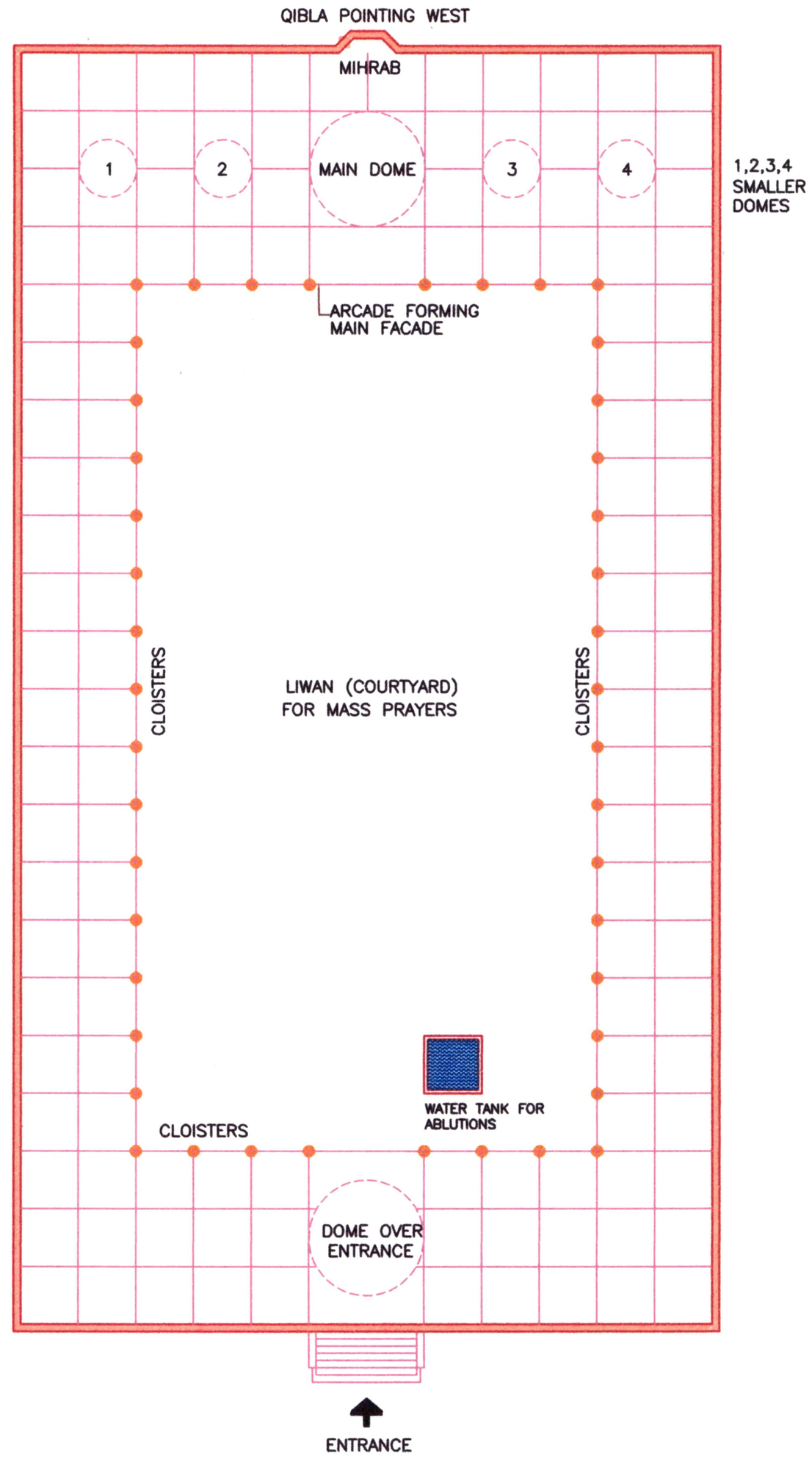
BUDDHIST STUPA : conceptual plan

SKETCH II



CHRISTIAN CHURCH : conceptual plan

SKETCH III



ISLAMIC MOSQUE : conceptual plan

SKETCH IV

mosque–a veritable externalisation of the sense of all–enveloping divine unity, heightened by the sense of infinity of the arabesque design. The arabesque, though it is ornately decorative, spiritually represents the infinite vastness of God.

Islamic architecture is characterised by these outward features: the pointed arch, and the horse-shoe arch in which the circle of the arch is carried past the normal springing-point. The use of cusping of the arches and of guarding colonnettes or nookshafts also contributed, though less crucially, to architectural development. The appearance of Islamic architecture is much affected by the use of colour on external surfaces. A coherent architecture, however, arises only from the methods of handling Form and Space in relation to Structure system. In Islamic architecture, according to Banister Fletcher, this was achieved by expressing each element of the building individually. He writes :-

> There is no attempt to collect numerous spaces and volumes within one great envelope whose facades these describe a single mass. Each component stands identified in its own right, and is expressed externally as part of a sequence of linked structures. The coordination, clear expression and articulation of the individual components together supply the prime discipline. Dome, liwan, cloister or portal may be emphasized or diminished as required within its proper station, and each contains elements which display the essential structural form. All this was achieved by the eleventh century, the classical phase of Islamic architecture[14].

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[14] FLETCHER, *op. cit.*, p. 552.

The Prophet and his first followers did not seek a building in which to pray but made their prayers five times a day wherever they were. This example is still followed and the Muslim world has many outdoor praying places. At Medina, the Prophet first prayed facing towards Jerusalem, but in a small place on the outskirts of the city (still known as Quiblatain–The Mosque of the Two Directions) he faced towards Mecca. Thereafter this was the rule.

The House of the Prophet[15] was the congregational mosque of the first community. It was simply a courtyard with a covered arcade for prayers at the end nearest to Mecca and with domestic appurtenances on the other sides. The call to prayer was made from the walls of the house. The simplicity of this building is reflected in the mosques which immediately followed. There was no other model and as yet there were no architectural objectives, so the Prophet's house provided an adequate example.

According to Banister Fletcher :-

> Historically the mosque was of such central importance of the life of the community that it became the dominant building, and this form is echoed in structures built for other purposes. It is always planned on an axis directed towards Mecca. With the exception of the earliest instances, this axis is terminated on the inner face of the mosque by the mihrab, where the leader of the congregation makes his prayer. This act, which involves prostration, must be observed from other parts of the prayer chamber, and lateral vision is therefore

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[15] p. 555.

important. The congregation assembles in lines traversing the main axis and takes its cue from the leader or those in the centre of the line in a position to observe him. Thus a multi-columned hall with transverse aisles is acceptable. Since there is nothing sacrosanct about the mihrab, secondary mihrabs are often placed in other position of convenience for the use of smaller congregations of individuals. The prayer space is furnished only with the mimber, from which formal pronouncements can be made, though a part of the prayer space may be railed-off or fitted with a bacony for special uses-those of a dignitary or ruler, or of muezzins or women. There may also be a fixed reading desk or preaching stool[16].

SIKHISM AND THE GURDWARA

(Ref.: Sketch V)

Sikhism, or more appropriately, the Sikh Faith, is a Revealed Religion founded by Guru Nanak Dev (1469-1539 AD) in the 15th century AD. Its members are known as Sikhs. The word Sikh is derived from the Pali *sikkha* or Sanskrit *shishya* meaning "disciple". Sikhs are disciples of their ten Gurus (religious teachers or spiritual preceptors), beginning with Guru Nanak Dev and ending with Guru Gobind Singh (d. 1708). According to the Encyclopaedia Britannica :-

> Nanak was born in 1469 in the village of Rai Bhoi di Talvandi, 40 miles from Lahore

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[16] FLETCHER, *op. cit.*, p. 537.

(in present-day Pakistan). His father was a revenue collector belonging to the Bedi (conversant with the Vedas–the revealed scriptures of Hinduism) subcaste of Ksatriyas ("Warriors"). Nanak received an education in traditional Hindu lore and the rudiments of Islam. Early in life he began associating with holy men. For a time he worked as the accountant of the Afghan chieftain at Sultanpur. There a Muslim family servant, Mardana, who was also a rebec player, joined him. Nanak began to compose hymns. Mardana put them to music and the two organized community hymn singing. From the offerings made, they organized a canteen where Muslims, as well as Hindus of different castes, could eat together. At Sultanpur Nanak had his first vision of God, in which he was ordered to preach to mankind. He disappeared while bathing in a stream. When he reappeared on the third day, he proclaimed: "There is no Hindu, there is no Mussulman."

Sikh tradition relates that Nanak also undertook four long voyages: east as far as Assam; south through the Tamil country to Ceylon; north to Ladakh and Tibet; and west as far as Mecca, Medina, and Baghdad. He spent the last years of his life in Kartarpur (in present-day Pakistan), where he raised the first Sikh temple. Before he died in 1539 he nominated one of his disciples, Angad, as his successor[17].

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[17] Encyclopaedia Britannica, Vol. 16, 15th Edition, p. 744.

Although the Gurus themselves disclaimed miraculous powers, a vast body of *saakhis* ("stories") recounting such miracles grew up, and with them *gurdwaras* (meaning, gateway to the guru), or Sikh temples, commemorating the sites where they are believed to have been performed. It also became an article of belief that the spirit of one Guru passed to his successor "as one lamp lights another". This notion gained confirmation through the fact that the Gurus used the same poetic nom-de-plume, "Nanak", in their *shabads* (hymns).

The first Sikh place of worship was built by Guru Nanak at Kartarpur and was, known as *dharamshala* ("place of faith"). At a later stage, a Sikh temple came to be called a *gurdwara*. There are more than 200 historical *gurdwaras* associated with the Gurus, which are controlled by the Shiromani Gurdwara Prabandhak Committee (SGPC) set up by the Sikh Gurdwara Act of 1925. Offerings made at *gurdwaras* are used for their upkeep as well as for the operation of Khalsa (concept of a "chosen" race of saint-soldiers) schools and colleges.

In addition to historical *gurdwaras*, every place with a sizable Sikh population is likely to have a *gurdwara* of its own. In well-to-do homes, a room is often set apart for this purpose. Sikhs are enjoined to regard the Adi Granth as "a Living Guru" worthy of single-minded devotion and unremitting worship. Devotees make their offerings of money and flowers and receive *kadah-prashad*, a batter of flour, ghee (clarified butter), and sugar.

CHAPTER - III

ARCHITECTURE

Architecture is the completest of all professions, and actually uses the inputs from different fields of human endeavour, notably : Humanities, Art, Science, and Technology. As an inescapable psycho-social art, Architecture touches all human beings at all levels of life, and is the single largest contributor to the making of Built (or Human) Environment. So universal is its way, and so timeless its vogue, that Architecture is, indeed, the matrix of civilisation. Its socio-cultural significance never dies. When in use, it provides shelter for multifarious human activities. When in ruins, it assumes the discipline of Archeology – the tell-tale narrative of civilisations long past and dead. It is the indestructible unique worth of Architecture that motivates the use of the word "Architect" or "Architecture" with special connotations : the Architect of the nation ; the Architect of one's destiny– and now in its state-of-the-art usage : Computer Architecture.

In pragmatic terms, according to Encyclopaedia Britannica :-

> Architecture is the art and the technique of building, employed to fulfill the practical and expressive requirements of civilized people. Almost every settled society that possesses the techniques for building produces architecture. It is necessary in all but the simplest cultures; without it, man is confined to a primitive struggle with the elements; with it, he has not only a defense against the natural environment but also the benefits of a human environment, a prerequisite for and a symbol of the development of civilized institutions.

The characteristics that distinguish a work of architecture from other man-made structures are (1) its suitability to use by human beings in general and its adaptability to particular human activities; (2) the stability and permanence of its construction; and (3) its communication of experience and ideas through form.

All these conditions must be met in architecture. The second is a constant, while the first and third vary in relative importance according to the social function of buildings. If thc function is chiefly utilitarian, as in a factory, communication is of less importance. If the function is chiefly expressive, as in a monumental tomb, utility is a minor concern. In some buildings, such as churches and city halls, utility and communication may be of equal importance[1].

MANY DEFINITIONS OF ARCHITECTURE

Architecture has been defined by a galaxy of luminaries of the profession through the ages. Geo Ponti, the Italian architect, wrote an exclusive book in praise of Architecture. Among the most interesting statements on this subject are given by Le Corbusier and Louis I Kahn, representing as they do two extreme aspects of the case : the physical and the metaphysical. Corbusier writes : *"Architecture is the conscious, correct and magnificent interplay of volumes assembled under light*[2]*."* Kahn avers : *"Architecture does not exist...Only the spirit of Architecture exists...What has presence is a work of Architecture, which should be made in a way that is worthy of an offering to*

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[1] Encyclopaedia Britannica Vol. 1, 15th Edition, pp. 1088-89.
[2] CORBUSIER, Le. (1972), *Towards A New Architecture,* The Architecutrual Press, London, p. 31.

Architecture."[3] The former has stressed the FORMal Element of Architecture while the latter has highlighted its SPIRITual nature.

And yet the ideal definition eludes the grandest of human disciplines – which is not a profession, but a habit of the mind, as Corbusier once put it. I have attempted to provoke Architecture itself to say what it is. Here goes, the original verse in Urdu, and its English rendering :-

Khalvat kee fizaaon mein karoon jalvatein paida

Jo khaak mein pinhaan hain woh hon sooratein paida

Khoon ban kei rag-i-sang mein utroon jab kabhi

Hon Taj-o-Ajanta see haseen moortein paida

In the vast expanses of wasteland I create habitations

Forms, which're buried 'neath dust, become manifestations

When, like blood, I course thro' the veins of stones

Taj 'n' Ajanta spring as beautiful configurations

ARCHITECTURE AND THE HINDU TRINITY

The music, might, and majesty of Architecture can be best grasped by contemplating one of the most ancient triune concepts of Godhead, the Hindu Trinity. According to it, Brahma is the Creator, Vishnu the Provider, and Shiva the Destroyer. Each god has absolute power in his assigned role. Yet the three gods could not do without an Architect. They had to engage the Celestial Vishwakarma to create the Universe.

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[3] WURMAN, *op. cit.*, p. 27.

And he did so with incomparable virtousity, with just two elements : Space and Time–whose primal progeny is Nature–the perfect Architecture that already existed before Man arrived on the Planet Earth ! Architecture is Frozen Music (Goethe) which can be thawed into fluid grace only by the heat of Passionate Love (*Ishq-i-Mijaazi*) an Architect must have for Mother Nature–the Primary Resource of men, materials, methods, and machines.

What are the Elements, the Principles, the Determinants, and the Objectives of Architecture?

The ELEMENTS are	**:**	**Space, Structure, Form, and Time.**
The PRINCIPLES are	:	Scale, Proportion, Rhythm, Balance, Harmony, Contrast, Order, Beauty, etc.
The DETERMINANTS are	:	Geography, Climate, Social Custom, Economy, Building Materials, Technology, Decision-Maker's/Client's Whims,–above all, the Architect's Creative Imagination and Ability to Interpret Complex Problems and to Express them as One Organic Whole.
The OBJECTIVES are	:	Comfort, Function, Expression, Strength, Durability, Contextual Relevance, etc.

The objectives: Comfort, Function, pertain to the creation of Space (Architecture) and become this element's primary generator. Strength and Durability are attributes of Structure as a product of Engineering. Expression is an Objective expected to be fulfilled by Form, as a manifestation of Aesthetics. The three interrelated terms given in Vitruvi us'[4] Latin text are: *firmitas, utilitas,* and *venustas,* which, respectively, mean: STRUCTURAL stability, appropriate SPATIAL accommodation, and AESTHETICAL appearance. The principles enumerated above are primarily applied to Building Design with Form in mind. The depiction of Time as an Element is sought in the Contextual Relevance which the created artifact must fulfill as a primary objective. How all these aspects, criteria, and parameters figure in the present study are discussed in appropriate sections.

UNDERSTANDING ARCHITECTURE

Understanding Architecture requires an insightful knowledge of History of Architecture, Art, and Culture. This knowledge should be applied to seeing what happened/happens to the Elements of Architecture : Space, Structure, Form, and Time. Structure is to Building, which is the only perceivable manifestation of Architecture, as Skeleton is to Human Body. But Structure, in essence, is a complex of various forces resolved and brought into an equilibrium–intellectually. It is an unseeable abstraction, and the moment it is made into a Building it becomes construction–which is, to put it simply, an assembly of materials. All the different kinds of Building are built primarily as a Structure against one or two or a combination of these forces: Gravitation (exact vertical and /or eccentric), Wind Load (horizontal force), and Earthquake (a complex of forces which act in different directions,

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[4] Encyclopaedia Britannica, *op. cit.*, p. 1112.

simultaneously–and are, therefore, not precisely predictable). When Structure as essence (i.e., the inner distinctive nature of Building) is realised as substance (i.e., the existence or body to which essence belongs) Materials come *automatically* into play as physical attributes of Building. Thus Understanding Architecture is preceded by an understanding of various materials, the many methods by which they are assembled, the Manual and the Mechanical Means available, and the kind of men who will work on the site or in the factory to *build* Architecture and its several components. Historically, the development of materials may shown as : Cave (God-made or Natural Shelter) → Wood → Stone → Brick → Iron → Steel → Concrete/RCC → Aluminum, Plastics, PVCs, etc.

EXPERIENCING ARCHITECTURE

Experiencing Architecture may be accomplished in three stages: Immersion, Recovery, and Formulation. *Immersion* takes place when you let go of everything that you have Learned and Understood and be totallv lost in Architecture. There are three parts of experience: The experiencer (i.e., you), the experienced (i.e., the building, in this case), and experiencing (i.e., the process *without* the producer or the product). Experiencing Architecture will come about when You and the Building are dissolved in what may be called unconscious Self-Consciousness i.e., when you are self-conscious without being conscious of the fact. Such a state of consciousness synergises the Soul, Mind, and Body into an Organic Whole which is greater than the sum of its parts as a Live Force in which all faculties (Reason. Emotion, Imagination, Intuition, Will, Discrimination, Judgement, etc.) function integrally and simultaneously. Experiencing leads to either delight or disappointment, but can NEVER remain apathetic. This is a solid gain on which the next stage rests.

Immersion is like having drowned in what may be a puddle, a pond, a stream, a river, or sea, or ocean. *Recovery,* the second stage, of Experiencing, is like surfacing again to ask: Where have I been? What happened during that delightful or disappointing drown? If such questions do not emerge automatically, you can be sure that Immersion was *not* proper.

Recovery leads to *Formulation* which is essentially an intellectual exercise aimed at putting into words the nature, scope, and form of Experience. Formulation cannot merely say: Oh! It was great. It must also explain Why, How, and to What extent it was great. Using the faculty of Reason, Formulation gives Emotion the Language of Thought which alone is transmissible. Emotion requires physical *presence* of the Experienced for Experiencing. If Emotion springs up for someone or something *not* physically present the Experience is vicarious, not *real.* Stage, TV, Screen, Novels, et al, provide only *vicarious* Experience. The mass media fire your imagination and can make you laugh or weep or act heroically by the artifice of histrionics or evocative writing which express mock-up Emotion largely through mimicry conveyed through thought-enacted spoken or written.

SRI HARMANDAR SAHIB: ARCHITECTURE

(Ref.: Plate No. V, VI, VII and VIII)

GENERAL FEATURES

The Golden Temple has been built on what PS Arshi (a pioneer scholar on the subject) has termed a "hexa-square" plan–a compounding of a square in the front and a half-hexagon in the rear. The square part has a three-level structure while the half-hexagon rises to two-level height. The main building on the square plan is crowned by a structure roofed over by an elliptical dome, which makes it a 1½-storeyed building. The *Sachch Khand* structure is actually single-storeyed, with double-height for the Parkash Asthan. This disposition of volumetric space permits darshan of the Adi Granth from the middle-level visually exalting the Parkash Asthan. (The two front corners are surmounted by two kiosks raised on boldly-articulated structures, each containing a staircase. Similarly, the inclined sides of the half-hexagon plan are marked by two kiosks but of a different design placed atop the roof of each staircase. The building, whose main part forms the *sanctum sanctorum* raised on a square plan, has been placed on a wider platform of the same shape. To this is added the half-side of the half-hexagon to constitute a circumambulatory *(parkarma)* whose front and sides are open to sky but the rear is a covered passage. Thus the first-floor roof slab forms a bridge between the main shrine in the front and the supporting facilities at the rear. The whole building is placed in the centre of a near-square water tank, *amrit-sar,* or pool of nectar. The shrine is approached from the western side through a gate-house, called the *darshni deorhi,* or viewing vestibule, via a causeway. The paved embankments of the sacred pool form the outer, open-to-sky *parkarma* along which run colonnaded passageways providing a covered circumambulatory. A monumental building,

each in the centre of the four sides of the outer *parkama,* is an integral part of the Golden Temple precincts. The western side has *Akal Takht,* Throne of the Timeless One, which constitutes a counterpoint with the Holy Shrine in that the latter is the Abode of God's Spiritual Attribute, and the former the seat of His Temporal Authority. The north and south have identical "buildings serving as gate-houses and fulfilling other secular functions. The eastern building is a free-standing gateway, and has a quite different design.

DESIGN OF DARBAR SAHIB

This holiest of the holy shrines of the Sikh Faith was originally called *Har-Mandar* (God's Temple) or *Darbar Sahib* (Court of the Lord). The suffix "*Sahib*" is traditionally added to underscore the Spiritual Attribute of God by whose grace, Guru Nanak Dev reiteratively proclaimed, the world comes into existence, and is sustained by His edict-fiat. "Sahib" is an Arabic word for "Master" or "Lord". The Sikhs use it as an epithet to lavish reverence on all things religious. Their Holy Book is called *Guru Granth Sahib,* which, literally, means Mr Book, the Holy Preceptor; Anandpur Sahib: the City of Joy, where the Lord dwells, etc.

A square edifice measuring 40'-7" × 40'-7" forms the main sanctuary of *Harmandar Sahib* which stands on a square podium of 66'-4" side. Technically speaking, the building is two-storeyed, with the third storey constituted of a square pavilion roofed over by an elliptical dome. However, this terrace-pavilion is a full-fledged room. square in plan with 19'-5"x19'-5" outer dimensions. The cuboid structure of the main sanctuary has double height in the middle, with the first-floor gallery running round the central space. The area thus formed at the ground floor is called the *parkash asthan:* or the place where the light

of *Guru, Granth Sahib* (The Sikh Bible) dawns. The function of the domed terrace-pavilion is, indeed, to prevent anyone from crossing over the sacred *parkash asthan,* which is considered to be an unpardonable sacrilege. This cardinal rule is so strictly followed that even in the villages where the mud hamlets cannot have the *sentinel* dome, thorny bushes placed on the roof-top over the *parkash asthan* perform this crucial function.

SCRIPTURAL SOURCE OF DESIGN CONCEPT

The concept and design of the Golden Temple is not a routine architectural creation. Much less is it a building-type derived from the stylistic features of places of worship of other religions as has erroneously been accepted by scholars of all disciplines and denominations. The source of its concept and design lies in the sacred scripture, the Bani of Guru Nank Dev (1469-1539 AD), who founded the Sikh Faith as a Religion of Revelation. Though this crucial subject has been alluded to in the previous sections, an attempt here is made to deal with it comprehensively in one go. Since a particular place of worship as building-type is the sheet-anchor of an architectural style associated with a particular religion, it stands to reason that it would have necessarily developed from the intrinsic vision that distinguishes one faith from another. In other words, the concept and design of a place of worship are the architectural correlates of the tenets of a given faith as enshrined in its sacred scripture and /or as expressed in its founder's cosmic view of life vis-à-vis the ultimate reality.

Guru Nanak heralds the Sikh Faith by the sacred Formula,

EK Oankar or *Omkar* (ੴ), which proclaims the indivisible Unicity and Absolute Sovereignty of the One Lord God; and stands at the head of *mul-mantra*, the sacred text, which enumerates His Attributes—and introduces the Bani called Japuji. The use of the numeral "1" before God's Name (*Oankar*) is unique in the history of world religions. "One" stands for the non-attributive essence (*nirgun*) of God as the Transcendent Being. "*Oankar*" depicts Him as attributive Primal Person (*Karta Purakh*) who, unaided by any deity whatsoever, Himself performs the three-pronged function of Creation, Preservation,

and Dissolution. This is God's *sargun* (attributive) Form experienceable as palpable Immanence. The name by which we know Him is also of God's own Creation—the Holiest of Holy—among Time, Space, and Matter, whose primary manifestation is Nature (*qudrat* : God's own Divine Might).

The *mul-mantra* proclaims thus :

> The One Lord God has Truth as His essential trait ie He is unaffected by the law of Change, which is of His own creation. His attributes in Immanence may be named thus: He is the creator (*karta*), Primal Person (*purakh*), sans fear (*nirbhau*), sans enmity (*nirvair*), beyond death (*akal*), Immanently experienceable (*murat*), but not born (*ajooni*), Self-existent (*saibham*). By God's Grace (*parsad*), who is the Guru (Enlightener or Holy Preceptor), have I proclaimed this New Faith.

It should be evident that Guru Nanak's *mul-mantra*, the sacred formula, which is used by the Sikhs *ad infinitum*, speaks of God both as a Transcendent Being (*nirgun)* and Immanent Becoming(*sargun*) as His two *roops* (forms). And, then, moves on to *Jap(u)* or Prayer-Chant (from where Guru Nanak's Bani "Japuji" takes its name), followed by *sloka* (prologue), which reiterates God's essential trait as Unchanging Essence (*sachch*).

> True was He (ie God) before Time was born;
> True was He when Time began to run its course; True is He even now; True shall He be evermore.

The four sides delineated in this *sloka* represent the concrete form of God's Transcendence. *Kaaba* (Arabic word for

cube) is the holiest of the holy for the Muslims. The cube symbolises both this-worldly (*material*) and other-worldly (*spiritual*) dimensions in the selfsame geometrical solid. The cube opens out to a Latin Cross when its six squares are developed geometrically on a two-dimensional surface, thereby representing Jesus Christ, Compassion Personified. No wonder the Muslims recognise him as one of their own prophets. The cross symbolises sacrifice as well as self-abnegation ie when one "crosses" oneself (as the Christians habitually do) one symbolically *negates* oneself. The beauty about cube is that it is a perfect solid in terms of aesthetic appeal. All its six constituent surfaces are complete squares which admit of no disputation as to their proportions (a basic criterion in the evaluation of an object's aesthetic).

