

**SHANJHANABAD AND NEW DELHI:
a comparative analysis of
Urban Form and Pattern**

by Debasish Guha

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The Faculty of Graduate Studies and Research
McGill University
Montréal, Quebec**

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Master of Architecture**

**under the supervision of
Professor Norbert Schoenauer**

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SHAHJAHANABAD

a comparative analysis

Urban Form and Pattern

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Chapter 1

Chapter 2

Chapter 3

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Abstract

In this work attempt has been made to analyze the urban form of Shahjahanabad and New Delhi - two major urban areas of the city of Delhi. Evolution of the city form historically, its pattern and planning principles are analyzed, with such elements like the Government requirement, residential, economic and commercial, religious, and recreational needs and then compared.

Also, considered are the historical overview of the development of the city of Delhi and briefly, its present development.

Resumé

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Resumé

Ce travail cherche à analyser les formes urbaines de Shahjahanabad et de New Delhi, deux zones urbaines importantes de la ville de Delhi. L'évolution de la forme urbaine de Delhi dans l'histoire, sa morphologie et ses principes de planification sont étudiés en tenant compte d'éléments tel que les exigences du gouvernement, les besoins de l'habitat, de l'économie et du commerce, des institutions religieuses et des équipements récréatifs, et sont finalement comparés.

En plus, une vue d'ensemble historique sur le développement de la ville de Delhi, et, de façon sommaire, les développements actuels sont considérés.

Acknowledgements

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To my
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To my wife, Surekha, for the tremendous encouragement and help throughout, and specially in the final stage of the thesis.

Preface

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Preface

Delhi is among one of the oldest and most important historic cities in India. It has variously been defined as a city comprised of a number of cities - nine cities of Delhi being the most prevalent. Most of these cities which preceded are in ruins. At the heart of the urban Delhi are 'Shahjahanabad', essentially indigenous city and 'New Delhi', a colonial city, two factors make a study of its development more interesting. In the first place, very different cultures, representing contrasting forms of social, political and economic organization and development, were responsible for the creation of these two main urban areas. Second, the form of, and relation between, these two areas emerged as a result of the distinctive power relationship imposed by modern industrial colonialism.

The aim, therefore, has been to attempt a comparative analysis of the essentially cross-cultural data inherent in the development of these areas. Each areas are discussed in detail for its planning principles and the evolution of the city form and pattern. The elements of the urban form in each area is analyzed and then the comparative findings of such elements form the basis of the concluding chapter.

Chapter 1, is a brief introduction of historic overview of the evolution of the various cities of Delhi. This offers

- 1 Indigenous walled city
- 2 Former colonial urban settlement of New Delhi
- Extent of developed land in 1942
(in dotted)
- 2a Civil Lines
- 3 Cantonment
- 4 Area of post-independence expansion
- 5 Urban Fringe

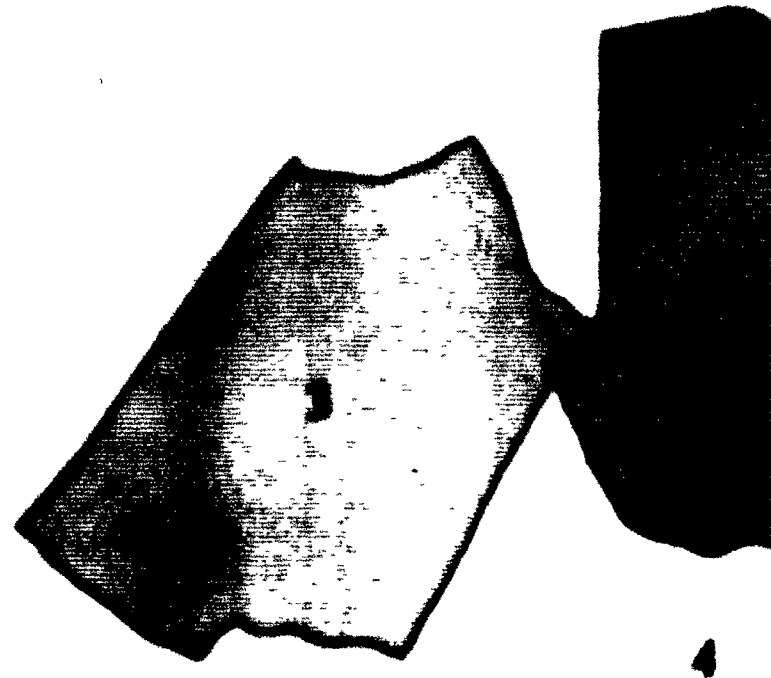
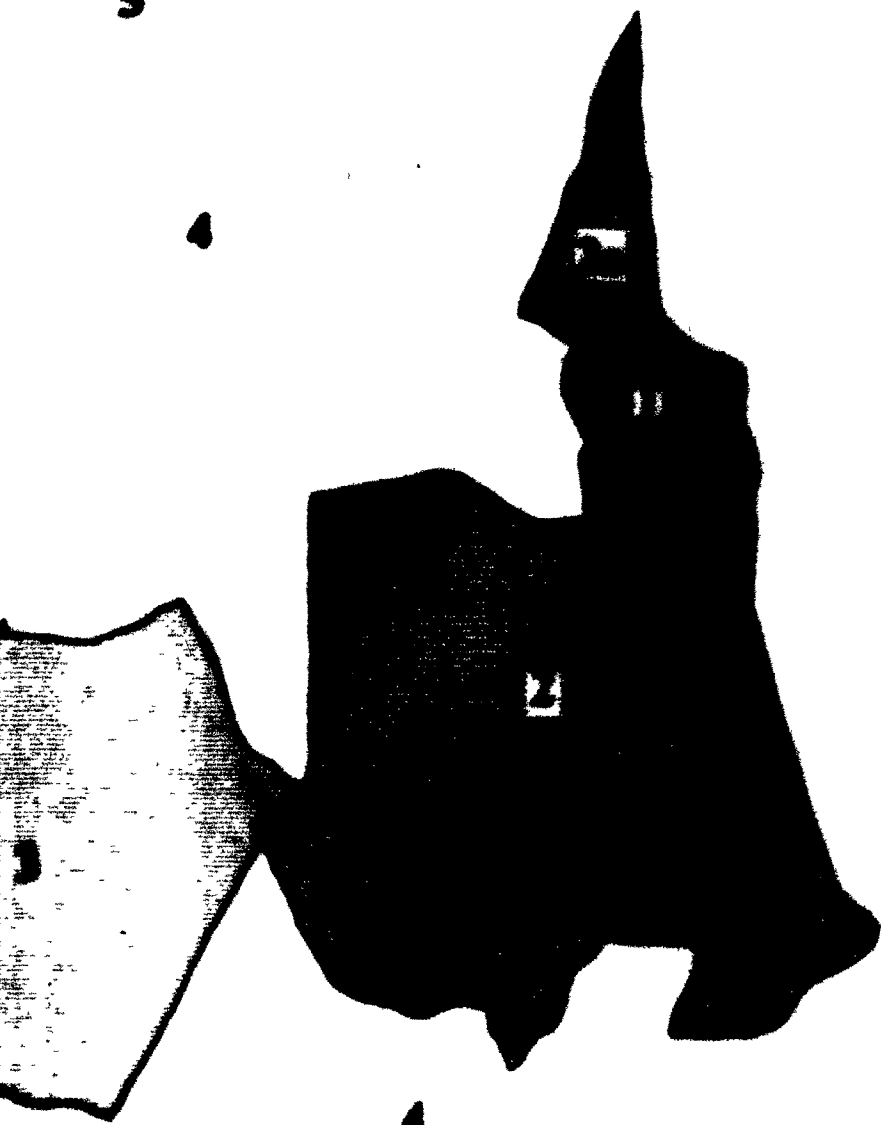


Fig 1 Delhi - 1971
Physical - Spatial
Form



Delhi

1971





- 1 Indigenous walled city
- 2 Former colonial urban
development of
New Delhi
Extent of developed
land in 1942
(in dotted)
- 3a Old Lines
- 3 Outskirts
- 4 Area of post-
independence
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- 5 Urban Fringe

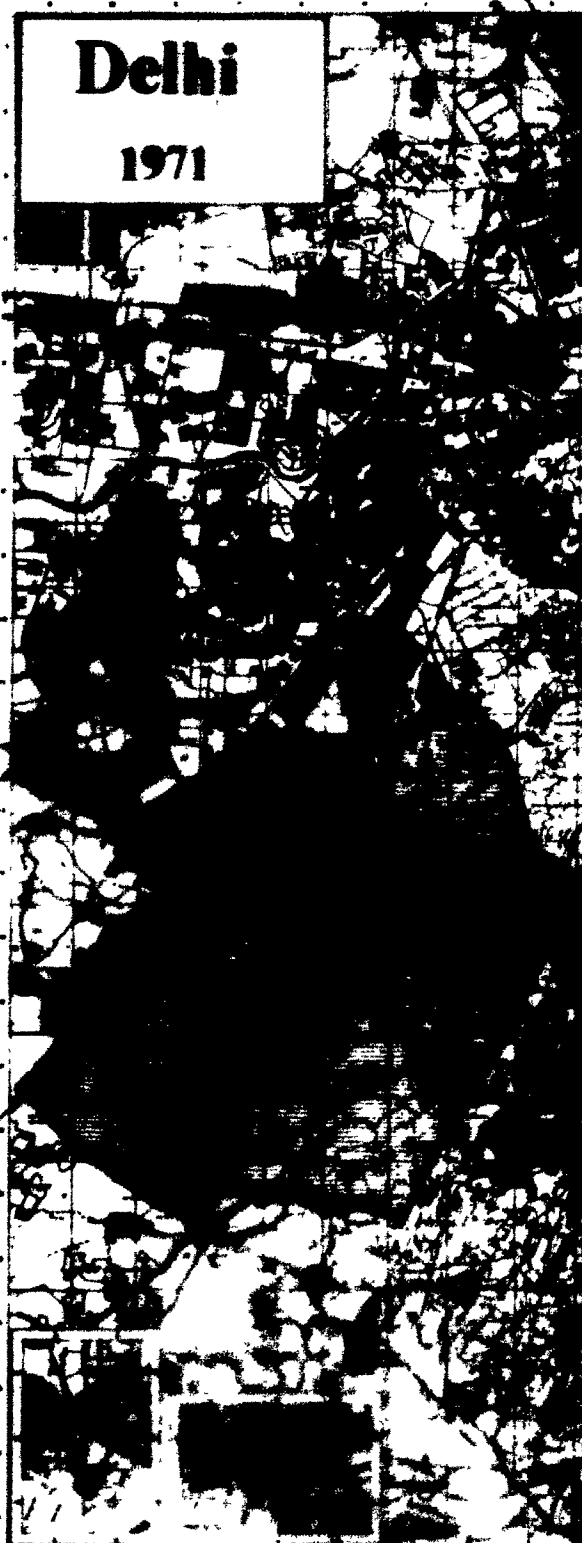


Fig 1 Delhi - 1971
Physical-Spatial
Form



an opportunity to evaluate historically the urban form of Delhi.

Chapter 2, is concentrated on Shahjahanabad: The Walled City of Delhi - the planning principles and the process of development of urban form and pattern as a product of an indigenous society.

Chapter 3, consists of a study of colonial urban development, namely, the transformation of the pre-industrial city of Delhi, between the mid nineteenth century and early twentieth century. The cultural and sociological variable of power and the ensuing system of social relations between dominant and dependent section, in the development of the city is given serious attention.

Chapter 4, is on the evolution and the development of New Delhi, the new Imperial Capital of India till 1947. The aim is to understand the process governing the type of urban development that took place, which is an unique product of colonial society and culture, operating within a given distribution of power.

In conclusion, Chapter 5 examines a comparative understanding of the society, political and especially, cultural processes governing a type of urban development - a direct comparison of factors involved in the development of Shahjahanabad and New Delhi. It also discusses briefly the nature of urban development in the post-independent Delhi especially in Shahjahanabad and New Delhi.

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Chapter 1

History



1.0 The Site of Delhi

Destiny and Delhi have well over a thousand years been part and parcel of one another. Evidence from written and unwritten history confirms the connection. No matter at what point the record is examined it becomes clear that Delhi's unique situation vis-à-vis the Indian sub-continent has inevitably embroiled in its conquest for control.

In contrast with recent built capitals such as Chandigarh, Delhi is of ancient vintage, its origins first recited in the Mahabharata epic. Its ruins have not been as exhaustively studied as those of Mohenjo Daro and Harappa and the name is preserved in Indrapat - the stronghold of Humayun and Sher Shah, otherwise called the Purana Qila . (Old Fort). If this is true, no trace of that epic settlement remains'. Delhi first became important in the eleventh century as a city of the Rajputs, contemporary with the Plantagenets in England and the Hohenstaufens in the Holy Roman Empire.

The question naturally arises why city after city was built on this particular site and why, in a country where capricious monarchs thought little of transferring their places of residence at short intervals to long distances, the capital of India, with the exception of certain periods, remained rooted to this particular plain. To the east flows the

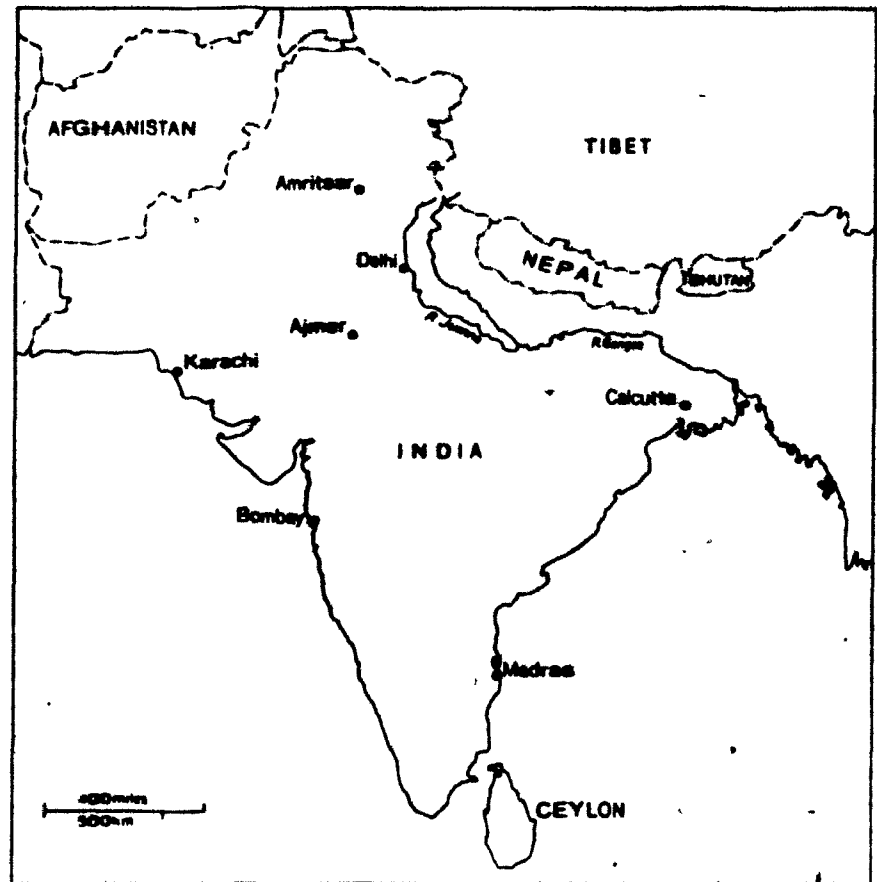
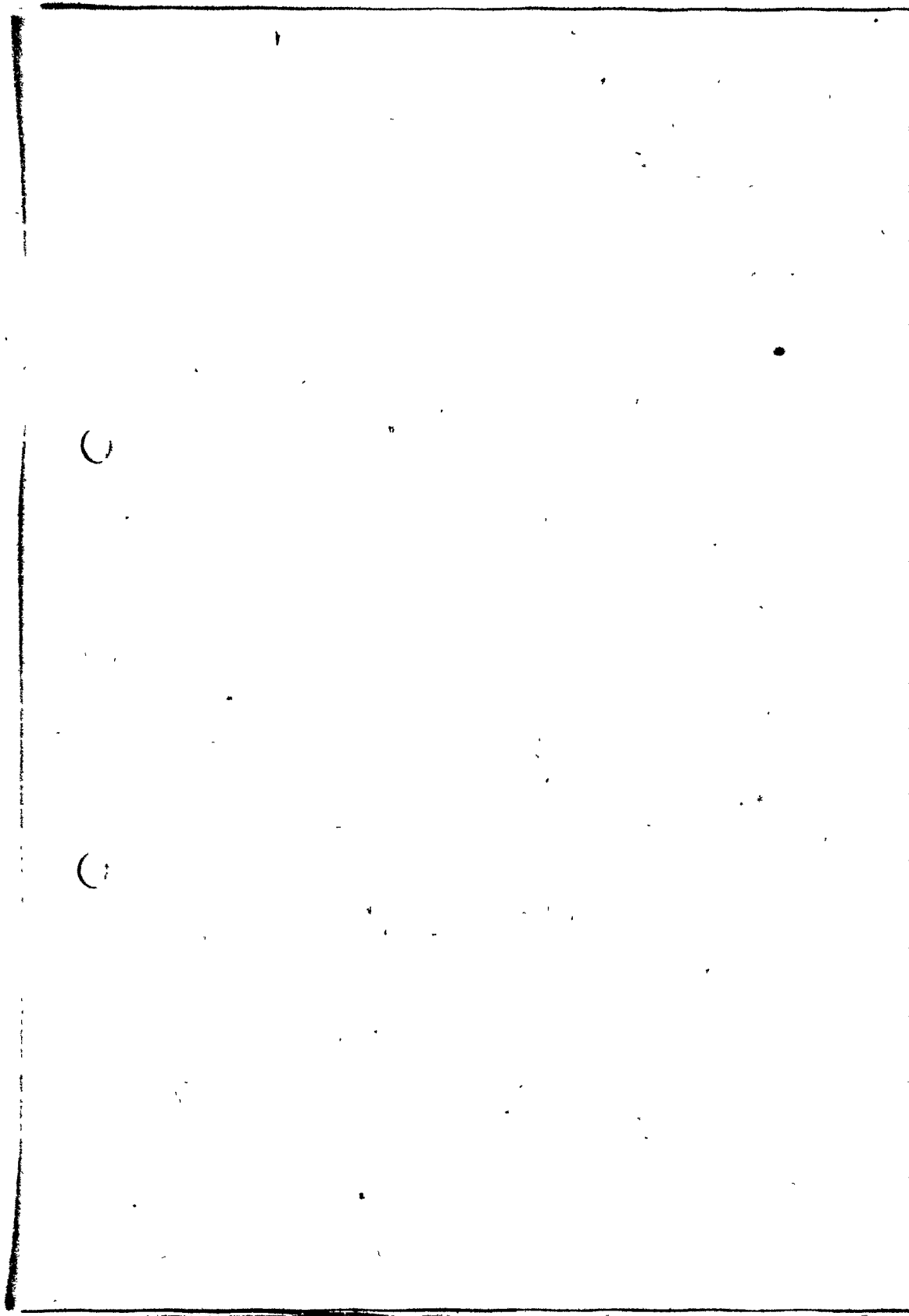


Fig 1.01 The central and strategic location of Delhi



Jamuna river, to the west is the Ridge - the last expiring effort of the Aravalli range in its push northwards.

The reason for the persistence of a capital city at this particular reach of the Jamuna used to be found not in its commercial or agricultural advantages but in its political and strategic importance. Set at an important ford and the northerly navigable point of the Jamuna, Delhi lies athwart the Punjab corridor which connects the northwest with the rest of India, and it is through the northwest passes from Persia and Afganistan that many of India's invaders have come. From Delhi the whole of India lies before the would-be conqueror. Control of Delhi represented the key to Hindustan and to the fertile corn fields and rice paddies of the upper Gangeatic plains and Bengal. From Delhi pressure could be exerted on the plentiful lands of central and western India, with their access to sea, and on Ajmer, gate to the citadels of Rajasthan. Control of Delhi offered mastery of the whole sub-continent. Small wonder, then, that for thirty centuries Delhi attracted both alien aggressors and indigenous claimants to imperial power?



2.0 Cities of Delhi: A Historical Perspective

Delhi may well claim to have been the most mobile city of all time. From its origins about 1500 B.C. to the present there have been as many as seventeen different settlements of varying size and importance within an area roughly six by twelve miles. Some have lasted just a few years; ruins of others have survived for centuries until today. Very rarely, indeed, have two of these successive cities occupied the same site. All have received a measure of 'planning' affecting areas ranging from merely the royal precinct to the entire city.