Since Plan is the "generator", as Le Corbusier[5] has aptly put it, let us see how the foregoing exposition of Guru Nanak's Revelation figures in the plan of the Golden Temple. Plan is a figure or representation of anything projected on a plane or flat surface especially that of a building, floor, etc. as disposed on the ground. The plan of *sanctum sanctorum* of the Golden Temple is a perfect square, representing thereby the concrete form or manifestation on ground of God's essential Transcendence designated as Truth—the Unchanging, the Infinite (Space), the Eternal (Time)—by Guru Nanak, as revealed to him by God Himself in the capacity of his Guru's (ie Holy Preceptor's) Benefaction (*prasad*). This is the first part of the sacred *mantra*: *Ek Omkar* (ੴ), and represents God's Unchanging Essence as Transcendent Being suggested by the numeral "1". The second part depicts His Multi-Form, Multi-Dimensional, Ever-Progressional, Entity as Immanent Becoming. Thus a half-hexagon has been attached to the square

[5] CORBUSIER, *op. cit.*, p. 44.

of the *sanctum sanctorum*, by an independent unit of space which connects and serves both the front (the square) and the rear (the half-hexagon). A complete hexagon would have produced a competitive form, whereas the half-hexagon is complementary to the main square form. In other words, now it is "together (with the square) making up a whole", embodying as it does both the Transcendent and the Immanent aspects of the selfsame Ultimate Reality, the One Lord God (*Ek Omkar*). It is interesting to note that the three sides of the half-hexagon also suggest the three *gunas* (ie attributes) which, according to the Sikh Scripture, create Diversity in Unity by their countless combinations. The three *gunas* are: *tamas, rajas, sattva*, and, respectively, represent: inertia and ignorance; energy and ambition; and poise and enlightenment. The square and the half-hexagon constitute a form not unlike that of the human brain. The brain has two hemispheres separated by a deep furrow, the fissure of Rolando, and connected by the *corpus callosum*. The corpus callosum of the Golden Temple is the covered passage (part of the *parkarma* or circumambulatory) which connects the square of the *sanctum sanctorum* with the *half-hexagon* which forms the *Har-ki-Pauri* ie God's Stairs, at the rear.

Before proceeding further, it will be helpful to spell out the five realms (*khands*) which, according to Guru Nanak, constitute the stages of mystic experience or spiritual evolution of human life whose final goal is the realisation of Truth, not merely as the attainment of the "beatific vision" but as absorption in Divine Essence. This goal is attainable through an earnestly sustained process of psycho-emotional discipline and spiritual experience. The Five Realms are: *Dharma Khand; Gyan Khand; Saram Khand; Karam Khand;* and *Sachch Khand*. *Dharma* (or the Cosmic Moral Law) constitutes the foundation of

spiritual life. Placed in this realm man has to discharge his obligations while performing the human functions imposed on him by the Creator. God has endowed him with superior consciousness, and man is thus expected to carry on functions, both secular and religious, during workaday existence.

Gyan Khand is the next stage, Realm of Knowledge, in which man's intellect steadily gets keener and his mental horizons widen. He starts perceiving cosmic mysteries through deliberate intellectual effort. As GS Randhawa has put it, "man is seized of his own reality, his kinship with the Sole Being and his predicament of the 'paradise lost'."

Armed with this awareness, man moves on to the next stage, *Saram Khand*, the Realm of Spiritual Endeavour. It is here that man's intuition, understanding, and insight are all superbly forged. His incessant labours in the psycho-ethical field ultimately qualify him to enter *Karam Khand*, the Realm of (divine) Grace. The key to earn God's Grace lies in total surrender to His Will and unremitting involvement with His Name Divine, which is itself its own invaluable reward as a dispensation of Lord's grace, *Karam*. The long and arduous journey of the human spirit (the soul-Bride) is by row well-nigh over, and it enters the Realm of Truth, *Sachch Khand*, where the Divine-Husband, the Formless Lord (*Nirankar*) dwells. It is from here that the Almighty Father showers His Grace and issues forth His Edict-Fiat (*hukam*). *Sachch Khand*, indeed, is humans' primal home and their final destination through the countless vicissitudes of a long and arduous journey, that begins in *dharma*, moves via *gyan, saram,* and *karam khands*, to get there ultimately.

In the light of the foregoing exposition, it should be easy to appreciate why the site, on which the Golden Temple has been

built, is called "*Sachch Khand*" (the Realm of Truth) and the *Sanctum Sanctorum* of the Holy shrine exalted as "*Parkash Asthan*" (the place where Enlightenment dawns). Because it is here that the *Adi Granth*, the Divine Word revealed to Guru Nanak in his Enlightenment, is worshipped as God's Living Embodiment, and installed with a befitting ceremony everyday at pre-dawn hour.

The Epilogue (concluding *sloka*) of the Japuji exalts this planet as the Great Mother Earth, identifies the *Guru* (The Holy Preceptor) with Air (the Breath of Life), and underscores the indispensability of Water as Father that sires all forms of Creation (as one of God's three Primary Functions). The inclusion of a huge waterbody in the concept and design of the Golden Temple is thus a symbol of the procreative propinquity of Water (Father) and Earth(Mother), as a primary fact of life. Its psycho-spiritual import is extended into the very lifestyle of the Sikh who is enjoined upon to seek Truth (*sachch*) by an incessant endeavour to be a *sachiar* (one of truthful conduct) by fullest involvement in life during workaday existence. The essence of this spiritual exhortation is that one must lead an inner life untainted by the viscous attachments of the outer world whose besetting sin is its countless temptations to which the mortals fall an easy prey.

One of the most important of Guru Nanak's religious injunctions is that man should indulge in constant spiritual endeavour to become a *sachiar* (truthful) by living in the midst of everyday life, yet remaining untainted by its worldly attachments. Says he: "*Jaise jal mein kamal(u) niraalam(u) murgai nai saane*" (SGGS,p.938). This pragmatic symbol forms the concept of siting the Golden Temple (*sachch khand*) in the middle of a huge waterbody (developed from an existing pond whose water was believed to have healing powers) called the

Amrit-Sarovar (The Pool of Nectar). Since water is the "Father of Life" on planet Earth (The Great Mother) its primacy is tantamount to that of the elixir of life. The metaphor in Guru Nanak's exhortation to a life of the spirit underscores this fact beautifully. Just as the lotus, which is borne of water, remains unaffected by it, or the duck does not get wet though it is a water-fowl, a seeker of Truth must live within the heart of the world, and yet remain unattached to its countless enticements.

The subtler meaning of this concept becomes clear when one reads the succinct description Guru Nanak has given of the architecture of God's Place : *"Dukh(u) darwaaja roh(u) rakhwala aasa andesa duay patt jarhay/ Maya jal(u) khayi paani ghar(u) baadhai sat kei aasan Purakh(u) rahei".* (SGGS,p.877)

Gurbachan Singh Bachan has rendered it as under:-

> Guru Nanak in Raga Ram Kali has elaborated the architectural plan of God's palace where he has described anger as the gatekeeper, hope/desire and anxiety as two sides/shutters of the door. A ditch filled with water of maya is encircling the palace and God is sitting on the throne of truth. Anyone who can overcome all these barriers and is having truthful living may enter the palace of God[6].

However, in the above explanation, the crucial opening which suffering creates for the door (*dukh(u) darwaaja*), has been overlooked. This is crucial because elsewhere Guru Nanak has said that it is sorrow that becomes the cure and happiness that attacks the mind as disease (*dukh daru sukh rog bhaiya*). In other words, the basic concept of the Golden Temple suggests

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[6] BACHAN, Gurbachan Singh. *Guru Nanak and Ecology,* Guru Nanak Dev University, Amritsar, p. 307.

that the Holy Shrine is *Sachch Khand* (the Realm of Truth) where the Formless One (*Nirankaar*) dwells.

The *Amrit Sarovar*, as a huge waterbody surrounding it, is the moat—the *jal(u) khayi* of Maya or the worldly wealth and its countless entrapments. The *Darshani Deorhi* is the Door where suffering has brought the seeker whose earnestness for Truth gets an existentialist pep when he has the "beatific vision" of *Sachch Khand*, the Palace of God. The lure of the Spiritual Treasure embodied in Truth thus outrivals the power of the Material Wealth of the Temporal World, and steps up the pace of his psycho-ethical journey manifold. The Spirit beckons him, if tantalisingly, but his soul has yet "miles to go before I sleep", as suggested by the long causeway, from the Darshani Deorhi to the Golden Temple.

The upshot of this somewhat esoteric exposition is that, though the Revelation is refreshing as the spring, Guru Nanak takes no credit whatsoever for his proclamations. Much to the contrary, as GS Randhawa has pointed out, the Guru asserts: *"Apinai ap(u) sajio apinai rachio nao; duyi kudrat(i) sajiai kar(i) asan(u) ditho chao/ data karta ap(i) tun tus(i) devai(n)h karai(n)h pasao..."*

He translates it as under:-

> The Formless Lord—manifested He Himself first.
>
> And unfolded He His Noumenon (essence) too.
>
> Created He then the phenomenal world.
>
> And permeating it, He began thence
> enjoying its functioning in serene bliss.

O Lord, Thou art our Creator and Bounteous Master too

It is Thee, who bestoweth all on us.

Aye, verily it is Thee, who through Thy sweet compassion

readeemeth us—the sinners that we be ![7]

This elucidation should underscore the ethico-spiritual significance of Humility which Guru Nanak has made the Cardinal Principle of the Sikh Faith. For, the crowning feature of the Golden Temple is the elliptical dome which expresses this all-important postulate of Guru Nanak's "Creative Mysticism". The siting of the Golden Temple at the level of the existing water-pond, much lower than that of the surrounding land, reinforces the cardinal principle of Humility manifold. For this signal feature alone, the concept and design of the Holy Shine is unique in the annals of World Religious Architecture.

Humility being the Cardinal Principle of the Sikh Faith, it is necessary to dilate upon this all-important theme. Guru Nanak has commended Humility not only as a superconductor for transmitting God's Grace to the mortal's heart but also as a psycho-social detergent to cleanse the Indian society of the stigma of rigid caste system. The Guru raised his voice against the arrogance of the Brahmin (of the highest of the four castes) particularly because he had arrogated holiness to himself. The so-called lowest caste (the Shudra) was vigilantly deprived of an honoured place in society. The Shudras were not given the right to possess landed and residential property, and denied the ministrations of religion. This meant that the path of liberation, the highest goal achievable by a created being, was sought to be

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[7] RANDHAWA, GS (1997), *Guru Nanak's Asa di Var,* Guru Nanak Dev University, Amritsar. pp. 72-73.

denied to them. Guru Nanak placed himself in the midst of these poor disinherited folks, and exalted Humility as the sole means of God-realisation for all seekers of Truth, regardless of their caste, creed, colour, race, rank, and gender.

In Sri Raga 3, page 15 (SGGS), he thus raises his mighty voice :-

> The lowest among the low castes, lower than the lowiest —
>
> Nanak is with them : He envies not those
>
> with worldly greatness.
>
> Lord ! Thy glance of Grace falls on the land
>
> where the humble are cherished.

In another place, with heart overflowing with Divine compassion, he thus exalts the low-caste (Shudra):-

> Should anyone out of the higher castes
>
> serve the Lord,
>
> Beyond expression is his merit.
>
> But he who from amongst the lower castes
>
> serves God,
>
> Saith Nanak, may wear shoes made from my skin.
>
> —Malar 6, p.1256, SGGS.

But such Humility is not feigned modesty or lowliness of mind. It is rock-bottom, unconscious, self-effacement: the dross of egotism reduced to ashes by the fire of Divinity. Such a state comes about when the seeker becomes God-oriented (*Guru-*

Mukh) and jettisons all the machinations which Mind-oriented (*Man-Mukh*) Lifestyle endlessly produces all in vain to catch the evanescent allurements of the phenomenal world. Humility, indeed, is the foundation of *Dharma*, the Cosmic Moral Law. The curious thing about Humility is that if you *know* you are humble, you are *not* humble. You are *vain*. It should be evident that Humility cannot be cultivated. It comes to the seeker as God's first pointer to the Path of Liberation. It is the signature of a heart full of Compassion ie Passion for Community of All Creatures. It is an unguarded vulnerability to the ineffable pain of human predicament. Humility is psycho-emotional void that prepares the soul to receive God's Grace. Humility is Compassion that bleeds in empathy for the tears shed by the helpless, the hapless, and the hopeless. It is God's unseen power working through the hands of the Blessed to raise the down-trodden to the stature of human dignity.

H-U-M-I-L-I-T-Y is Holistic Understanding through the Medium of Intense Love how the inverted-"I" experiences Truth in its evergreen Youthfulness. The point being stressed is that the First Principles themselves find their own appropriate expression through creativity encompassing Literature, Art, Lifestyle, Architecture, and so forth.

The use of water, which, in its very form and scale, is new and integral to the design concept of the Golden Temple, needs elaboration. Apart from its spiritual dimension, water has other crucial functions, both climatological and visual. In the former sense, it helps in creating a hospitable micro-climate, because it heats up and cools down more slowly and steadily than solid building materials. Throughout the year, which sees six different seasons, the Golden Temple has a pleasant, welcome atmosphere. This is enhanced manifold by the aesthetic function which water additionally performs. Water has the

characteristic power to etherealise the building bulk, *visually*. The visual appeal assumes a soulful charm when the Holy Shrine is reflected in the *Amrit-Sarovar*. The shimmering reflection of the Golden Temple mutely beckons the devotees to a life of the Spirit (ie etherealised materiality) within the intransigent regimen of the Phenomenal World. A lifeless Object takes on the pulsating sparkle of the Subject(ive), and there is an instant transformation of the devotees' psycho-emotional make-up. The Golden Temple springs up as a Lotus in full bloom. Its roots (the foundation) are deep in water, but the stem and flower (the superstructure) emerge in joyous fullness, symbolising the human beings' spiritual quest accessing the Realm of Truth in an impassioned embrace of Divine devotion—a heady concoction of a devotee's unremitting love and longing.

I should like to make a brief mention of the apt role which the building materials of the Holy Shrine play in expressing the fact that its design concept has its source in the sacred scripture of the Sikh Faith. White marble and copper-gilt are the two principal materials. The whiteness is a symbol of purity, attained by the devotee by inversion of his way and view of life from *Man-Mukh* to *Guru-Mukh*. This purity must be sustained by constant *Naam*-contemplation, honest livelihood, and sharing of one's income with the less-privileged, as an approved act of *Dharma* (The Cosmic Moral Law) which reminds one of the Fatherhood of God and the Brotherhood of Mankind. And, thereby, goads one to indulge in socially-beneficent action as an obedience to the Divine Will, without appropriating any credit whatsoever to oneself.

The copper-gilded upper parts of the Holy Shrine, which is the *Sachch Khand*, portray Beauty as the Splendour of Truth. This splendour of the Spirit is such that all the splendour of Worldly Wealth pales into insignificance before it. The yellow of the gold and the white of the marble are contrasting colours but

yet in lyrical harmony. For, as John Leighton succinctly puts it: "Harmony is an agreeable contrast—that is, pleasing to the eye, as a 'chord' is to the ear in music." Further, as Anna Jameson says: "In the art of design, **C**olour is to **F**orm what verse is to prose, a more harmonious and luminous vehicle of thought." (emphasis added.) The "white" symbolises purity while the "yellow" is the colour of the exalted spirit. The two together are an excellent architectural expression of the design concept of the Holy Shrine which is essentially derived from the *Gurbani* (the Revealed Word). Both marble and copper-gilt remain unaffected by water just as Lotus and Duck do, thereby graphically substantiating the design concept of the Golden Temple based on their similes.

It is now necessary to say something about the symbolism of the Lotus, and the Spiritual Postulates in the design concept of the Golden Temple. To recapitulate, the Golden Temple was intentionally built by Guru Arjan Dev at a low level (signifying Humility) and it floats like a Lotus in a Pool of Nectar (suggesting Purity).

According to Dr JS Neki:-

> The spirit behind the architecture of the Golden Temple is that of spiritual enlightenment and the lotus is the symbol employed to express this spirit. This flower remains closed with its stem bent down till the sunlight falls on it, when it becomes upright and opens up to blossom. This symbol has been appropriately incorporated in the architectural design of the temple. The main dome of the temple has the form of inverted lotus flower. The same flower is depicted in the arches and designs of the pillars[8].

[8] SINGH, *op. cit.*, p. 82.

Dr Neki's is an apt observation but it needs elaboration. The inverted lotus symbolises reflection (*Vichaar*), which has been stressed time and again in Sri Guru Granth Sahib – as an indispensable tool to penetrate the mystery of phenomena (*Maya*) for a deeper understanding of *Shabad*. The physicality of this symbol is transcended when one sees the *reflection* of the Holy Shrine in *Amrit-Sarovar*, and realises that the Essence lies beyond the substance of what one encounters during workaday existence. The uniqueness of the Architecture of Sri Harmandar Sahib lies in the subtle marriage of the Spirit and the Body through an inspired Building Design.

CHAPTER – IV

ENGINEERING

Architecture, being the art and science of building, is dealt with in this section in its engineering aspects, which may be broadly summed under the umbrella title "Technique". Other aspects of Architecture covered by the word "Art" include: Use or the Utility aspect, which covers Architectural Types like Domestic Architecture, Religious Architecture, Recreational Architecture, etc.; Expression or the Aesthetic Aspect, which covers such elements of Architecture as Space, Structure, Form, and Time; and Philosophic Postulates as are customarily dealt with under Theory of Architecture covering issues like Functionalism, Tradition, Modernity, and so forth.

"Techniques", in simple terms, are Materials and Methods. Methods cover various forms of Building Construction by which structures are formed from particular materials. These methods are influenced not only by the availability and character of materials but also by the total technological development of society, for Architecture depends on an organised labour force as well as on the existence of the tools and skills necessary to secure, manufacture, transport, and work durable Materials.

Techniques are discussed here in terms of the characteristics of building materials and the methods by which they are put together in the making of Architecture. In this special sense, Building Construction is quite simply the sensible assembly of different Materials, viz., stone, and brick.

MATERIALS

Stone: In most areas where stone is available, it has been favoured over other Materials for the construction of

monumental architecture. Its advantages are durability, adaptability to sculptural treatment, and the fact that it can be used in modest structures in its natural (i.e., untreated) state. But it is difficult to quarry, transport, and cut, and its weakness in tension (ability to resist pulling force) limits its use for beams, lintels, and floor supports (all these are horizontal members of Structure).

Brick: Brick compares favourably with stone as a building material for its fire- and weather-resisting qualities and for the ease of production, transportation, and laying. The size of bricks is limited by the need for efficient drying, firing, and handling, but shapes, along with the Methods of brick-laying, have varied widely throughout history. Special shapes can be produced by moulding (by hand or by machine) to meet particular building (Structure) or Expressive (Aesthetic) requirements. For example, wedge-shaped bricks are sometimes employed in Arch-construction, and bricks with rounded faces in columns (vertical members of Structure). Bricks may be used in construction only in conjunction with mortar (the material that holds two building units such as bricks or stones together) since the unit is too small and too light to be stabilised by its own weight.

METHODS

Wall: The two types of wall are load-bearing, which supports the weight of floors and roofs, and non-bearing, which at most supports its own weight.

Load-Bearing Wall **:** The load-bearing wall of masonry is thickened in proportion to the forces it has to resist: its own load, the load of floor, roofs, persons etc., that may cause it to crack or buckle. Its thickness often can be reduced at the top, because loads accumulate towards the base; in high buildings

interior or exterior setbacks at the floor-level of upper storeys do this. Walls that must resist lateral forces are thickened either along the whole length or at particular points where the force is concentrated. The latter method is called buttressing. The type of support for floors and roofs determines the placement of walls. The commonest support is the beam, which must be jointed to walls at both ends; consequently, its maximum permissible length establishes the distance between load-bearing walls. All floors and coverings are most easily supported on straight, parallel walls except the dome.

Post-and-Lintel: The simplest illustration of load and support in construction is the post-and-lintel system, in which two upright members (posts, columns, piers) hold up a third member (lintel, beam, girder, rafter) laid horizontally across their top surfaces. Also called the Trabeate System, this is the basis for the evolution of all openings. But, in its pure form, the post-and-lintel is seen only in colonnades and in framed structures, since the posts of doors, windows, ceilings and roofs are part of the wall.

The historical significance of the post-and-lintel system has been brought out in the Encyclopaedia Britannica as under:-

> From prehistoric time to Roman Empire the post-and-lintel system was the root of architectural design. The interiors of Egyptian temples and the exteriors of Greek temples are delineated by columns covered by stone lintels. The Greeks opened their interior spaces by substituting wooden beams for stone, since the wood required fewer supports. The development of the arch and vault challenged the system but could not

> diminish its importance either in masonry construction or in wood framing, by its nature dependent on posts and beams[1].

Arch: The arch may be called a curved lintel. Early masonry builders could span only narrow openings because of the necessary shortness and weight of monolithic stone lintels. With the invention of the arch, two problems were solved: (1) wide opening could be spanned with small light blocks, in bricks as well as stone, which were easy to transport and to handle; and (2) the arch was bent upwards to resist and to conduct into supports the loads that tended to bend the lintel downwards. Because the arch is curved, its upper edge has a greater circumference than its lower, so that each of its blocks must be cut in wedge-shapes that press firmly against the whole surface of neighboring blocks and conduct loads uniformly. This form creates problems of equilibrium that do not exist in lintels.

Vault: The evolution of the vault begins with the discovery of the arch, because the basic "barrel" form, which appeared first in ancient Egypt and the Near East, is nothing more than an arch deep enough to cover a three-dimensional space. In other words, an arch may be called a series of arches joined together to form a continuous whole. Since the barrel vault exerts thrust as the arch does, it must be buttressed along its entire length by heavy walls in which openings must be limited in size and number. This is a disadvantage, since it inhibits light and ventilation.

Dome: Domes appeared first on round huts and tombs in the ancient Near East, India, and the Mediterranean region but only as solid mounds or in techniques adaptable only to the smallest buildings. They became technically significant with the

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[1] Encyclopaedia Britannica Vol. 1, p. 1098.

introduction of the large-scale masonry hemisphere by the Romans. Domes like vaults, evolved from the arch, for in their simplest form they may be thought of as a continuous series of arches, with the same centre. Therefore the dome exerts thrusts all around its perimeter, and the earliest monumental examples required heavy walls. Since the walls permitted few openings and had to be round or polygonal to give continuous support, early domes were difficult to incorporate into complex structures, especially when adjacent spaces were vaulted.

THE INDIAN SCENARIO

In India, the technique of the art of building, i.e., in terms of Materials and Methods, evolved, as elsewhere in the world, from wood to brick to stone to dressed stone. Of particular interest to the aim of this study is the understanding of brick masonry as it was developed in its application especially to religious (or to non-secular) architecture in this country. As would be expected the use of brick masonry flourished principally in the great alluvial plains of the country where good clay was easily obtainable, but the theory of the availability of material should be not pressed too far. Much depends on the human element, and the preference of a people, under certain conditions, for the particular type of construction, which would best suit their purpose. As an illustration of this choice of material, immense buildings almost entirely composed of brick were constructed during the early mediaeval period at Mathura and Benaras, although the extensive sandstone quarries of Rupbas and Chunar were readily accessible.

According to Percy Brown:-

> Brickwork, if properly prepared, and other things being equal, has durable qualities little inferior to those of stone masonry,

besides it has the advantage of being composed of small units, the flexibility of which gives greater constructional possibilities. On the other hand the use of such small elements adds to the difficulty of bridging spaces, as in the case of roofs, doorways, and all openings. The Indian builder endeavored to overcome this disability by resorting to very large bricks, some of the earlier examples being over twenty inches long, several times larger than the modern article. There was a tendency to reduce the size as time went on, so that within limits it may be said that, the larger the brick the earlier its date. But the builder soon found that even by employing exceptionally large bricks, spaces could not be readily spanned so that it became the practice to introduce beams of wood over the doorways and windows, many of the earlier brick buildings thus containing a moderate amount of timber. Later, when the properties of the stone for such a purpose began to be recognized, instead of wooden supports, lintels of stone were used, and a phase then ensued when brick building with stone dressing found favour. It does not, however, follow that in every locality the two phases of brick with wood, and brick within stone, were in the above sequence. In certain parts this order may, for various reasons have been reversed, but as a whole, constructional evolution in the art of building progressed generally on these lines[2].

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[2] BROWN, *op. cit.*, pp. 49-50.

The difficulty of bridging over spaces in brick buildings was overcome by the Indian builder's practice of inserting lintels of wood or stone. Another method was of corbelling i.e., oversailing the courses of brick until they met. It was serviceable but not particularly scientific form of arch found even as early as in the Indus Valley civilisation of 3000 BC. The next logical step of a people committed to brick construction would have been, in ordinary circumstances, some method of placing these brick-units in juxtaposition, so that they would act as supports to one another, either on the principle of the true arch, or even in the form of the arch itself. This step, however, was never taken, the accepted explanation being that the Indian builder, from the beginning, mistrusted the stability of such a structural expedient, because, in his own words "the arch never sleeps". That he consistently adhered to this inhibition is proved by the fact that, with one or two relatively unimportant exception, the true arch is never found in any indigenous building in India, not appearing in the country until it was introduced by the invading Muslims in the 13th century.

SRI HARMANDAR SAHIB: ENGINEERING

(Ref.: Plate No. IX and X)

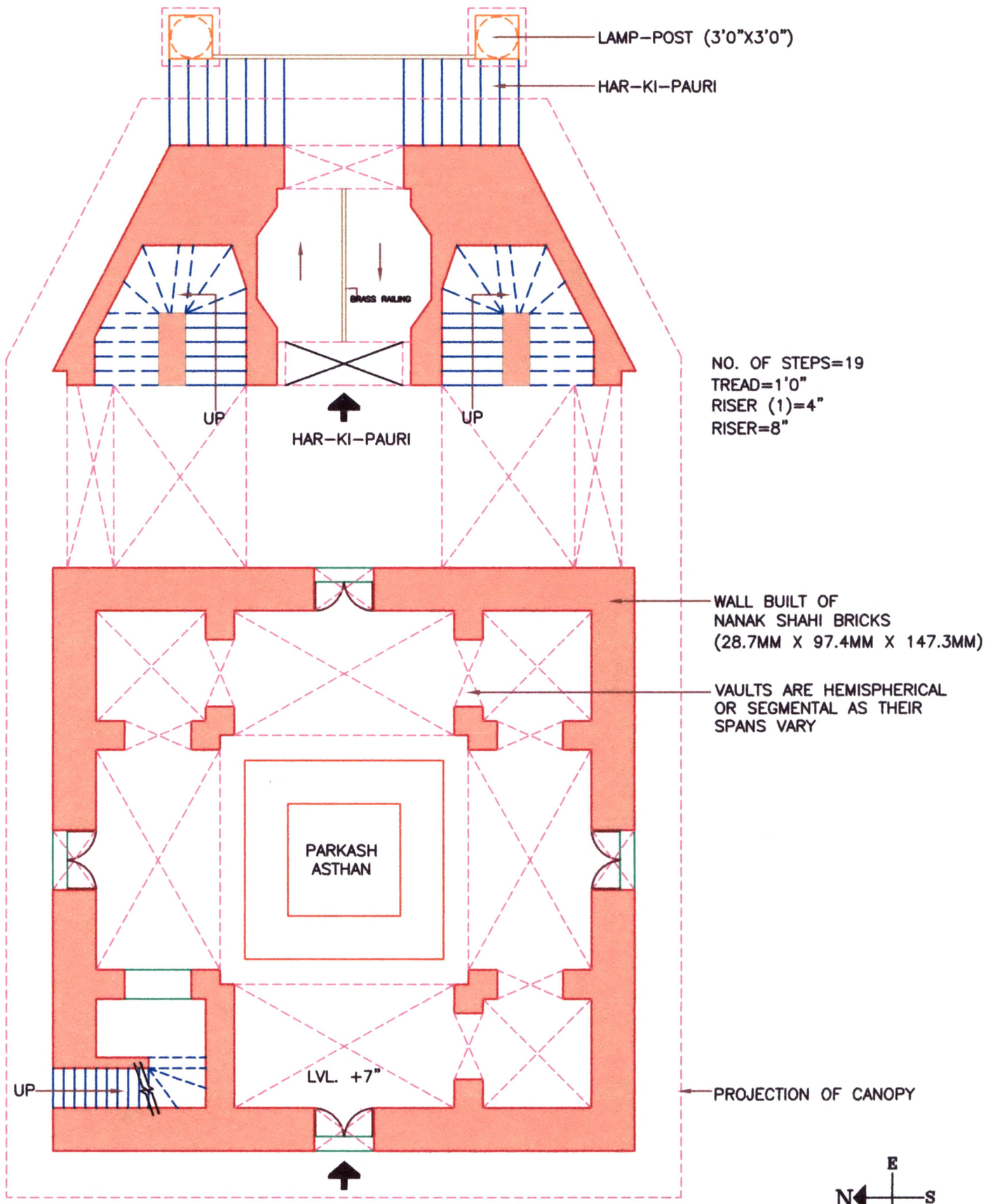
STRUCTURE SYSTEM AND CONSTRUCTION

The Structure System adopted in the Golden Temple is a combination of *trabeate* (ie post-and-lintel, slab) and *arcuate* (arch, vault, dome) systems, with more of the latter type predominant. The main dome, which is the crowning feature of the sanctuary, roofs an independent room at the second floor. It seems logical to assume that it has been used mainly as a symbolic device. The sky-vault itself has been called *gumbad-e-bedar* (Persian term for doorless dome) which is believed to be God's own gesture of grace and protection. An umbrella (*chhatri* in Hindi), by the same token, has allusions to a kind of "domed place", and is also a symbol of protection. Le Corbusier has used the parasol (inverted umbrella) roof for his design of the High Court in Chandigarh, with the suggestion that a Court of Law, being a dispenser of justice, provides protection to the lowly and weak from the oppression of the high and mighty.

The construction of the Golden Temple is brick masonry in lime mortar. The building unit called Nanak Shahi [ie belonging to the reign of Guru Nanak Dev (1469-1539 AD), the Founder of the Sikh Faith] brick is actually a kiln-burnt clay tile of 147.3mm length, 97.4mm width and 28.7mm height (or thickness). From the construction of late-16th-century historical monuments in north-west India it appears to be a unique type of masonry such as may be called lime concrete reinforced with Nanak Shahi bricks. This assumption flows from the fact that the mortar joint is as thick as the brick itself or even more. At any rate, since the sanctuary is a bearing-wall structure, the building is predominantly in compression. Hence the thickness of the walls is as much as 2'-2" (660 mm). Nanak

Shahi brick has produced the following results in laboratory tests: water absorption is 13.2%; and compressive strength is 985.7kg/cm^2. The maximum absorption of 20% and average compressive strength of not less than 100 kg/cm^2 have been prescribed under IS: 1077-1992. The report further reveals that "the submitted sample of Nanak Shahi brick does not have smooth rectangular faces with sharp corners. The brick though uniform in colour is having lots of cracks and flaws. No nodule of free lime was visible". In my view, irregular or rough faces are an advantage in that they provide a better bond with mortar. Uniform colour shows that the brick was properly burnt. Absence of free lime nodules testifies to the quality of brick clay. Seen in this light the concluding statement of the lab-test report "The submitted sample of Nanakshahi brick meets the IS requirements w.r.t. *water absorption and compressive strength* (emphasis added) but fails in dimension test and general quality" is a testimony of the constructional rightness of the building unit. Since the walls have been lime-plastered, failure of Nanakshahi bricks in "dimension test and general quality" is of no consequence. What is more is that the present building dating from 1776 AD (when it was last rebuilt) has successfully stood the test of time for well over two centuries !

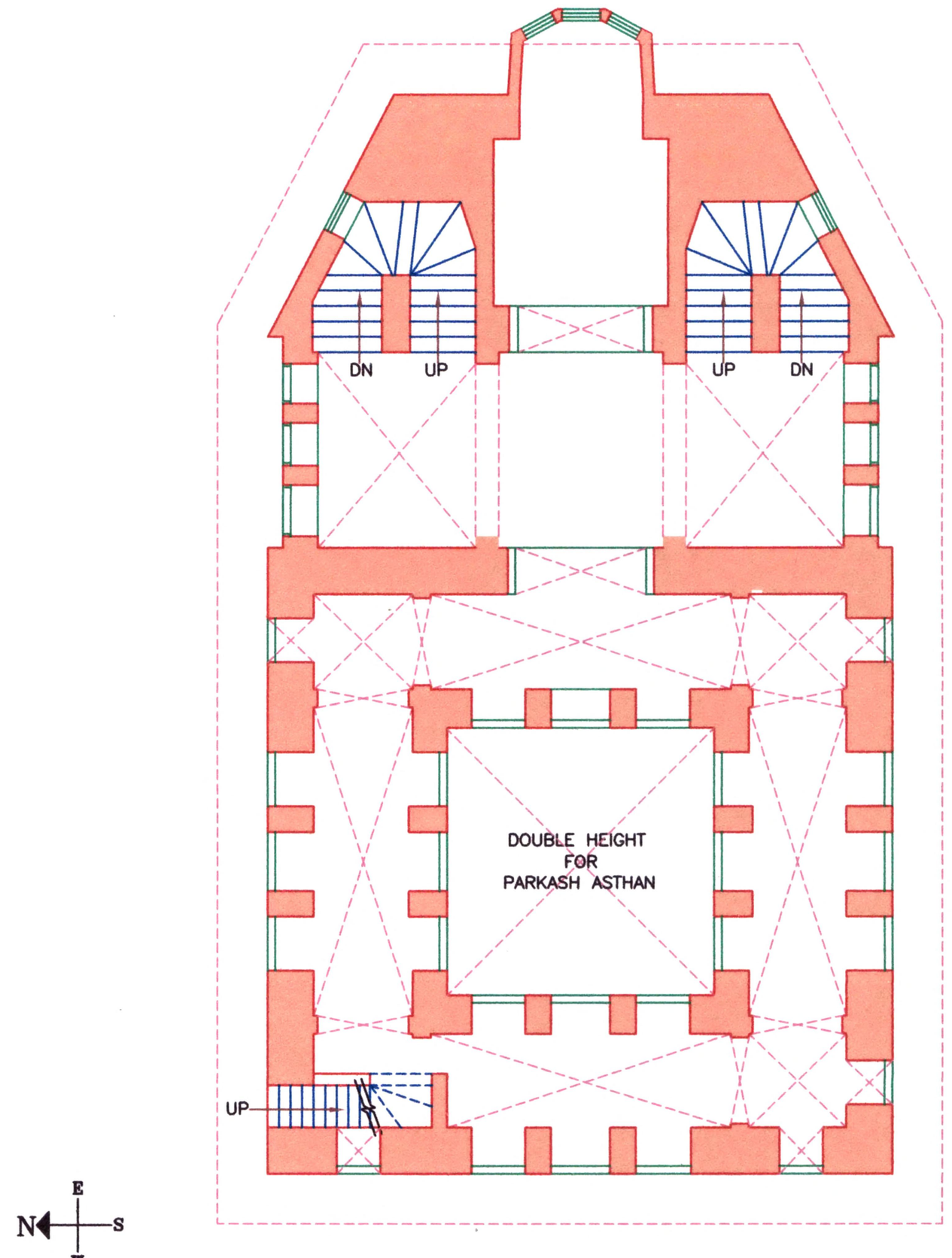
Since cornices and other projections had to be built the construction was based on the system of corbelling. The corbel is a block of stone, often elaborately carved or moulded, projecting from a wall, supporting the beams of a roof, floor, vault or other feature. In modern brick masonry, corbelling is a successive projection of 2¼" of bricks course-wise using bricks of a standard size of 9" × 4½" × 3". Though the resulting overhang is restricted in dimension as a free- end projection (up to 2'-0" or so) it may be broadly called a cantilever in brickwork without the use of mild steel bars reinforcement which is so



GROUND FLOOR PLAN

SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

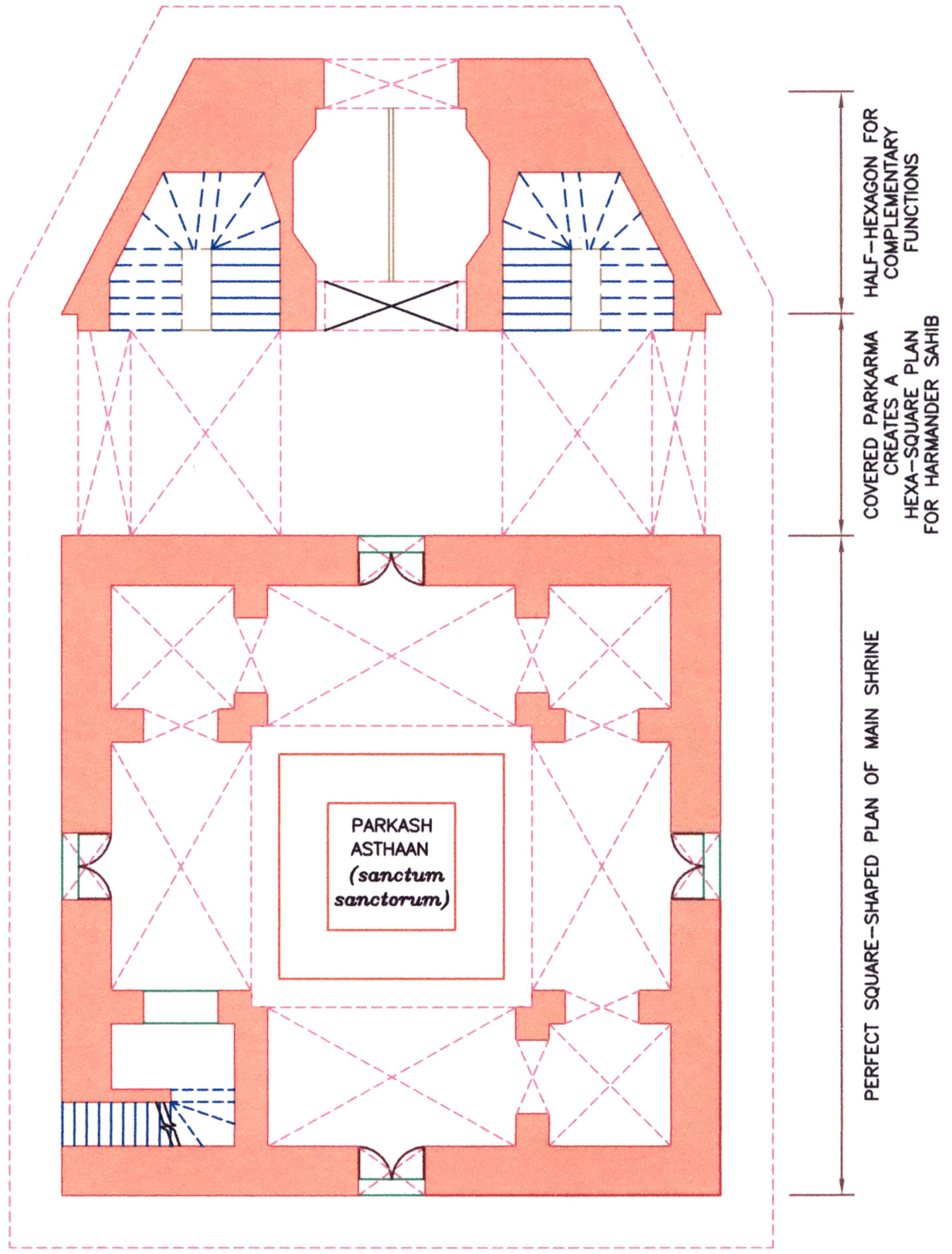
PLATE NO V



FIRST FLOOR PLAN

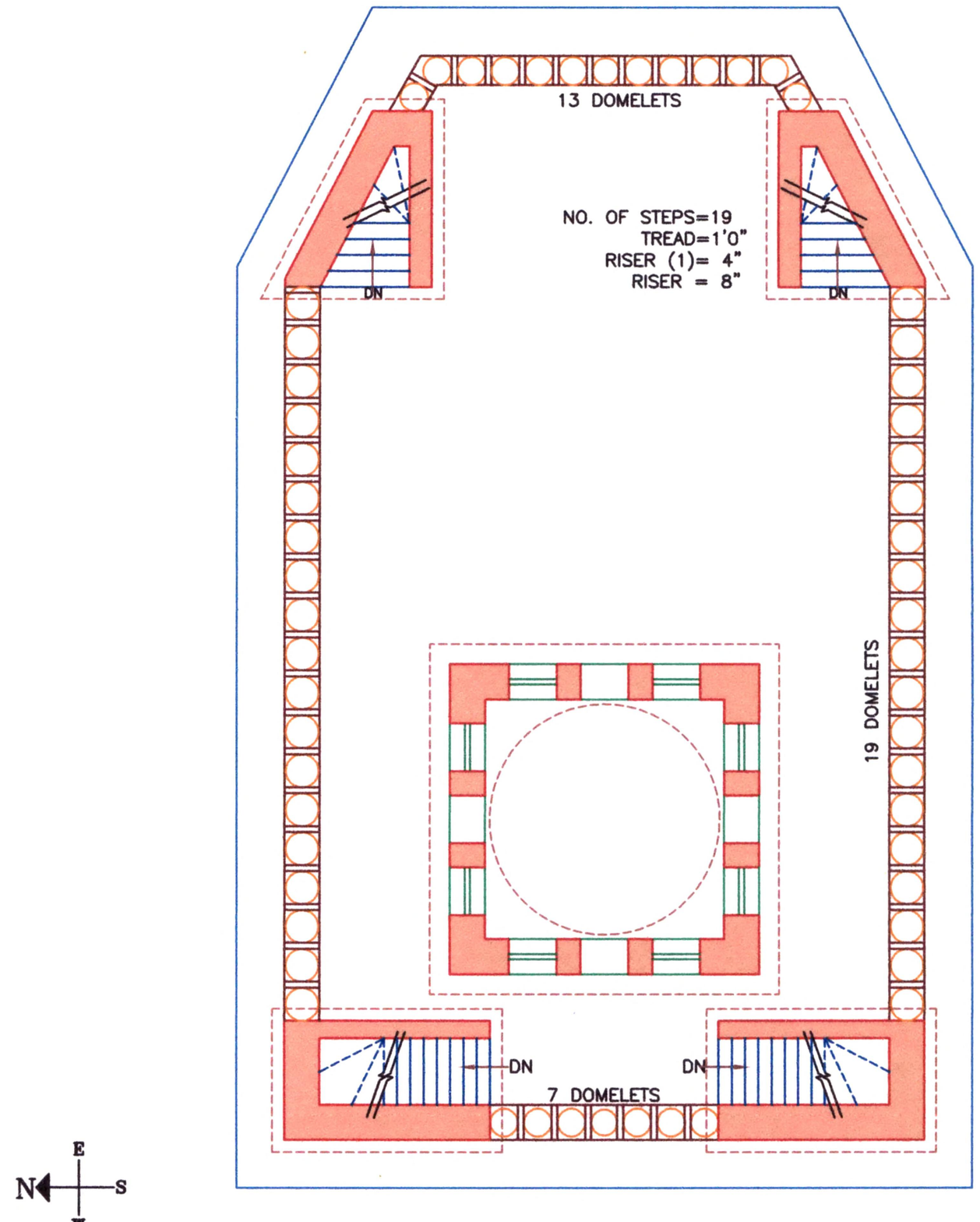
SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

PLATE NO VI



GOLDEN TEMPLE : conceptual plan

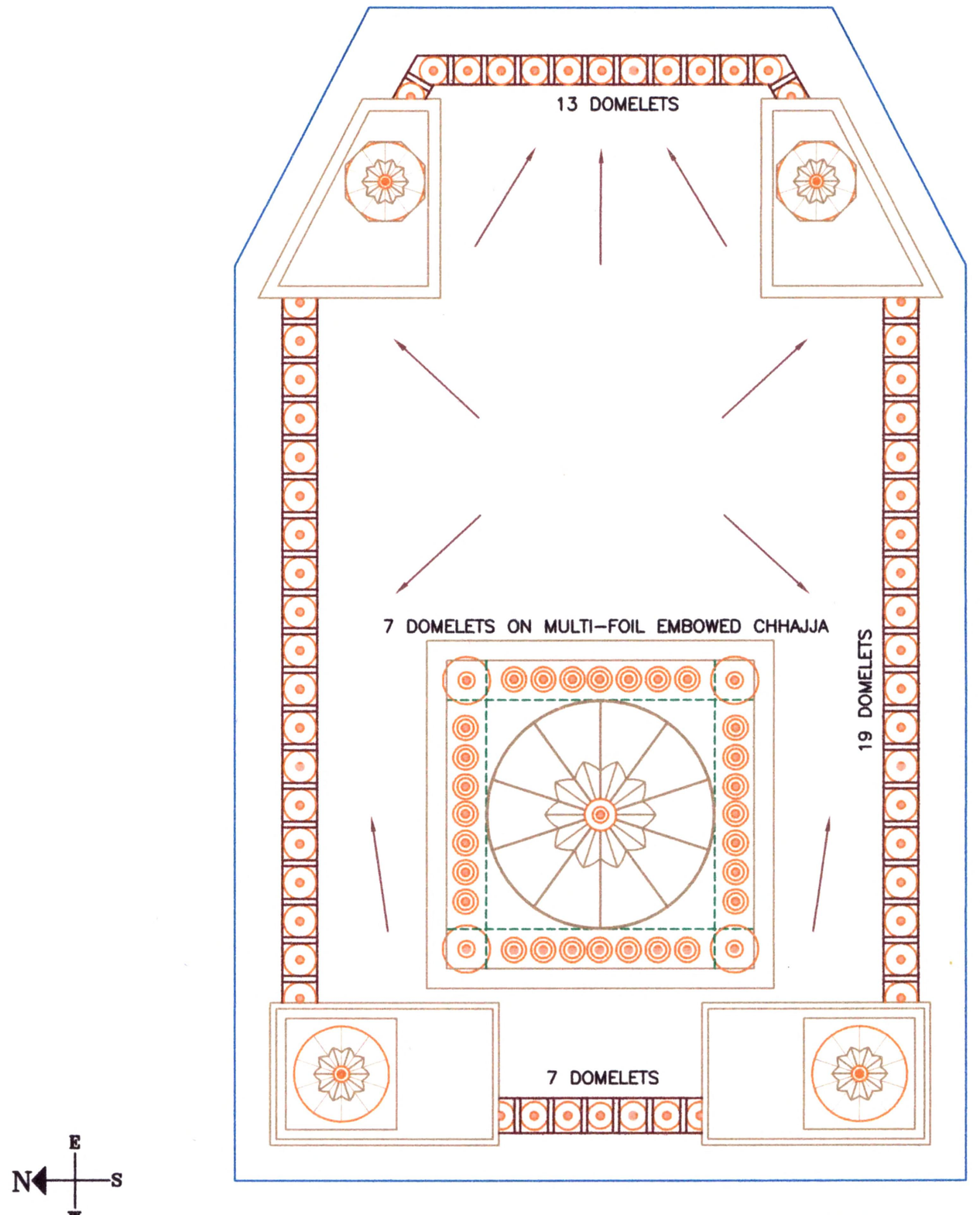
SKETCH V



SECOND FLOOR PLAN

SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

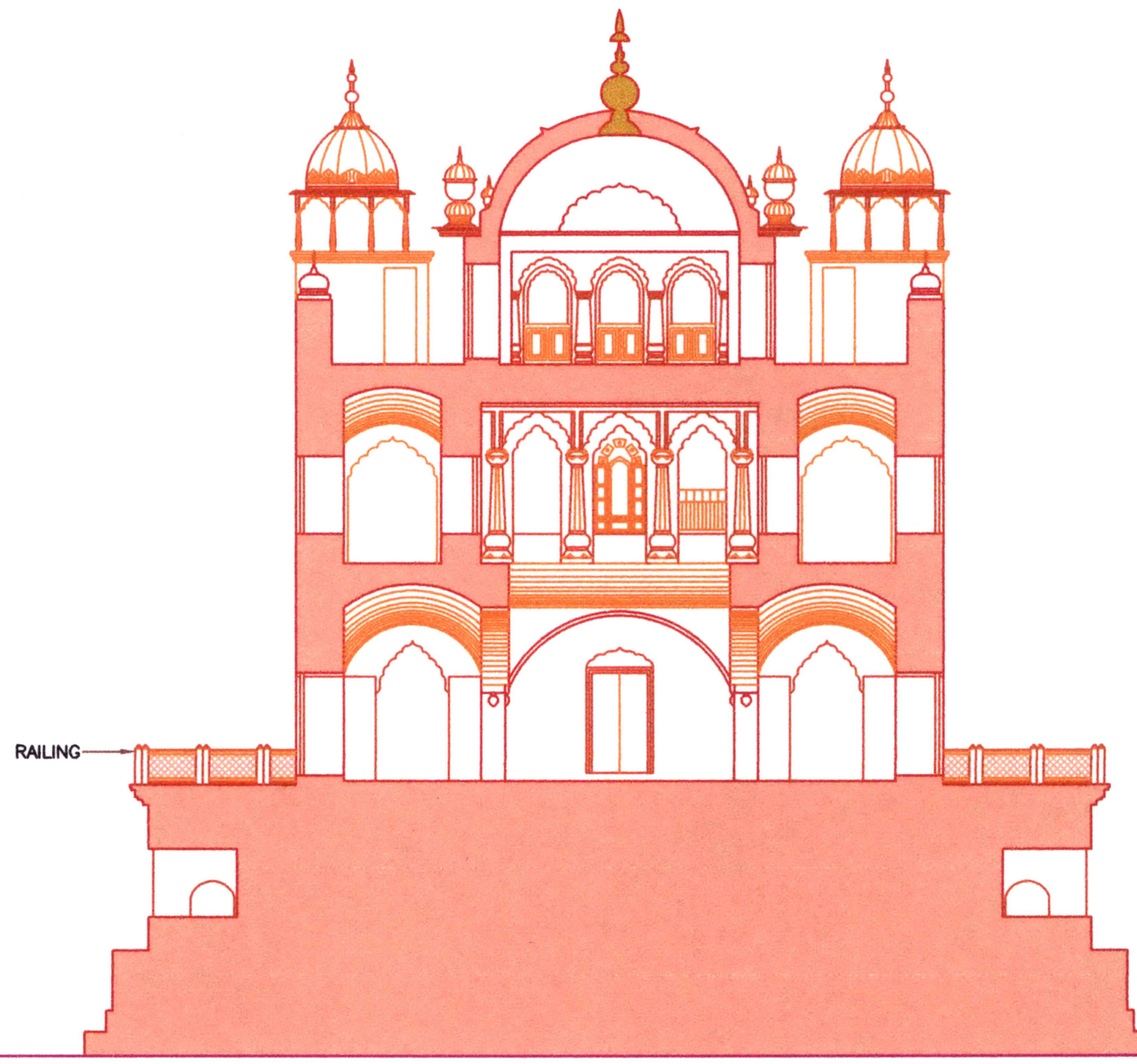
PLATE NO VII



TERRACE PLAN

SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

PLATE NO VIII

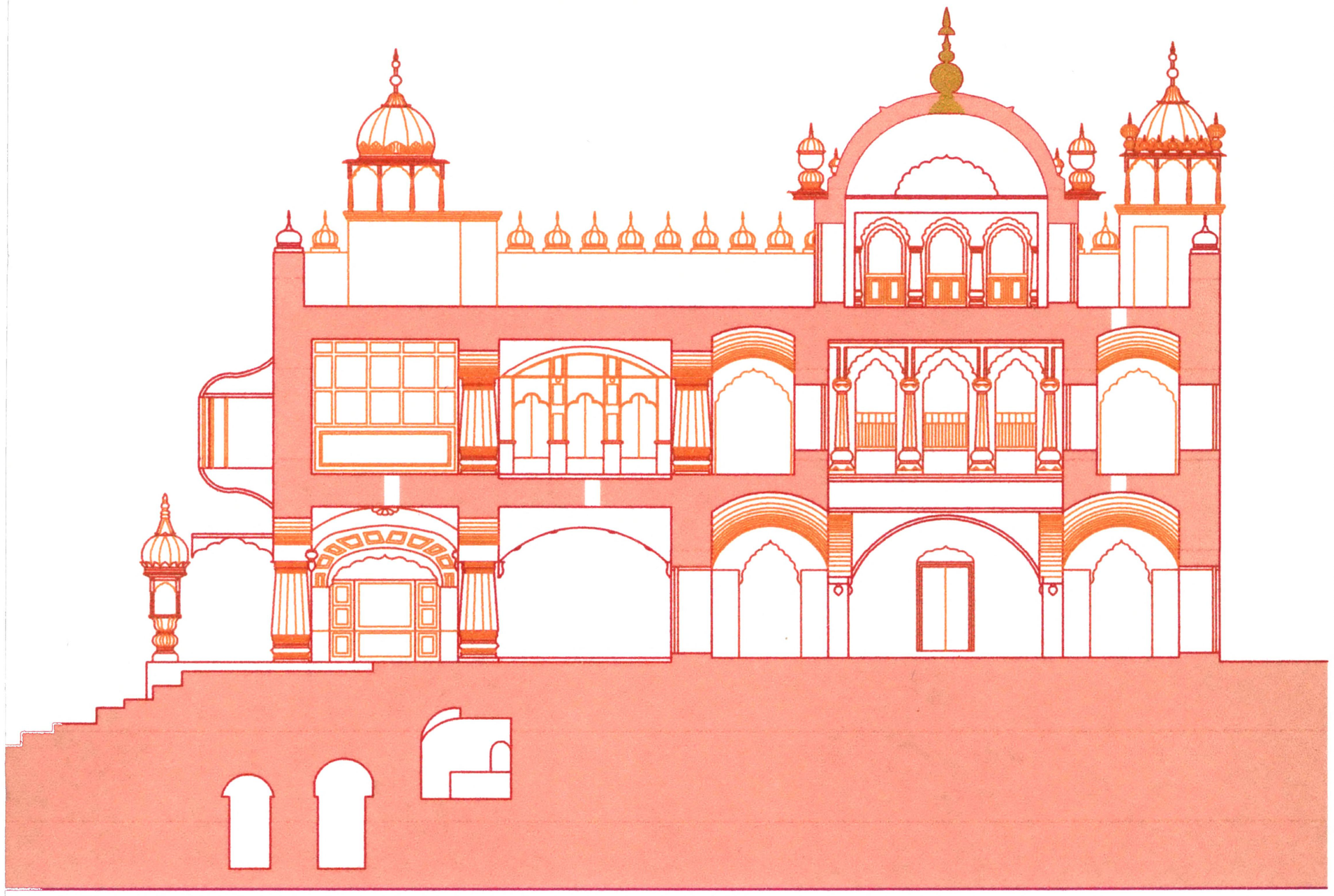


CROSS SECTION

0 12' 24' 36' 48' 60'

SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

PLATE NO IX



LONGITUDINAL SECTION

SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

PLATE NO X

indispensable in rcc (reinforced cement concrete) construction. Compared to a corbelled brickwork projection (which may bc continuous along the entire length of a load-bearing wall or a bracket ie a projecting support) a cantilever, in non-technical terms, is a large bracket for supporting cornices, balconies, and even stairs. In the case of stone masonry, a bracket is invariably a triangular device cut and carved out of a stone slab and fitted in the thickness of the wall perpendicular to its plane. The seat of the Mughal emperor Akbar the Great in *diwan-e-khas* (hall of private audience) at Fatehpur Sikri is a central red sandstone free-standing column from which several brackets jut out so as to create a round platform at the level of the first floor. The point of this elaboration is that, though no scientific backup existed then, the Indian builders during the mediaeval period had definitely developed highly rational structural devices even with the use of simple construction methods.