Archaeologists and Historians have endeavored to untangle the sequence and characteristics of these cities from the thin evidence of remains that have withstood the ravages of time and wars, from the stories of the great epics, and from fragmentary written records. Even recent periods escape detailing, for records are elusive and often are difficult to exhume from the government, library, or private files.

Peering through the mists of antiquity, repeated attempts at the delineation of precise locations and determinations of dates yeild blurred results and many questions about which experts may differ. All sources, however, agree that the various 'cities' of Delhi's history are now included within the built-up area of the modern

Delhi metropolis and environs.

One cannot help but speculate as to why the successive sites of Delhi only rarely coincide. There is substantial evidence that the course of the Jamuna River has shifted generally in an eastward direction to its present position, where its subsequent migration is precluded by the earth bunds and other flood control measures. The urgency of being near a water supply doubtless has influenced site selection throughout history and Delhi is no exception. What Hearn refers to as Old Delhi (Lal Kot and Raipithora) appears not to have been far from where the river once flowed.⁴ Other cities - especially Tughlakabad - had to be abandoned for, among other reasons, shortage of water.

Other factors dictated site changes. Variations in climate occur even within the relatively small area with which we are concerned, being notably better toward the northeasterly locations. There are significant differences in rainfall within the area, as well as differences in soil characteristics. In addition, there is the demonstrated reluctance of conquerors to live in structures occupied by the conquered, although they often did not hesitate to use the stones from cities they had destroyed as a source of building blocks for their own construction projects. It should also be remembered that all the fortresses, tombs and palaces were built of substantial materials, as the surviving structures testify, the vast

majority of the inhabitants lived in fragile dwellings readily subject to destruction by fire and earthquake. Except for walls around the cities, there was no investment in infrastructure such as binds modern cities to its sites.

This is not the place to determine whether there have been seven or seventeen cities in what is now the Delhi area. Rather, the combined evidence from several sources will be used as the basis for briefly commenting on these cities of the past.

The first city, Indraprastha is still to be documented by archaeologists and historians, but there seems little doubt that it was the first significantly large settlement in the Delhi area. It appears that there has been a settlement in or near its presumed location, in or very near the Purana Qila site, for some three thousand years.⁵ Tradition, based on the Mahabharata, indicates that Indraprastha was settled about 1400 B.C. as one of the five Pandava settlements. It was described as "a well planned garden city with wide streets well laid out, with towers and palatial buildings with charming gardens and pleasure houses with lakes full to the brim with crystal clear water".⁶ Tradition also relates that the place was abandoned by King Yudisthra, who uncovered a dish of food and found a fly already there, this being interpreted as an ill omen. Whatever the truth of this incident, little more is known about the settlement.

Subsequently, in the Sixth Century B.C. Cyrus the Persian is reported to have fought through the area. Alexander the Great approached the area in 327 B.C. but never did reach the Jamuna River. Much other needed information about this very early period seems to be lost in history. Suraj Kund (1020 A.D.), city 2 in the chronology is sparsely illumined by the record, but in its present state of disrepair suggests the beauty it may once have possessed. It is now a seasonal retreat for picnicking.

Lal Kot and Qila Rai Pithora (1052 A.D., 1182 A.D.) are regarded by Sharma, in an official Archaeological Survey of India publication, as the "first city of Delhi". They were also destined to be the last Hindu cities from then until modern times, for this Delhi was conquered in 1193. This settlement was later incorporated in larger constellations and connected to Siri.

With the advent of the Delhi Sultanate (1206 to 1526), rule by non indigenous people prevailed through the Slave or Mamluk dynasty (1206 to 1290), Khalji dynasty (1290 to 1321), Tughlak dynasty (1321 to 1414), Sayid dynasty (1414 to 1444) and Lodhi dynasty (1451 to 1526). These were followed by the Surs and the Mughals (1526 to 1857). As Spear notes, Delhi was "not so much the capital of India as the capital of the Turkish Mohammedan power in India".¹

The Delhi Sultanate period gradually developed the base for a long history.

Quwwat-ul-Islam mosque, from 1200
Section and ground-plan 1:1500

- 1 Original symmetrical plan (1200)
- 2 First enlargement (1210-1229)
- 3 Second enlargement (1295-1315)
- 4 'Alai Darwaza (1305)

- 5 Qutb Minar (after 1200)
- 6 Unfinished minaret (after 1310)
- 7 Iltutmish's tomb (1236)

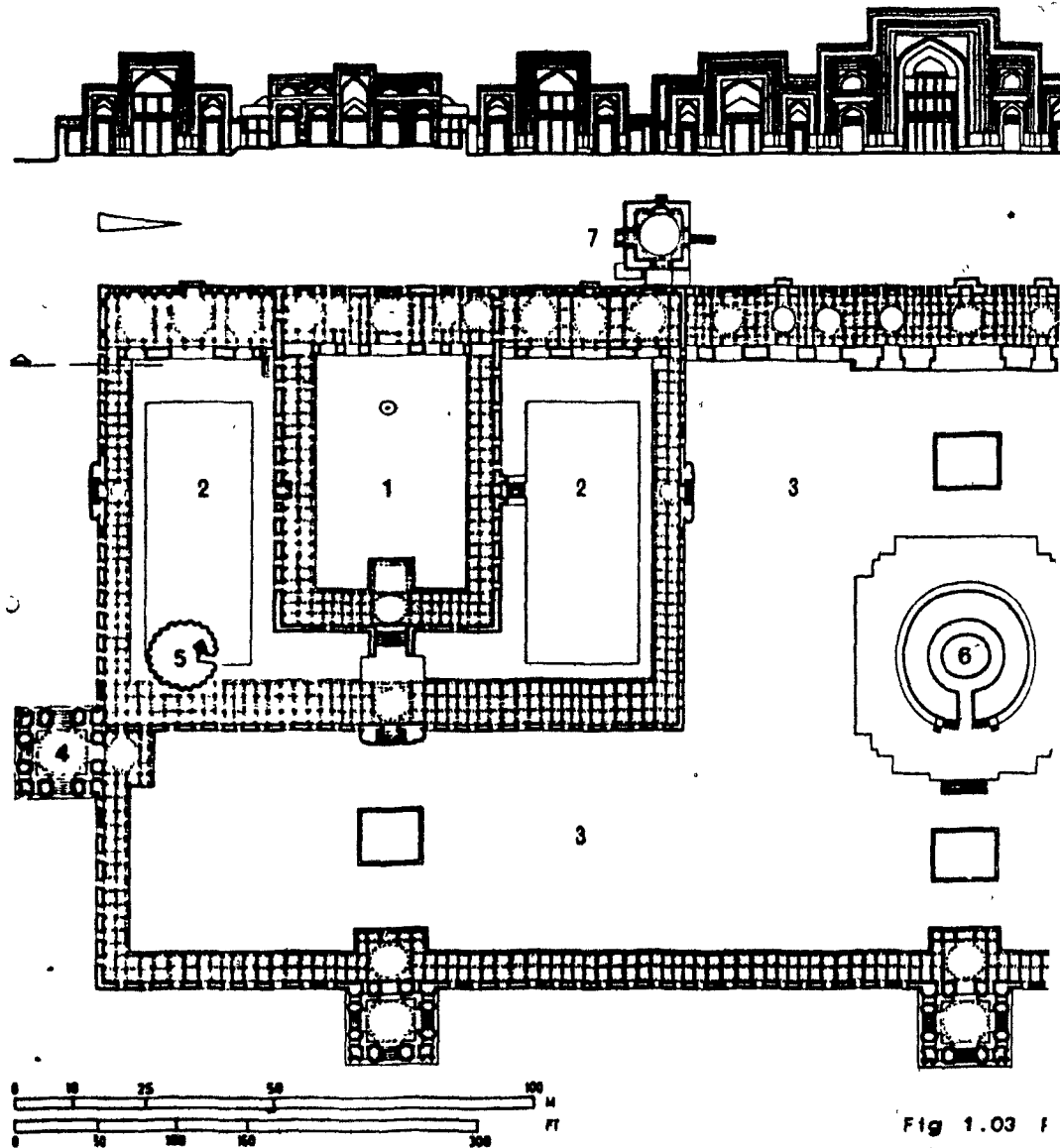


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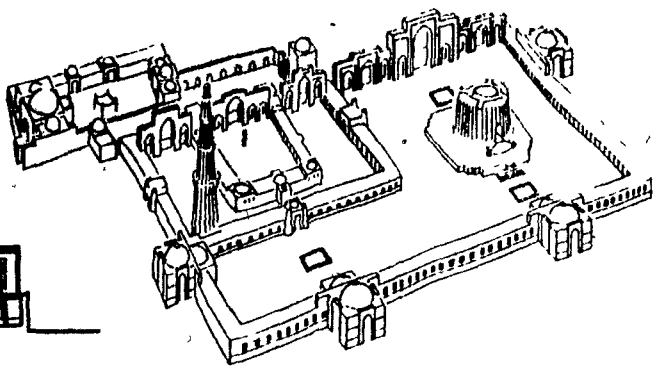
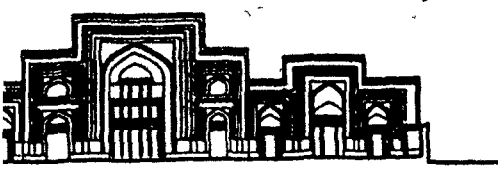


Fig 1.04 Bird's eye view of Qutb Complex

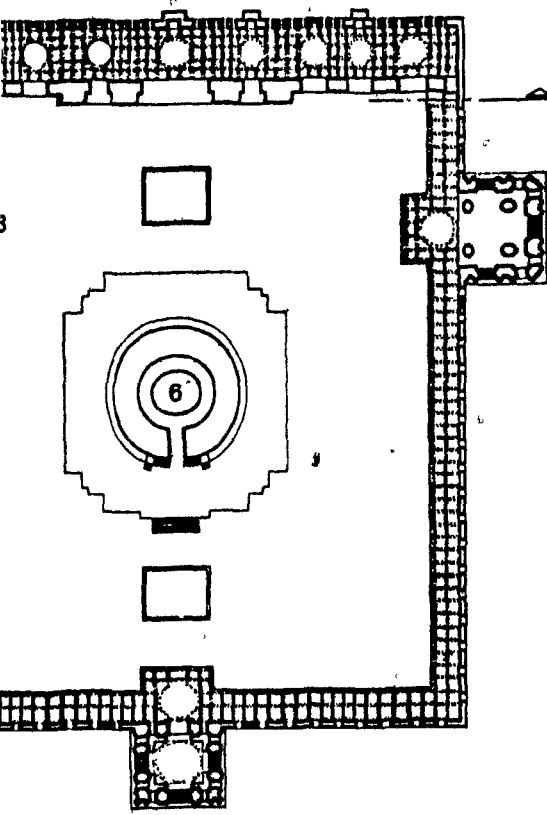


Fig 1.03 Plan of Qutb Complex

CHRONOLOGICAL ORDER OF DEVELOPMENT

Order		Date	Name of the Settlement	Founders
1	I	900 B C	Indraprastha	Yodhistra
2		1020 A D	Suraj Kund	Anang Pal
3		1052	Lal Kot	Prithviraj Chauhan
4		1180	Qila Rai Pithora	
5		1288	Kilokheri	Muiz-ud-din Kaiqub
6	II	1301	Siri	Allaudin Khilji (1295-1315)
7	III	1321-23	Tughlakabad	Gayasudin Tughlak (1321-1325)
8		1325	Adilabad	Mohammad Tughlak (1325-1351)
9	IV	1327	Jahanpanah	Mohammad Tughlak
10	V	1354	Ferozabad	Feroz Shah Tughlak
11		1415	Khirabad	Khirakhan
12		1425	Mubarakabad	Mubarak Shah
13	VI	1530-1556	Dinpanah & Sher Garh	Humayun (1530-1538, 1555-1556) left incomplete; completed by Sher Sur (1538-1545)
14	VII	1638	Shahjahanabad (1638-1649)	Shahjahan (1628-1658)
15		1912	Delhi	British Capital
16		1931 (opened)	New Delhi	British Capital (Designed by Lutyens and Baker)
17		Aug 15, 1947 --to date	New Delhi	Capital of free India (subsequently designated by T P O, T C.P.O. and D D A)

Note The cities marked with Roman numerals are the seven the Seven Cities of Delhi, 1806.

Above information based mainly on S.K.Kulshrestha, "Imagined and Country Planning Seminar, New Delhi, India, October 1964", and in the parantheses are from Sharma (1964), and indicate built, or, the year during the reign of individuals named.

LOGICAL ORDER OF DEVELOPMENT OF DELHI

Founders	Present Probable Site
Yodhistra Anang Pal	Purana Qila Near the road linking the Mathura Road and Mehrauli Road by the same name
Prithviraj Chauhan	Near Qutb site
Muiz-ud-din Kaiquabad Alauddin Khilji (1295-1315) Gayasudin Tughlak (1321-1325)	Near Hauz Khas On the Link Road connecting Mathura Road & Mehrauli Road near Qutb Minar Near Tughlakabad
Mohammad Tughlak (1325-1351) Mohammad Tughlak	Between Siri & Raipithora Near Feroz Shah Kotla Stadium (no trace) (no trace) Purana Qila
Feroz Shah Tughlak Khirakhan Mubarak Shah Humayun (1530-1538, 1555-1556) left incomplete; completed by Sher Shah Sur (1538-1545) Shahjahan (1628-1658) British Capital	Old Delhi (walled city) North of Walled City Shahjahanabad; Old Secretariat, Civil Lines etc Central Vista, Connaught Place and near about area
British Capital (Designed by Lutyens and Baker) Capital of free India (subsequently designed by T P O , T C.P.O and D D A)	Delhi Urban Area

ricals are the seven cities of Delhi identified by Gordon R.Hearn, in

S.K.Kulsherestha, "Image of Delhi- Capital of India", 17th Annual Town
Delhi, India, October 1968 (DOC/ITP/DLI/TP-10), p 14-15. The dates
(1964), and indicate either those years during which a city was mainly
gn of individuals named.(cf. A.Cunningham.)



Fig 1.05 Plan of Cities of Delhi

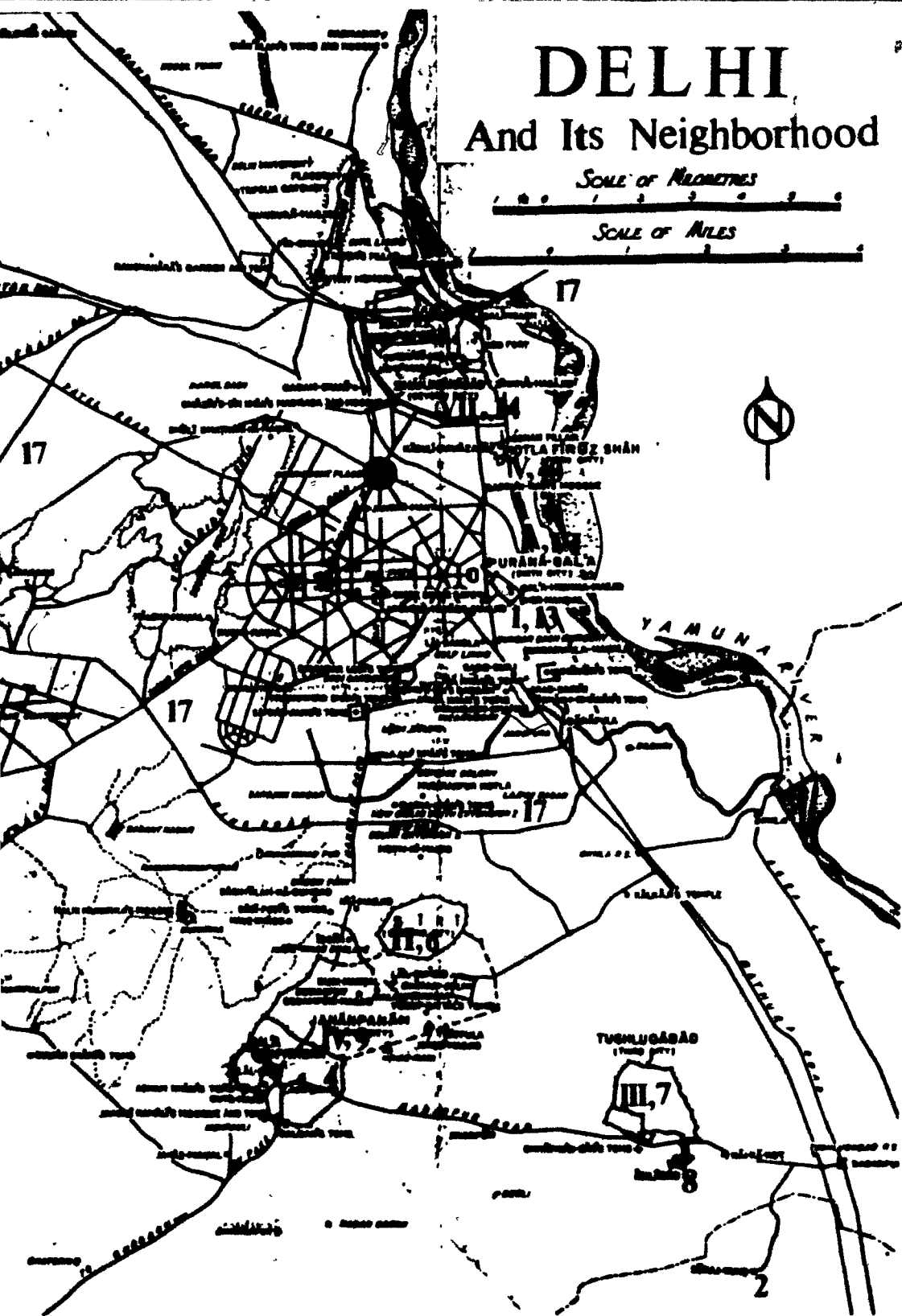
DELHI

And Its Neighborhood

SCALE OF KILOMETRES



SCALE OF MILES





The famous Qutb Minar tower - eventually to become the tallest masonry tower in the world. During the period 1236 to 1240 Raziya served as the only woman sultan in Delhi's history. The settlement known as Kilokheri (1288) is not well documented.

The second city, Siri (1301) became the ruling seat for another sultan. He repulsed a Mongol invasion and is reported to have constructed a beautiful palace. He was credited with digging the well-known tank (reservoir-lake) at Hauz Khas, on the border of which a later ruler constructed a university. Somewhat later the Tughlak dynasty of eleven rulers came into power and built three cities: Tughlakabad, Jahanpanah and Ferozabad.

The third city, Tughlakabad (1321 to 1323), built on a rocky outcrop and enclosing a place surrounded by a four mile wall of impressive construction, was destined for a short life. It was abandoned, some alleged, partly of a curse placed by a nearby saint whose workmen were drafted to construct the city; more likely, the departure from Tughlakabad was occasioned because only a brackish water supply was available. Possibly the hot climate, and perhaps even royal whim played a part in the decision. In 1327, and again in 1340, Mohammad Tughlak forced the residents to move to Daulatabad, some even hundred miles away. Great distress was caused by both migrations. Little information is available concerning Adilabad (1325).