AMRIT-SAR(OVAR) OR POOL OF NECTAR

(Ref.: Plate No. I)

The Pool of Nectar, which measures 490'-0"×510'-0" at the level of the *parkarma* floor, was developed from a na.tural water pond which existed near the spot where *dukh-bhanjani ber (Zizyphus jujube;* literally, the Annuller of Sorrows) has been preserved. The water of this pond, before the launching of project, was reputed to have miraculous curative powers. Hence the name *dukh-bhanjani ber. Amrit-Sarovar* is a *kachcha* basin I8-feet deep with retaining walls on all four sides whose inmost points at the floor of the pond make an angle of about 60 degrees so that the *sarovar* measures 470'-0"×490'-0" at the base. The top of the retaining wall/embankment has a 75-inch wide border around the tank raised from the floor of the *parkarma* by 4 inches. The footings of the retaining walls are irregularly shaped steps, both in risers and treads. Thus the first drop is 13¾" and meets a 21" tread followed successively by riser/tread dimensions as : 15" /24", 8½"/ 22¾", 13¾", 12"/24½", 13"/50½", 5"/17", 46½"/ 21½", 18"/26", 18"/22", 40½" riser culminating in cyma reversa moulding which drops by 12" to negotiate the *kachcha* basin of *Amrit-Sarovar.* A 41"-high railing of precast trellised panels set in bold balusters has been fixed at the edge of the 50½"-wide tread. This is the ultimate limit to which the devotees can descend for a holy dip in the Pool of Nectar. Evidently, the uppermost footing of the retaining walls serve as steps for going down into the sacred tank. Enclosures called *ponas* have been built at strategic spots, notably, the one near *dukh-bhanjani ber* as "bath-rooms" for the exclusive use of the womenfolk and girls. The male devotees take bath in the open with their underwears on without removing their turbans and the prescribed symbols of baptisation.

The *Amrit-Sarovar* receives its water supply from Upper Bari Doab (UBD) canal via a desiltation station through a network of *hanslies* (underground water-channels) which have ventilators/markers at regular intervals until they reach the distribution and control station from where water is diverted to the five pools: *Amrit-Sarovar, Kaulsar* (these two water-bodies are interconnected), *Santokhsar, Bibeksar, and Ramsar.* The Pool of Nectar was desilted by voluntary labour performed by the devotees, called *kar sewa* : 1923, 1973, 1980, with the latest one that took place in March 2004.

WATERSUPPLY AND (RAINWATER) DISPOSAL SYSTEMS[3]

(Ref. : Plate No XIII and XIV)

- Water is supplied to the *Amrit-Sarovar* from Upper Bari Doab (UBD) Canal passing near the District Forest Office at a distance of about five kilometres from the pool by a network of *hanslis* (underground channels).

- Part of the watersupply comes from the tubewells installed in the Golden Temple complex.

- There is no fixed schedule for emptying the Sacred Pool. However, floating material, if any, in the *sarovar* is daily removed by *sewadars* (servers). In the past, the pool had been emptied/cleared at 15-20 years intervals.

- Rainwater or waste water (after floor-washing) from the *parkarma* is disposed of into a drain which has been built around the *sarovar*. Earlier, this water was discharged into the city sewer, but now it has been diverted to the re-charging wells. Water from the Holy Shrine goes into the *sarovar*.

- The Sacred Pool has a *kachcha* bottom. Fresh water is added, as and when required, to replenish the water in the *sarovar*.

- Causeway as passage to the Holy Shrine has marble flooring laid on the structural slab, which is supported on a vaulted substructure constructed in Nanak Shahi bricks.

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[3] PWD, Public Health (RWS) South: The Mall, Patiala.

- According the the observation of Public Health engineers incharge of the watersupply and disposal systems of the Golden Temple, the Sacred Pool is free from the problem of frogs. "At shallow depth, the pool is *pucca*, so frogs are not likely to be seen. Being a pool only, marine creatures cannot breed."

- A state-of-the-art water treatment and filtration plant was installed in 2004, courtesy Tut brothers, US-based Sikh devotees. The project cost the donors three crore rupees. The incoming water goes to the filtration plant directly, and enters the *sarovar* after cleansing. A computerised sensor keeps quality check on the watersupply. Fresh oxygen is continually added to the sarovar water by means of 14-inch aeration ducts pumps installed along the *sarovar* bank. Water is recycled six-hourly to the filtration plant by five 50hp pumps which have a capacity of pumping 25,000 litres of water per minute. The *Amrit-Sarovar* requires two lakh litres of water everyday.

CHAPTER – V

AESTHETICS

According to the Encyclopaedia Britannica, the discipline called aesthetics may be described broadly as the study of beauty and, to a lesser extent, its opposite, the ugly[1].

There have been many theories and philosophies concerning the discipline of Aesthetics, and their authors have largely been philosophers and thinkers–not practitioners of Architecture. Thus their notions of Beauty, and assertions concerning it, are highly *speculative.*

For Plato, an object, to be beautiful, must possess order and proportion. But order and proportion do not define "beauty", they are simply the conditions for the occurrence of beauty[2].

The main basis for the discussion of Aristotle's views on aesthetics is the *Poetics*, which is primarily a contribution to literary theory than to aesthetic theory. Aristotle follows Plato in concluding that art is a productive process that initiates its various subject matters. Saint Augustine said: Beauty is one of the forms, and the beautiful in art and nature is thus related to religion. He thought of beauty as derived from the unity that varies with the order and proportion of the object[3].

St Thomas Aquinas thought that goodness and beauty were basically the same, both being derived from a form or species. The good, which all seek, is what calms desire, but the beautiful calms desire and pleases simply by being seen or known. The experience of the beautiful is a matter of recognizing the form in an individual thing. Something is beautiful if it is an unimpaired example of its form or species, is proportional or harmonious, and is bright or clear[4].

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[1] Encyclopaedia Britannica, Vol. 1, p. 149.
[2,3&4] Encyclopaedia Americana, Vol. 1, p. 236.

According to Balram Srivastava, the theory of architecture though requires logic, but it requires none the less, an independent sense of beauty. For this reason, interwoven with practical ends and their mechanical solutions, beauty comes as a significant factor of Indian architecture, culminating in a purely aesthetic result. This feature of architecture is unique and singular. It is only this form of art in which a purely aesthetic impulse is simultaneously satisfied along with quite a distinct and almost a contrary impulse of utilitarianism. It becomes sometimes by way of suggestion and sometime direct for the reason that the element of delight as well as the aesthetic impulse is itself inherent in the Indian concept of architecture, particularly when the utility itself is judged under the concept of religious sensibility[5].

FUNCTION AND AESTHETICS

At this juncture, it will be necessary to introduce briefly the two parameters which are customarily used, among a few others, to criticise Architecture and to pass evaluative judgements on it : Function and Aesthetics. Aesthetics is the most misunderstood single word among the vocabulary of architects. The Greek word from which it is derived means to *feel* or *perceive.* Thus Aesthetics is philosophy of the fine arts, and lays down principles of taste and art. The word without 's' is Aesthetic (*an adjective*) and means: generally relating to possessing, or pretending to, a sense of beauty. Therefore, my preference is for the word 'Beauty'. By this token, 'Aesthetics' is NOT opposed, as is erroneously supposed, to Function.

As a matter of fact, Function has two aspects: Utility and Beauty. Utility takes care of comfort, efficiency, etc. and pertains to the performance of Architecture. Beauty emerges from Utility

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[5] SRIVASTAVA, Balram. *Nature of Indian Aesthetics,* Chaukhamba Orientalia, p. 99.

having been imaginatively designed for. It is not a cosmetic treatment to cover an otherwise ugly visage. Unfortunately, many architects are creating ungainly monsters in the name of what they believe to be Post-Modern "Aesthetic"! One will have learned the most important Fundamental of Architecture if one can grasp this point to the point of making it an altered state of a healthy perception. Buildings in the *nude* look more charming than those which are *overclothed*.

It may be helpful to be reminded that the three basic components, which comprise Architectural Aesthetics, are : (1) honesty of expression, (2) integrity of expression, and (3) sensitivity to the intrinsic beauty of building materials. As may be readily seen, there is no room for any cosmetic treatment in such a concept of aesthetics. Accordingly, nothing can be called beautiful, in this strict sense of the word, unless it is intrinsically so. In fact, something can be beautiful, in the strict sense of the word, only when its beauty has been revealed by reducing it to its elemental Form. In other words, such beauty is created by the subtraction of the superfluous rather than by the addition of the decorative.

SRI HARMANDAR SAHIB: AESTHETICS

[Ref.: Plate No XI, and Diagram No II & III]

Srivastava further says: On purely aesthetic considerations, architecture in India, as elsewhere, has rightly been perceived as a combination of light and shade, spaces, mass, lines, balance, and rhythm. All these elements are not merely the 'appearance' but are also the 'beauty'–the source of delight[6].

From the foregoing, it becomes clear that "Aesthetics, a not very tidy intellectual discipline, is a heterogeneous collection of problems that concern the arts primarily but also related to nature[7]."

We will tackle the metaphysical aspect of the problem after we have first familiarised ourselves with the physical form of the Holy Shrine. The following is a description of the building 'mass' as it has sprung from the temple's 'plan'.

The cuboid structure of Sri Harmandar Sahib is ingeniously expressed on the north and south elevations by recessing the half-side of the half-hexagon eventually accentuating the part of the covered *parkarma* at the rear. However, the visual continuity of the whole hexa-square building is maintained by running an unbroken deep eaves all round at the roof-level of the second floor. Equally ingenious is the way in which the *parkash asthan,* crowned by the domed pavilion, has been expressed on the west, north, and south elevations. This cardinal feature, with three windows at the level of the first floor, has been defined by a projecting panel framed by pilasters. The first-floor gallery for devotees finds its individual expression by means of the projecting windows with their own *chhajjas* at each end, thereby adding a marked architectural significance to the *sanctum*

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[6] *ibid.*

[7] Encyclopaedia Americana, *op. cit.*, p. 234.

sanctorum. An entrance door in the middle of each side of the main sanctuary at the ground floor imparts a visual accent to the strong bi-axial Plan which has been expressed symmetrically on the main vertical axis (ie the west entrance side). A projecting window has also been provided at the first floor, each in the inclined sides of the half-hexagon. The eastern side, or the middle part of the half-hexagon, has a balconied window with half-dome atop and a half-lotus at the bottom, repeating the shape of this part of the building as if to suggest that a half-hexagon has been added to the square plan of the main sanctuary. The covered part of the *parkarma* shows upon the north and south elevations as a multi-cusp elliptical archway topped at the first-floor level by a group of three windows.

The entire building up to the level of the first-floor slab has white-marble cladding with the upper storey copper-gilded. To make the upper and lower parts look integral, the copper-gilt finish tucks into the upper part of the entrance doors. The main dome and its supporting structure repeats the same scheme so that the elliptical dome, with its embowel eaves on four sides of the square-room which drop and meet at the corners to support a columnar domelet, is copper-gilded leaving the cuboid below of white marble.

A four-foot-high parapet encloses the terrace and is accentuated at the front two corners, as well as the inclined sides of the half-hexagon, by the staircase structures. Thus each of these visually cardinal points has a kiosk as a crowning feature. The parapet intervening between these four architectural features has a series of domelets so that the front (ie west side) has seven, north and south 19 each, and the rear (ie east side) 13 of them. On the main entrance, the central domelet has been adorned with a tasselled umbrella. Keeping the parapet at normal height does not obstruct the view of the main dome,

thereby dispensing with the much-used device of an excessively-raised drum that supports the dome in other historical styles of religious architecture based on the arcuate structure system. The ornamentation in the copper-gilded portion is essentially repoussé work ie raised in relief by hammering from behind or within, while in the lower part it is inlay work of semi-precious coloured stones inserted in white marble. Despite its obvious extravagance, the overall effect of the outside decor of the shrine is one of studied self-restraint and austere piety.

The eastern door of the sanctuary faces the approach to the water of the *Amrit-Sarovar* by a series of steps called *Har-ki-Pauri, or* God's stairs. A kiosk at each end of *Har-ki-Pauri* marks the width of the steps to which the devotees have access for taking *charan-amrit* (literally, ambrosia of God's feet) as *parshad* (sacrament) for the atonement of their sins and blessings for righteous living. Such a kiosk embellishes the six corners (including these two) of the hexa-square podium of the holy shrine. A staircase on each side of *Har-ki-Pauri* leads to the upper storeys.

The causeway from *darshani deorhi* to the sanctuary has on each side a series of eight marble-pillar lamp-posts crowned by a copper-gilded lantern. In the centre of the fourth and fifth posts a sun-clock has been provided. Two such lamp-posts also adorn the north and south sides of the podium of the Golden Temple. The causeway as well as the podium has white-marble parapet comprising balustrades and trellised panels. In the middle of the causeway there is provision for erecting demountable brass tubular railing so as to provide a segregated passageway for devotees carrying offerings of *karhah-parshad* (a preparation of wheat flour, clarified butter, and sugar) on festive occasions when milling crowds throng the precincts to pay their obeisance at the Holy Shrine. The sharp corners of the causeway and the

podium have been modified by extending the *parkarma* at 45 degrees to facilitate movement of peak-festival rush.

The development of *Amrit-Sarovar* from an existing water pond, in the midst of *Ber* trees, is an evidence not only of the architect's utmost sensitivity to the Ecology of the site but also speaks volumes for the unregimented approach of Sikh Architecture to the problems of location and orientation. The *Dukh Bhanjani* Ber, now preserved as a sacred reminder of the *Sarovar's* genesis, marked the eastern edge of the existing pond. The Holy Tank was developed towards the western side of the site, for the Sikh Faith respects all the cardinal points everywhere as God's own divine creation. The shrine thus faces the West contrary to the prevalent practice of siting *mandirs* so that their main façade would face the East. Ber Baba Buddha has similarly been preserved on the northern side of the *Amrit-Sarovar* as the spot from where the holy personage supervised the construction of the project. Sri Harmandar Sahib is sited in the midst of the Holy Tank, as a solution to the existing Ecology, and in obedience to the scriptural injunction *"Pani Pita"* (Water is the progenitor). Also, the existing site was developed at the original level, although it was about two storeys lower than the surrounding area, even when it meant that the devotees would have to come down, rather than go up as in the case of *Mandirs*, to reach the Holy Shrine. Conservation of the Ecology thus overrode manmade design criteria, like orientation and elevated plinth, in deference for Nature which the Sikh Faith regards as God's divine might (*qudrat*) indispensable to the psyche of a *Gurumukh* (The Guru-oriented).

STUDY OF PROPORTIONING SYSTEM

Sri Harmandar Sahib : Main Façade

[Ref.: Diagram-I and II]

AESTHETICS, the Expression of Visible Beauty, is manifest in Built FORM–and, therefore, amenable to exact Geometric Ordering. In establishing his case in favour of the need for precise Geometric Ordering, Le Corbusier has deployed the system of Regulating Lines in his book : Towards a New Architecture.

He says[8]:

"A regulating line is an assurance against capriciousness: It is a means of verification which can ratify all work created in a fervour, the schoolboy's rule of nine, the Q.E.D. of the mathematician.

The regulating line is a satisfaction of a spiritual order which leads to the pursuit of ingenious and harmonious relations. It confers on the work the quality of rhythm.

The regulating line brings in this tangible form of mathematics which gives the reassuring perception of order. The choice of a regulating line fixes the fundamental geometry of the work; it fixes therefore one of the "fundamental characters." The choice of the regulating line is one of the decisive moments of inspiration, it is one of the vital operation of architecture."

"Here are regulating lines which have served to make very beautiful things and which are the very reason why these things are so beautiful[9]."

[8&9] CORBUSIER, *op. cit.*, p. 71.

UNIT AND UNITY

He further avers that "A **unit** gives measure and **unity;** a regulating line is a basis of construction and a satisfaction." (emphasis added).

I have followed his example in the study of the Proportioning System of the main façade of Sri Harmandar Sahib by the use of Regulating Lines and Primary Shapes like the square in conjunction with the identification of a 90^0 (i.e., right) angle at crucial points on the shrine's front elevation.

The door width constitutes the basic UNIT, which has been named 'A'. [see Diagram-II]. From the floor-line to the top of the *kalasha*, the measure is twelve-and-a-half units. The width at base is eight units. The intervening, and thus crucial, eaves in the middle of the height is half unit. The six units above and below it resolve into equal measures of three units each. Their basic unit is one-third of the total height from the base of the main dome to the top of *kalasha*, or top of eaves to bottom of the main dome. They are marked 'B' on the diagram. Their meeting points are important locations on the shrine's elevation. Starting from floor upwards the first three units mark out the header course of the mezzanine level, which is expressed as gilded façade. The next three units reach the underside of the eaves, which is a strong visual feature, and sets the lower and upper parts of the shrine as distinct elements constituting the main elevation.

The extreme points of the *chajjahs* of the c*hhattris* (kiosks) and the corners of the floor-line describe a perfect square whose diagonals intersect at the centre of the lintel of the middle window at the mezzanine level just above the main door at the ground floor. The three windows at the mezzanine's middle part are given visual treatment quite different from the ones, each of

which appears on their left and right. The latter windows' placement and design mark out the circumambulatory at the mezzanine level.

A perfect square (marked in orange colour) is formed when one joins the four points: the base of the *kalasha* of the main dome, centre of the lintel of the main door, and the extremities of the upper edge of the eaves where they intersect the cuboid shape of the front elevation. The squares of the mezzanine circumambulatory windows (shown in pink) have their diagonals intersect at their inside lintel corners. Their inward diagonals intersect the main square's lower side at points on the windows' inner pilasters. This divides the pink square into the golden ratio of 1:0.618. The inner edge demarcates the three mezzanine windows into a rectangle marked 'x' by 'y' in yellow colour. The sides x:y are in the golden section ratio of 1:1.618.

The main dome with a point in the middle of its base under the multifoil-arch projection and the base-centre of the domelets (numbers one and seven) forms a triangle with a 90° (i.e., right) angle at its apex. It shows the Geometric Ordering of the lowering of the parapet to permit the view of the main dome without the hackneyed device of an exaggeratedly-high drum. The height of the *chhattris* is resolved into three equal units (B): bottom part with three arches; the dome; and the *kalasha*; as a shown in the diagram.

The foregoing illustrated analysis shows without doubt that the Building Design of Sri Harmandar Sahib is, indeed, based on Regulating Lines whose "choice and the modalities of expression given to it are an integral part of architectural creation", to use Le Corbusier's succinct phrase. Since the composition is based on axial symmetry, the resulting balance is a perfect visual equilibrium of Unit(s) and Unity. This aspect of AESTHETICS is crucial to the FORM-al expression of the intent of the Holy

Shrine that is *Sachch Khand*: Lord God's Divine Realm with its chief characteristic of imperturbable equipoise. This emerging truth corroborates Le Corbusier's axiom : *The primordial physical laws are simple and few in number. The moral laws are simple and few in number.*

This study prompts me to reflect thus: all houses (the Sanskrit word for them is *mandirs*) have the same components: drawing/dining rooms, kitchen, bedrooms, toilets–yet we call one beautiful, but not the other houses. All humans have the same body parts: head, ears, nose, eyes, face, etc.–yet we call one person handsome or beautiful, but not the others.

The question, therefore, arises:-

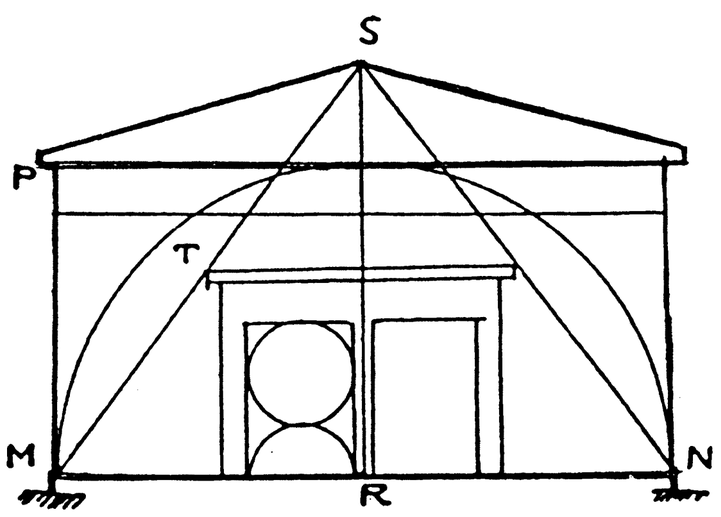
What is that single crucial secret that uplifts one thing to the realm of AESTHETIC enchantment well above the deadly sameness of innumerable other things?

The answer is : PROPORTION–the Principle of relating one thing to another in quantity, size, emphasis, etc; relation of a part (UNIT) to the whole (UNITY), which creativity ties up in a soul-stirring composition, thereby striking a perfect Balance in terms of visual equilibrium.

Diagram-III has been produced by removing from behind the image of the Holy Shrine thereby leaving an unadorned pattern of Regulating Lines and the underlying Geometric Ordering. The resulting composition, which has created the FORM of the main façade of Sri Harmandar Sahib, is a work of Art irradiating soul-stirring Aesthetics, unique to the Building Design of the Holy Shrine. The eventual visual experience makes any further scholarly interpretation or philosophic justification absolutely redundant. Diagram-III is the strongest support for this averment, and explains everything that the graphic medium has the potential to do!

The other dimension of AESTHETICS of Sri Harmandar Sahib is the Holy Shrine's Scale or relative size vis-à-vis that of the *Amrit-Sarovar* and the vast *parkarma*. The building is about one-fiftieth of the area of the water-body, and much less when further compared to the enormity of the open space around it. It is the SCALE as its intangible dimension which underscores Humility as the Cardinal Principle of the Sikh Faith. *The total ambience of the Holy Shrine states the case of Aesthetics as a launching ground from which the human soul takes off for a flight into the realm of Higher Consciousness without which mystic absorption in Godhood is not possible.*

FROM THE MARBLE SLAB FOUND IN 1882:



FACADE OF THE ARSENAL OF THE PIRAEUS

CHAPTER – VI

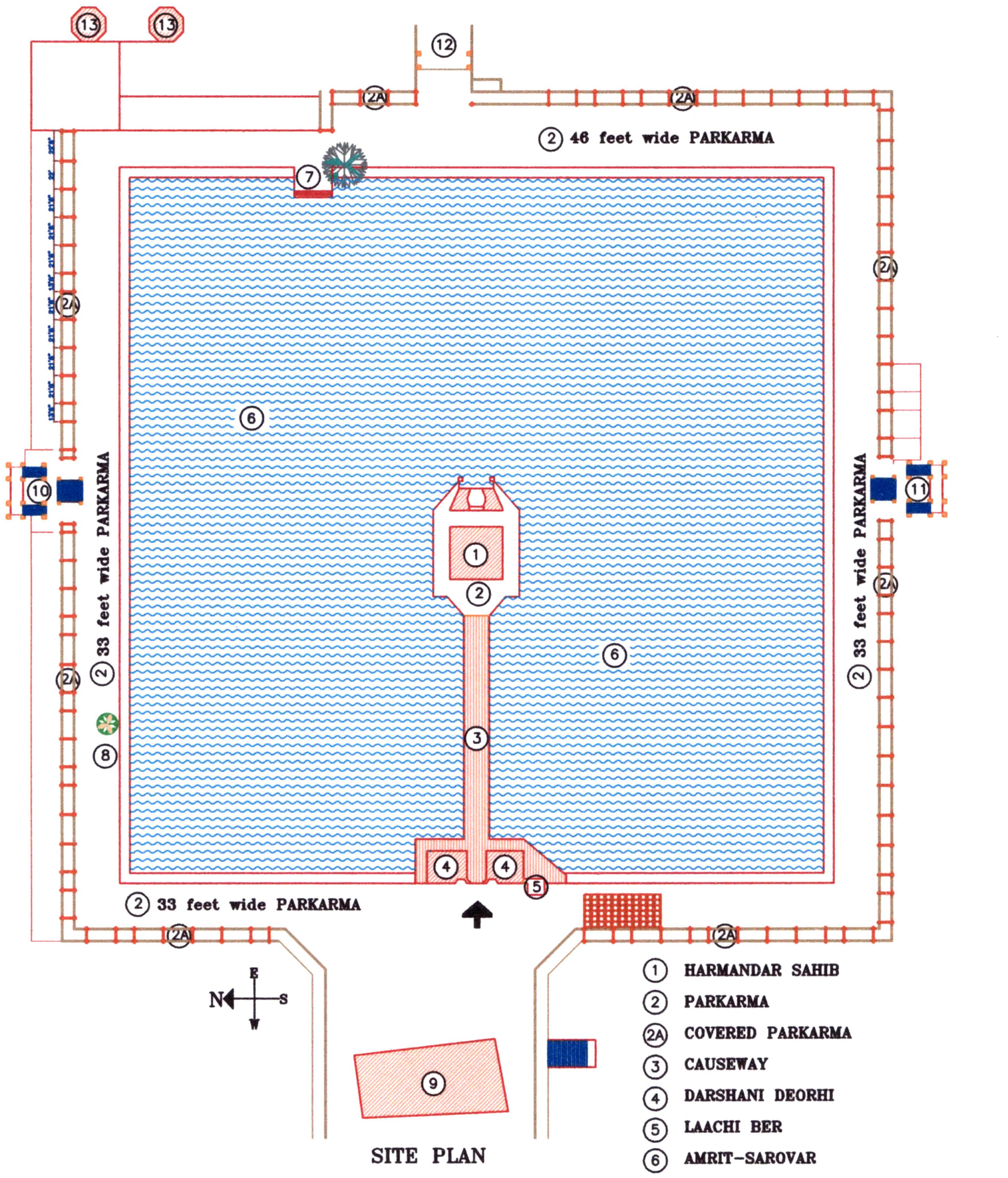
COMPARATIVE ANALYSIS

To gain a deeper insight into the idiosyncratic distinctions of places of worship of different religions, it is necessary to analyse the why's and wherefore's of their conception, construction, and expression, which set them apart as sacred building-types, representing *architecturally* the tenets of each faith in easily identifiable forms. Hinduism, Buddhism, Christianity, Islam, and the Sikh Faith have their places of worship, respectively, called: The Temple *(Mandir),*. The Stupa, The Church, and The *Gurdwara* (portals of the spiritual preceptor). The illustrations discussed here are *archetypes* which have become established, through visual imagery and associative cerebration, as typical emblems of each of the stated five faiths.