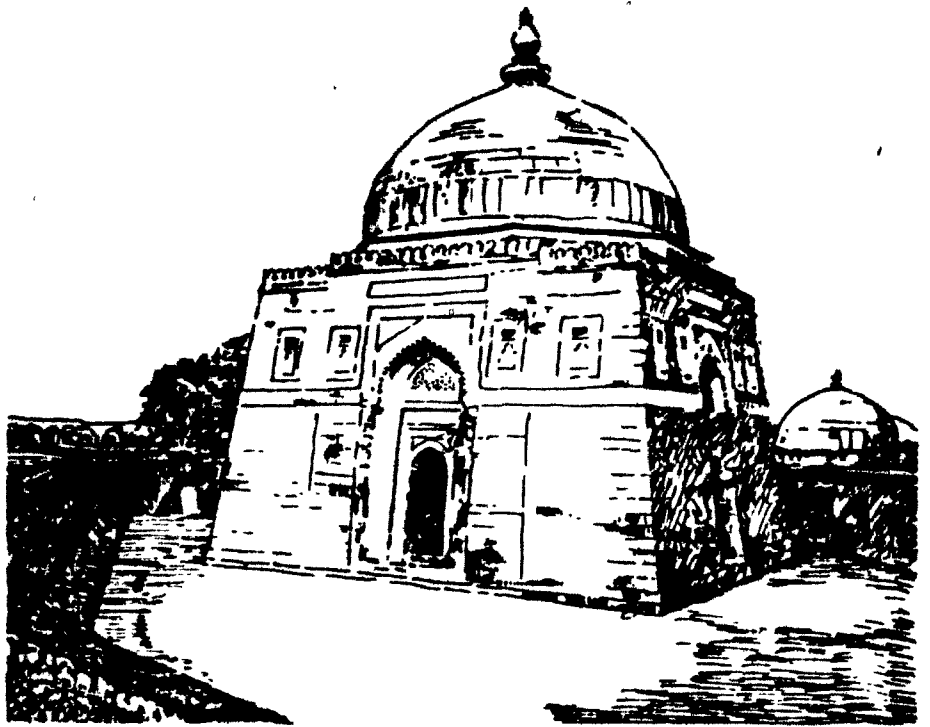
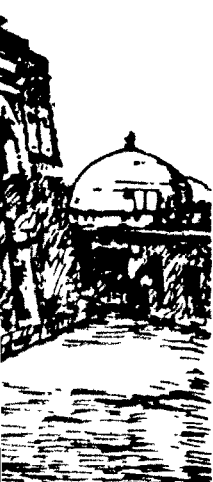


Fig 1.08 Tughlak's Tomb



Fourth city Jahanpanah (1327), involved a particularly interesting situation. Suburbs are by no means a recent innovation, for outside the walls and attached to the ruling center for one reason or another, settlements have always appeared and frequently been enclosed by extensions of the existing walls. The builder of Jahanpanah built his wall 'to enclose all the suburbs that had sprung up between Chohan Delhi and Siri - the total area, extended from Qutb Minar for about four miles to the northeast. On the north-western border of the city lay the well-known pleasure tank i.e. reservoir, Hauz Khas and on the east, covering about two square miles, was another large and beautiful reservoir'.¹⁰ Within a relatively few years, however, an additional city was developed.

Fifth city Ferozabad (1354) was the site selected for the new capital. As Spear notes, Ferozabad was 'the New Delhi of the fourteenth century'.¹¹ Sharma observes that 'the fact that the capital was moved to the riverside suggests that the Muslim power was now strongly established and enjoyed a considerate measure of prosperity, which necessitated the use of river for transport and communication'.¹² The move was made 'to leave the hot stony soil of the former sites and settle on the alluvial soil of the banks of the river where, in addition, the climate is cooler, the average rainfall is higher and water supply is perennial'. In area the settlement was large; it occupied all the

ground from old Indraprastha to the ridge including the site of Shahjahanabad which came into existence later. It was an open city without a wall around it and the shape was more or less a half hexagon with the base facing the river. Its suburbs joined the suburbs of the old city which was in existence side by side with the new one. It was Feroz Shah who, in addition to all these brought the great tank Hauz Khas into its highest development, including the establishment of a university on its shores.

Within a few years death and widespread devastation once more swept the scene. The dreaded Timur the Lame invaded India in 1398. When he moved onward shortly after leveling much of Delhi, the dynasty entered its least impressive and parting phases. In the fifteenth century Delhi was nothing but a provincial city, 'a local capital hardly controlling the country more than a dozen miles around'.¹³ Khirabad (1415) and Mubarakbad (1325) are barely traceable settlements.

As the time passed the inevitability of their being an important city at Delhi was reconfirmed. The reign of the Surs and the Mughals (1526-1707) was to produce great cities there under the aegis of rulers whose names conjure recollections of great works and still excite the imagination. These rulers included Babur (1526-1530), the Sur dynasty (1538-1555) during which Dinpanah and Shergarh were built, Humayun (1530-38 and 1555-56), Akbar (1556-1605),

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Shahjahan (1628-1658) who built what is presently known as Shahjahanabad, and Aurangzeb (1658-1707), to mention a few.

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Sixth city, Dinpanah and Sher Garh (1530-1556), the remains of which are mostly at what is now called Purana Qila, were begun by Humayun and completed by Sher Shah. Dinpanah ('protector of the faith') was on the site of the older Indraprastha. Sher Shah completed Dinpanah under the name of Sher Garh on the site of Ferozabad and Indraprastha. It was miles in circumference and extended from the neighborhood of the site now occupied by Humayun's tomb to the site where now the cricket ground near Delhi Gate is situated. He built a fortress known as Salimgarh, on a spot near the Jamuna bridge to guard the fort over the river.

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Seventh city, Shahjahanabad (1638-1803), constructed over nine years from 1639, and Jama Masjid, built in the period 1650-56, was the product of Shahjahan who, as 'a great city planner among the nobles, built the magnificent city of Shahjahanabad with wide streets and parks - occupied the territory by the river to the north of the Indraprastha of the Pandavas. Around it he built a wall having a circumference of about four miles - outside the walls its suburbs to the old Indraprastha'¹⁴ and the population is reputed to have reached 150,000. By Aurangzeb's time estimates of the population are reported as high as 200,000.¹⁵

In contrast to the previous cities Shahjahanabad is still a living city and therefore merits a closer investigation which will follow in the later chapter.

Thereafter a decline apparently ensued, for when the British arrived in 1803 under General Lake the population was estimated to be only around 150,000¹⁶. The vicissitudes of life at the Delhi site included known earthquakes in 1782, 1803, 1829 and 1905. The East India Company long controlled the area, a serious Mutiny - The Sepoy Rebellion - was suppressed in 1857, the government of India was transferred from East India Company to the British Crown in 1858.

On December 12, 1911 at the Coronation Durbar in Delhi, George V was crowned Emperor of India. There he announced that the British capital of the country was to be transferred from Calcutta to Delhi. Until New Delhi was promulgated and officially opened in 1931, 'Civil Lines' with its 'Old Secretariat' buildings north of the walled city of Shahjahanabad was the centre of foreign rule until Independence was established on August 15, 1947.

Only the barest facts of this three-thousand year chronology (replete with fascinating details of fact and fancy, myth and material remains) could be included for my purpose of study. But without some knowledge of the march of history it is impossible to understand subsequent planning for the Delhi area of our times. The legacies of the past

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Chapter 2



Shahjahanabad

1638 - 1857

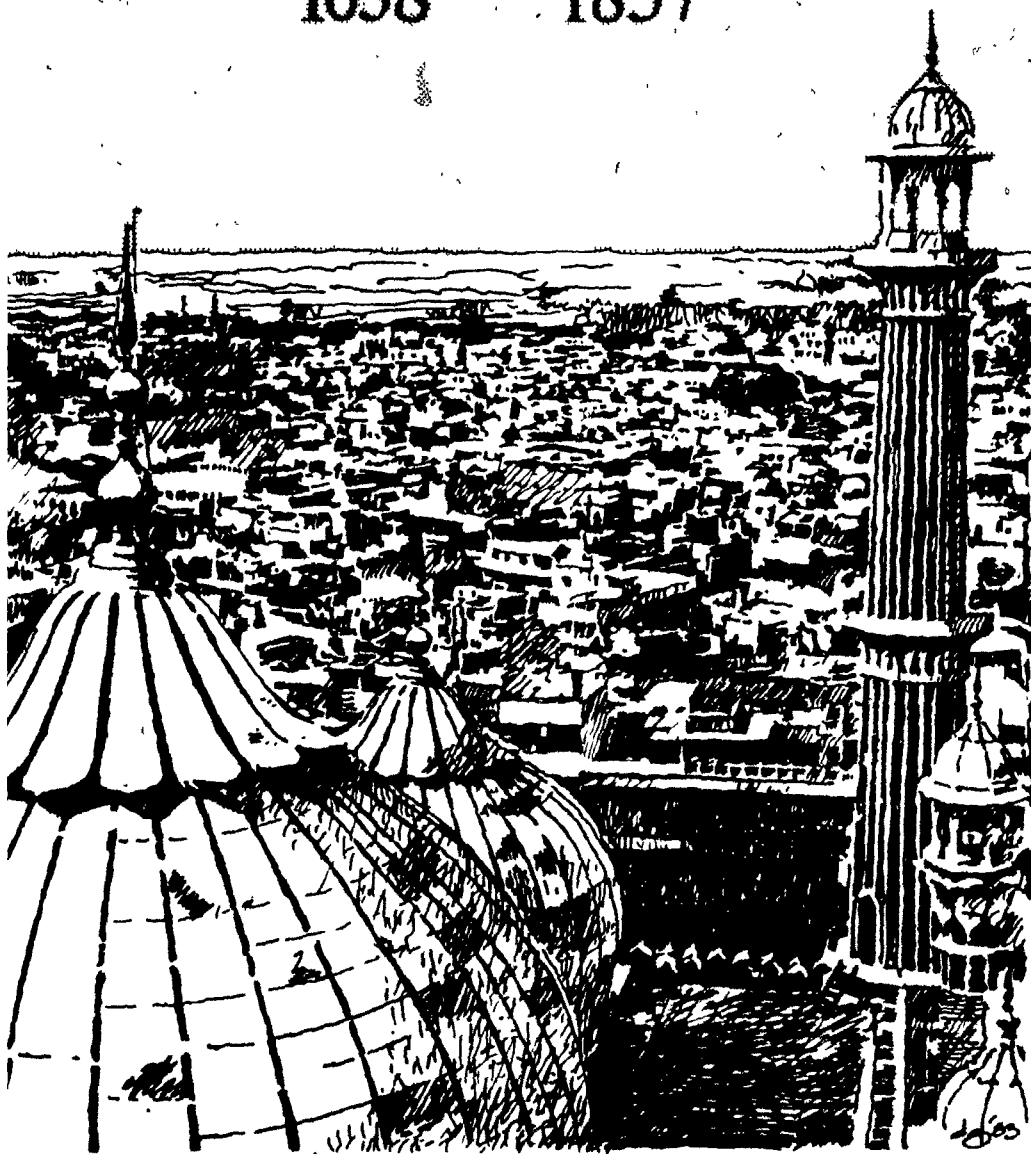




Fig 2.01 View of Shahjahanabad Source: Taylor, J. The Age We Live In: A History of the Nineteenth Century, Vol 2 n.d., p 241

1.0 Introduction

In 1638, the Emperor Shahjahan transferred his court from Agra and selected Delhi's triangular plain as the site for his palace, Lal Qila (Red Fort). Historically, Delhi had been the traditional seat of power following mostly the saying that 'he who rules Delhi, rules India'. The city that sprouted around the palace was called Shahjahanabad, named after the Emperor, and - along with Agra, Fatehpur Sikri, and Lahore - has some of the finest example of Mughal architecture.



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Fig 2.02 A traveller's view of the Fort, Shahjahanabad, Delhi



2.0 The Urban Form and Pattern

2.1 The Site

Town Planning and Architecture according to Shilpashastra, was a highly developed science in ancient India, and no city took shape except on certain basis and well ordered principles. In choosing a site for a new city two essential features were that it should be on the bank of the river and it should be preferably on high ground.

Accordingly, the Mughal Emperor Shahjahan chose for his new city the right bank of the river Jamuna. Geographically, the location was ideally suited not only from the point of view of protection but also as a convergence point of the land routes. The choice of site appears to have been dictated by the availability of high land on the western bank of the river Jamuna and the natural protection provided by the triangle formed by the two arms of the Aravali ranges known as the Jhojla and Bhojla Paharis and the river.



Fig 2.03 Fatehpuri Mosque, Delhi

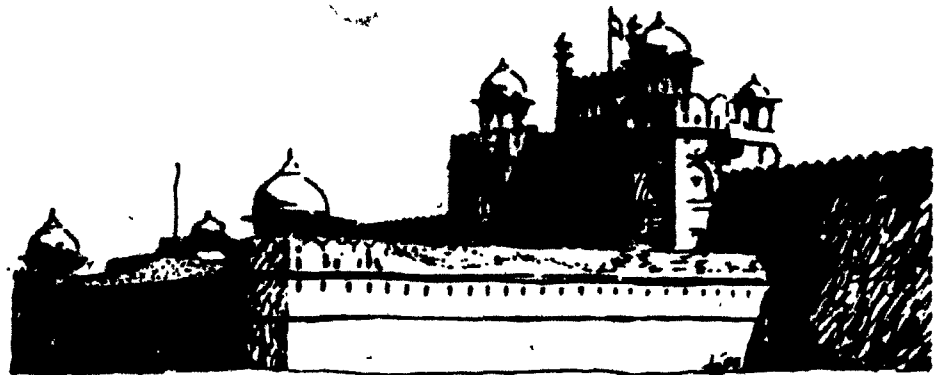


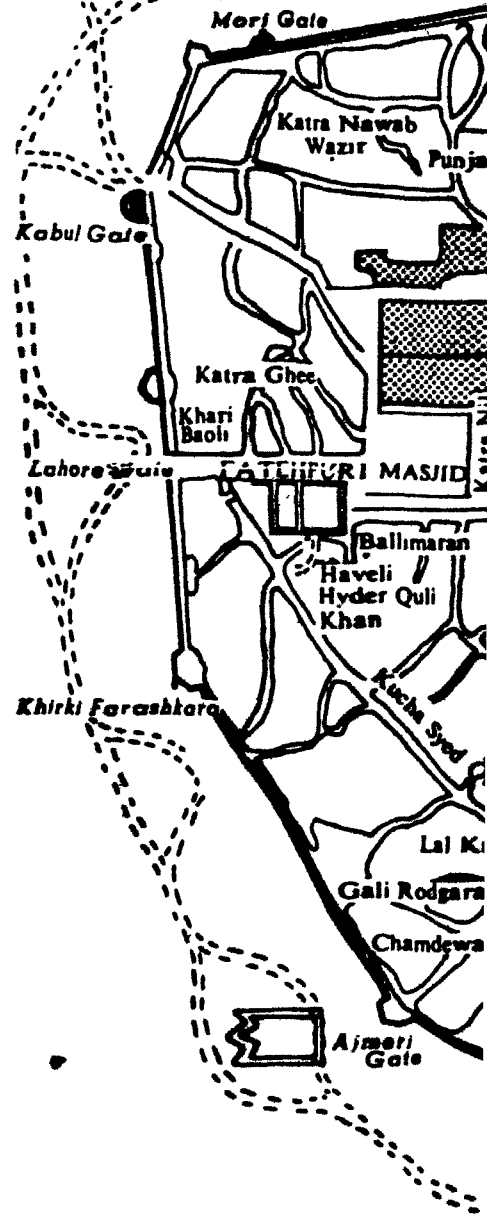
Fig 2.04 The Palace. (Red Fort) Delhi

2.2 Planning

The structure of the walled city was determined by the location of dominant focal points and its spatial subdivisions. The fortified palace of the Emperor, the Red Fort, with its distinct walled enclosure was a landmark between the river and the walled city. The area accommodating the residences of nobility on eastern and northern sides of the walled city, where social hierarchy determined the proximity of a house to the palace gained importance, in the course of time, as the palace for aristocracy. After a surrounding wall was added in the late seventeenth century, the city assumed its final shape around elements - six important architectural and planning elements - a form that has survived with relatively minor changes to present times.

The first feature, Fatehpuri Masjid, was erected in 1650 by the Begum of Shahjahan one mile due west of the palace's Lahore Gate. Soon thereafter, she began the second - her private gardens - one some 54 acres to the north of the pathway leading from Lal Qila to Fatehpuri Masjid. This pathway developed into the third element, Chandni Chowk, where bullion merchants and other important men took up residence and maintained retail outlets. Important public buildings were located along it - among them the Kotwali (main police station), Sonehri Masjid and a caravan serai. The Emperor rode in state along it every Friday to pray at Fatehpuri

Fig. 2.5 Circumscribing the entire city, a wall, 8.5 miles in length, enclosed an area of approximately 2.5 square miles which, in 1803, contained some 130,000 inhabitants. Suburbs brought the total to about 180,000. The main roads linking the central institutions of the city each led to one of the eight main gates located around the walls, the more important ones named after significant places or cities within the Mughal Empire to which the routes eventually led, eg. Kashmir, Lahore, Ajmer or to ancient Delhi.



Shahajahan's city in the early 19th century

Garden

Kashmiri Gate

St. James' Church

Skinner's House

Katra

Angoori Bagh

Begum's Garden

CHANDNI CHOWK

Kotwali

Gandhi Gali

Ellenborough Tank

Roshanpura

Maliwara

Chhipiwara

JAMA MASJID

Urdu

Akbarabad Masjid

Shajar Nawab's Palace

Zinat-ul-Masajid

Bullabgarh Nawab's Palace

Khairuli Gate

Turkman Gate

Delhi Gate

River Jamuna

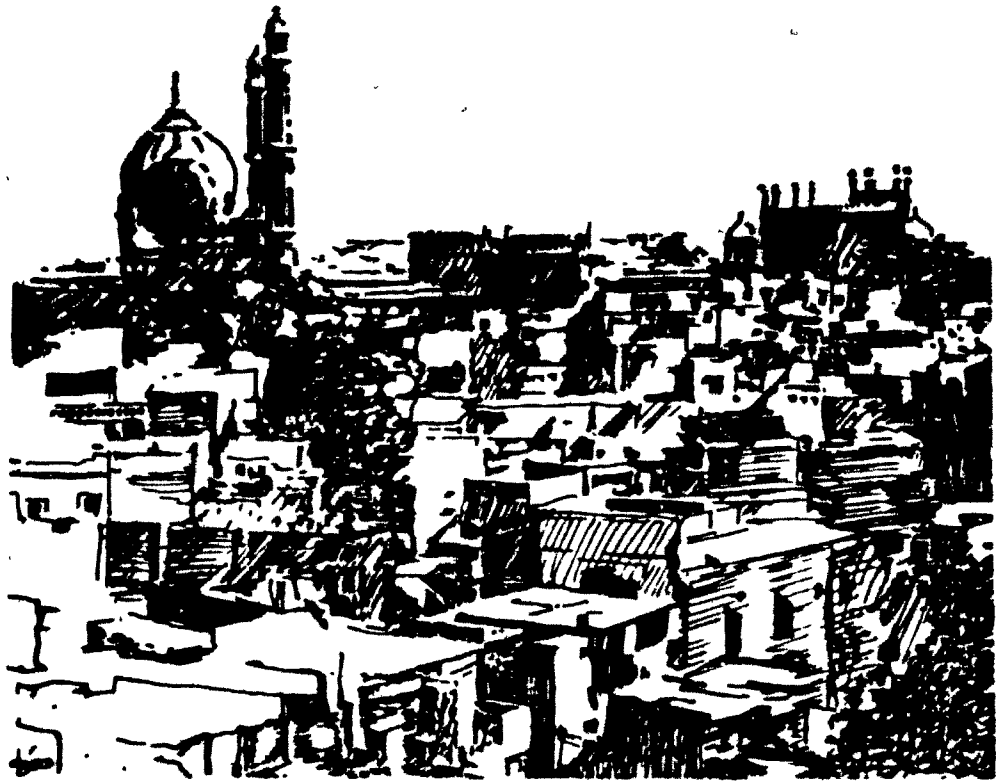


Fig 2.06 Jama Masjid, Delhi. Dominating location in the city of Shahjahanabad

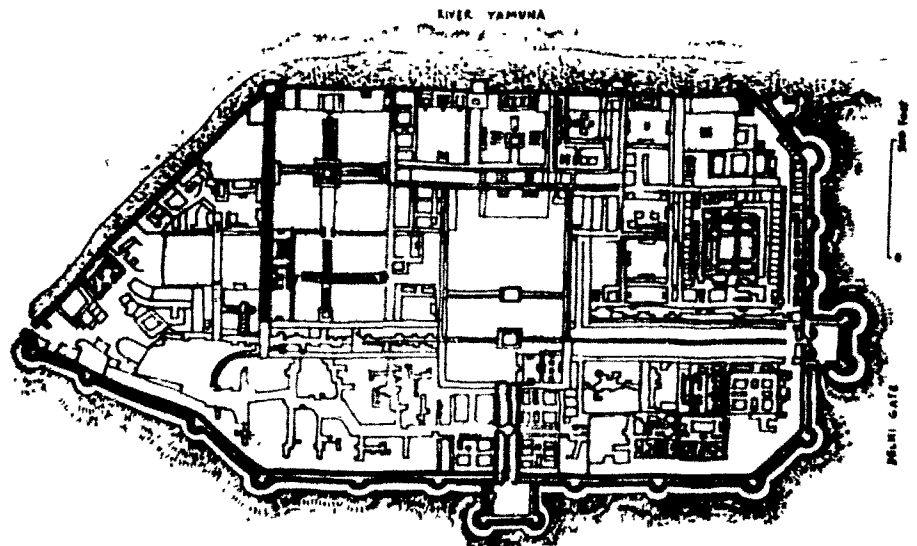


Fig 2.07 Plan of Red Fort, Delhi Formal geometry of the layout

Masjid and thus the path became a ceremonial mall. A branch of Jamuna canal ran down the middle and with shade trees alongside and footbridges over the canal it became the favorite gathering place in the late evening and on festive occasions.

Between 1644 and 1658 Shahjahan built a great mosque, Jama Masjid (the fourth landmark) about one-half mile southwest of the principal palace gate. It became the congregational mosque of the city, and continues today to orient visually because it lies upon a rocky outcrop above the general plain of the city.

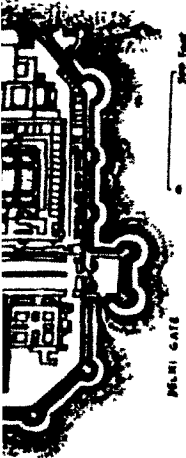
The fifth feature is Faiz Bazaar, a leisure mall that developed between Delhi Gate of the palace and Delhi Gate in the city wall. In later years, this became the principal north-south route through the city connecting Civil Station and New Delhi.

The last nodal element is Kasi Haus, the main water reservoir, situated at the junction of four important bazaars. These six elements, in conjunction with the locations of the city gates, yield clues to the hierarchical structure of the existing street pattern and spatial distribution of the population.

The formal geometry of the layout of the Red Fort, or Jama Masjid, as well as the main axes of Chandni Chowk and Faiz Bazaar were not followed in the rest of the walled city. Nor the formal



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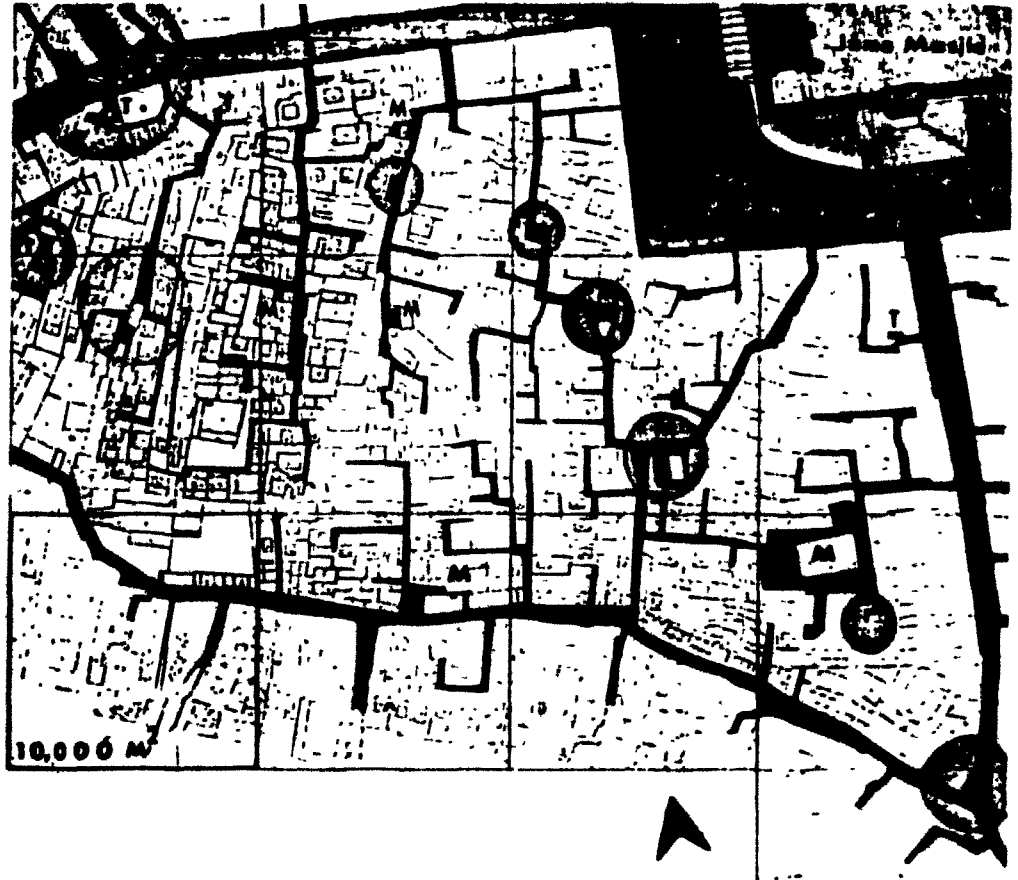
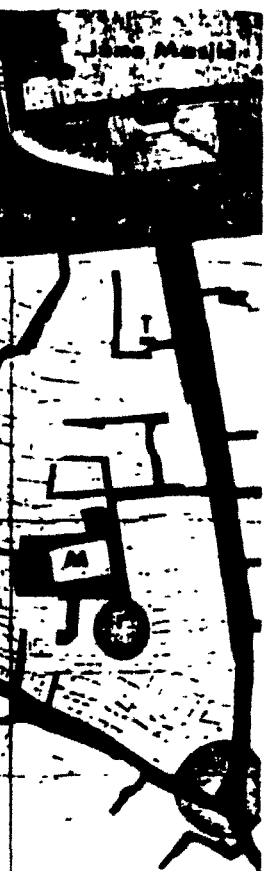


Fig 2.08 Plan. Portion of Ward 9, Shahjahanabad, showing the street pattern



Map showing

hierarchy in the use of the material or organization of space was attempted in these areas.

The city's strategic location and defensive perimeter attracted residents from the older and less secure settlements to the south so that the quadrant bounded by Chandni Chowk, Faiz Bazaar, and the city wall quickly packed together. Paths linking the gates in the city walls to Fatehpuri Masjid, Kasi Haus, Jama Masjid and Kalan Masjid (built by Emperor Firoz Shah in 1386) gradually became definite streets and finally important bazaars. Thus a basic network of five major arterials leading from these and other gates to different parts of the walled city were built as the spines of major activity. The other streets were of a significantly lower hierarchy and these were built mainly as access roads to the residential areas. In most cases, the access roads would not provide through routes, ensuring not only privacy and security but also controlling the volume and movement of traffic. The network also created social areas, known as Mohallas, and Katras, these were homogenous units for many cultural as well as socio-economic activities.

All the streets, apart from formally laid Chandni Chowk, twist and turn, providing visual enclosure as well as a sequence of experiences. The 'street' was treated as an extension of activity spaces in addition to its function as a corridor of movement. The junction or crossing of two streets automatically

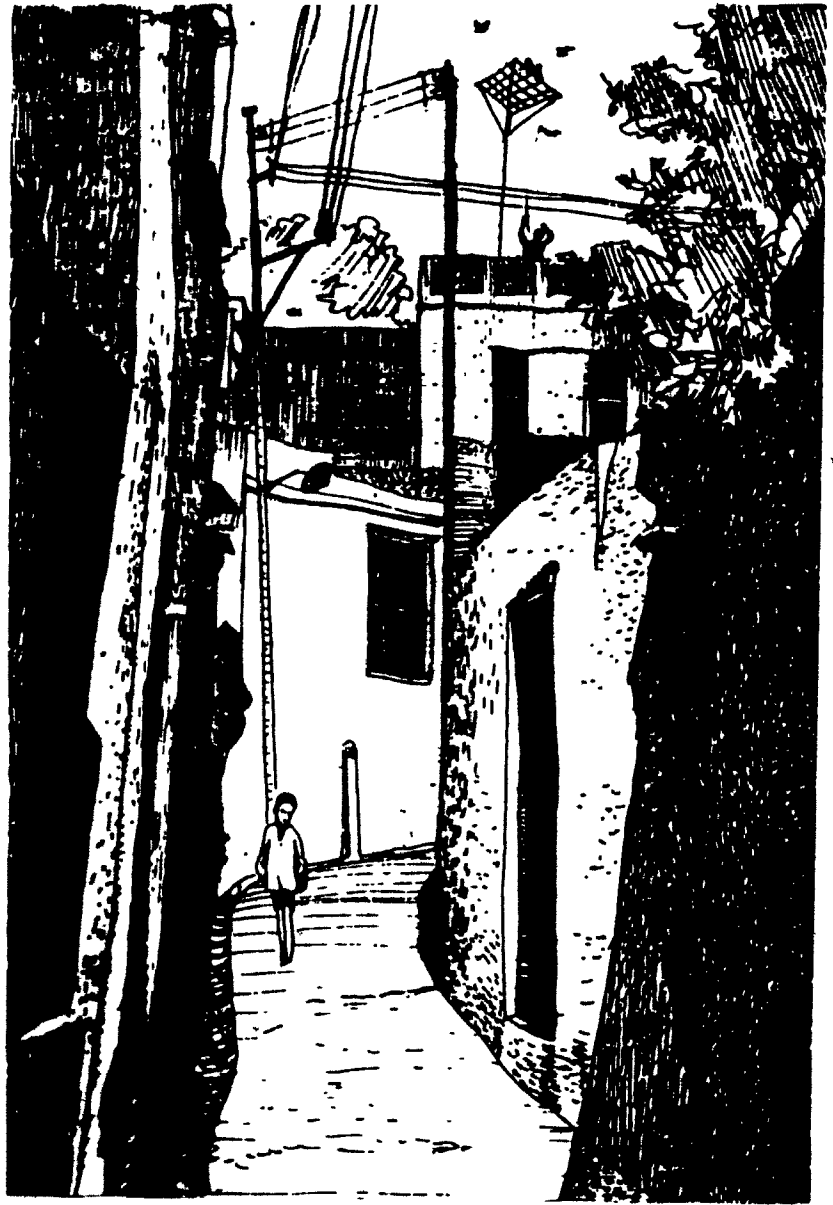


Fig 2.09 The narrow gali or lane in a mohalla



In a mohalla

formed into a 'chowk' often for a pause in movement and for better communication. In addition, a number of lesser bazaars developed, linking Chandni Chowk north and south with the interior of the city, completing a network of streets and lanes. Portions of the city near the walls remained fairly open providing space for fruit gardens, dairies and work space for people following low caste operations - sweepers, potters and leather workers. The area north of Chandni Chowk remained as large private estates of the nobility, with the exclusion of the north west sector, where a spatial pattern similar to that south of Chandni Chowk prevailed. Adapting Zoning - a long accepted principle of town planning, Shahjahanabad was divided into separate quarters for distinct social groups. This zoning was according to occupations, industries and commerce. Baidwara, Daiwara, Naiwara, Dhobiwara and Maliwara were the quarters of the doctors, midwives, barbers, washermen and gardeners respectively. There were separate wings called 'katras' for each class of tradesmen and guilds of craftsmen which will be discussed in detail later in this chapter. According to a survey conducted by Bharat Sevak Samaj, there are 999 katras in the walled city. Although the origin of the name is disputed, it appears to have originated from the word Kharvataka, meaning a walled enclosure. Each Katra is a space enclosure created by the buildings used both for residential and commercial use, entry is usually through a gate by a street from a major spine, which was

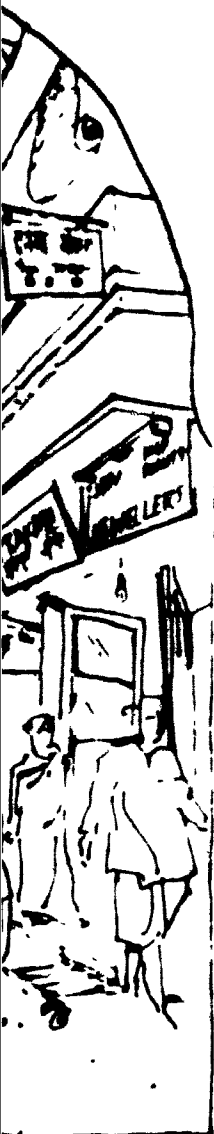


Fig 2 10 A street picture of Shahjahanabad, Delhi

built wide enough for the pedestrian movement. Next in hierarchy is a lane of narrower width lateral to a street leading to a kutchha which formed an enclosure of buildings used only for residential use. Thus these enclosures created a graded transition from public, semi-public to private uses organizing the relation of space and building. Neither in katra nor in kutchha, the vehicular traffic was allowed.

Due to social norms of a joint family system, large houses were built, introvert in character. These houses were built with high plinth and for entry by a short flight of steps in order to ensure privacy. The height of the plinth increased as the width of the access lane narrowed down. The dictates of privacy were so strong that the roof line of the buildings were invariably non-uniform in silhouette. The degree of richness in detail and ornamentation could set the house apart. The street picture was almost a terrace development, but maintaining distinctly separate identities.

The first floor of most of the houses projected over streets, providing balconies with delicate semi-transparent balustrades. Sometimes the balconies of two opposing houses were connected to form an enclosure of space along vertical plane. Considerable homogeneity in the mouldings of brackets and balustrades existed in a katra or kutchha. It is possible that local craftsmanship ensured the continuity in tradition.



Delhi

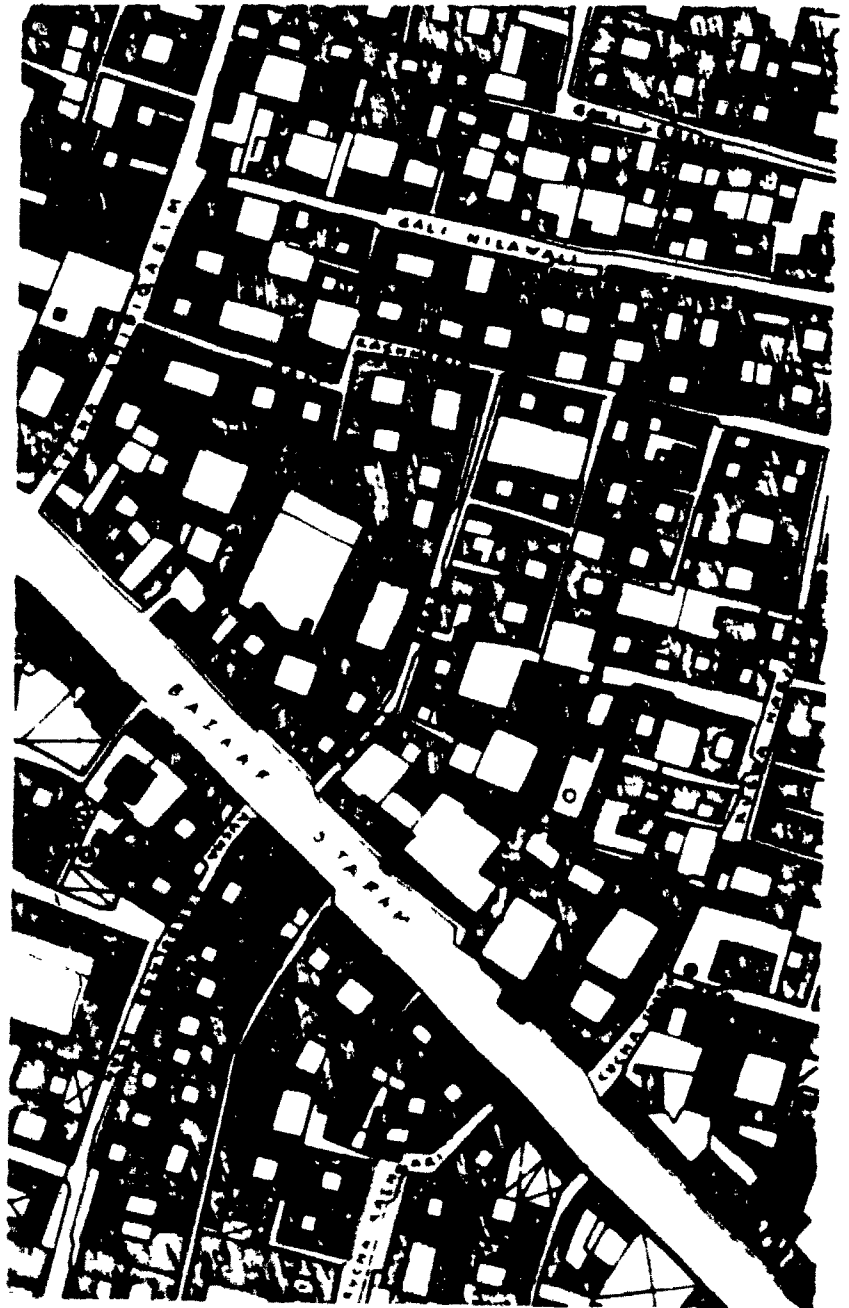


Fig 2 11 Part plan of a medina approx 25% of city
is taken by private internal courtyards



The main entrance to the traditional house has always been treated as an important element of design. The emphasis of entrance was created by an arched opening and the door panels were treated with rich decoration in metal and wood. The entrance invariably led to a central courtyard which ensured domestic privacy and activity pattern within such a house was central to the courtyard.

Approximately 25 percent of the area in the walled city was used for these internal courtyards. Where the climate was hot-arid these courtyards were environmentally appropriate and acted as the main ventilation shaft. The size of the courtyards varied according to the size of the buildings. The courtyards, the roofs and the terraces served as the open spaces to the households, the roof terraces were suited for outdoor sleeping and also for such recreational activities like kite flying and pigeon baiting, both of which were popular past times. The open areas provided at different levels of a house filled in with the function of the house, and the children could play within the enclosure of the house in complete security. The need for community open space was not as great as it is in the contemporary context; for these multiple use of space, vertically and horizontally, the requirement of total open spaces reduced considerably which in turn could make the walled city small in size. Consequently, it could be a pedestrian city. The community open spaces were however available beyond the city wall.

25% of city
courtyards

The salient determinants of the urban form and pattern of the walled city built during the Mughal rule may be stated to be the following:

The pattern of land use within the city was totally urban which was conspicuous by the absence of primary sector activities and the prevalence of secondary and tertiary sector activities.

The commercial activities grew along the spines, these activities were pronounced close to areas of administrative or institutional importance.

The walled city built essentially as a pedestrian city retaining a human scale. The residential areas were developed as introvert spaces as social and environmental entities.

By the early eighteen century, the city had three distinguishable sectors (excluding Lal Qila)

- a) The area north of Chandni Chowk with its gardens, villas and palaces of aristocracy.
- b) Daryaganj sector, east of Faiz Bazaar, where European merchants, clergy and native Christians had settled early, and
- c) The quadrant south of Chandni Chowk, where the bulk of the inhabitants resided and worked.

The first two of these sectors had densities low enough for a considerable population growth to occur in them in our own day. Contrarily, the quadrant south of Chandni Chowk long ago reached a point of saturation, and has not experienced

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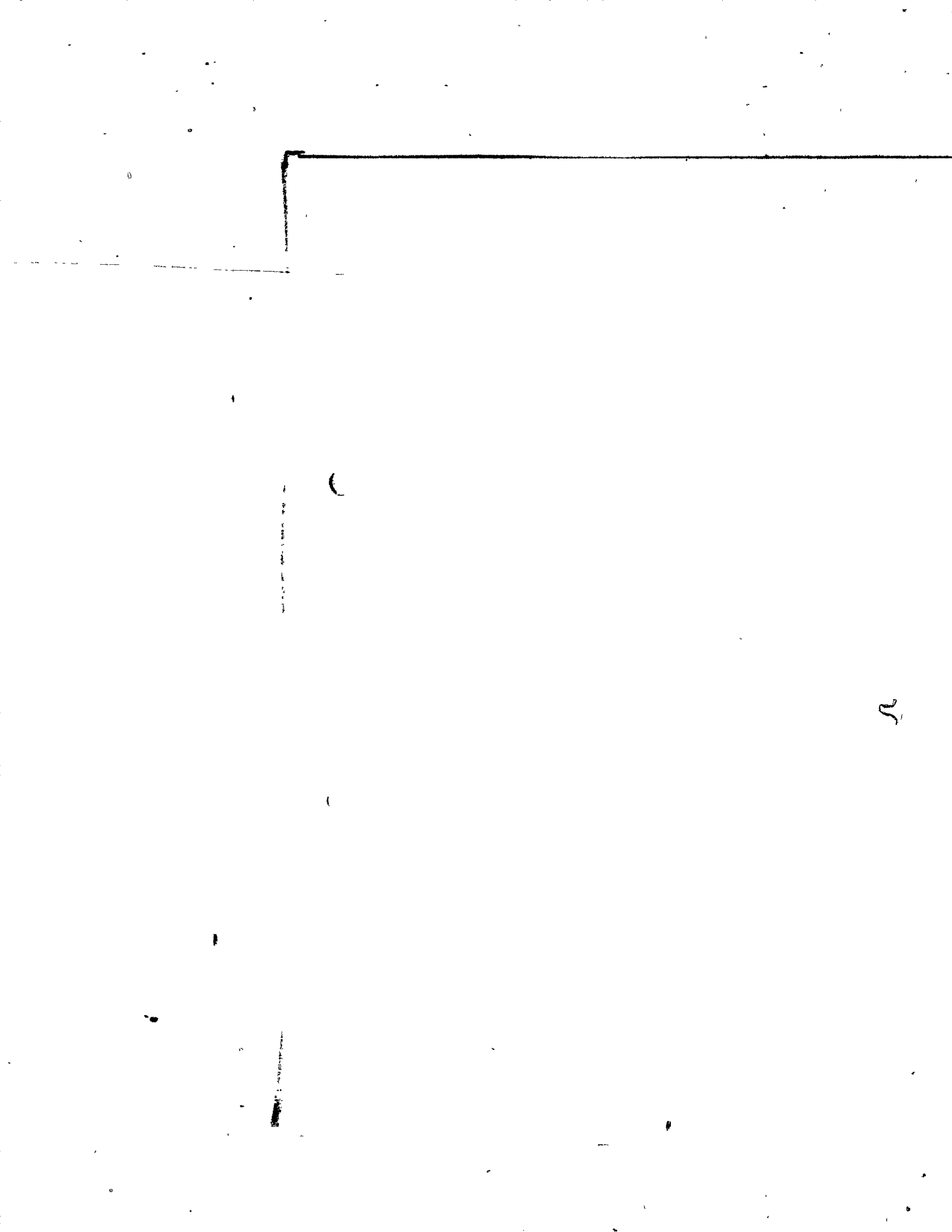
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There was a peculiar feature recorded - the growth and decline of the population in the city of Shahjahanabad. When the new city was completed, the population was estimated at 60,000. The reign of Aurangzeb (1659 to 1707) saw the city at its zenith, with a population of 200,000. The suburbs of Subzimandi, Paharganj, and Sadar Bazaar had been well established as service centers. The passing of Aurengzeb brought a period of decline. The state was beset by civil war and foreign invasions. Delhi was sacked twice, by the Persian Nadir Shah in 1739 and by the Afgans in 1756. After British occupation in 1803 followed by gradual restoration of law and order, the population also gradually increased until by 1857, it reached the same original figure of 60,000. Delhi remained under British control until 1947 when India became an independent nation.