HINDU TEMPLE [Ref.: Sketch I]

A Hindu Temple's *sanctum sanctorum* is the *garbha-griha* (the womb-room), a small unlit shrine where the sacred idol is lodged. The devotees enter it, not merely to pay obeisance but to gain mystical absorption in the Being of the presiding deity – so as to come out of it into a new *rebornness*. It is a one-to-one conjugal, transformative communion.

A *mandir* is built on the *trabeate* structure system in stone, and the emphasis is on the artistic expression of the metaphysical concept rather than on the physical aspect of the science of construction. The temple, being the body of god or goddess, has the *shikhara* express the towering persona of the sculpted idol. Its pyramidal roof-form is thus an apt expression of the underlying religious intention. The devotees' reverence for

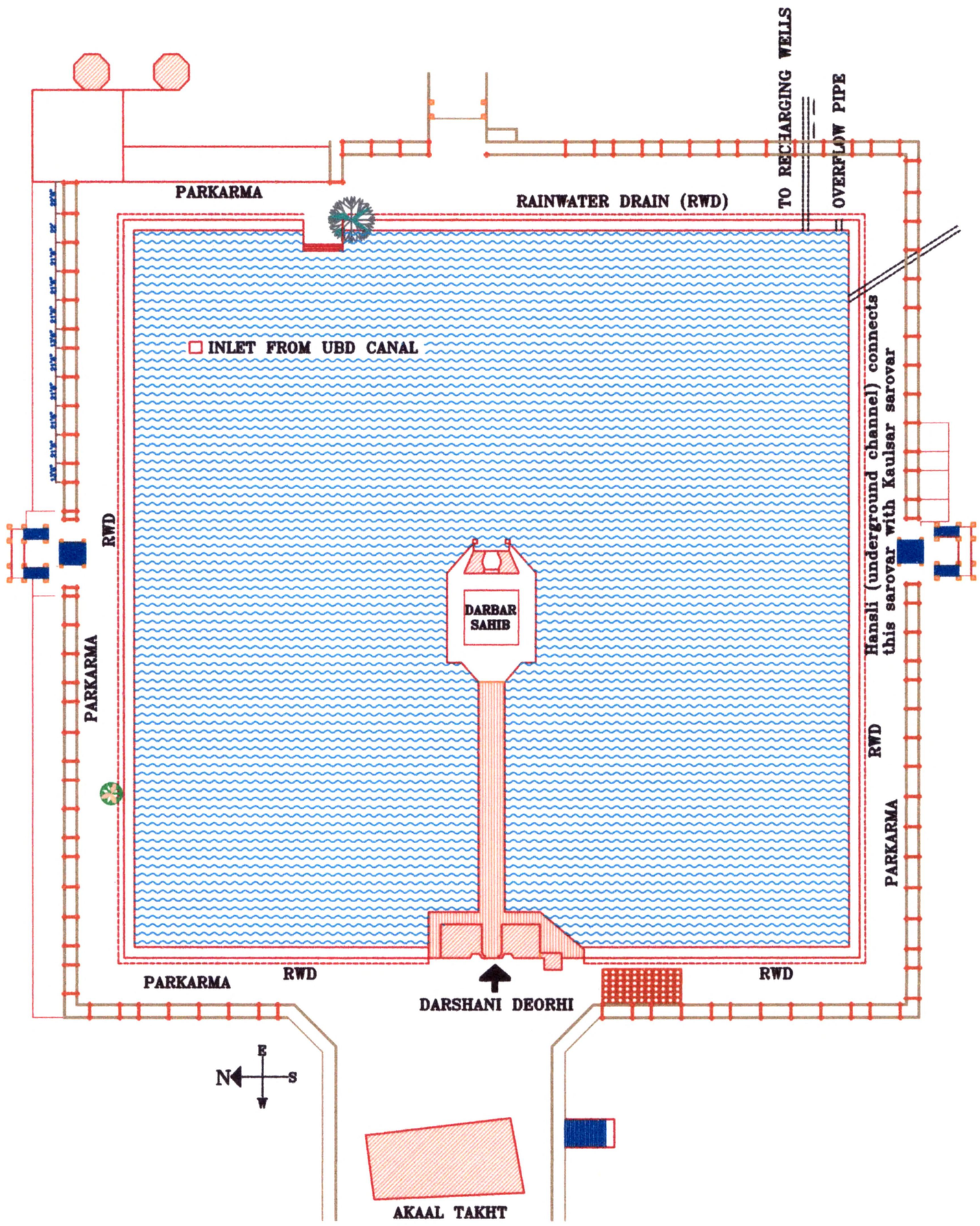


SITE PLAN

1. HARMANDAR SAHIB
2. PARKARMA
2A. COVERED PARKARMA
3. CAUSEWAY
4. DARSHANI DEORHI
5. LAACHI BER
6. AMRIT-SAROVAR
7. DUKH-BHANJANI BER
8. BER BABA BUDDHA
9. AKAAL TAKHT
10. ENTRANCE FROM MAI SEWAAN BAZAAR
11. ENTRANCE GATEWAY (SOURH)
12. ENTRANCE FROM LANGAR BUILDING
13. OCTAGONAL TOWERS

SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

PLATE NO I



SCHEMATIC PLAN OF WATERSUPPLY AND RAINWATER DISPOSAL

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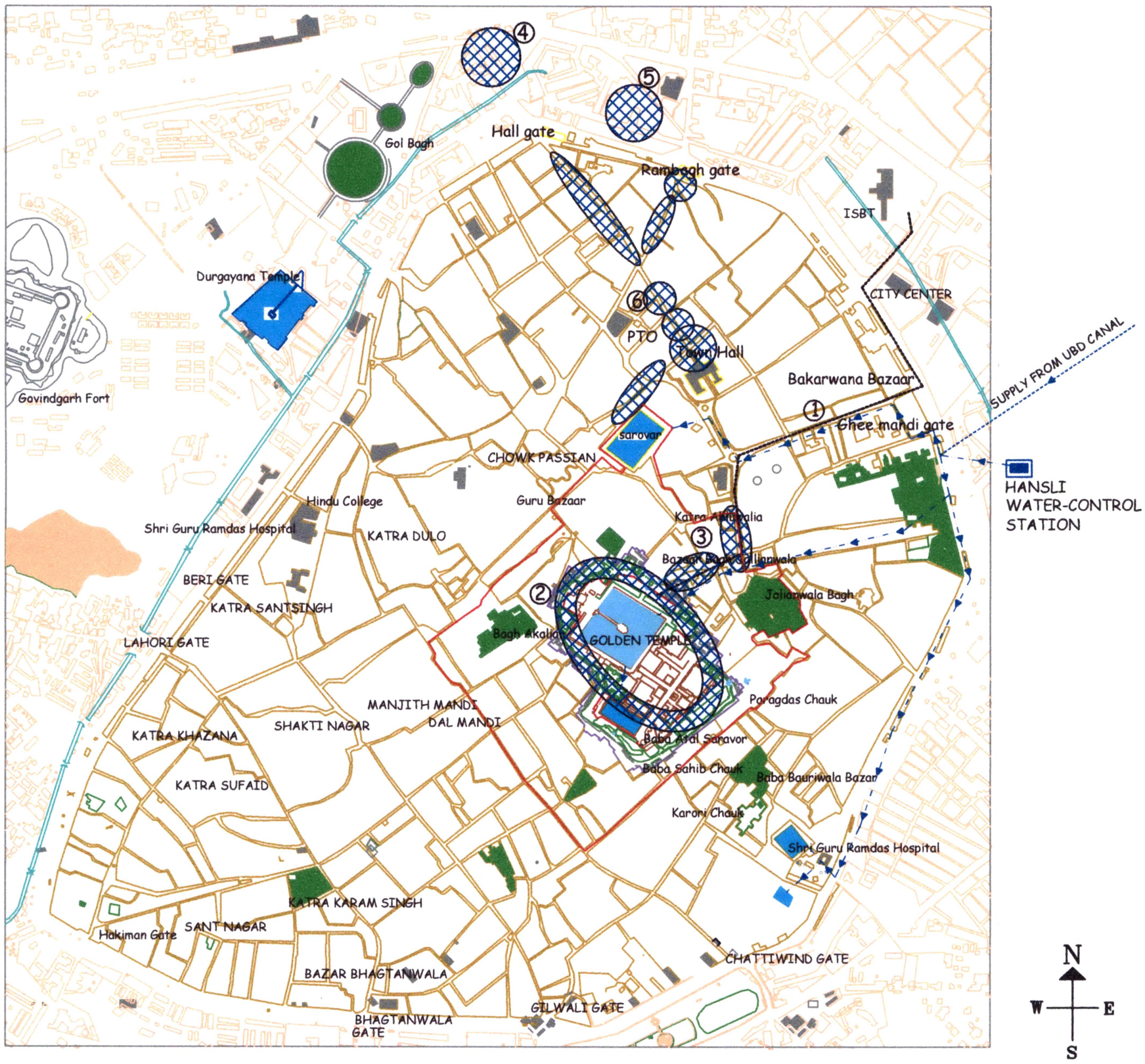
A Study of Architecture, Engineering, and Aesthetics

PLATE NO XIII



SRI HARMANDAR SAHIB, AMRITSAR:
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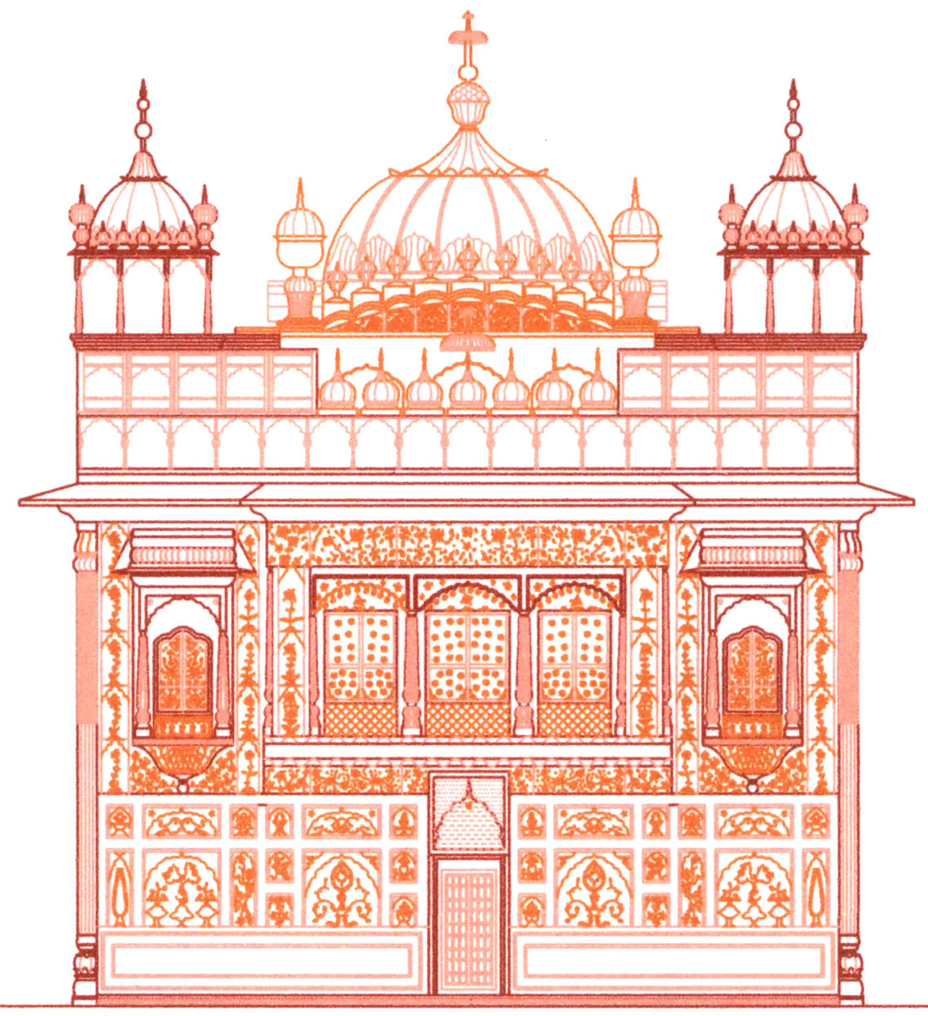
PLATE NO XIV : Master Plan of Walled City showing Watersupply Network



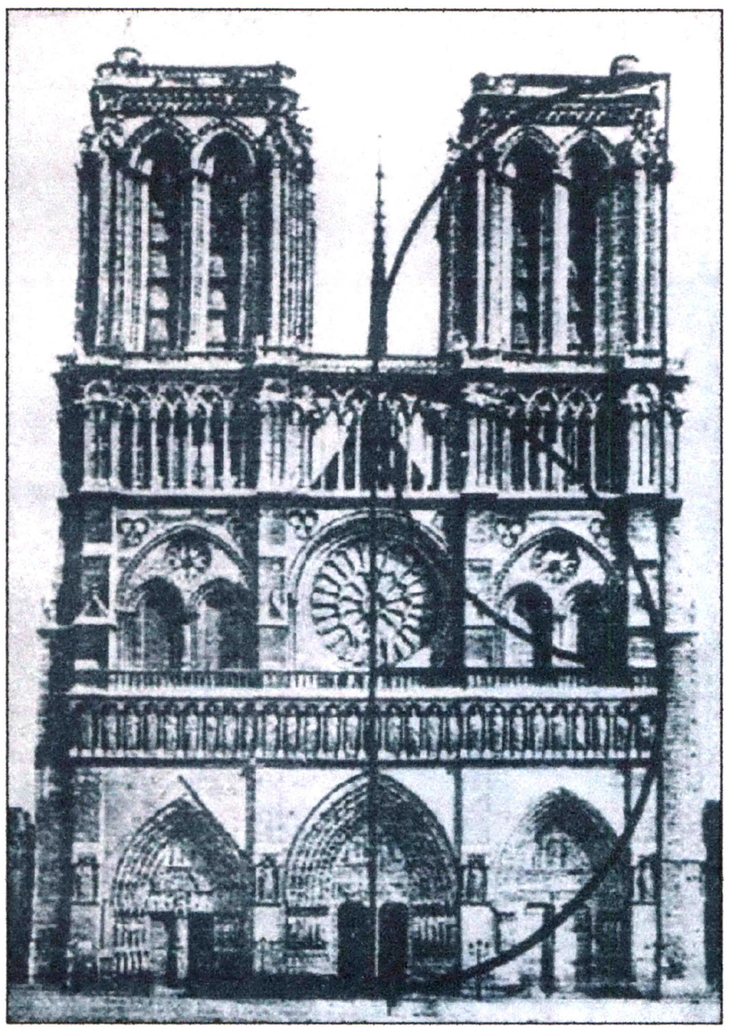
GOLDEN TEMPLE : ELEVATION FACING DARSHANI DEORHI

0 12' 24' 36' 48' 60'

SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

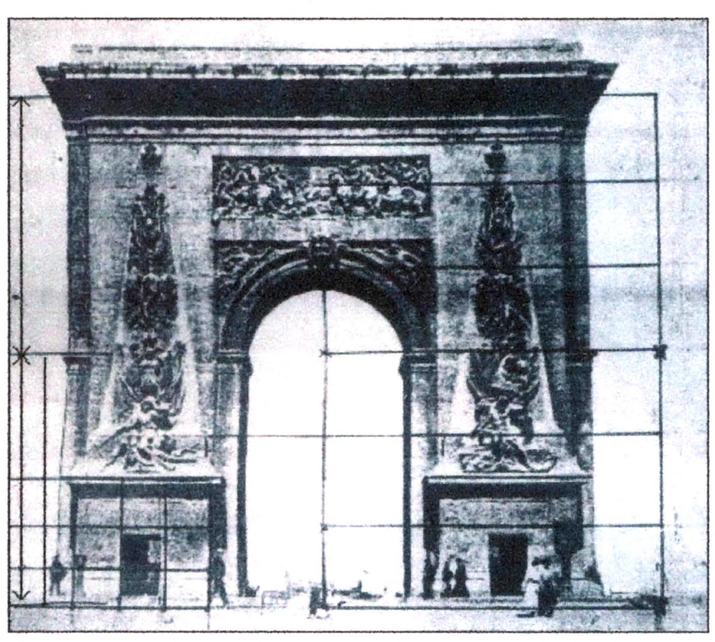
PLATE NO XI

APPLICATION OF REGULATING LINES:



NOTRE DAME, PARIS

The determinant surface of the Cathedral is based on the square and the circle.

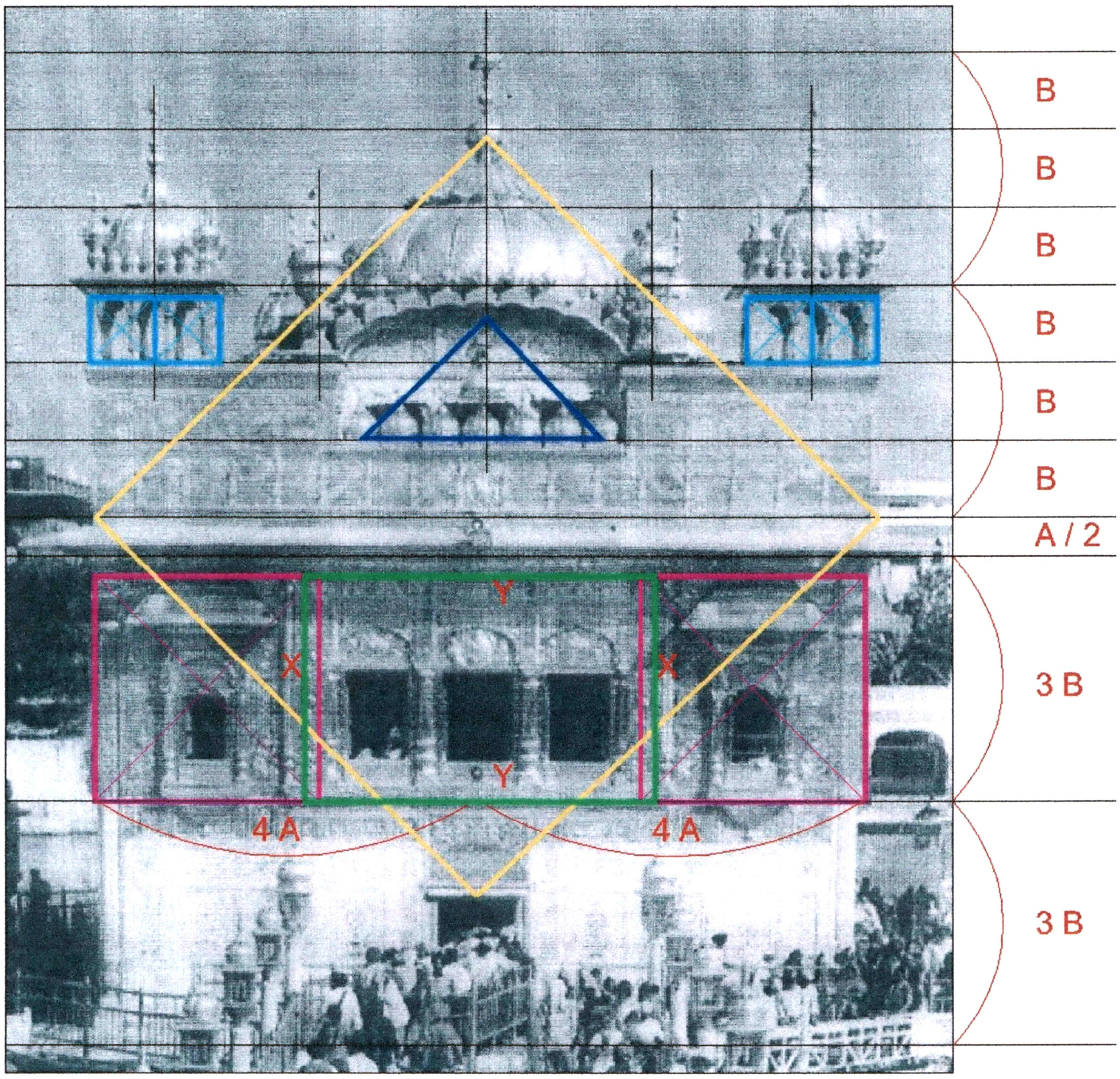


THE PORTE SAINT-DENIS (BLONDEL)

DIAGRAM -I : Le Corbusier's Method of Evaluating Historical Monuments

Shown in the above illustrations is Le Corbusier's Method of Regulating Lines that he developed and applied to famous historical monuments to underscore their Geometric Ordering and System of Proportioning.

SOURCE: Towards A New Architecture., op.cit..,pp.63&73



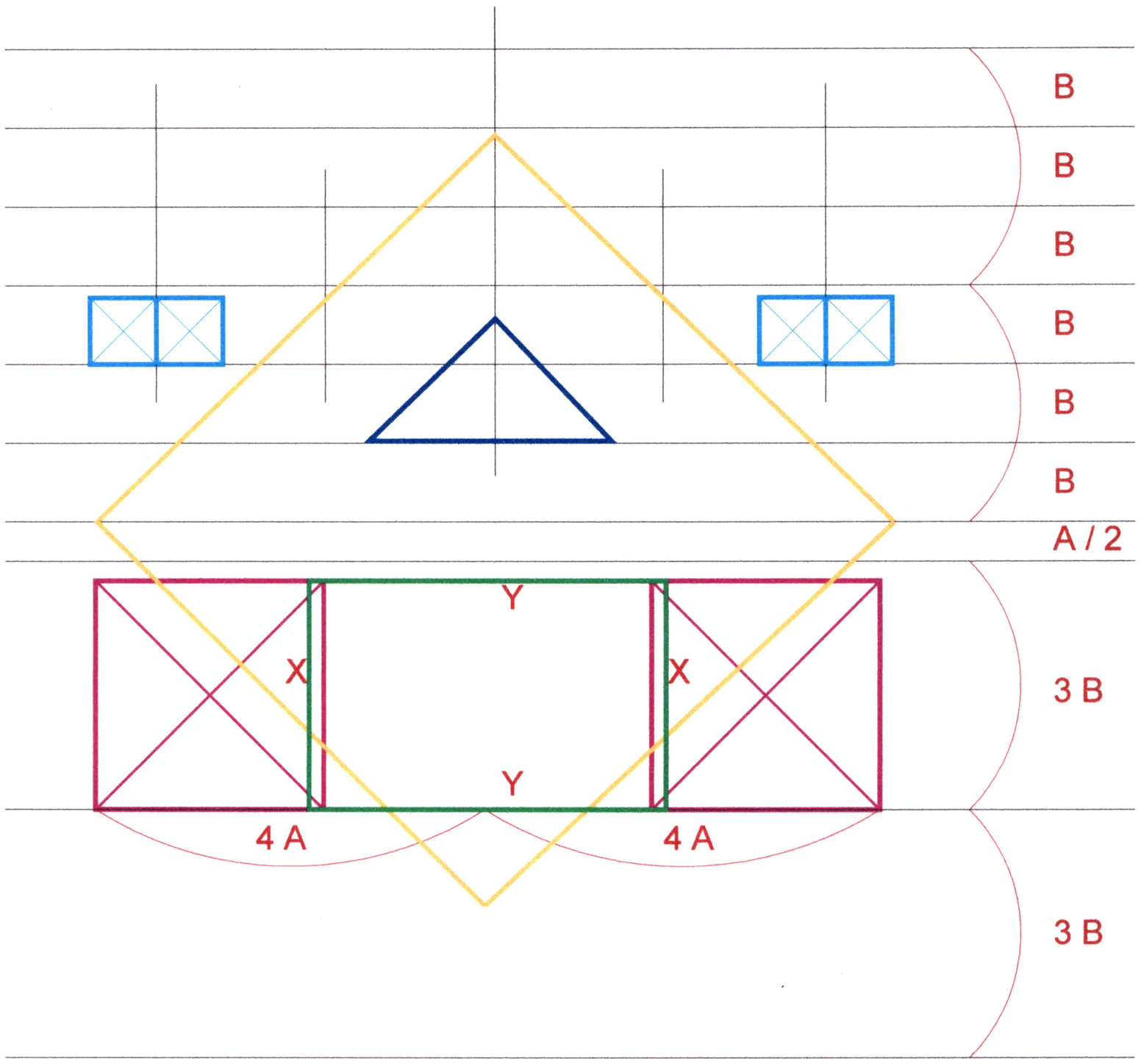
$3\frac{1}{2}$ A ⟷ 1 A ⟷ $3\frac{1}{2}$ A

DIAGRAM -II SRI HARMANDAR SAHIB

X:Y:: 1:1.618

FRONT ELEVATION Analysed for Geometric Ordering, Proportioning System, etc.

AESTHETICS, The Expression of Visible Beauty, is manifest in Built Form and, therefore, amenable to exact Geometric Ordering that supports Proportioning System.

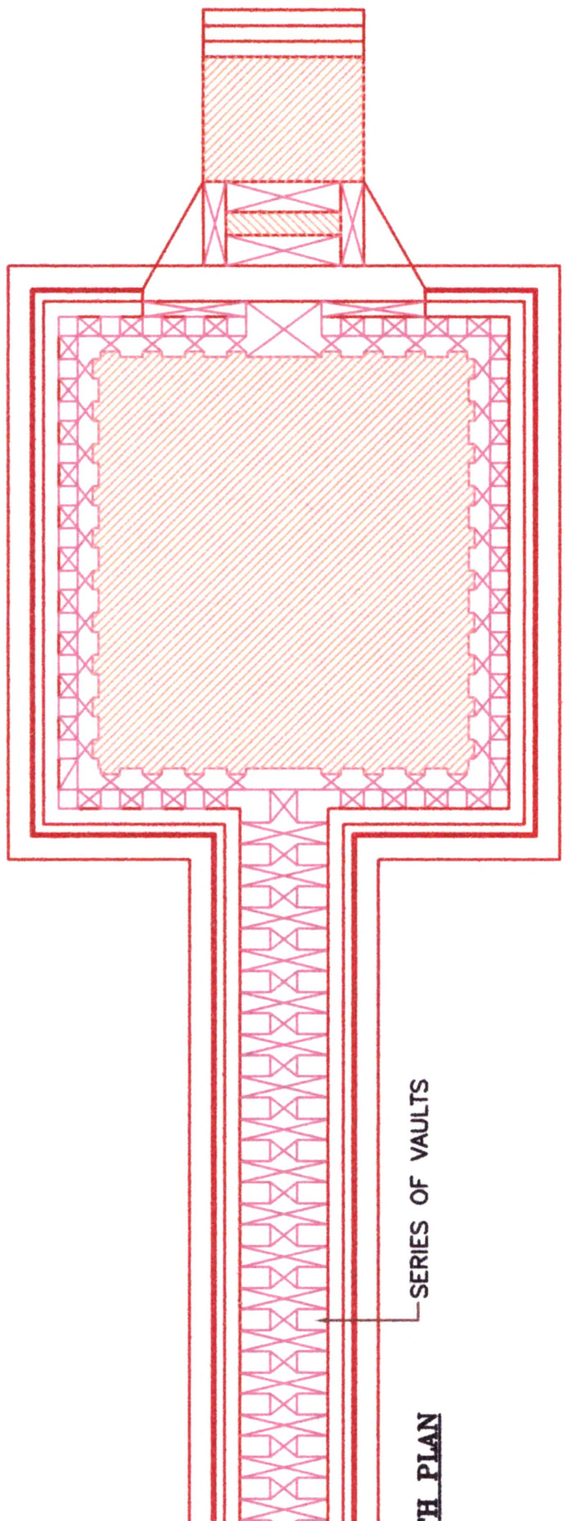


$3\frac{1}{2}$ A — 1 A — $3\frac{1}{2}$ A

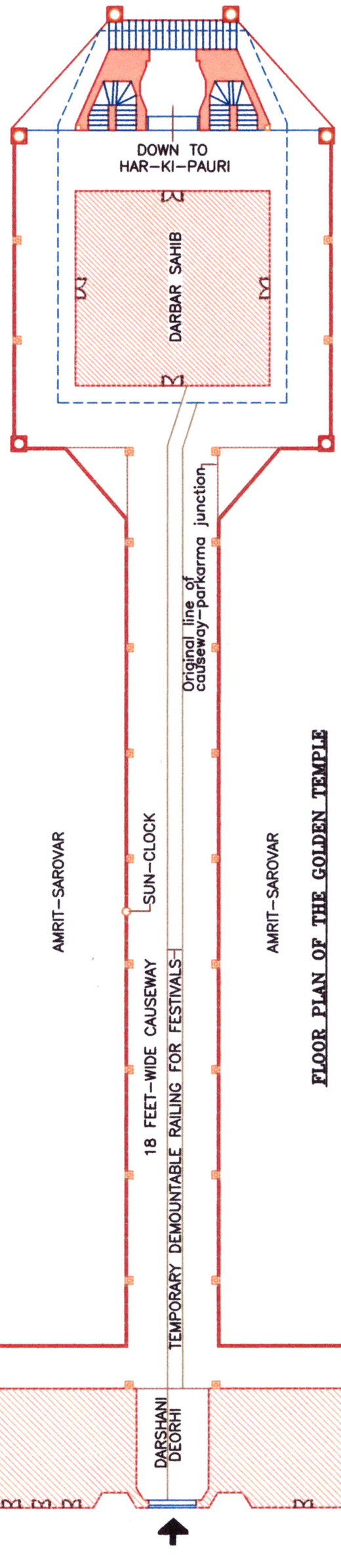
DIAGRAM -III SRI HARMANDAR SAHIB

X:Y:: 1:1.618

Revealed Structure of the Holy Shrine's Unique Aesthetics: The photographic image has been removed from behind to lay bare the stark composition of squares, a rectangle, and a triangle, which has created a beautiful facade.