2.3 The Accommodation of a Colonial Culture

The impact of European influence on Delhi begins effectively in 1803 when the city was captured by the British from the Maratha invaders. Its first roll was that of military and strategic post for the metropolitan concern (the 'East India Company') in the northern India. Within half a century, however, the last representatives of the Mughal empire were to disappear and the cities which it had created, including Agra and Lahore, to become transformed by contact with a new, industrial imperial power.

The colonial culture had been accommodated in the two main areas of Delhi. Within the walled city, two relatively small cultural enclaves existed, north west and south of royal palace.

Northwest of the city, an area of some four to five square miles was, by the middle of the nineteenth century, developed for the military and civil administration. The main highway system for this area, as well as the highway 'grid' on the cantonment which was to provide the base for further military accommodation, as well as for three major demonstrations of imperial power in the form of the 'durbar' and 'ultimately, for the campus of the University of Delhi', had been laid out by the 1850s.

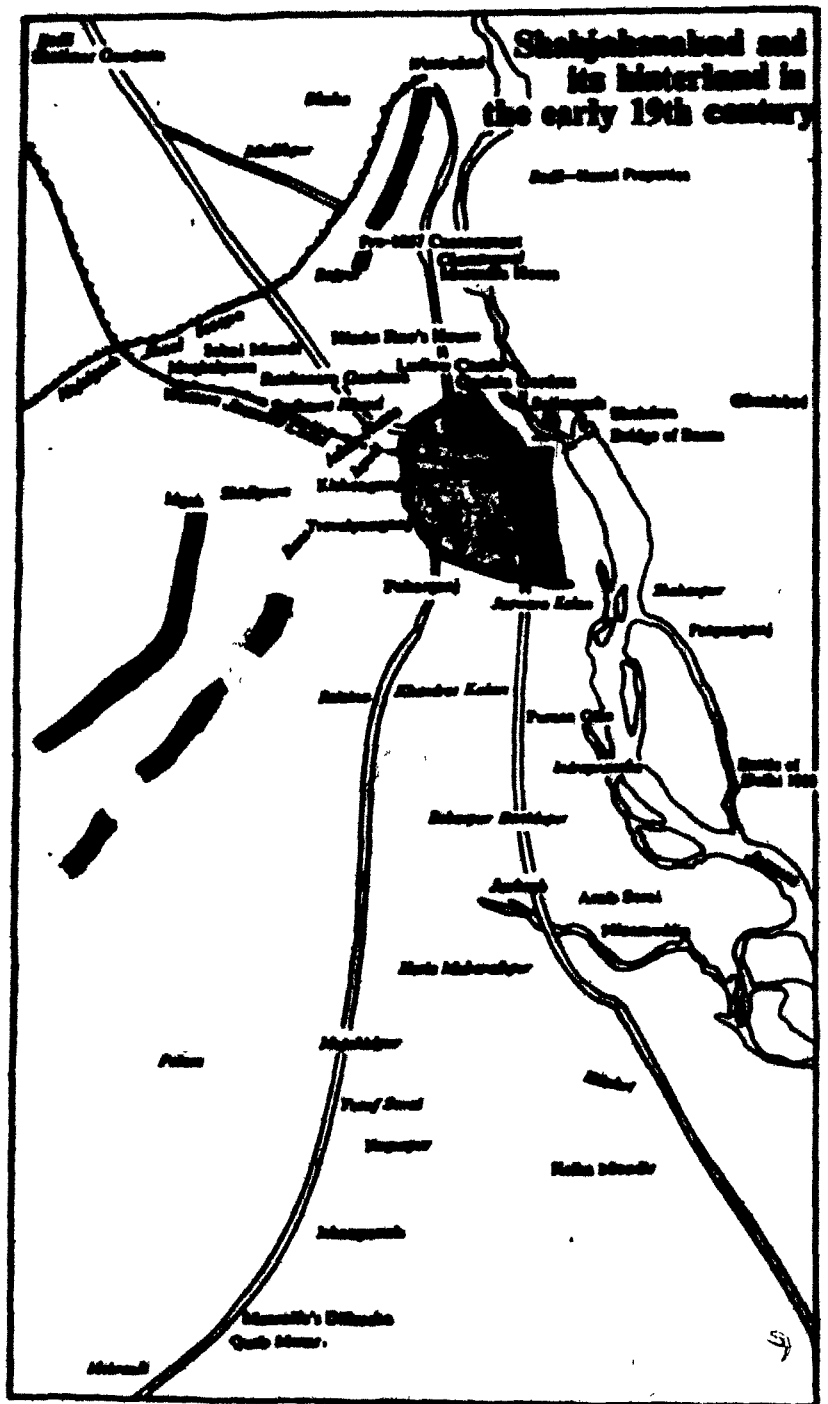


Fig 2.12

Western technology had so far made little impact on the physical structure of the city. Unlike, their counterparts in the West, the 'suburbs' to the north of the city had not developed as a result of new forms of transport, indigenous cultural preferences and the uneven distribution of wealth but by the introduction of new cultural values and an allocation of resources made possible through colonial control. The relative closeness of the indigenous and colonial communities, particularly in the city, was a reflection of the comparatively little social, political and technological distance between them.

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- 1 'Palace and
Gardens'
- 2 'The Jumma
Masjid'
- 3 'Main Street of
Delhi, Chandni
Chok'
- 4 'Custom House'
- 5 'English Church'
- 6 'Magazine and
Store Houses'
- 7 'The Banking-
house'
- 8 'Golf'
- 9 'Lunatic Asylum'



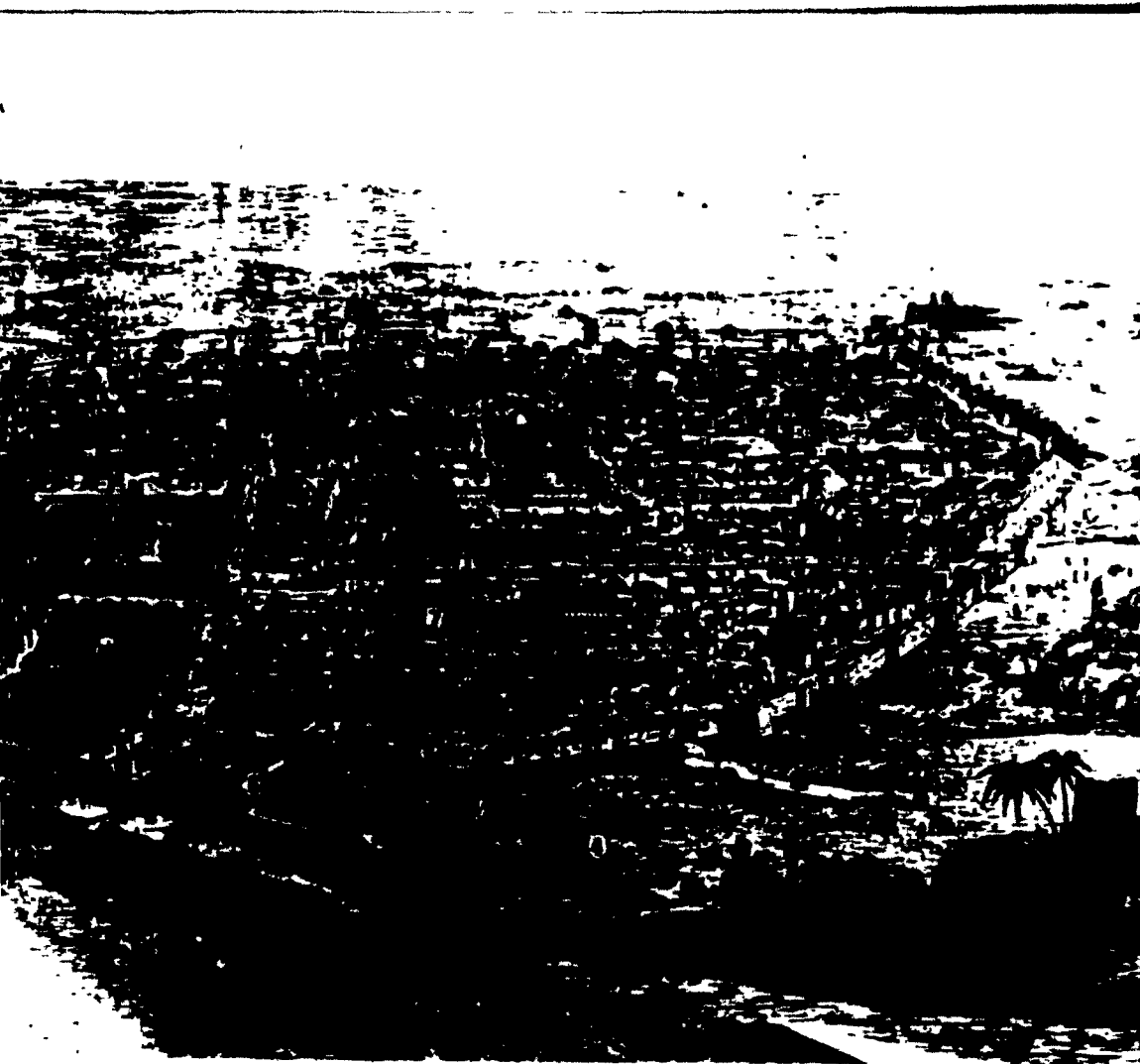


Fig 2.13^b Colonial influence on Shahjahanabad in early nineteenth century

3.0 The Spatial Structure of the Walled City of Shahjahanabad : Physical Layout

The power of indigenous form in urban India derives from a spatial context, where the intimacy of spatial experience results from a close packing of the component parts. The play of light and shadow, changing views and distance relationships occur in the interstices between the buildings. High efficiency in the use of ground space is a feature of pre-industrial towns where crowding together minimized the defensive perimeter. The organic character of the city is striking, the strongly reminiscent of patterns in nature.

3.1 Community and Residential Need

The custom of identifying localities with occupation of residents can be traced to rural India, where a man's occupation determines his social status and fixes his role in the daily affairs of the community. Members of an occupational group or jati, held together by specific customs, live in close proximity to one another within enclaves, the location of which are specified by the dominant group. Social status once was related to ritual purity, with the lowest and most debased reserved for those who disposed off the dead, handled dead animals and removed refuse. Present



Fig 2 14 Narrow lane or gall

day status depends more on a combination of wealth and other forms of power. Generally, the upper strata maintain a de facto superiority and dominance over socially inferior groups.

Since occupations are hereditary, related households live together sharing a common courtyard, with eldest male yeilding authority. Women are shielded from public view, living and working in a courtyard behind the house, not very often sharing it with their men. A baithak (sitting area) is maintained for men and their guest. Among the more wealthy, this takes the form of either a separate room for the exclusive use of the men, or another courtyard house adjacent to the gher (women's house). The village panchayat (council) handles serious infractions of a complex set of rules governing ritual contact and social and economic obligations, while the jati council takes care of minor problems.

Traditionally, the spatial pattern of the Indian village is a group of enclaves with dominant groups occupying prime locations. Under usual circumstances, the boundries between enclaves are assigned service status such as bazaar, thus eliminating the need for higher status groups to enter into the enclave of a lower group. Also, the nature and degree of community services deteriorates as one approaches the enclaves of lower jati.

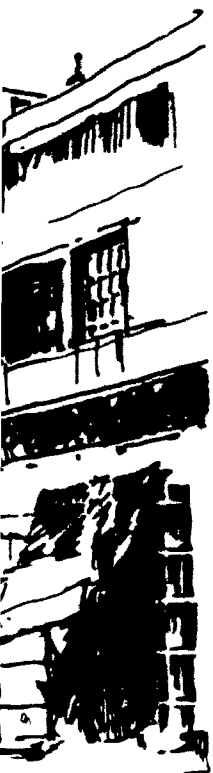
Early maps and historical descriptions make reference to the



Fig 2.15 Haveli at Chandni Chowk



Fig 2.16 The tranquility of the inner courtyard



courtyard

following words : Mohalla, Kutcha, Gali, Kutra, Haveli, and Chatta. A linear entity is implied in the use of Kutcha and Gali, while Mohalla imply zones. A Kutra is by definition - a market with residential quarters and storage facilities enclosed by walls and entered through a gate. Thus, only a Kutcha and Gali could be seen as streets in the conventional sense, bearing in mind the complex activity pattern that they support. When the upper storey of a residential structure crosses over a Kutcha or Gali, the term Chatta is applied. Besides providing a device for relief from the climate, the Chatta made use of the air-rights above public right of way. Chandni Chowk before its reconstruction in 1860, had many Chattas along it but present building by-laws forbid such construction. This architectural feature, together with canal and shade trees must have made it a remarkable street. (Chattas were also common in Agra, Lucknow and Lahore, and appear to be of muslim origin).

Mohalla

An inhabitant of the walled city traditionally relates to his Mohalla. A man will still say 'I stay in the Mohalla of Tamarind' or 'Mohalla of the flour grinders'. The Mohalla is also a social unit that relates to the occupation, trade, language, religion or geographical origin of the Mohalla dwellers. Generally, if a man's caste is known, his occupation and sometimes

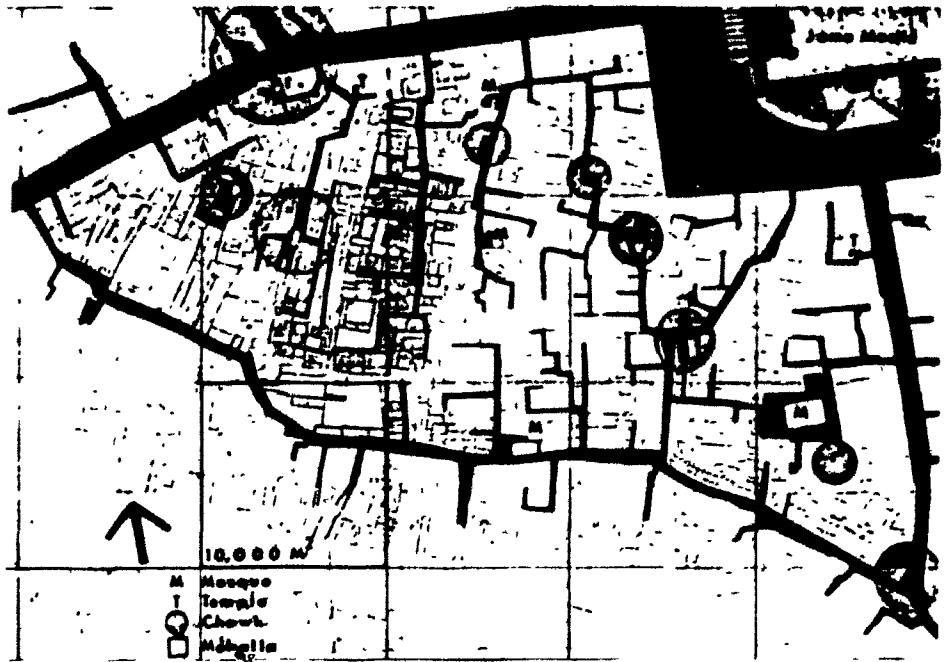
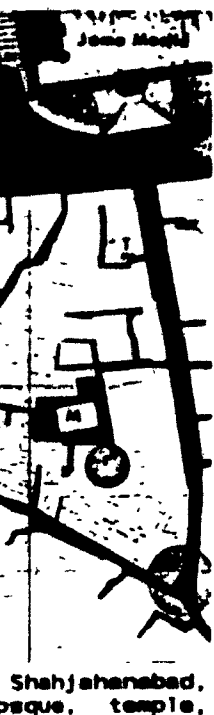


Fig 2.17 Plan of portion of ward 9, Shahjahanabad, Delhi showing location of mosque, temple, chowk, mohalla



geographic origin is also known. Likewise, religion, caste, etc. can be determined from a man's occupation. Increasing social mobility now makes it more difficult to relate the occupation of a man with his Mohalla, but groups related by religion and geographic origin continue to cluster in Mohallas.

A Mohalla is a clearly defined area of residential and commercial activity fronting on a spine street. Most often, there is a network of Galis, Kutchas, Katras, and Chattas reaching out from the spine of the interior. When pressed for a more exact location, a person will pin-point his place of residence within his Mohalla by naming a Gali or Kutcha. Although many of the Galis terminate as 'blind alleys', some connect to other Galis through gateways or Chowks. Thus, while the spine of the Mohalla is spatially defined, the perimeter is often visually nebulous but actually defined. Boundaries are further confused by the fact that some two storied buildings with access to the lower storey from one Mohalla, have the upper storey connected to a different one. Although, a Ward or Thana may have several Mohalla within it, a Mohalla in one Ward will not continue into or connect with a Mohalla in another Ward.

There is a well-defined social hierarchy within a Mohalla and a Mohalla council - the equivalent of a village Panchayat - enforces rules governing public and private behavior. Most often, a Mohalla contains its own Bazaar, Mosque



Fig 2.18 Chowk

or Temple, school, and through its council cares for orphaned children. The insulating aspects of these social units is broken by the need for community cooperation during religious festivals and by the Bazaar which retails the artifacts produced within several units.

The craftsmen of Delhi, long famous for their skill and high quality work in gold and silver, ivory carving, miniature painting, embroidery in gold thread, and wooden toys, work in such communities. Destruction of a Mohalla as a physical entity and its replacements by a concept of people living in apartments and commuting long distances to work in offices is no substitute for this rich indigenous environment.

Chowk

Another feature unique to the indigenous urban setting is the Chowk. This is often no more than a widening of the street, as it turns a corner at the junction of two or more streets or - more commonly - at the termination of the Kutcha or Gali. One can walk through narrow, shady and richly fenestrated streets twisting and turning this way and that, passing through Bazaars and under Chattas, to emerge suddenly into a brightly lit open space filled with children playing games, old men sitting in the sun, or people moving trays of drying foodstuffs out of the shade into the sun.