PLINTH PLAN

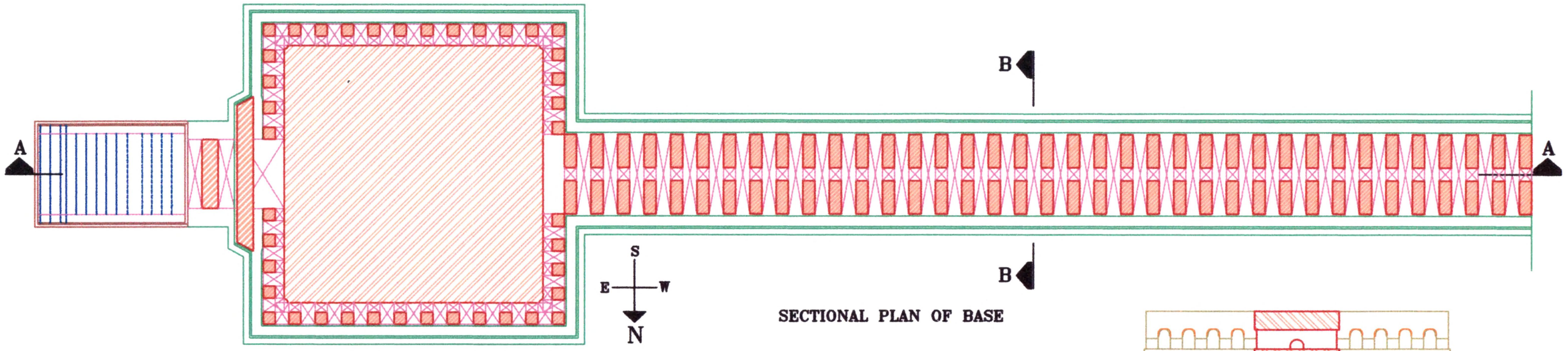


FLOOR PLAN OF THE GOLDEN TEMPLE

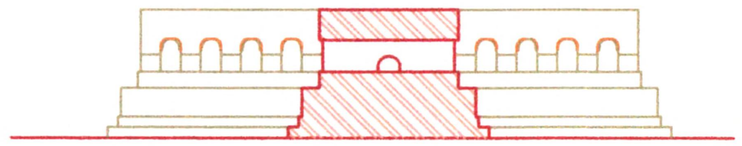
0 32' 64' 96' 128' 160'

SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

PLATE NO II

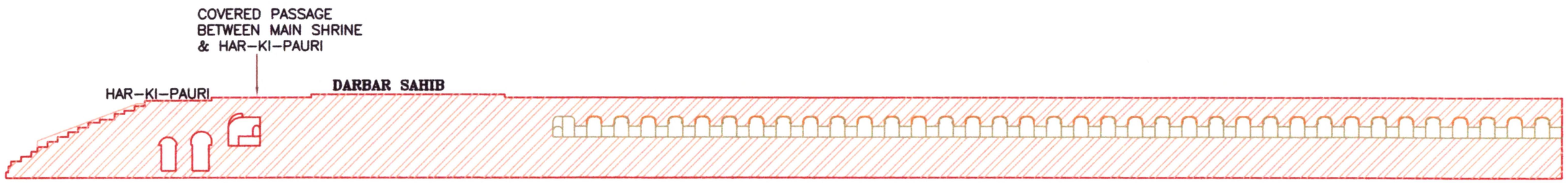


SECTIONAL PLAN OF BASE



SECTIONAL ELEVATION AT B–B

0 32' 64' 96' 128' 160'



SECTION AT A–A

SRI HARMANDAR SAHIB, AMRITSAR:
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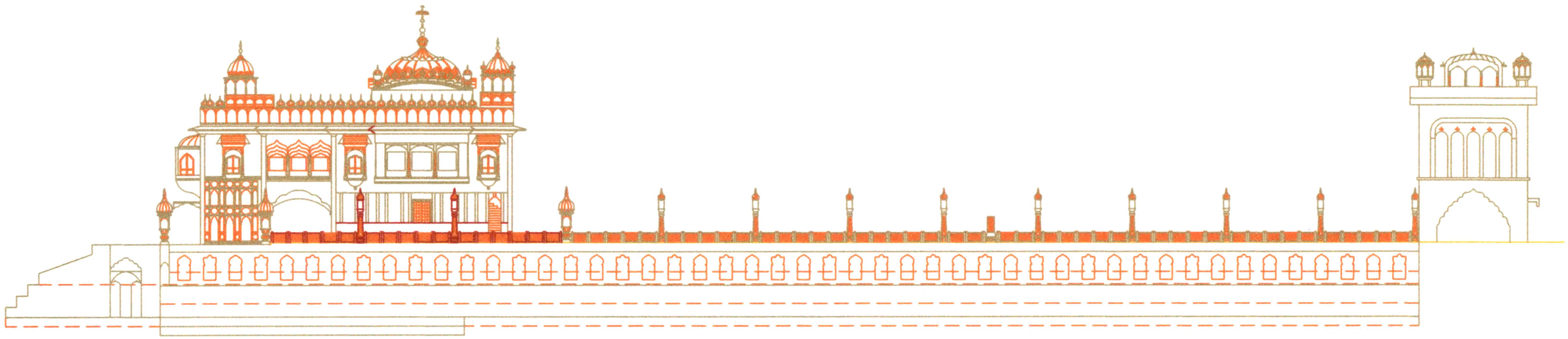
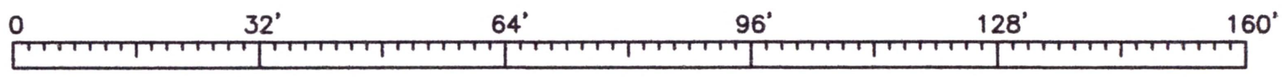
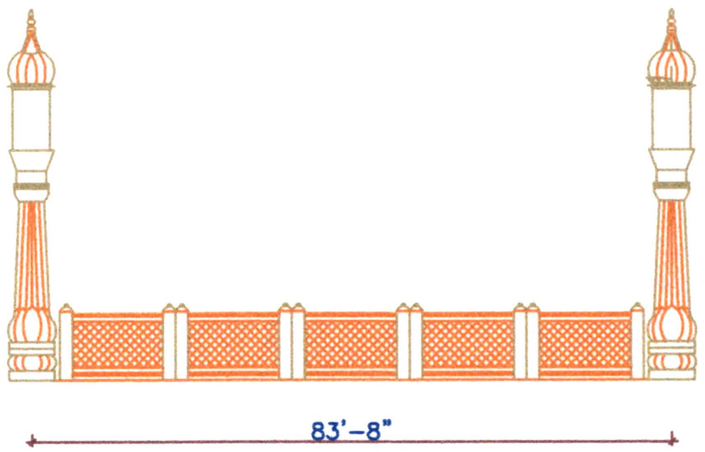
PLATE NO III



NORTH ELEVATION (WITH VAULTED CAUSEWAY)





JAALI PARAPET DETAIL

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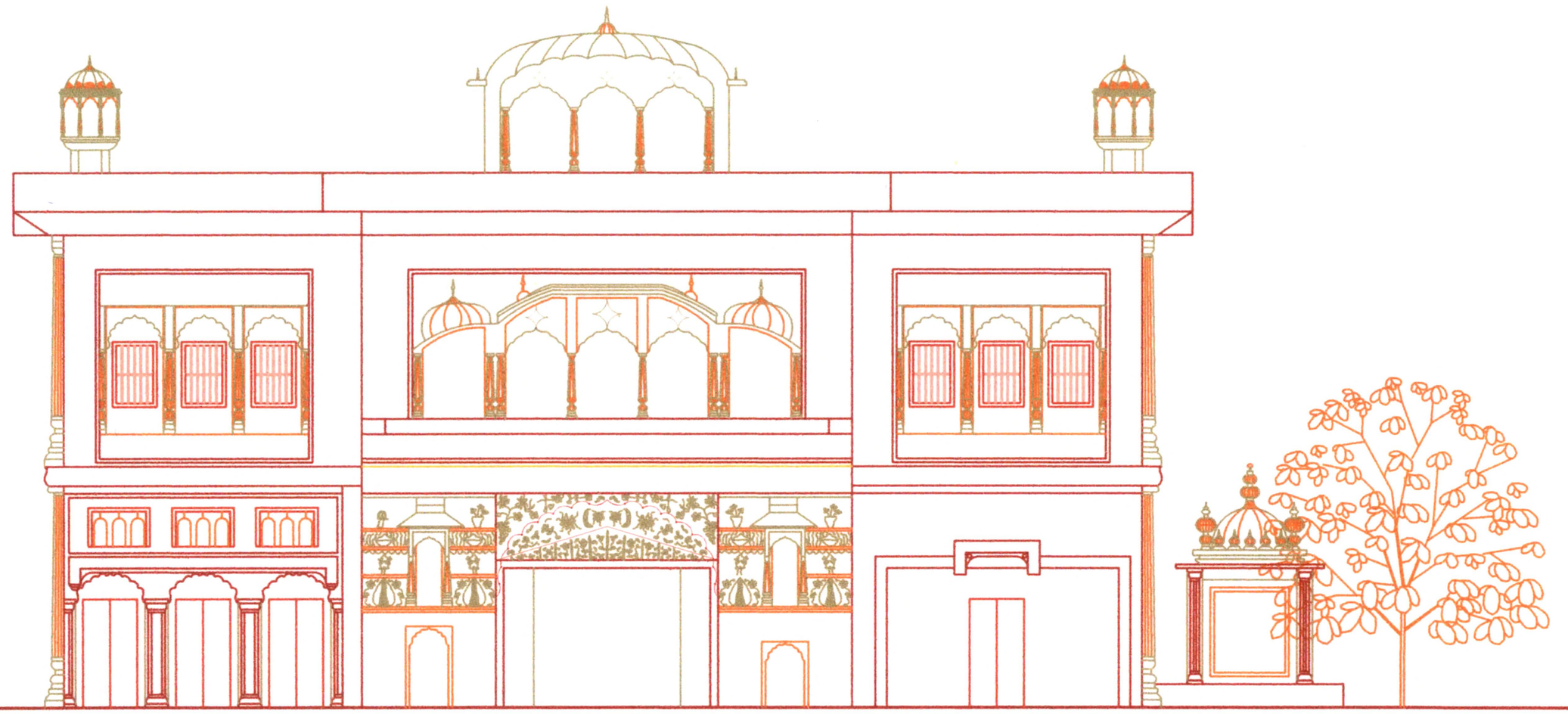
PLATE NO IV



DARSHANI DEORHI : ELEVATION FACING AKAAL TAKHT

0 12' 24' 36' 48' 60'

SRI HARMANDAR SAHIB, AMRITSAR:
A Study of Architecture, Engineering, and Aesthetics

PLATE NO XII

the presiding deity is an offering in the form of elaborately-carved human and animal figures.

BUDDHIST STUPA [Ref.: Sketch II]

The Buddhist *Stupa* is not a shrine to be entered, but a building to be walked round about (circumambulation). Its very sight has a purgatory effect on the devotees, Its strong geometric shape, a hemisphere, seems to draw attention to the powers of the mind lodged within the cranium cavity–and alludes to its chief idiosyncrasy: the human reason. It invokes no gods and/or goddesses except the Holy Personage of Lord Buddha (the Enlightened One). It contains His relics which are shown for the benefit of the devotees only on ceremonial occasions.

Though *arcuate* in form, this gigantic dome is *not* a Structure. It is a construction of stone that covers an earth mound. A *stupa* is a sacred Buddhist monument, and *not* an ordinary building which the devotees enter for worshipping an idol. It houses relics which are revered as a foremost act of religious duty.

CHRISTIAN CHURCH [Ref.: Sketch III]

The Latin cross is the most ubiquitous plan-shape on which the Christian Church is built. It is an upright cross with the lowest limb longest. The cross is used to symbolise Jesus Christ's crucifixion. Its main parts are the apse, located at the eastern end in the upper limb, the transepts formed by the horizontal limb, the nave (from the Greek word *navis,* meaning ship), and the aisles on either side which run parallel to the nave. The main access to the church is from the western end, via an atrium or forecourt (provided only in the case of elaborate plans). The nave in which the faithful perform the

offertory service symbolise the *ship* that transports them to the haven of grace. Both volumetrically and height-wise it is the largest space in the church. As may be evident, a church is built on a strong axial plan, in which apse is the circular or multangular termination of the sanctuary.

The Structure is a combination of the trabeate and the arcuate systems. Indeed church architecture has developed an intricate exquisite method of vaulting, flying buttresses, and dome-shapes, notably, the ribbed construction ingenious (almost modern) system of roofing large-span spaces.

According to Banister Fletcher, "Early records speak of gilt roofs or ceilings, silver altars, and silver and gold candlesticks as well as coloured marble columns and wall facings–all contrasting strongly with what must have been a very plain exterior[1]".

ISLAMIC MOSQUE [Ref.: Sketch IV]

The Islamic mosque is always planned on an axis directed towards Mecca. This axis is terminated on the inner face of the mosque by the *mihrab* (Arabic word for arch/vault). This is the niche or arched recess in the western wall of an Indian mosque, towards which the worshippers turn for prayer. The *mihrab* is where the leader of the congregation makes his prayer. This act, which involves prostration (in Arabic, *sajda,* from which the word *"masjid"–literally,* place where *sajda* is performed–has been derived), must be observed from other parts of the prayer chamber (usually a vast courtyard), and lateral vision is, therefore, important. The congregation assembles in lines transversing the main axis and takes its cue from the leader or those in the centre of the line in a position to observe him. Thus

[1] FLETCHER, *op. cit.*

a multi-columned hall with transverse aisles is acceptable. The prayer space is furnished only with a *mimber* (whose counterpart is the pulpit in a Christian Church), *from* which formal pronouncements can be made. A part of the prayer space may be screened off or fitted with a balcony for special uses of a dignitary or ruler, or of muezzins or women.

Structure system used in a mosque is predominantly *arcuate* comprising arches, vaults, squinches/pendentives, and domes. A massive dome–varying in shape from a hemisphere to the typically bulbous, more often than not, fluted–roofs the central space containing the *mihrab,* whose presence is functional rather than sacred: it shows the *qibla* (direction) towards that part of the world where Mecca is located. The side prayer spaces have slightly smaller domes, though of the same shape as the main dome. The muezzin delivers the *azaan* (prayer-call to the faithful) from the minarets which have come to stay as among the most conspicuous features of Islamic mosque. There is no circumambulatory in a *masjid* like in a Buddhist *stupa.*

THE GOLDEN TEMPLE [Ref.: Sketch V]

In contrast to the foregoing places of worship of other Faiths, Sri Harmandar Sahib is a unitary shelter primarily for the installing of Guru Granth Sahib, which all the Sikhs are enjoined upon to revere as a *living* spiritual preceptor (*Guru*). It also provides space for the *raagis* (baptised hymn-singers) and the congregation without any discrimination of caste, colour, creed, *or* sex. Its circumambulatory *(parkarma)* is meant for walking round about the *sanctum sanctorum* in contemplative reverence for the Holy *Guru.* Unlike in other places of worship analysed before, Sri Harmandar Sahib has four doors signifying that the Sikh Faith is open to anyone who seeks to be *Guru-*

guided on the path of socially-beneficent spirituality. Whereas all other historical places of worship are elevated on high podiums, the Golden Temple is much lower than its surroundings so that the devotees have to climb down more than a floor-height to have access to the shrine. That the construction and development of the *Amrit-Sarovar* antedates that of the sanctuary, the proclamation of the Sikh Faith on the foundation of *dharma,* the Cosmic Moral Law, gains an added significance. The implication is that this world is *not* Maya (ie illusory), and that human life is spiritually committed to socially-beneficent action which is the *immanent* aspect of Divinity. No wonder why Guru Nanak has made Humility the Cardinal Principle of the Sikh Faith. *He proclaimed that Humility along with (politeness) is the quintessence of all virtues and qualities, and demonstrated it by identifying himself with the lowliest of the lowly.*

CHAPTER – VII

ASSESSMENT OF CREATIVE MERIT ARCHITECTURE

The assessment of the creative merit of Sri Harmandar Sahib may now be done in terms of those very parameters and elements in which the Building Design of the Holy Shrine has been analysed on a comparative method in the previous sections. These are : Space, Structure, Form, Time, and their Technical Aspects: Architecture, Engineering, and Aesthetics.

SPACE [Ref.: Plate No. V, VI, VII and VIII] **:** This element may seen as: Concept, Function, and Vision, which together constitute Architecture.

Concept is the Genetic Imperative of different forms of Creativity, which is the most distinguished of all human endowments. It is the *mul-mantra* of Culture that produces a whole gamut of artifacts: customs, beliefs, social mores, art, science, humanities, languages, architecture, engineering, aesthetics, etc. Concept being the *seed-idea* of Creativity, it stands to reason that its plant, flower, and fruit would be as healthy as its own "genes" permit. To my knowledge, understanding, study, and experience, Religion is the single most omnipotent idea borne by a given culture. It motivates, unites, and sustains the "Collective Unconscious" of the peoples of the world. This titanic task it accomplishes by showing the masses a particular path to the realisation of ultimate Reality. This being the plain truth, it should not be difficult to appreciate that the source of such a Concept must lie in the sacred scriptures of the community.

I have traced the concept of Sri Harmandar Sahib to the pronouncements of Guru Nanak Dev who admittedly spoke nothing that was not first inspired by Divine indulgence. His

Bani (the Revealed Word) is description, sprung from an unconditioned spontaneity (*sahj*), of what the Divine-Husband (*khasam*) prompted him to pronounce. So the primacy of the Concept of Sri Harmandar Sahib flows from the delineation of God's Divinity enshrined in His primary attribute: Truth. Thus, Truth with its Omnipresence over four *yugas*, and before the birth and after the death of Time, becomes the Building Design principle of the Holy Shrine, and its Plan automatically assumes the geometrical shape of a Square. Just as this is the FORM-al expression of God's Transcendence, His Immanence is depicted by the semi-Hexagon. The two are linked by a covered passage symbolising the tutelage of the Holy Preceptor, without whose willing indulgence the experience of the ultimate Reality is absolutely impossible.

The Space, which produces the plan as "the generator", is conceived from this seed-idea of God's Transcendence as Changelessness (the Square) and His Immanence as Progressional Change (the semi-Hexagon), constituting Architecutre of Sri Harmandar Sahib.

What is the *Function* of this Space ?

To demarcate the place of *Sachch Khand* (Realm of Truth) and to create within it its nucleus, the *Parkash Asthan*, where the *Adi Granth* (as the Living Embodiment of God) would be installed to mark the Dawn of Englightenment. This is the first part of Function: its Utility.

The natural extension of this plan into its complementary function of consecration of water as "Father", which is savoured as *amrit* (elixir) at *Har-ki-Pauri,* marks the comprehensivity of the Concept of the Golden Temple. Thus this compound Plan of Square-with-half-Hexagon outlines on ground the "generative" power that would enable it to express itself as Architecture fashioned out of Mass and Surface which together create the

Elevation(s) or the third dimension of the Holy Shrine. The Elevation is the second part of Function: its Aesthetic.

The catholicity of the Space (ie Architecture) of Sri Harmandar Sahib is admirably expressed in Plan by four doors, one in each of the Square's sides. These four points of entry also allude to the four Cardinal Points: north, south, east, and west. The Sikh Faith's Cardinal Principle (*Humility*) may be discerned in the modest dimensions of the Holy Shrine's Space. The *Parkash Asthan* is barely 15'-4" x 15'-4", and the Square of the Plan totals to no more than 40'-7"x40'-7" on the outside. Considering that the Sikh Faith exhorts its followers to collective worship, these dimensions are, indeed, very modest.

In the light of this exposition, it should be self-evident that the Architecutre of Sri Harmandar Sahib is neither a derivation from, nor an adaptation of, any other place of worship in terms of its Concept, Cardinal Principles, and Space dimensions. The Holy Shrine is a refreshing new addition to the repertory of Religious Architecture of the World.

STRUCTURE [Ref.: Plate No. IX and X]: The Structure or Support System of Sri Harmandar Sahib is a combination of *trabeate* and *arcuate* principles. The domed room atop the *Parkash Asthan* at the terrace-level has its floor built on the post-and-lintel system, which shows the builders' ability to solve the structural problem of the crowning feature also by the trabeate system. The fact that they did not do so should substantiate the contention that those builders, indeed, had full appreciation of the symbohic value of the dome to make its ingenious exploitation in the Building Design of the Holy Shrine. Thus, though the elliptical dome used is a sound Structure, based on the arcuate principle, its use was apparently made for its expressive properties such as its visual appeal as a symbol of Humility, which is the Cardinal Principle

of the Sikh Faith. There was absolutely no need for adopting the Mughal dome, which is almost invariably an onion-shaped cupola, to roof the *sanctum sanctorum*. It is only its universal applicability to problems of Structure that the *dome* has been used. But its appropriateness of use for expressive purposes is an absolutely original enterprise.

Since the Structure (as the building's skeleton) is what primarily defines Space inside, and determines Form outside, combination of the trabeate and arcuate structure systems has created a lively variety to enhance the *expressive* quality of the Holy Shrine—such as would not readily be possible with the use of only the post-and-lintel or arch-vault-dome structure system. Besides, the deployment of straight lines (of the *trabeate* system) and curves (of the *arcuate* system) is a healthy combination symbolising, respectively, Reason and Emotion, whose synergetic functioning is indispensable to human beings' Ascent to the Realm of Spiritual Life.

Structure, as a support system, is an abstract principle of how a building would stand in deference for the Laws of Nature. It transcends the geographical boundaries of its historic origins, to solve problems of a universal kind. It has nothing to do with architectural styles of the world though scholars and historians erroneously tend to confuse it with Form which is its external manifestation: its internal evidence lies in the way it delineates and qualifies Space.

Appropriateness of Structure is the first hallmark of such Building Design as lies in the realm of significance. Sri Harmandar Sahib exemplifies such an artistic significance through its Structure. This aspect is further elaborated under Engineering–subsequently.

FORM [Ref.: Plate No. IV and XI]**:** Goethe defined Architecture as Frozen Music. Music is a compounding of

melody and mathematics whereby an Edifice of Sound is raised. Melody provides the *rhythm*; Mathematics supplies the geometric *ordering*. The product is a Form which expresses structural unity and, by its intrinsic quality, moves the soul via the ears. When the eye *hears* the music of proportions (like palpably related sound-units or notes) Architecture of Goethe's definition is born.

Form transforms areas delineated by Plan (two-dimensional) into Space, a pulsating volumetric void, by virtue of the third dimension supplied by the Elevation of the building. Form is developed from Mass conjured up by Structure. Mass in the raw has an unshaped Surface made of solids (wall-sections of the enclosing material) and voids (doors, windows, and other openings, including covered passages integral to the plan). Form can be seen as well as felt (by virtue of its Surface quality or texture). Space can only be experienced, holistically (ie by the synergetic, simultaneous, apprehension of all the five senses : visual, audial, tactile, olfactory, gustatory). In this special sense, Form is that which the Mind itself contributes (*experientially*) as the condition of knowing. Form, as the expression of Space vis-à-vis Structure is that in which the essence of a thing consists.

The Form of Sri Harmandar Sahib is closest to elementary geometry : a cuboid integrated with a prism of half-hexagon. A completely unadorned Form would be austere, a mere Mass, appropriate to the nature of Space for *Sachch Khand*. But its Surface has been livened up by bas-relief in repoussé work to extend *Ek Omkar's* Transcendence into Progressional Immamence. This has been achieved by the exercise of an utmost restraint, to symbolise "simple living and high thinking" as a prerequisite to a Life of the Spirit.

The symbolism of the elliptical dome of the Golden Temple has already been described. To this may be added the significance of the inverted lotus on the dome of the Holy Shrine. The inversion suggests a cerebral collection of the five senses and their *internalisation* into Reflection (*veechar*) whose cultivation is an essential discipline for a seeker of Truth. Reflection, in my view, is a psycho-emotional mirror-image in which thought looks at itself. Guru Nanak has underscored the role of Reflection time and again. To wit, "*Amrit vela sachch(u) naao vadiayi veechaar(u)*" (Pauri 4,Japuji). [Meditate ye on the glory of the True One's Name/in the ambrosial hours preceding dawn.] In simpler terms, Reflection is tantamount to the chewing of all Food for Thought collected by the five senses during workaday existence, so that the Life-Force inherent in it can become absorbed as God's Omnipotence (the Divine Name) in the Mind. Seen in this light, the cuboid of the *Sachch Khand*, crowned by the inverted lotus of the ellipitical dome, is a beatific vision, *architecturally* speaking, of God's Divine Essence. It is a Form that transforms the corporeality of the building materials into an exalted experience of ethereality.

The entire Form of Sri Harmandar Sahib is *dematerialised* by its reflection in the water of the *Amrit-Sarovar*, thereby uplifting its modest size to pulsating spiritual majesty. The scale of the holy precincts also contributes significantly to the creation of a unique ambience that impels reflection and reverence as a reward for the devotees' obeisance. The scale of the waterbody in relation to the building of the Holy Shrine is very large. This sense of vastness is accentuated by the wide *parkarma* all around the *Amrit-Sarovar*. The result is that the Space pulsates as Essence and the Form suggests its animating nucleus sanctified by the *Adi Granth* as a living embodiment of God's Omnipresence, Omnipotence, and Omniscience. The primevalness of the Primal Person (*Karta Purakh*) comes alive in

the unremitting reverence expressed for Him by preserving the *Ber* (jejube-tree) trees from the original site of the Holy Shrine. This is in keeping with Guru Nanak's dictum that Nature is God's Might (*qudrat*). Says he: "*Balihaari qudrat vasia, Tera ant(u) na jaayi Lakkhia*". (Sloka M-1, Raihraas.)

> "I'm a sacrifice unto Thee who art Nature's indwelling spirit
>
> It's within no one's power to describe Thy limit."

The modest scale of the Holy Shrine gains an added significance when seen in the light of the prescriptions in the Shilpa Shastra (ancient Hindu treatises on architecture). "In the Shilpa Shastras, the social stratification and the sense of belonging to a class of people is not only reflected in the plan but also in the vertical section. Thus the kings were supposed to have buildings of the ground floor and seven and a half storeys; Brahmins, the ground plus six and a half floors; the Kshatriyas ground plus five and a half floors; and the *Shudras* the ground plus two and a half[1]." However, Sri Harmandar Sahib, as already noted, has ground plus one and half floors—a size smaller than even the one prescribed for the lowest class of the *Shudras*: two-and-a-half floor structure. Thus, the physical built-Form of the Abode of The Formless One (*Nirankaar*) is closer to that of the *Shudras*' and very distant from a temporal king's. This point too is crucial in understanding the significance of Humility as the Cardinal Principle of The Sikh Faith. Also, the physical structure of the Sri Harmandar Sahib has three levels, each of which corresponds to the Attributes of *Ek Omkar*. The word "OM" consists of three sounds akin to the sound of each letter: a,u, and m. "u" is *Urdham* which means above; "A" is *Ardham* for below; and "M" stands for *Madhyam*,

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[1] LANG, Jan. (1997), *Architecture and Independence,* p. 30.

meaning middle. Thus, OM encompasses that which is Above, in the Middle, and Below, thereby meaning the entire cosmos. The word "Omkar" means the Performer of all the three functions of Creation, Preservation, and Dissolution. Guru Nanak's Sacred Formula thus, it may be recapitulated, written as *Ek Omkar* (ੴ), stands for One Universal Being. The three levels of the *sanctum sanctorum*, as noted above, together constitute one and a half floors, with the middle level being more like a viewing gallery, from which *darshan* of the Holy Book can be had by virtue of the double-height of the *Parkash Asthan*. The upper level too contains a small room crowned by the elliptical dome while the larger part of it forms the terrace. This defies the prescriptions of the Shilpa Shastras. Therefore, the upshot is that Sri Harmandar Sahib, neither in terms of its Space concept nor in its Form expressive of that intention, is derived from the ancient Indian tradition. So also is its Structure based largely on the *arcuate* system which was not extant in temple-design throughout the country.

Form of the Holy Shrine is as original as the concept of its Space and the system of its Structure. It is an evocative expression, through masterly Architecture, of God's Transcendence as a Living Force that may be experienced within the Immanence of His illimitable glory *reflected* in the created world.

At this crucial juncture of the assessment of Sri Harmandar Sahib creative merit, it is pertinent to quote Le Corbusier, who was the greatest architect of the 20th century. In his epoch-making book, "Towards A New Architecture", he has categorically pronounced that :-

> ARCHITECTURE has nothing to do with the "styles". It brings into play the highest faculties by its very abstraction.

Architectural abstraction has this about it which is magnificently peculiar to itself, that while it is rooted in hard fact, it spiritualizes it. The naked fact is a medium for an idea only by reason of the "order" that is applied to it.

> Mass and surface are the elements by which architecture manifests itself. Mass and surface are determined by the plan. The plan is the generator. So much the worse for those who lack imagination![2]

In the exposition, and analysis based on the comparative method, I have tried to show in unambiguous terms that the design concept of the Holy Shrine, on which its Plan, "the generator", is developed, is a creation of inspiration, an act that is far superior to the one accomplished by mere imagination. Imagination is the faculty of forming images in the mind, whereas Inspiration is spiritual stimulation by Divine grace. The latter condition has clearly been shown to have arisen from Guru's Word (*Gurbani*), as an embodiment of Divine grace. It is God's own manifest creativity, much above the cerebral circus of image-making. Though *Gurbani* has been written in poetry, which I hold to be the Language of Prophecy, it is *not* Poetry, as a literary art. Much less is it Metaphysics (the art of thinking things out to their ultimate significance) or Mythology (a body and/or study of myths) or Science. It is not even Mysticism (religion of the élite) as is reputed to be esoteric knowledge. *Gurbani* is God's Word (*shabad*) revealed to Guru Nanak, and, therefore, an inspired description of the cosmos, its laws and modes, without recourse to the faculties of reason, emotion, imagination, intuition, and so forth.

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[2] CORBUSIER, *op. cit.*, p. 45.

Poetry is the literary art of versification guided by prosody and related rules. Beside making an extensive use of Imagination, Poetry makes offbeat departures from convention by the deployment of poetic licence. Mythology is the highest creation of the human Imagination. Metaphysics is a major branch of Philosophy, and, like its mother discipline, draws heavily upon speculation which, at best, is theorising or mere guesswork. It has also been called the Science of Being, and is supposed to investigate the first principles of nature and thought. Science is hypothesis-based knowledge ascertained by observation and experiment, critically tested, systematised and brought under general principles. Mysticism is a repertory of sacredly obscure or secret experiences of one who seeks or attains direct intercourse with God in elevated religious feeling or ecstasy. In common parlance, Mysticism suggests fogginess and unreality of thought.

Building Design of Sri Harmandar Sahib, in this peculiar sense, transcends the "styles", and shows how that, which is a mere building-type in mundane terms, is exalted to the realm of spiritual glory, by its very design concept being rooted in The Source. It is an original creation of the Sikh Faith and thus an incomparable contribution to the repertory of Religious Architecture of the World. The evidence of this contention lies in the fact that Guru Arjan Dev, who was the architect-visionary of Sri Harmandar Sahib, took no credit for its creation. On the contrary, when the holy project was completed, the Guru burst forth into the following hymn (*shabad*) :-

The Creator-Lord Himself became my prop
And protected me from all harm
The Guru hath approved my ablutions
And contemplating the Lord,
my sins have been washed off.

O Saints, beauteous is the Pool of Ram Das;

Yea, whosoever takes bath in it,

his whole progeny is blest.

He is acclaimed by the whole world,

And all the desires of his heart are fulfilled.

Bathing, his mind attains peace,

For, he contemplates God, his Lord.

He who bathes in this Pool of Saints

Receiveth Supreme Bliss.

He dieth not, nor cometh, nor goeth;

(For) he dwelleth only upon the Lord's Name.

He alone knoweth this Wisdom of the Lord

Whom the Lord Himself blesseth with mercy.

Nanak seeketh the refuge of God, the Lord,

And all his woes and cares are past. (SGGS, p.623)

Louis I Kahn hit the nail on the head when he said that "Architecture doesn't exist. Only the spirit of architecture exists[3]."

In the case of Sri Harmandar Sahib, the Spirit of Architecture has been caught in a billowing breath of devotion, in total surrender to God, Who in His own sweet Will, joyously filled the architect's heart, completely cleansed of egotism, as a worthy receptacle of His Grace. This architecture is thus a Religion of Feeling concretised in the elements of Space, Structure, and Form—at once Universal and Timeless, like God's Own Immanent Divine Creativity. An Architecture in which Religion dwells as a Living Force to reunite souls,

[3] WURMAN, *op. cit.*, p. 15.

wandering on the wasteland of *Maya* (illusion), with the Logos or God's Word (*shabad*).

TIME: Time is a very potent element in the lives of human beings and in everything that they create. Time manifests itself as the changeless Law of Change. Nothing, except God Himself, is beyond the vagaries of change. Peoples of the world, places, things, and events—indeed, the entire cosmos—is subject to change. Time, along with Space, constitutes two most ubiquitous primal entities through which God manifests His Immanence, and His Creativity as Divine Sport (*Leela*) in the form of creatures and creation which he fashions out of Matter. It is Matter which becomes the embodiment of God's Creativity—infinitely (illimitability of Space) and eternally (immeasurability of Time). In this sense, Past is Time in solid state; present is Time in liquid state; and Future is Time in gaseous (ie nebulous) state. In other words, any given period of human history is an index of what Time had done, and to what point it had brought progress—which is both a process, and a product. A product is Time frozen in Space—whereby it becomes period-specific and place-specific. This curious peculiarity of Time makes it incumbent upon human beings, who are essentially "tool-making animals", to travel from one place to another to have access to (and thereby be benefited from) the tool-making techniques (Technology) of other peoples of the world. The purpose of such travel is to collect Information, while the mode of travel is conditioned by the dynamics of land, sea, and air. Now that such exchange has become INSTANT by virtue of satellites, technology itself has become Information Technology (IT): a new mode which has far-reaching socio-economic and politico-cultural consequences. In one word, IT is the truly democratic way of learning from proactive, reactive, coactive, and interactive Internationalism. The World has become one vast, sprawling City.

Tools, which peoples of the world make, are, at bottom, of only two types: power tools, and shaping tools. Interestingly, the progress of the world as a FACT of LIFE has been made possible by these tool-types. Without them, Progress was confined to either ratiocinative cerebration, or philosophic speculation, or flights of imagination. It should be evident that, without physical access to what another man had done, no man could *copy*. But if he did succeed in producing something of the kind another fellow elsewhere in the world had done it was regarded (and rationally so) as an independent invention/discovery. The case of the Theory of Evolution substantiates this contention. The same theory was developed succinctly and in complete form by Alfred Russel Wallace independent of Charles Robert Darwin. The so-called Scientific Method recognises that there are no such things as purely *inductive* (reasoning from particular cases to general conclusions) observations, for if the observer had not already in his head an idea of what he was looking for, as derivative of *deduction* (the drawing of a particular truth from a general, antecedently known, as distinguished from *induction*), he would not observe anything at all. The so-called higher truths were accessed by the faculty of Intuition—the power of the Mind by which it immediately perceives the truth of things without reasoning or analysis; and as reflected in works of art created by Imagination—the faculty of forming images in the Mind. But, in my own considered opinion, authentic Truth (as Divine Essence) is experienced only by God's Grace: in an extraordinary way as Inspiration, and in an exclusive exaltation as Revelation.

The privilege to receive such knowledge and the honour to use it for the benefit of Mankind transcend both Time and Space. Information Technology of the Soul is transmitted *spiritually* to the beneficiary by Divine Grace.

Considered in this light, the Time was ripe and the Space was blessed so that Guru Nanak may receive God's Word (*shabad*) through Revelation, beyond the limiting factors of the other stated methods. The three states of Time—solid, liquid, and gaseous—commingled to create their own Space in the heart of the Prophet of the Sikh Faith for implanting Truth, at once Timeless and Universal. There was thus no scope for reference to any "styles" of Architecture. The new Architecture assumed Form in a fitful flash of realisation (The Light of Revelation). When the Time was ripe to realise on ground a new building-type, Guru Arjan Dev already had the prototype of *Dharamsala*, along with requisite Cardinal Principles, Design Imperatives—rooted in the seed-idea, the Concept of Sri Harmandar Sahib.

The Holy Shrine is, therefore, a Marvel of Religious Architecture, transcending Time and Space, and belongs to the entire Humanity.

ENGINEERING [Ref.: Plate No. IX and X]**:** Since, as already pointed out, the building is the only physical Form in which the Spirit of Architecture can be embodied, Engineering played an all-important role in the making of the Holy Shrine in terms of materials, construction, which together constitute Structure, and the huge waterbody (*Amrit-Sarovar*). All these Engineering Aspects were meticulously taken care of by Sikh artisans, craftsmen, masons, carpenters, metal-workers, and so forth. The chief building material was Nanak Shahi brick, actually a baked tile, and lime concrete. Right from the foundations of the Holy Shrine, to the retaining-walls of the huge waterbody, and the super**structure**, along with exquisite craftsmanship in surface finishes and decorative motifs, everything was built from out of a consummation of the marriage of soul-Bride with the Divine Husband in a rare

spiritual conjugation. The system of water supply to the Pool of Nectar and its maintenance, including desiltation (through *Kar Sewa*) are feats of Engineering which compel notice and appreciation.

AESTHETICS [Ref.: Plate No. XI and IV]: As was pointed out earlier, Aesthetics is a wondrous experience of Beauty resulting from a visual encounter with Form which Building Design eventually assumes when realised as an object of *art* in flesh and blood, as it were. Analysis of the Geometric Ordering of the main façade of Sri Hamandar Sahib has revealed the sensitivity and precision with which different constituent parts of the elevation were PROPORTIONED, and brought together into an organic whole, expressing Unity and Balance. That the Design has yielded such a result substantiates the fact that the beautiful elevation is a product of premeditated, enlightened endeavour, and not of any stray accident. A masterly use of solids and voids, projections and recesses, contrasting (yet harmonious) juxtaposition of materials (white marble and copper gilding), straight lines and curves, cuboids, spheroids, elliptoids, etc., has created a distinct Aesthetics of the Holy Shrine.

Aesthetics, as a metaphysical dimensions of Form, is "a pure creation of the spirit", and evokes emotion when significant Building Design stirs our soul in tune with a universe whose laws we obey, recognise, and respect–to use Le Corbusier's[4] pithy expression. In the case of Sri Harmandar Sahib such obedience, recognition, and respect go much deeper to The Source : The Edict-Fiat (*hukam*) of Lord God himself. Its Aesthetics thus transcends the mundane and the secular into the universalness and timelessness of Religious Experience. No

[4] CORBUSIER, *op. cit.*, p. 23.

wonder the Holy Shrine appeals to all genres of visitors from India and abroad, beyond their ethnic eccentricities and national prejudices. Such an Aesthetics, though rooted in the physicality of Form, directly communicates with the human Spirit, and exalts it to higher realms of Consciousness.

CONCLUSION

Before drawing my own conclusion(s) from this study of Sri Harmandar Sahib, I would like to quote what Percy Brown has written about the Holy Shrine:-

> As an example not so much of architectural style but of religious emotion materialized in marble, glass, colour and metal the Golden Temple at Amritsar is equalled only by the Shwe Dragon Pagoda at Rangoon; the former symbolizes the faith of the Sikhs, the latter is the highest expression in a very similar range of material of another great Indian religion, that of the Buddhists[5].

This quote needs elaboration. The phrase "architectural style" is loose, and, at best, means a repository of FORM-al features which characterise the art and science of building as practised by a particular community during a particular period of history. And the implication is that these features are distinguishable from those developed previously or contemporaneously by another community for expressing its aesthetic preferences. Similarly, the content of the word "religion", in the expression "religious emotion", seems to connote "belief in, recognition of, or an awakened sense of, a higher unseen controlling power or powers, with the *emotion* and morality connected therewith". The dictionary meaning of the word "emotion" is "a moving of the feelings: agitation of the mind: one of the three groups of the phenomena of the mind—feeling, distinguished from cognition and will" (as in philosophy). It should be evident that the word "religion" alone accounts for everything else because the devotion that it

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[5] BROWN, Percy. (1992), Indian Architecture (Islamic Period), p. 115.

inspires underscores the act of "giving up of the mind to the worship of God". Devotion is psycho-somatic stirring of the human soul that desperately longs for reunion with its Creator, the Lord God. Seen in this curious light, the very Act of Creation of Sri Harmandar Sahib was never an exercise aimed at developing a new style of architecture. It was quite simply an impassioned expression of experience of "in touchness" with the dynamics of God's Grace which, on its own initiative of Divine Creativity, produced an apt building-type as a soulful work of Revelation. And a legitimate "style" of Sikh Architecture eventually ensued.

Be that as it may, Percy Brown[6], the learned architectural historian, has conceded that the Golden Temple expresses "religious emotion materialized in marble, glass, colour and metal", and its example is "equalled only by the Shwe Dragon Pagoda at Rangoon".

My conclusion is that Sri Harmandar Sahib, as an artistic creation of Divine inspiration, is a Marvel of Religious Architecture among other Places of Worship in the world. It expresses the unicity of *Ek Omkar* and His divine Immanence; inspires the devotees to follow the Path of Truth; and reunites their soul-consciousness (*surat*) with The Source, The Logos (*shabad*): The Primal Person (*Akal Purakh*), whose Essence is Transcendent and Might (*qudrat*) Immanent, as the life-breath of the entire cosmos.

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[6] *ibid.*

PHOTOGRAPH NO 1 [A Bird's-Eye View Panorama]

This is a near-panoramic view of the Golden Temple (Southern facade), with eye-level corresponding to the top of the parapet of the shrine.

Sri Harmandar Sahib, The Temple of God, or *Sri Darbar Sahib*, the Court of the Lord, seems to rise like a lotus from the waters of the Pool of Nectar, *Amrit-Sar*(owar), from which Amritsar, the City Sacred of the Indian Punjab, derives its name. The shrine is approached by a causeway, symbolising that an extraordinary spiritual endeavour leads the seeker to a life akin to that of a lotus–untouched by water even when it exists right in its midst. The vast enclosure, which has, among other things, a covered circum ambulatory (*parkarma*), is painted white to underscore the exclusive resplendence of the Golden Temple. Its deliberately-lowered plinth-level suggests that even the humblest has to step down to reach it. This element symbolises Humility which was proclaimed by Guru Nanak Dev (1469-1539 AD) as the cardinal principle of the New Faith (now called Sikhism) which he founded on the basis of his Revelation.

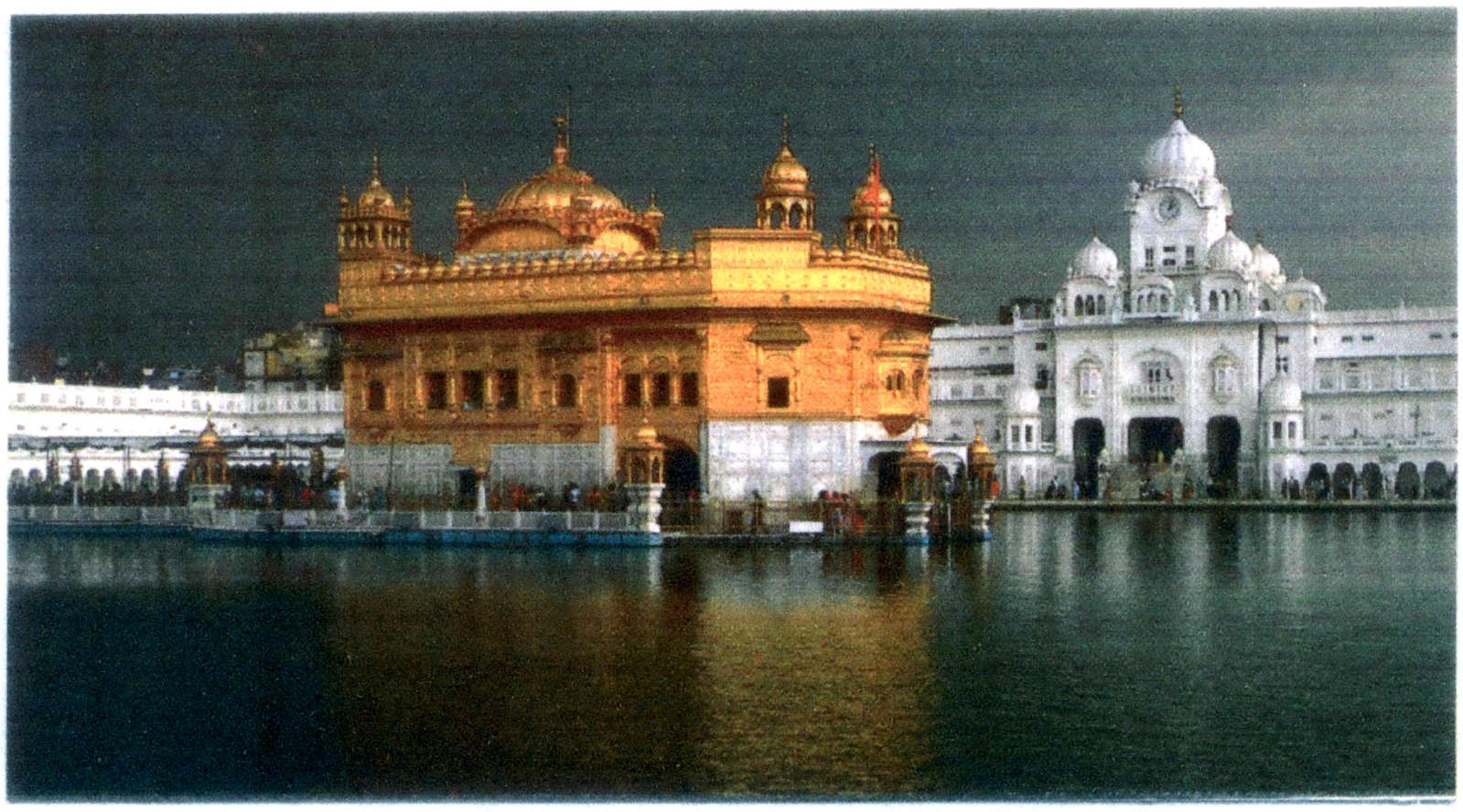
PHOTOGRAPH NO 2 [Western Facade Facing Darshani deorhi]

This is the Western facade of the Golden Temple, showing a small part of the causeway which leads to the main entrance and the circumambulatory (*parkarma*) around the sacred shrine. The frontal aspect is a near-square, all gilded except the ground-floor wall which is in white marble. Demountable railings are erected on the causeway to regulate the movement of the devotees who throng the Temple on special occasions in milling crowds. The point to note is that the shape of the main dome, which is elliptical, was deliberately chosen to express the cardinal principle of Humility. A low-sitting dome such as this is not visible from close-on but the problem has been solved most ingeniously : the parapet has been lowered in the middle so as not to obstruct the view of the dome. The *chhattris*, or kiosks, on the corners, are also squat and kept lower than the highest point of the main dome. The white surroundings automatically shift the focus onto the Golden Temple.

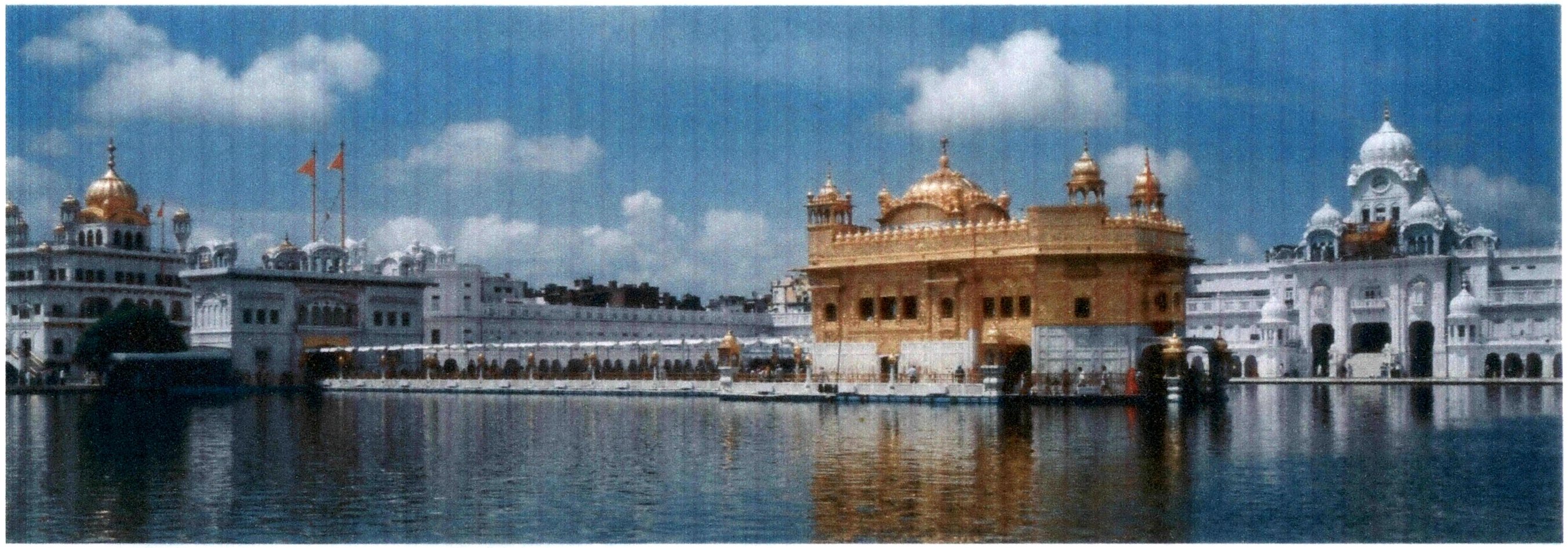
PHOTOGRAPH NO 3 [North-Eastern Aspect]

This picture shows the North-Eastern aspect of the Golden Temple. The cuboid form of the *sanctum sanctorum* has been extended by adding to it part of a hexagonal prism. The main dome is easily seen, thanks to the lowering of the parapet. Note, however, that the *chhattris* placed at the sides of the part-hexagon are hexagonal too– and look more austere than the square-based front duo. The oriel window at the back marks the place where another copy of *Guru Granth Sahib* (The Sikh Bible) is ceremoniously installed. Underneath is the *Har-ki-Paurhi*, God's Stair, where devotees come and take palmfuls of *amrit* (nectar) from the holy tank. The junction of the cuboid and the hexagonal prism roofs over the *parkarma* on the Eastern side. Seen on the left is a majestic gateway which provides access to the holy precincts from the Southern side. This, along with the covered circumambulatory, was built in late-1940s.