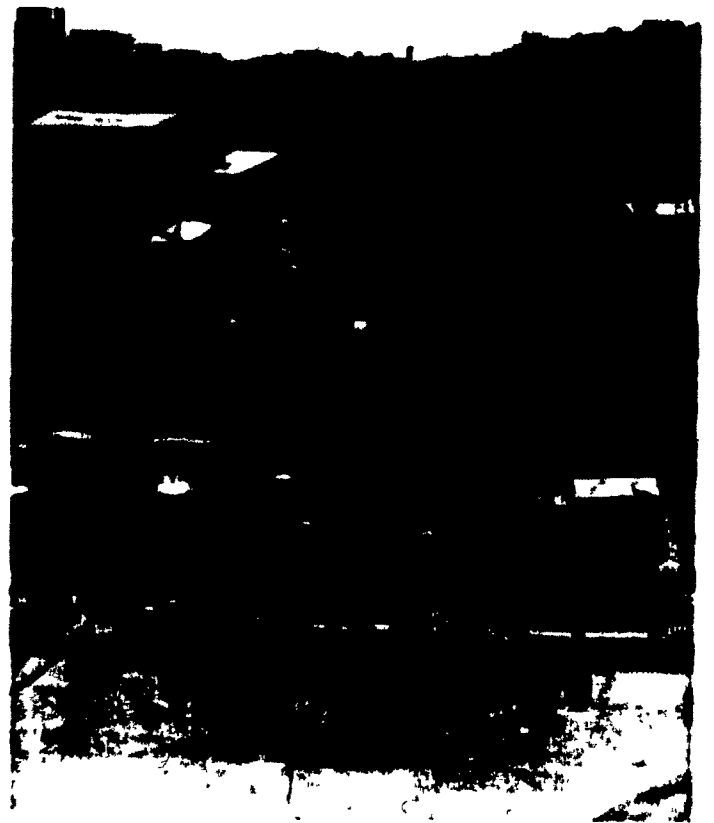


Fig 2.18 Chowk

There are frequent occurrences of a Mosque or Temple in the vicinity of a chowk. Unlike a Mohalla, it has definite boundaries and is claimed by a group. Though Chowks occur as unplanned expansions in a confined environment, the fact that there is no encroachment is an indication of the great value that community attaches to them. It is worth notice that squatters, who will quickly stake out unclaimed space, will never squat in a Chowk.

Around a Chowk, there is generally a change in functional use of the land, from residential to service activities. This appears as a tea shop, a cigarette or a pan shop or a general store where the daily necessities of life may be purchased. Thus, the Chowk tends to serve the immediate community and often become its focus. Although there is no clear-cut time for specific activities, there is a general community agreement as to the sequence of events such as when clothes are washed and put out to dry in the morning, or when children play or adults may fly kites in the afternoon and meetings or poetry recital held at night. Chowk occurring at the junction of streets are often sites for temporary markets.

Tertiary streets tend to be part of a close system, there being only one way in or out at ground level. Furthermore, since very few houses have access to more than one street, the occupants of dwellings that front on the lane meet one another in public as they traverse a

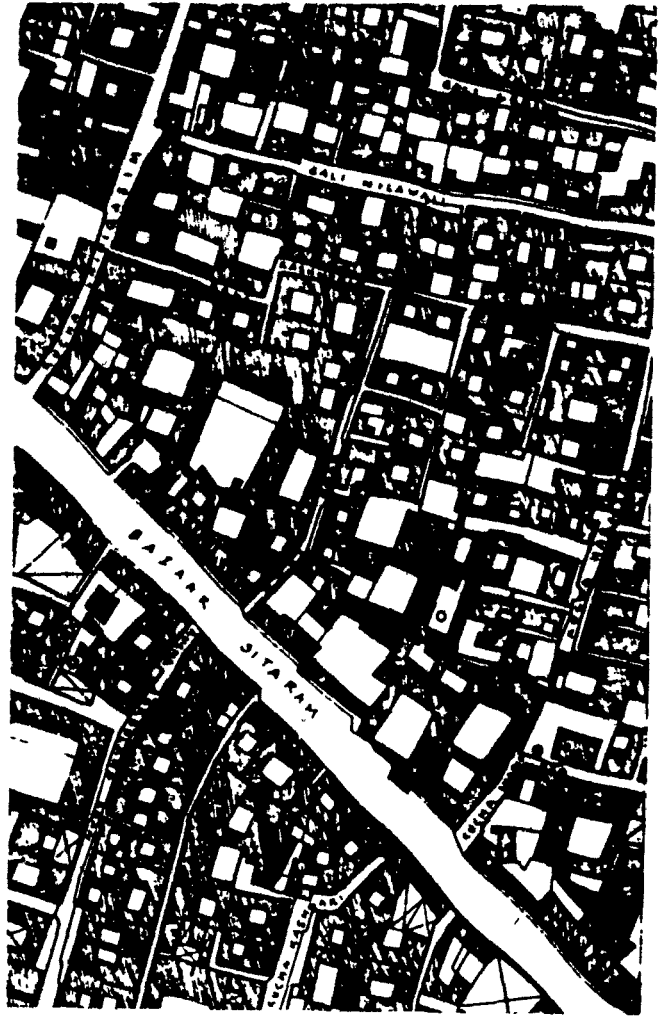


Fig 2.20 Part plan of a ward showing built form and open space system



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gauntlet of scrutiny between their front door and the connection between the main street. Thus, sitting in the window is a favorite pastime for women. The connecting points between Galis and Bazaar streets takes on significance as control zones, where the Mohalla chowkidar or watchman positioned himself. These points are obvious places for gates which were closed after certain hours. In early days, it was unwise to display the wealth of the Mohalla through elaborate and expensive entrance ways, so that main street today is relatively subdued. In the larger Mohallas, great doorways were built at all connecting points to main streets, thus making a fortress within a fortified city.

The casual observer sees the Mohalla as a series of dark voids between buildings and is apt to arrive at an erroneous conclusion. But behind the blank walls, screens, and barred windows are large and small courtyards where everyday activities take place. This pattern is reflected in the landuse where only ten to twelve percent of a 'block' is devoted to streets and nearly twentyfive percent to the interior courtyards. This is clearly a case of an inverted garden city where open space in the community is public, not private.

The residents of a Mohalla get a remarkably different view. He is protected by two spatial envelopes before he enters the public world of the Bazaar street, and his behavior is adjusted according to the spatial continuum he



Fig 2.21 First degree privacy - the internal courtyard



Fig 2.22 Second degree privacy - the lane outside his door



ernal courtyard

occupies:

- a) First degree privacy, the interior courtyard
- b) Second degree privacy, the lane outside his door
- c) Third degree privacy, the world outside his Mohalla.

Katra

The broad structure of a katra settlement comprises one or more by-lanes as common passages for the residents to move in and out of the katra. The overall shape and size of a katra, however, vary a great deal and except at the entrance, where it can have a gate with doors and a low wall, all the sides are blocked by the outer blind-walls of the houses whose entrances fall inside a katra compound. It is likely that a katra may have, one or more of its sides, other neighboring kattras with back to back houses, or an additional subsidiary entrance or exit. What the term katra in general denotes, covers an amazing variety of landuse to which the space of the katra is put, both with regards to housing and community life. There are two major types of kattras:

- 1) Residential Kattras
- 2) Business Kattras

Residential Kattras

The predominant landuse in this type of kattras is residential, and is naturally associated with social,

is outside his



Fig 2.23 Third degree privacy - the world outside his mohalla

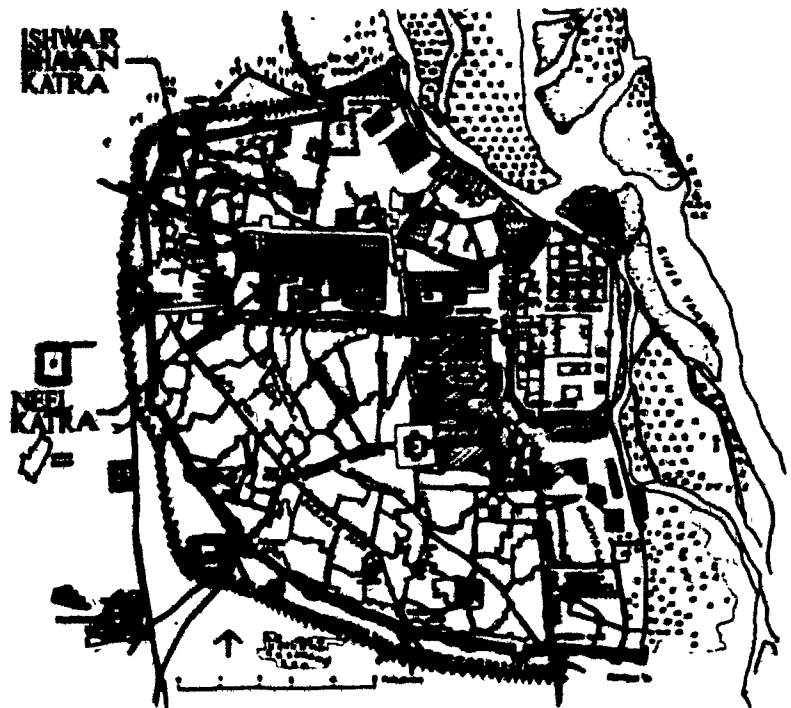


Fig 2.24 Location map of typical katras

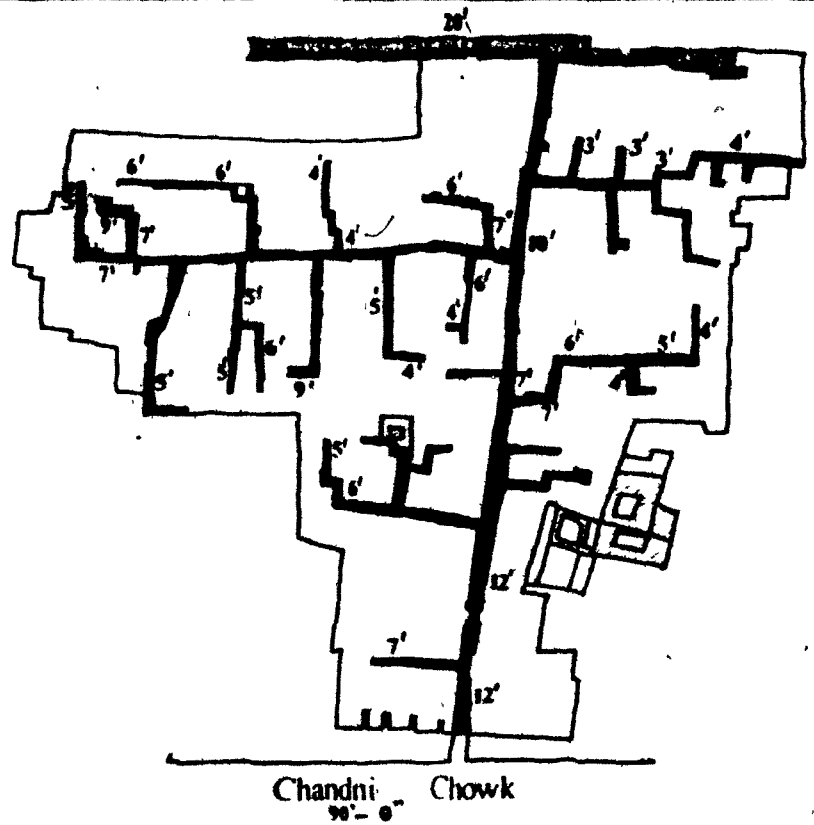
religious and economic functions of the community. Most of these katraas are larger in population size and land coverage as compared to Business Katraas. There are temples, mosques, gurudwaras, shops of daily provisions to be found in them. This types of katraas as well as other similar miniature settlements such as kutchas, galis etc have many similarities of landuse.

Business Katraas

The predominant landuse in these katraas is reserved for shops, stores, godowns and offices. Most of the business katraas were primarily of residential types but depending on their strategic locations in business districts of the city, the ground floors of the houses were converted into shops.

Typical Residential Katra: (Neel Katra)

Neel Katra is a public katra situated on the side of the thoroughfare of Chandni Chowk in the vicinity of the Fatehpuri Masjid. It is set in the midst of several smaller kutchas and galis on either side of its closed limits. Its outer boundary is marked by Fatehpuri Masjid, Queen's Garden and the Town Hall in the center of Chandni Chowk. The residential houses are flanked on either side of the main street and four main galis. The narrower galis have houses at least on one side of the alleys that are varying in width from five feet to two



Existing street pattern



Fig 2.25 Plan - Residential Katra

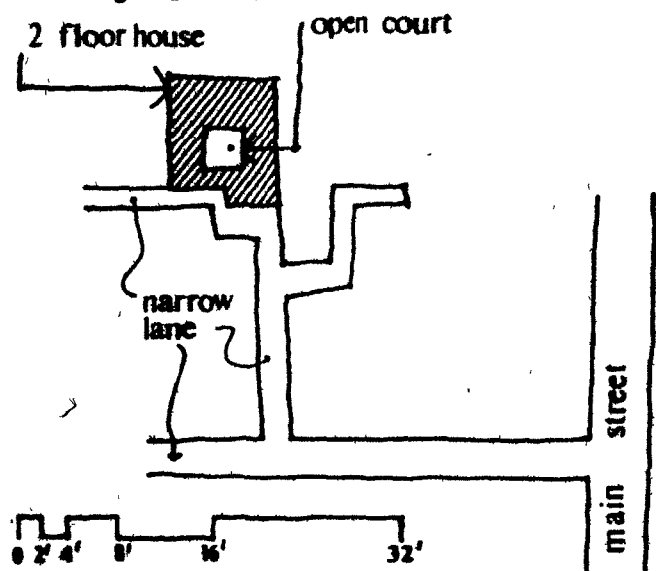


Fig 2.26 Haveli in a residential Katra

feet. A larger number of galis are paved with bricks, cement or stone slabs. Although there is an underground drainage for sewerage, the rain water flows through to open channels on either side of the galis. About 20 percent of the total area of Neel Katra is open to sky which includes galis and alleys. Narrow open spaces are left for ventilation and drainage in which a doorway of no domestic building opens, such secluded areas are called jhots, meaning light wells.

More than 60 percent of a total of around 10 acres of land in the katra, barring open courtyards of private residential buildings, is covered by the plinth area of the residential structures. In all, there are nearly 400 residential buildings which house an estimated number of 1500 families.

The majority of the houses are built around a small courtyard partly covered with balconies projecting from first floor. These are simple Haveli-type houses. (fig 2.26) Living rooms, kitchen, etc are located around the courtyard and balconies. The grill of iron bars is embedded in the masonry work of the balconies which leave that part of the courtyard open to the sky. This helps letting in air and sunlight and protects children from accidental fall. The other type of traditional house is composite in structural layout. (fig 2.27) Some of them have two or three courtyards with a common entrance and having balconies and living rooms on all sides. Besides a

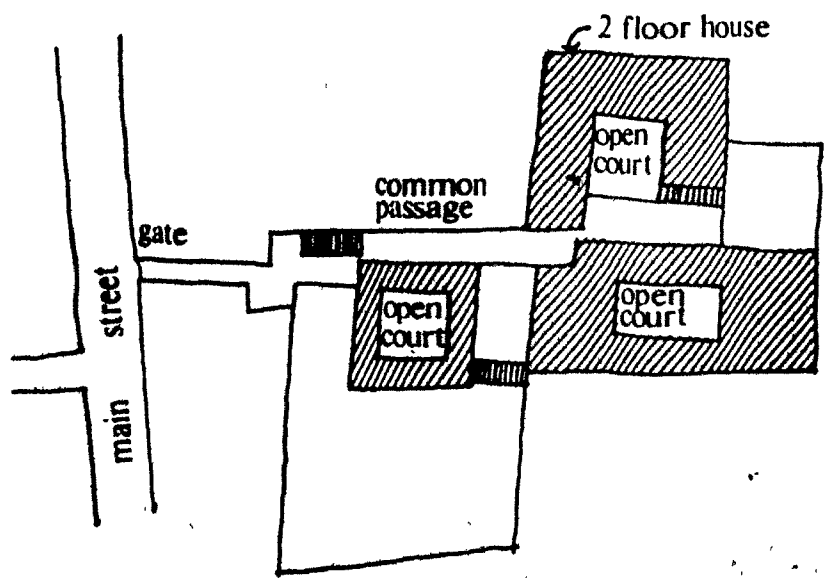
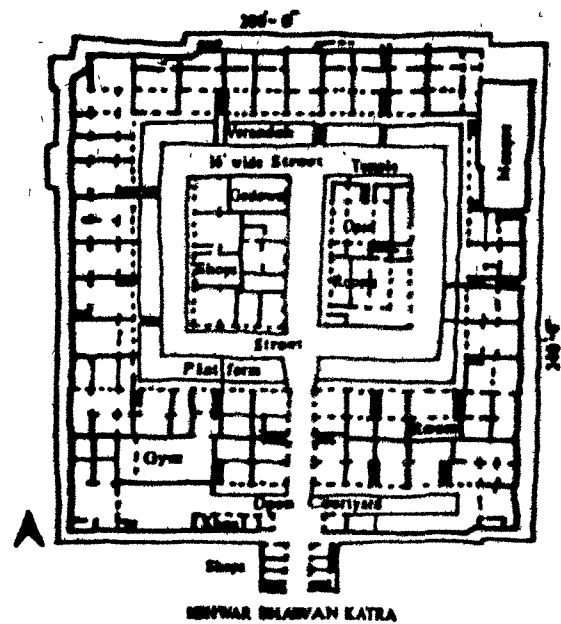


Fig 2.27 Composite house in a typical katra



SENWAR BHAIWAN KATRA

Fig 2.28 Plan - Business Katra



common entrance there may be on the other end of a house, a back door or small entrance. This type of house provides living accommodation for two or three brothers and their dependents. Such composite houses are not many.

In most cases only the frontage of a house is open and other two or three sides are flanked by other houses.

Typical Business Katra: (Ishwar Bhavan)

Ishwar Bhavan is a typical business katra in Shahjahanabad. It is a private katra owned by one family throughout its existence until recently. Now it is fragmented and owned by many other different parties.

It is located in the well-known Khari Bawli Bazaar. On the opposite side of the katra is a side entrance of Fatehpuri Masjid which forms the landmark signifying the end of Chandni Chowk.

The size of the katra is roughly 225'x225' and it has nearly 100 shops on the ground floor, and a lesser number of residential quarters on the first and second floors. Some of the tenements on the first floor are being used as the offices of business firms and commission agents. (fig 2.28) This katra used to be a part of an extension of Fatehpuri Masjid complex and one of the branches of a main canal which was passing through the area. This branch of Jamuna water canal used to pass through the center of this katra and fed the fountains in the masjid.

The Mohalla, Gali and Katra of the Walled City are the urban counterparts of the traditional 'jati' enclaves in rural India. Originally organized by occupation, they are valid institutions embodying the living principles of social behavior. They still possess an image distinctive enough to be used in orienting city dwellers or visitors. It is apparent that people following low status occupations clustered together like their jati counterparts in the villages. Many of these urban enclaves - mohalla, gali, and katra - are furnished with gates and watchmen to supervise the coming and going of people. As institutions, they provide for the destitute - widows, orphans and the elderly - and also took on importance as staging centers for migrants from rural or other urban areas. In contrast to mosques, temples and dharamshalas (hostels) which commonly provide travellers with lodgings for a night, the mohalla, gali and katra served as refuges wherein migrants could adjust to the vicissitudes of urban life before being absorbed into the city's mainstream.

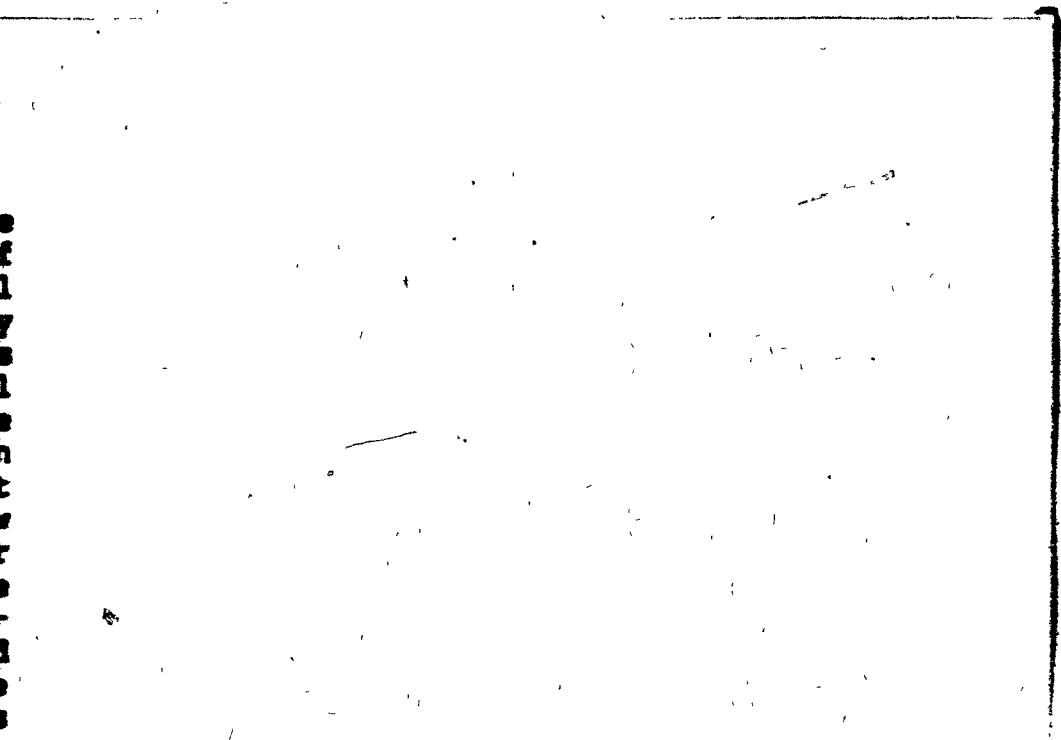




Fig 2.29 A bazaar scene 'city may be described as a bazaar'



Fig 2.30 Transportation of goods through the lane in hand drawn carts

4.0 Commercial Development

The pattern of commercial activity is tied to the spatial organization of the community and to the practice of mixing landuses - a wrestling pit will occur next to a temple, a dairy in a residential courtyard, workshops on the roofs of schools. The city may be described as a bazaar with peaks and dips in activity as one moves from primary to secondary to tertiary streets. Large retail and wholesale outlets are concentrated on primary streets, sometimes penetrating partly into secondary streets. Bazaars on secondary streets form smaller agglomerations and tend to specialize in single items. The actual production and storage of artifacts occur in interior courtyards and alleyways away from the primary streets, although some workshops are immediately to the rear of shops fronting on the main streets. Thus, production, storage and service centers are either immediately behind the retail outlets or a short distance away set into residential areas. A flow of merchandise is triggered by a small group of workers dispersed through the city. Production accumulates in the courtyards, moves down the lanes in hand-drawn vehicles or on the backs of men to distribution centers along the secondary streets, then it filters into the bazaar. (fig 2.30) Wealth resulting from this production flows in the reverse direction completing the cycle, gets smaller as it is passed from hand to hand.