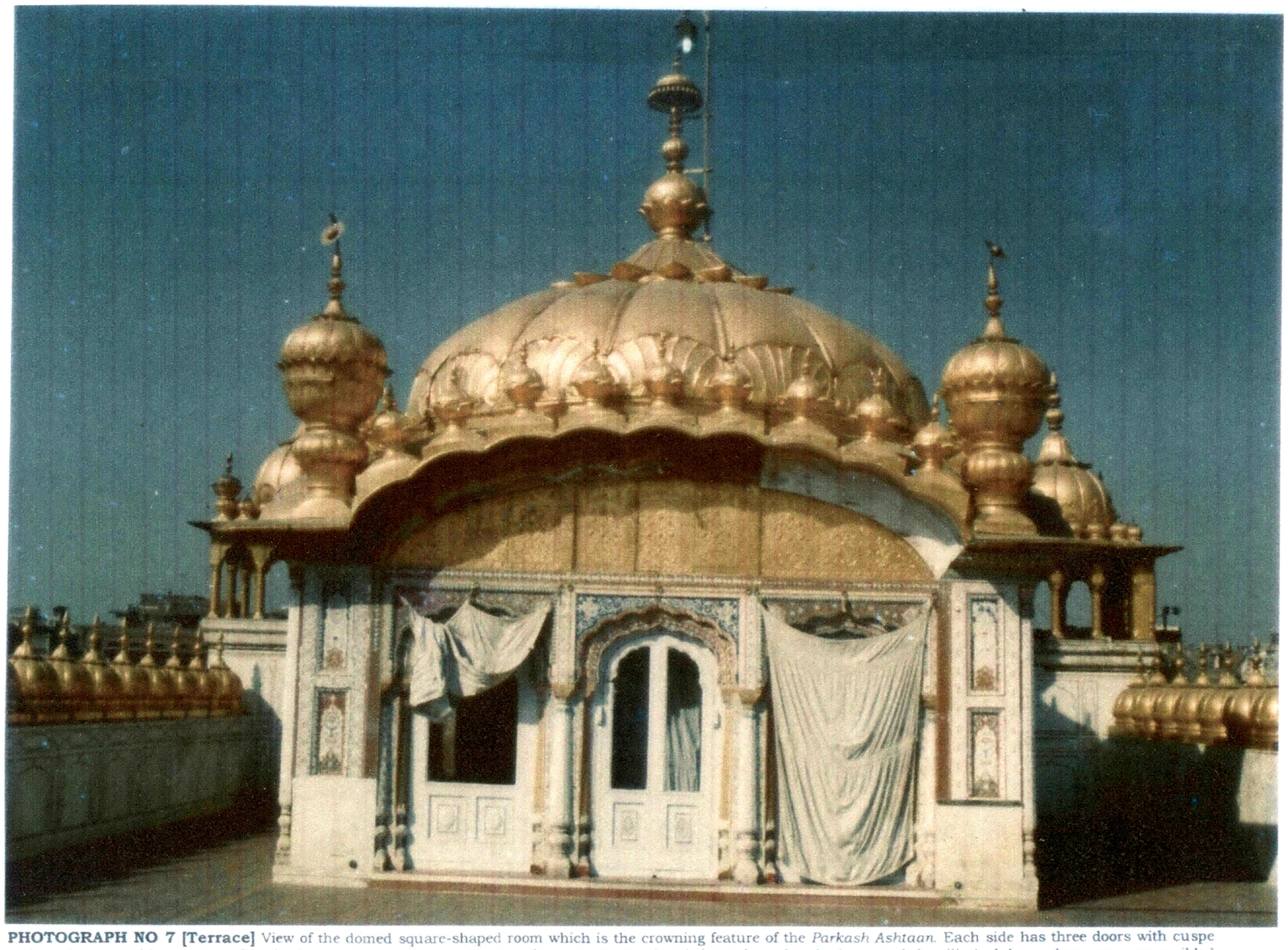
PHOTOGRAPH NO 4 [South-Eastern Aspect]



This picture is south-eastern aspect which captures less of the surroundings in order to provide a larger image of the Golden Temple. The point to note is the provision of a *chhattri* at each important corner of the circumambulatory and the extended sides of *Har-ki-Paurhi*. The cuboid shape of the *sanctum sanctorum* has been ingeniously emphasised by setting back the Southern facade where the cuboid and the hexagon meet. The fact that, with the exception of the four entrances, there are no openings in the marble walls at the ground-floor level, lends a mystical charm to the *sanctum sanctorum* where Guru Granth Sahib alone is the Presiding Spiritual Preceptor or Guide. The white structure on the right is a mirror-image gateway which provides access from the Northern side.



PHOTOGRAPH NO 5 [East-South-Eastern Aspect] This picture gives a view of the holy shrine from the East-South-Eastern side. It is different from the previous four photographs in three aspects : (a) It shows the main entrance called the *Darshani Deorhi* , (b) It shows the full causeway, and (c) It shows the *Akaal Takht*, the Throne of the Immortal Lord, which completes the two-prong Creative Mysticism of Guru Nanak Dev. The *Sri Harmandar Sahib* guides the Sikhs (seekers of Truth) in their Spiritual journey, and the *Akaal Takht* regulates their Temporal affairs. This melding of the Religious with the Secular is unique to the Sikh Faith, which proclaims that this life is real because it is the creation of The True One, Peerless Lord God and all members of the *Homo sapiens* species must live it fully by engaging in socially-beneficent action, through honest livelihood and constant contemplation of the Holy Name. Sharing with the under-privileged what one earns by the sweat of one's brow alone can elevate one's spiritual endeavour to a soul-consciousness (*surat*) that subsumes all forms of discrimination to become one long stillness of prayer thanking God for His infinite bounties and His boundless benediction.



PHOTOGRAPH NO 7 [Terrace] View of the domed square-shaped room which is the crowning feature of the *Parkash Ashtaan*. Each side has three doors with cuspe arches, demarcated by tapering, fluted pilasters. The tympanum (ie space between the lintel and the embowed arch above) and the elliptical dome above are copper-gilded. The dome is inverted lotus, symbolising reflection, and has nine turrets on each of the four sides of its base, with a mace-like domelet in each corner.

RECOMMENDATION

Before I pen down my recommendation for the benefit of scholars, critics, and historians of Architecture, I would like to quote the poet WH Auden : A critic can "throw light upon the relation to art of life, to science, economics, religion, etc." And as the American architect Louis Sullivan, one of the pioneers of Modern Architecture, has succinctly observed: "Once you learn to look upon architecture not merely as an art, more or less well or badly done, but as a social manifestation, the critical eye becomes clairvoyant, and obscure, unnoted phenomena become illumined." (Quoted by Sylvan Barnet.)

The "obscure, unnoted phenomena" that has hopefully "become illumined" by virtue of the research methodology developed for the present study, it may be conceded, should draw the attention of scholars, critics, and historians of Architecture, for application (and further improvement) to their own areas of investigation. Such adoption, I dare say, should result in authentic and conclusive outcome of research projects. I, therefore, recommend that, for undertaking a critical evaluation especially of historical monuments, notably, places of Worship (like stupas, churches, mosques, *Mandirs*, and *Gurdwaras*), my Research Methodology be given a fair trial. I recommend that study of the historical monuments should be done in terms of the Elements of Building Design as enumerated below:-

(1) Space, (2) Structure, (3) Form, (4) Time, and Technical Aspects:

(1) Architecture, (2) Engineering, and (3) Aesthetics.

As has been noted earlier, in the formulation of my Research Methodology, the Elements of Building Design and their Technical Aspects are, at bottom, interrelated, and yield

their fuller sense only when they are used together in any discourse on the planning (i.e. conceptualisation followed by a comprehensive action plan) and making (i.e., construction, materials, and resolution of emerging problems of implementation) of Built (or Human) Environment.

Space is **Architecture** in the sense of Spirit, as Louis Kahn has so succinctly stated. *Structure* is **Engineering** in the sense of Skeleton (as in the human body) of a Building. *Form* communicates **Aesthetics**, which is the visual experience of Beauty as manifest in the Building. Spirit has a primary purpose to fulfill, and must be traced to its original source which, in the case of Places of Worship, would be found to be enshrined in the Sacred Scripture(s) of different peoples of the world. The approach would also resolve disputes concerning origin and evolution of various architectural styles, and their unwitting intermingling throughout the course of History

The Metaphysical Dimension of Space is embodied in its purpose which conjures up the design concept as the genetic imperative of Architecture. Metaphysically, Structure is first and foremost a mental construct of a host of forces brought together in a state of dynamic equilibrium. Form is a Metaphysical visualisation of the Void of Space in conjunction with the Skeleton of Structure as an artistic (ie organic, holistic) expression of primary design intentions which transcend mere Utility to move up into the Realm of Beauty, and perennial significance. Time's Metaphysics is its ability to contextualise new creation in the midst of the existing Built-Environment. Time's masculinity impregnates Space's feminity into the throbbing vitality of a work of Art. The Metaphysical Dimension of Engineering is Imagination-activated Rationality working out a method of how to translate an Idea (abstraction) into an

Object (concrete reality, ie, in this case, Building) by transferring it from the Mind to the Ground.

The Physical Dimension of Space is enclosed and roofed vacuity in which to live, worship, work, and recreate; of Structure, it is construction made possible by an assembly of materials by appropriate methods and skills supplied by Engineering. Form manifests its Physical Dimension when Architecture becomes Frozen Music. Time is arrested as Physical Dimension by marking out an event in the history of human civilisation. The physical Dimension of Engineering is crucial, because Engineering alone makes things happen on ground by putting its processes and inventions in action.

The other related factors, which must also be investigated, arc:-

- The Materials used, and how they contribute to the building's purpose (Utility) and *physical aesthetic* statement (Beauty).
- What is the function of Ornament, ie decorative art applied to the building, or of Sculpture in or around the building ?
- Does Colour play any significant role in : articulating Form, giving aesthetic pleasure, symbolising meaning, etc.?
- How has Daylight been used in the architectural design of the building, and what part does Electric Light play in the quality of interior and in the appearance of the exterior (façade) ?

The foregoing discussion may be summed up under three aspects of Architecture :-

(1) The monument as an envelope (its purpose, structural system, materials, source of design, history, and design ie articulation of the façade, including the disposition of doors, windows, ornamentation, colour, etc., (2) The interior (hierarchy of spaces, movement of users, connection with the outdoors (façade and the surroundings, notably, its landscape); and (3) the site (relationship of the building to the environment in terms of site-structure unity). In the case of Secular Architecture, a fourth topic to be studied is: the architect's philosophy, and the place of the building under investigation in the history of the architect's work.

Before closing this discussion, I would like to quote what Dr Arvind Krishan[7] has stated in response to my query on the structural analysis of historical monuments :-

1) Structure analysis of existing structures is always a problem because of the following :-

   a) Since structure details and exact drawings are normally not available ; and

   b) Based on sketches or incomplete information, structural modelling is never accurate.

2) The basic parameters and requirements for structure analysis are what is normally done i.e. detailed architectural and structural drawings along with detailed material properties should be available.

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[7] Letter No. Ref. 1/2003/Arch., dated 26th August, 2003.

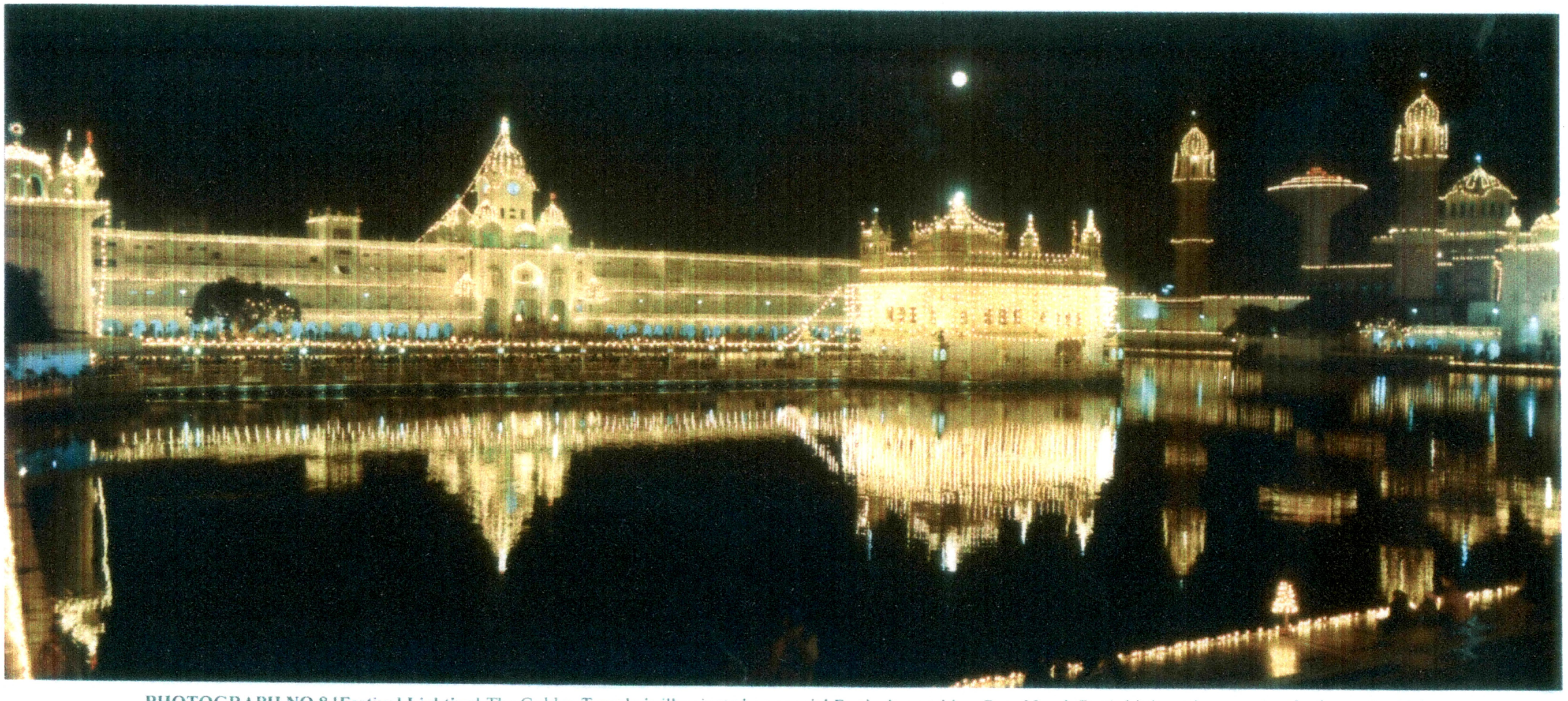
3) Modern techniques of research involved in structure appropriateness, efficiency or etc. will inevitably require material testing check carried through core cuttings etc.

4) Devising methods for analysis of historical monuments is always bordering on approximations where the availability of drawings is rare.

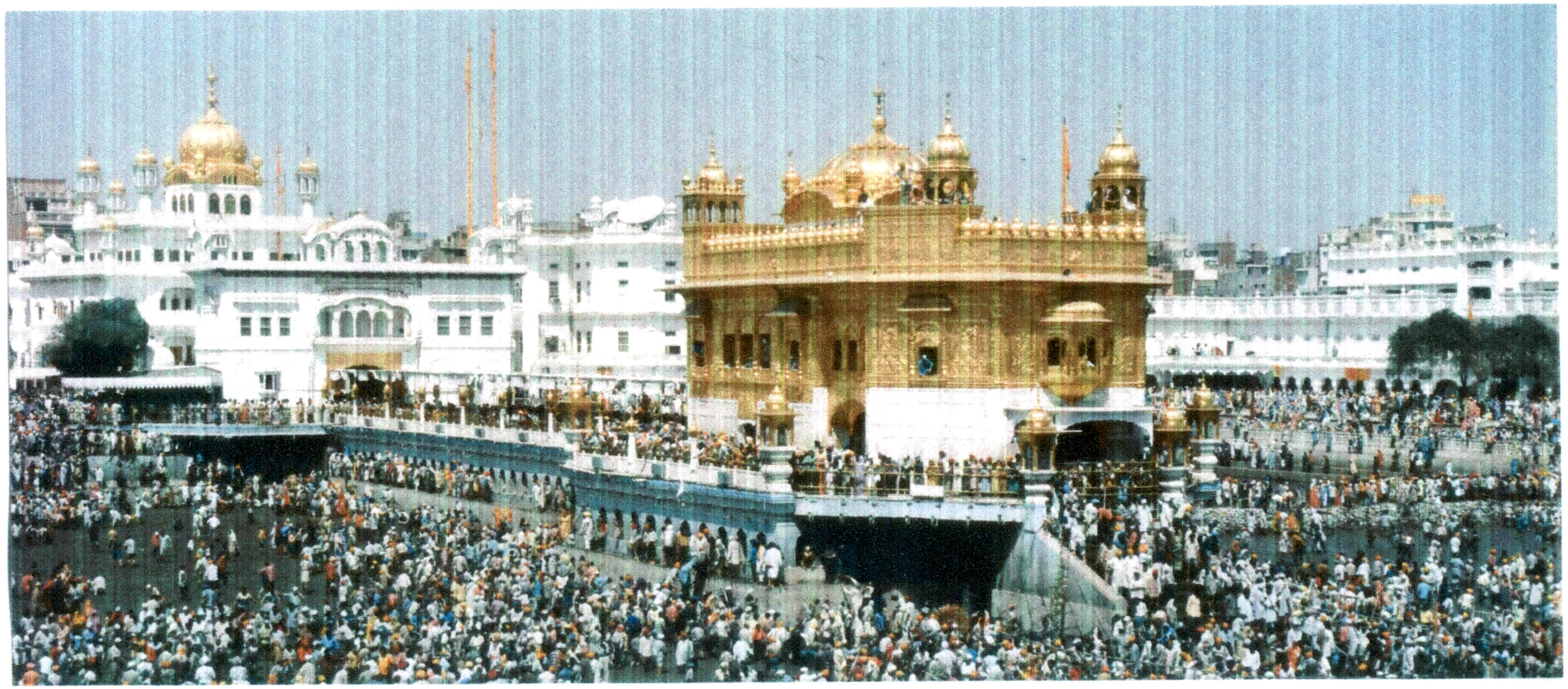
EPILOGUE

The successful completion of my thesis project, Sri Harmandar Sahib, gives me deep satisfaction as well as a sense of inner insufficiency. As a career teacher, with a lifetime achievement award of gold medal in Architectural Education, I have persistently advocated the need for a holistic approach in all fields of human endeavour, notably, Humanities, Science, Art, and Technology. And, to accomplish it, I have identified that there are four basic areas in which any discipline finds its full expression, development, and fruition. These are: Theory, Practice, Research, and Pedagogy. Practice tests on the anvil of experience the mental constructs conjured up for action by Theory. Research, as a link activity between Theory and Practice, investigates what went wrong where, how, and why, vis-à-vis the success of an idea in action. It explodes myths, removes mental cobwebs, and imparts resilience to both Theory and Practice, which make an inseparable pair. My dictum is : Theory without Practice is lame. Practice without Theory is blind. Pedagogy, in essence, provides the communication skills (in the form of printed word, speech, and drawings, etc.) to effectively transmit outputs of Theory, Practice, and Research, for the dissemination, as well as the development, of human knowledge.

My sense of inner insufficiency arises out of a gnawing thought that unless the method, which I have developed and applied in the present study, is given a fair trial by other scholars its growth will not be possible. Since knowledge is the only commodity that can never be monopolised by anyone, great or small, it stands to reason that it must be generously shared and open-mindedly received, to ensure its healthy development. I, therefore, call upon scholars of all genres to test for themselves whether what I have delineated as a Method of



PHOTOGRAPH NO 8 [Festival Lighting] The Golden Temple is illuminated on special Festivals, notably , Guru Nanak Dev's birth anniversary (*parkash utsav*) which falls on the full moon night or *kartik purnmashi* (corresponding to the second-half of the month of November). Here the Holy Shrine is seen in all its soulful splendour on the Sikh Faith's Founder's 535th birth anniversary.



PHOTOGRAPH NO 9 [Kar Sewa or Voluntary Devotional Labour] View of the Golden Temple when the *kar sewa* (voluntary devotional labour) was in progress in March 2004. Thousands of devotees from India and abroad converged on the holy precincts for desilting the *Amrit-Sarovar*. The enthusiasm was so overwhelming that the gigantic task was accomplished much in advance of the target date fixed by SGPC (***Shiromani Gurdwara Parbandhak* Committee). On the left is *Darshani Deorhi*, and on the right *Har-ki-Pauri*. Note the vaulted substructure of the Holy Shrine, and the causeway.**

Approach actually makes sense. Taking that as a starting-point, they should then do their best to develop it further in the interest of authentic, unbiased scholarship. Life being an organic whole, our way and view of it, must necessarily be wholesome, despite differences of opinion.

Evolution (ie gradual development) of knowledge occurs by assent but its mutation (ie sudden change) comes about by dissent. The two together constitute a whole that alone is worthy of the human genius. I wish that someone, taking the baton from me, run his leg of the relay race, and encompass in his study such aspects as urban design, landscape architecture, floorscape, interior design, art, etc. of Sri Harmandar Sahib, extending the study to the Akaal Takht and all other monuments of the sacred precincts, to complete the work I have modestly begun.

Chandigarh. SS Bhatti

BIBLIOGRAPHY

(a) SUBJECT-SPECIFIC BOOKS

ARSHI,PS.(1989), *The Golden Temple:history,art and architecture*, Harman Publishing House, New Delhi.

BACHAN, Gurbachan Singh.(2004), *Guru Nanak and Ecology*, Guru Nanak Dev University, Amritsar.

BHATTI, SS.(1999), *Creative Mysticism: a study of Guru Nanak's Bani with special reference to Japuji*, Panjab University. (Unpublished PhD thesis.)

GREWAL, JS.(1996), *The City of The Golden Temple*,Guru Nank Dev University, Amritsar.

KAUR, Madanjit.(1983), *The Golden Temple: past and present*, Guru Nanak Dev University Press, Amritsar.

KUMAR, Parveen.(2004), *Amritsar: a composite culture*, Amritsar Heritage Society.

RANDHAWA,GS.(1990), *Guru Nanak's Japuji*, Guru Nanak Deve University, Amritsar.

RANDHAWA,GS.(1997),*Guru Nanak's Asa di Var*, Guru Nanak Dev University, Amritsar.

SINGH,Mohinder.(2002), *The Golden Temple*, UBS Publishers' Distributors Ltd.

SINGH,Satnam.(1996),*Sri Amritsar Jee de Darshan Ishnaan*, Sikh History Research Board (SGPC), Sri Amritsar.

SOCH,HS. & KAUR, Mandanjit.(1998), *Guru Nanak: ideals and institutions*, Guru Nanak Dev University, Amritsar.

TALIB, Gurbachan Singh.(1984), *Sri Guru Granth Sahib, Volume One*, Publication Bureau, Punjabi University, Patiala.

(b) SUBJECT-SUPPORTING BOOKS

ARNASON, HH.( ), *History of Modern Art*, Prentice-Hall, Inc.,Englewood Cliffs, N.J.

BUNCE, Fredrick W.(1935), *Islamic Tombs in India*, DK PrintWorld (P) Ltd, New Delhi.

BURTON, Rosemary, and CAVENDISH, Richard.(1991), *Wonders of the World:100 great man-made treasures of civilization*, produced by AA Publishing.

CONSTANTIO, Maria.(1998), The life and works of Frank Lloyd Wright, Published by Grange Books, Kent ME3 IND.

CORBUSIER, Le.(1927), *Towards A New Architecture*, The Architectural Press, London.

CORBUSIER, Le.(1960), *My Work*, The Architectural Press, London.

CURL, James Stevens.(1992), *Classical Architecture*, BT Batsford Ltd, London.

DEVA, Krishna.(1995), *Temples of India, Vol.I:Text*, Aryan Books International, New Delhi.

ENCYCLOPAEDIA AMERICANA Vol. 1.

ENCYCLOPAEDIA BRITANNICA (1982) Volumes 1, 6 & 16, Encyclopaedia Britannia, Inc.

FAUSTINELLI, Mario.(1972), *Man the Artist*, Tom Stacey, London.

FLEMING, William.(1955), *Arts and Ideas*, Holt, Rinehart and Winston, New York.

GARDNER, Helen.(1926), *Art Through the Ages*, Hartcourt, Brace & World, Inc.

GLOAG,John.(1958), *Guide to Western Architecture*, Spring Books (New York).

IENGAR, Keshavram N.(1996), *Composing Architecture*, Academy of Architecture, Mysore

LANG, Jan. (1997), *Architecture and Independence.*

Reader's Digest, *Use the Right Word.*

SRIVASTVA, Balram. *Nature of Indian Aesthetics*, Chaukhamba Orientalia.

WURMAN, Richard Saul. *What Will Be Has Always Been.* The Words of Louis Kahn, Access and Rizzoli, New York.

WURMAN, Richard Saul.(1986), *The Words of Louis I Kahn*, Access & Rizzoli, New York.

(c) BOOKS ON HISTORY OF ARCHITECTURE

ALBANESE, Marillia., *Architecture in India*, Om Books, Delhi.

BENEVOLO, Leonardo., *History of Modern Architecture (Two Volumes)*, MIT Press, Combridge.

BROWN Percy., *Indian Architecture (Islamic Period)*, DB Taraporevala, Bombay.

BROWN, Percy., *Indian Architecture (Buddhist and Hindu Period)*, DB Taraporevala,Bombay.

COPPLESTONE, Trewin., *World Architecture*, Crescent Books, New York.

CURTIS, William., *Modern Architecture since 1900*, Phaidon, London.

DONAT, John., *World Architecture*, Studio Vista, London.

FERGUSSON, James., *History of Indian and Eastern Architecture*, Munshiram Manoharlal, New Delhi.

FLECTCHER, Banister.,*A History of Architecture*, CBS,Delhi.

FRAMPTON, Kenneth., *World Architecture 1900-2000: A Critical Mosaic of South East Asia and Oceania*, Springer, New York.

GIEDEON, S., *Space Time and Architecture: the growth of a new tradition,* Harvard University, Press, Harvard.

GROVER, Satish., *The Architecture of India (Buddhist and Hindu)*, Vikas, New Delhi.

GROVER, Satish., *The Architecture of India (Islamic)*, Vikas, New Delhi.

MITCHELL, James., *Illustrated Reference Book of Modern Architecture History*, Windward, England.

NATH, R., *History of Mughal Architecture (Two Volumes)*, Abhinav Publications, New Delhi.

NEAL, James., *Architecture: A Visual History*, PRC Publishing, London.

NOREWICH, John Julius., *Great Architecture of the World*, Bonanza Books, New York.

RAEBURN, Michael., *World Architecture*, Octopus Books, London.

TADGELL, Christopher., *History of Architecture in India*, Phaidon Press Ltd., London.

TOYNBEE, Arnold., *A Study of History*, Thames and Hudson, London.

(d) BOOKS ON STRUCTURES

ARYA, Anand S., *Structural Design in Steel, Masonry and Timber*,

COWAN, Henry J.and WILSON, Forrest., *Structural Systems*, Van Nostrand Reinhold Co., New York.

ENGEL, Heinrich., *Structure Systems*, Iliffe Books, London.

FISCHER, Robert E., *New Structures*, Macgraw Hill Book Co., New York.

FOSTER, Michael., *Architecture Style, Structure and Design*, Excalibur Books, New York.

HANAOR, Ariel., *Principles of Structures*, Aarontype Ltd., Bristal.

MARTIN, Lesile., *Urban Space and Structures*, University Press, Cambridge.

NERVI, P L., *New Structures*, The Architectural Press, London.

OTTO, Drew Frei., *Form and Structure*, Crosby Lockwood, London.

PEARCE, Peter., *Structure in Nature: a strategy for design*, M.I.T. Press, London.

Reynolds and Kent., *Introduction to Structural Mechanics*, M.I.T.Press, Cambridge.

Salvadori & Levy., *Structural Design in Architecture*, Prentice Hall, London.

SCHODEK, Daniel., *Structures*, Prentice Hall, New Delhi.

SCHUELLER, Wolfgang., *High-Rise Building Structures*, Robert Kreiger, Flordia.

SHAEFFER, R.E., *Elementary Structures for Architects and Builders*, Prentice Hall, New Jersey.

SIEGEL, Curt., *Structure and Form in Modern Architecture*, Crosby Lockwood, London.