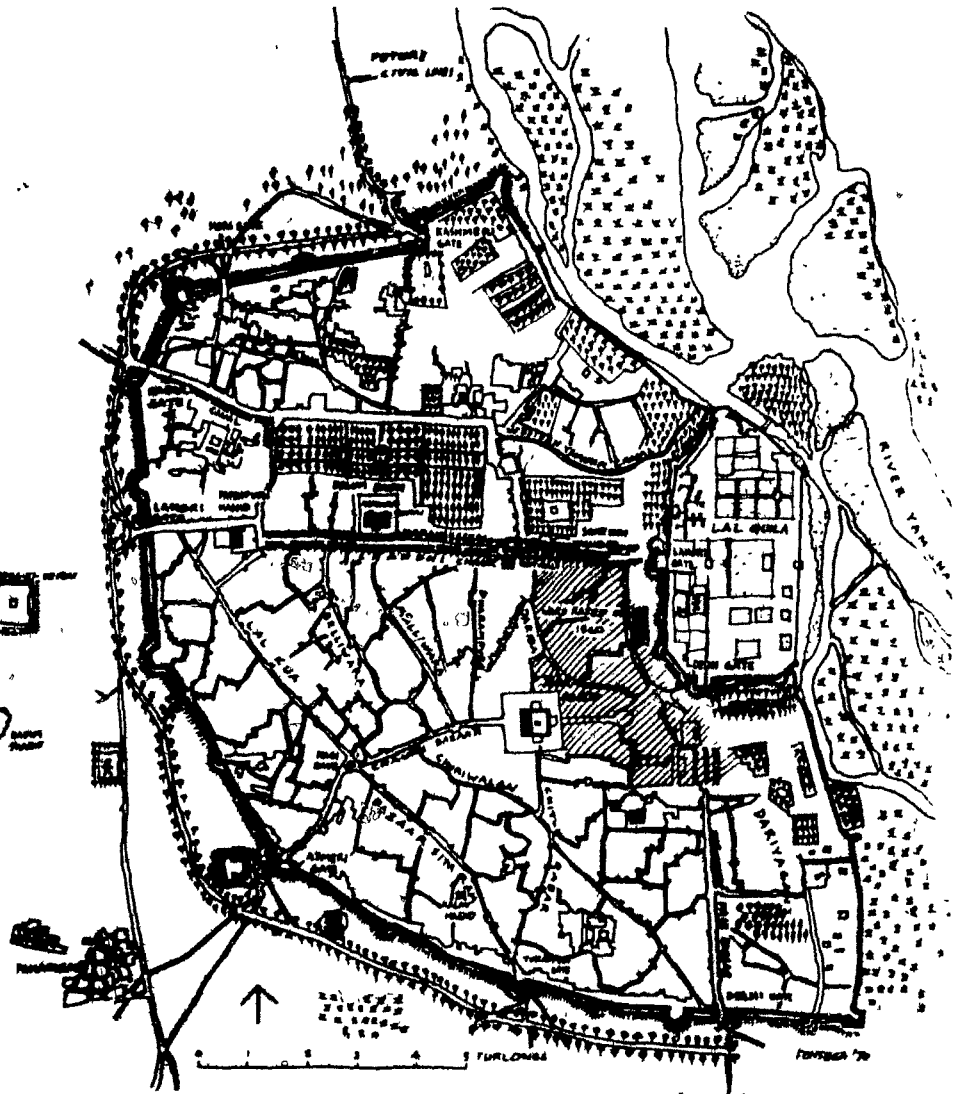


Fig 2.31 Plan of Shahjahanabad showing bazaar streets

Delhi was, during the Mughal Empire, an important center of commerce and a terminus for caravans from Central Asia. The spatial distribution of mercantile activity was closely identified with the physical structure of the city, a trend still evident today in the threefold hierarchy of its streets;

- a) Primary bazaar streets, viz., Chandni Chowk and Chauri Bazaar, roughly in an east-west direction linking the palace with Lahori and Ajmeri gates;
- b) Secondary bazaar streets, viz., Lal Kua, Belliwara, Maliwara and Dariba, connecting Chauri Bazaar and Chandni Chowk; and Sita Ram, Chitli Qabar and Churiwala providing the link between Chauri Bazaar and city gates to the south; and
- c) Tertiary lanes and passageways to private houses. Early maps indicate little change when compared to the present form of the city. (fig 2.31)

Generally, as one moves from tertiary to primary streets, residential usage fades out and is replaced by commercial activity. One encounters a greater bustle - more people, more noise - and the subtle soft quality light in the gali is replaced by a harsh glare in the busy main street.

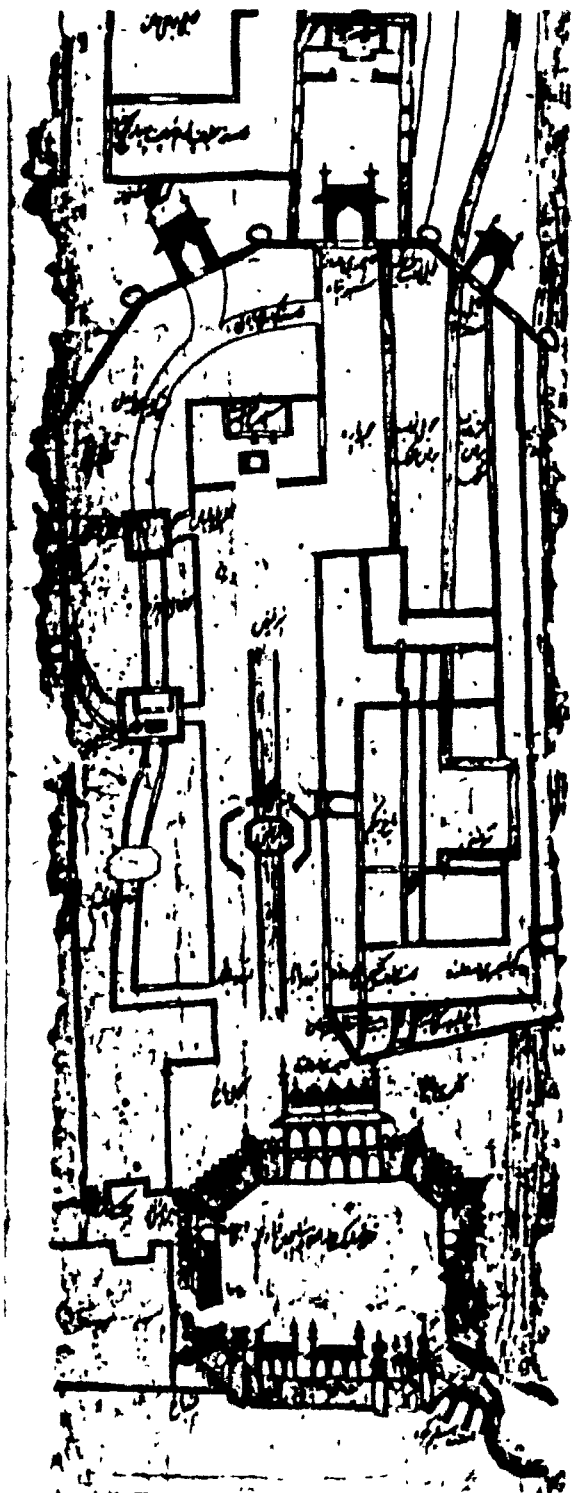


Fig 2.32 Chandni Chowk from early Mughal route map.
India Office Library

4.1 Chandni Chowk

Chandni Chowk (Moonlit Square) is the busiest and most important trade center of northern India. It is not just a market: it has a heart and soul of its own, with rich historical traditions of culture and the wealth of nation.

From the monumental entrance of the Fort, Lahore Gate, the city's main road extended due west ended at Fatehpuri Masjid. This great street, Chandni Chowk, was built in 1640 at the command of Princess Jahan Ara. In the middle of it there was an octagonal square, north of which a huge garden was laid out and named after the Princess. Through the whole of Chandni Chowk flowed the Faiz Canal, the arcades or chattas lined both of its sides. It was these that led the Frenchman, Bernier, to compare the structure with the brand new Place des Vosges in Paris, although the buildings in Delhi were not linked to each other:

"in the spaces between are open shops, where, during the day, artisans worked, bankers sit for the despatch of their business, and merchants exhibit their wares. Within the arch is a small door, opening into a warehouse in which these wares are deposited for the night.

The houses of the merchants are built over these warehouses, at the back of the arcades: they look handsome enough from the street, and appear tolerably commodious within; they are airy, at a distance from the dust, and communicate with the terrace roofs over the shops, on which the inhabitants sleep at night".



Fig 2.33 Chandni Chowk in early days

What is now known as Chandni Chowk, from the Red Fort to Fatehpuri, was originally divided into four parts - Urdu Bazaar, from Red Fort to Dariba; Tripolia, opposite the Kotwali; Jauhri Bazaar, from Kotwali to Chandni Chowk; and Fatehpuri Bazaar, from Chandni Chowk to Fatehpuri Mosque. But as the trading center grew in magnificence and prosperity, the whole stretch came to be commonly called Chandni Chowk.

In Mughal times, Chandni Chowk had grown into a flourishing and prosperous trade center, with traders coming from many countries around. There were fruit shops, displaying fresh and choice fruits from Afghanistan and Kashghar; jewellers with their tempting displays of ornaments, gems and pearls; shops selling weapons, quality wine. Each specialized in some commodity. The merchandise included such a bewildering variety and costly articles that some shops looked more like art museums. There was a system of agents, with their elegant and courtly language to help their well developed art of salesmanship. Mostly notable among this class were the jewellers' agents. Fruit and vegetable vendors would sit under the shady trees on both sides of the canal. The nobles came here to spend leisure hours selecting the things they liked, shopping in a regal way. Mixing with the crowd would be many traders from other countries, busy buying and selling. The common man would be also there by the hundreds, to buy his daily needs.

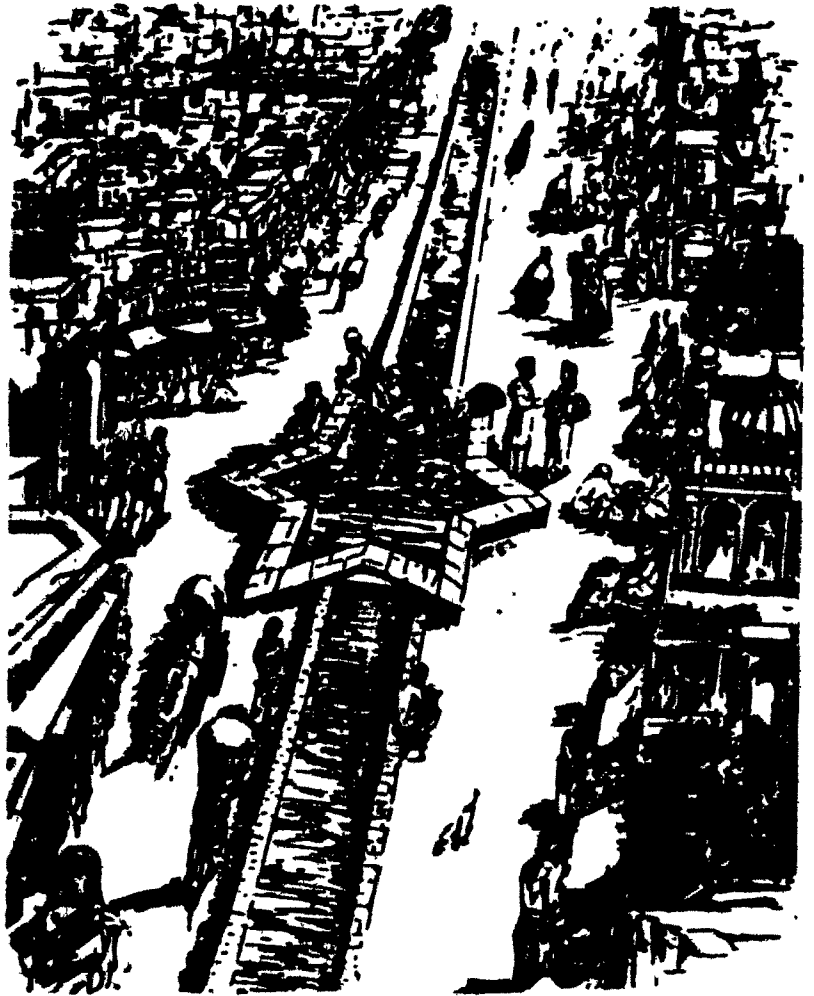


Fig 2.34 The canal in Chandni Chowk from early paintings. Source: Dayal, 1982

The Canal

Lack of drinking water caused a good deal of worry to Shahjahan while he was constructing his new city at Delhi. The river water was not suitable, since filtration through jars of sand was a very slow process and the wells in the city had started drying up. Ali Mardan Khan, one of Shahjahan's noblemen, was entrusted with the task of arranging for adequate water supply, developed one of the old canal and also brought another canal from the foothills of Sirmoor Hills. The two canals were connected and the stream is now known as the Western Jamuna Canal. The fountains, cascades and small artificial streamlets provided a real treat to the citizens of Delhi. The canal in the city, which was known as Faiz Nahur during Shahjahan's regime, served the double purpose of assuring a plentiful supply of clean pure drinking water all round the year and of irrigating gardens. The citizen of Delhi got water in their Havelis and Mohallas by arranging underground channels direct from the canal. From Begum Shahib's garden, the canal ran through Chandni Chowk from Fatehpuri Mosque to Urdu Mandir (Jain Temple). Then it was taken inside the Red Fort by an indigenous siphon called Shutr-gulu meaning camel's neck, through the Shah Burj. Inside the fort, the canal came to be known as Nahar-i-Bihisht and flowed through Mehtab Bagh, Hayat Bagh, Sawan Bhadon, Diwan-i-Khas and other palaces.

The historian Julian Corner recorded

in 1847: "the water which it furnished was not only the drink of the inhabitants, but the source of vegetation in the beautiful gardens around the capital". At a later period, during the troubles that attended the decline of the Mughal Empire, the canal was entirely neglected that it became choked up with rubbish and the luxury of good water was unknown at Delhi for a very long period until the British Government undertook the beautiful task of cleaning the canal which was reopened by Sir Charles Metcalfe in 1820, until it was finally closed in 1910.

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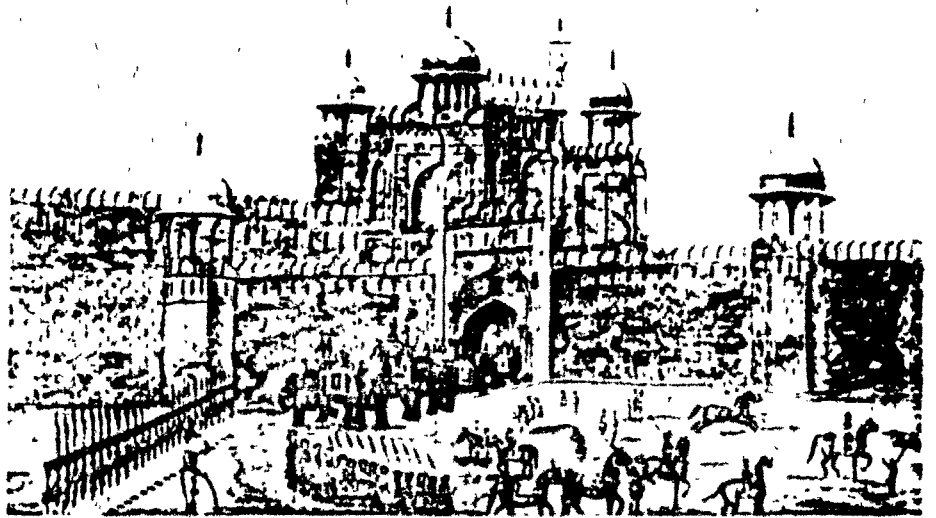


Fig 2.35 Red Fort, Delhi. A procession leaving the Lahore Gate, c.1830. by an unknown Delhi artist. India Office Library, London.

5.0 The Red Fort

The heart of the Empire and the principal residence of every emperor from Shahjahan to the last of the line, Bahadur Shah II, the famous Red Fort was built on the north eastern side of Shahjahanabad close to the old fort of Salimgarh and the bridge of boats across the river. In its heydays in the seventeenth century the Red Fort constituted not only the residence of the Emperor and his court but also housed the central administrative machinery of the empire, a military garrison, an arsenal, the imperial treasury, factories for the manufacture of luxury commodities and much else besides. (fig 2.36)

Shahjahan was an orthodox Muslim, he did not sympathize with other religions. Shahjahan's architecture was as simple as his orthodox beliefs. The site plan of the Red Fort is characterized by emphasis on the axial relationship between successive courts.

The Red Fort at Delhi was evidently planned as a rectangle with sides in proportion 3:4; in the east in front on the river Jamuna. Due to an extra piece of land on the north, the architect preferred to include this triangular area within the walls of the fort. Only for this reason does the wall have an irregular shape and fails to conform to the almost rectangular plan of the palace. The southern corners of the rectangle formed by the walls are cut off; corresponding recesses in the

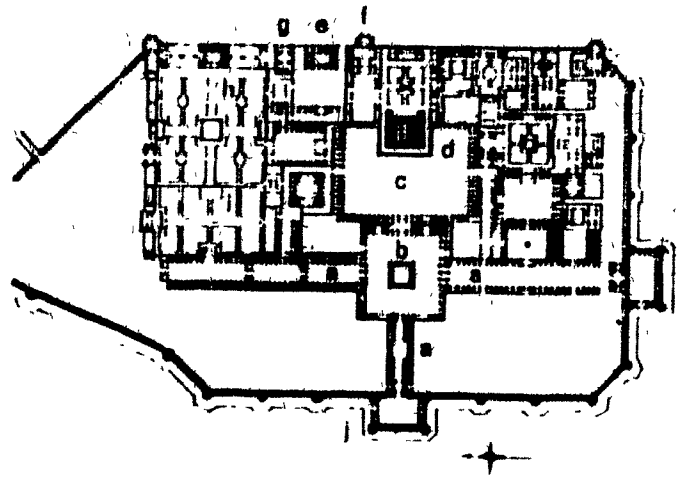


Fig 2.36 Plan - Red Fort, Delhi, built by Shahjahan

- a) Bazaar
- b) Nubhat Khana, Music Pavilion
- c) Public Audience Court
- d) Diwan-i-'Am, Public Audience Hall
- e) Diwan-i-Khas, Private Audience Hall
- f) Samman Burj
- g) Bath
- h) Bakhsh Bagh, 'Life-giving Garden'
- i) Mahtab Bagh, 'Moonlight Garden'
- j) Entrance

north-western and north-eastern corners may be explained by the fact that the architect had a symmetrical plan in mind.

The palace was divided by its east-west axis into a northern and a southern part, in the proportion 1:1. The visitor enters the fort along this main axis, on which lie the reception courts. Perpendicular to this it was planned to build a long bazaar, extending from the south gate to another one in the north; this bazaar divides the palace in the proportion 1:2. Since the north wall lay along the river bank, there could be no north gate and from the start lacked the connection it needed with one part of the streets of the town. The northern part of the bazaar thus formed a blind alley; whether it was ever completed or used is open to doubt.

The original 'utilization plan' looked as follows. One-third of the area of the fort; i.e. the area west of the large bazaar, was reserved for the servants and soldiers quarters. Whoever entered the palace had at first to traverse this zone through a long passage. At the point where the north-south and east-west axes intersect there is a square court, still accessible to the public. By the way of the 'naubat khana' or music gatehouse, from which musicians announced the arrival of the emperor or other prominent dignitaries, one reached the court of public audiences.

-  Mardana
-  Emperor's private apartments
-  Semi-public areas
-  Zenana

- 1. Soldiers' and attendants' quarters
- 2. Princes' apartments
- 3. Gardens
- 4. Private Audience Hall
- 5. Administration
- 6. Public Audience Hall
- 7. Music Pavilion
- 8. Bazaars

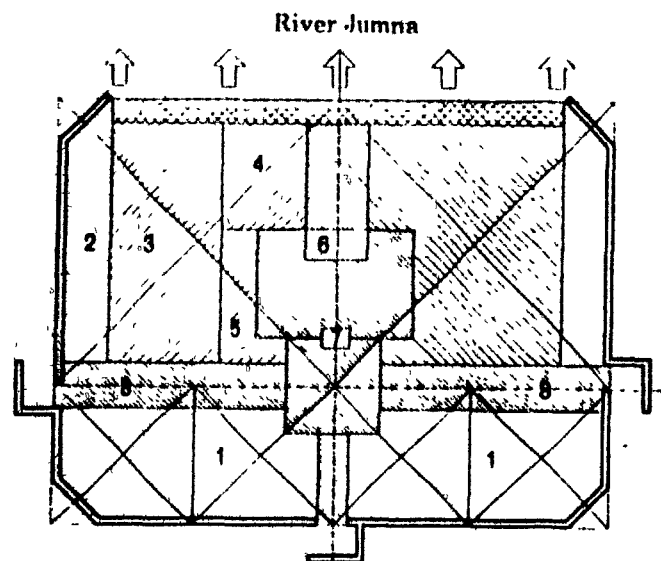


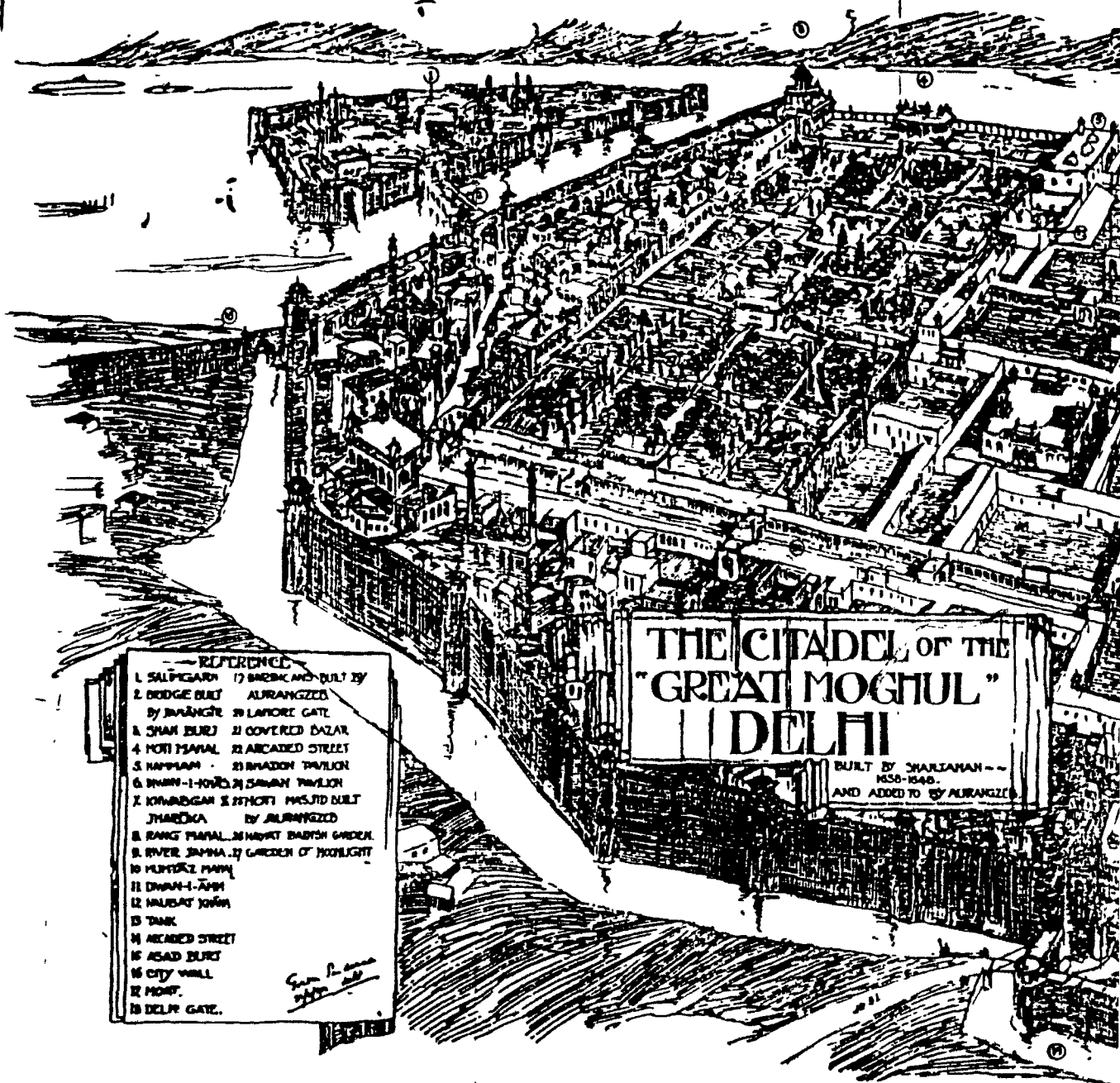
Fig 2.37 Original plan of Red Fort, Delhi
(Utilization Plan)

In the eastern periphery of the fort, on the east-west axis, lie the emperor's private apartments, which form a second axis running from north to south; without exception they are oriented toward the Jamuna. Between the northern part of the bazaar and the imperial chambers there were gardens and offices; to the north of gardens lay the houses of the princes. South of the east-west axis lay the zenana area.

The architectural features of the palace - predominant are pillared halls abutting the walls of the court. Each courtyard is co-ordinated with other areas by its axes, which forms a cross.

Marble halls open on all sides and subdivided here and there monolithic lattices were regarded by the Mughals as the type of building best suited to the hot climate. Only the baths form an exception. These were cooled by chill water in summer, in winter, when hanging carpets provided imperfect insulation for the other rooms in the palace, they could be heated.

The water-course passes through all the halls on the east side. On account its cooling effects it was called the Nahr-i-Bihisht, or 'Stream of Paradise'. This canal was fed, as was the extensive water supply system of the whole fort, from a sluice at the north-east corner of the enclosure wall. This was the terminal point of an aqueduct which began 50 miles upstream near Khirzabad. Even in summer months it provided the palace



- REFERENCE
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| 2. DODGE BUILT | AURANGZEB |
| 3. SHAN BUILT | BY SHAHJAHAN |
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Fig 2.38 The citadel of the Great Mughal, Delhi



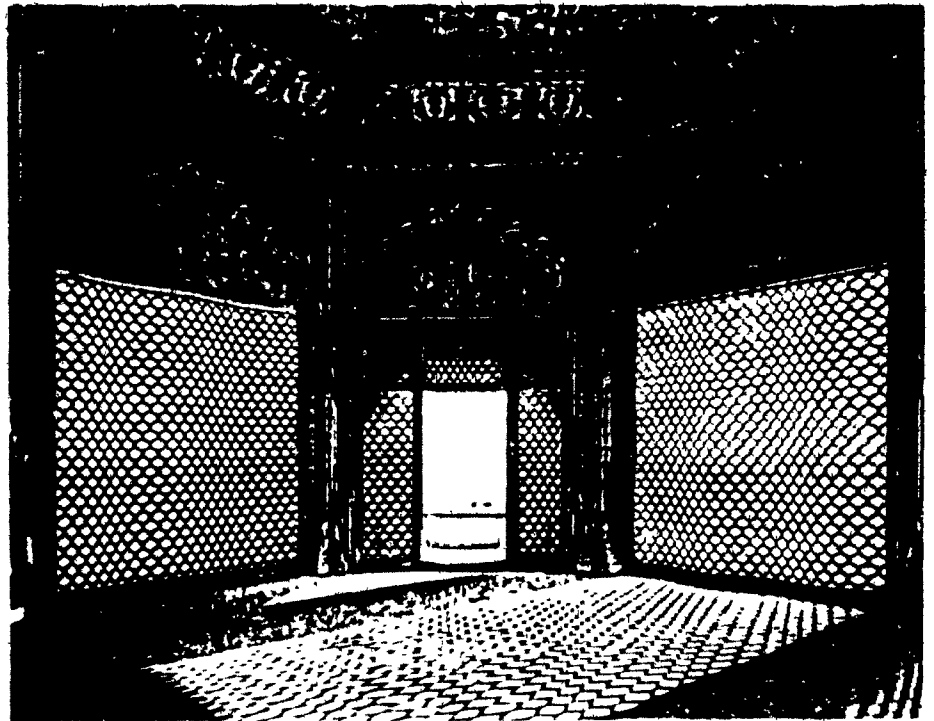


Fig 2.39 Marble Hall with monolithic lattice work

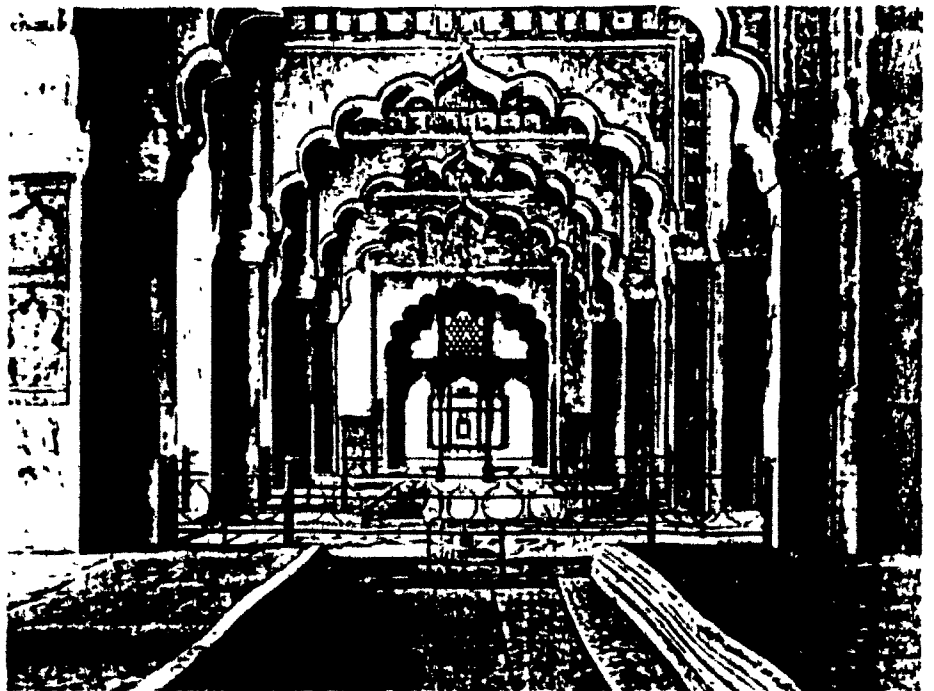


Fig 2.40 Nahr-i-Bihisht through open marble pavilion at Red Fort, Delhi

with fresh water from the upper reaches of the Jamuna.

Francois Bernier, who travelled in India from 1656 to 1668, was granted admission into zenana quarters only once, during the emperor's absence, relates: "Almost each room has a separate basin with running water near the door. Everywhere one encounters gardens, fine avenues, shady bowers, rivulets, fountains grottos and low-lying places which afford protection against the sun, as well as airy halls and terraces suited for sleeping in at night".

The ancestors of the Great Mughals were nomads who preferred the open spaces of the Central Asian steppes to a settled abode. Modelled upon nomadic tent cities and influenced by the grandiose courtyards of Persian caravan serais, the Mughals built the palace in the form of rows of interconnecting courts, cooled them with running water and air, for the slightest breeze could pass unhindered through these pillared halls.

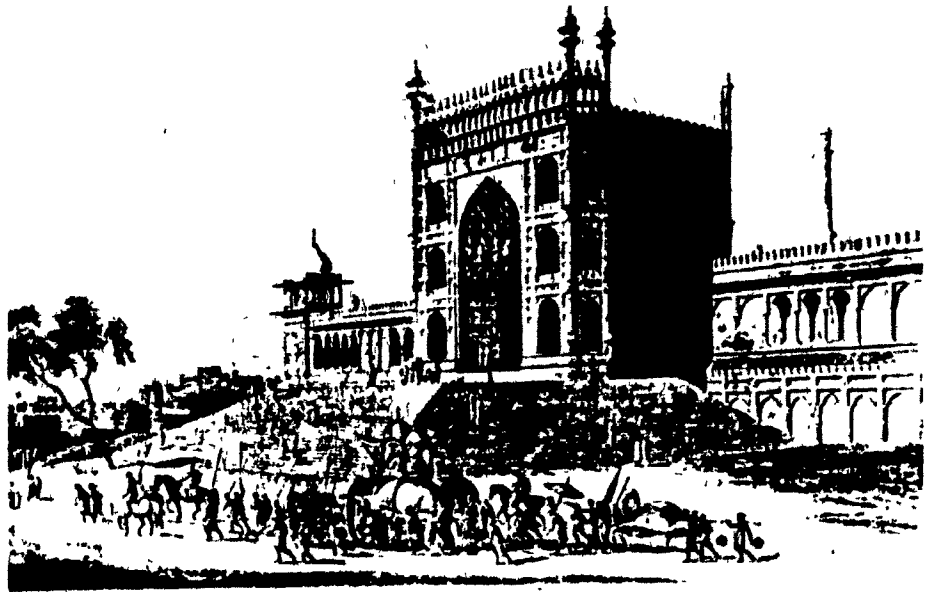


Fig 2.41 The Governor of the Red Fort and his entourage approaching the eastern entrance of the Jama Masjid, Delhi, during the reign of Shah Alam. Drawn and engraved by Thomas Daniell, 1795. British Museum, London

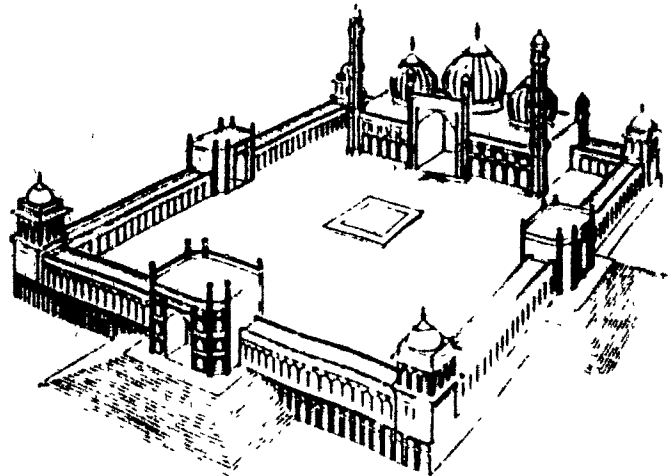


Fig 2.42 Jama Masjid at Delhi. Largest mosque in India, built between 1644-58 by the Great Mughal Shahjahan

6.0 Jama Masjid

The emperor Shahjahan's building plans at Delhi were not however confined solely to the creation of his fortress, as his scheme included a notable structure outside its enclosure. This was a large congregational mosque or Jama Masjid occupying a site near his citadel but at the same time within the precincts of the city, thus providing a place for public worship and also for his own ceremonial usage. (fig 2.41) Begun some six years after the first stones of the fort were laid, it ranks as the largest and most eminent building of its kind in the country. The practice of erecting congregational mosques on a raised foundation has been the means of giving a definitely imposing appearance to this class of structure, many examples of which owing to adherence to traditional forms, are notable for external effect; but this lofty plinth of the Delhi example fully achieved its purpose. Moreover the elevation of the complete composition, as in this instance has enabled its three noble gateways to tower above their surroundings, and to be approached by majestic flights of steps, all of which add height and dignity to the exterior view. Public admission to the mosque is only permitted by the north and south gateways, that on the east being reserved as a royal entrance where formerly a processional route connected it with the fort.

Within these entrances the interior presents an immense stone-flagged

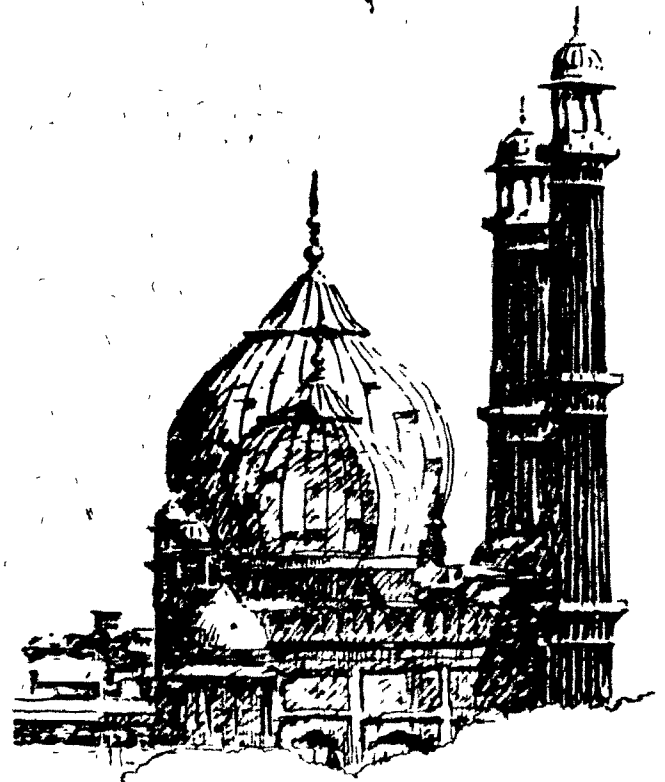


Fig 2.43 Large bulbous domes of Jama Masjid, Delhi

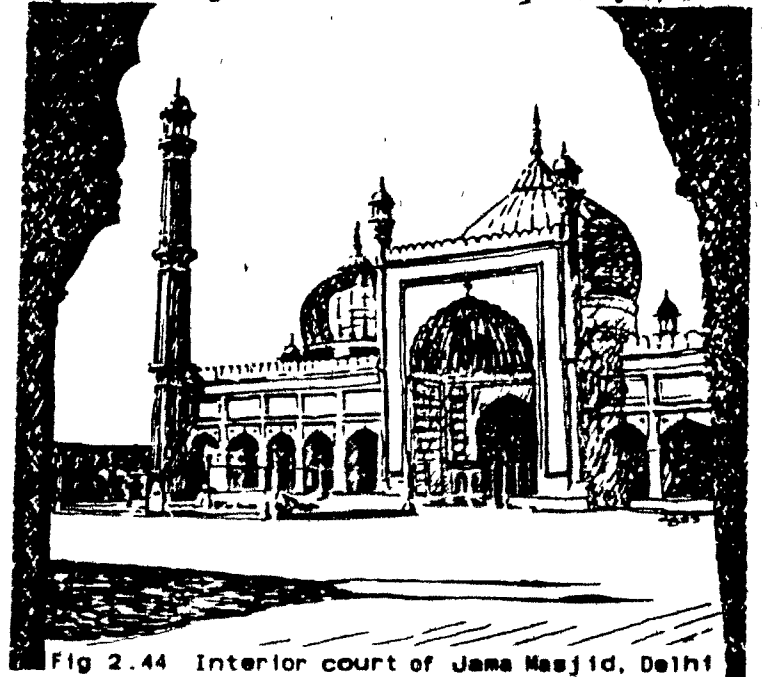


Fig 2.44 Interior court of Jama Masjid, Delhi

quadrangle of 325 feet side fronting the sanctuary, a building of larger size and imposing appearance, remarkable for its bold treatment in red sandstone, the effect of which is accentuated by considerable portions of its surface and also its outlines being in black and white marble. On the three other sides of the courtyard ranges of cloister extend, their long colonades broken in the center by the inner face of the gateways, while the entire open space of the quadrangle is empty except for a square tank in the middle for ablutions. Such a conception causes the eye to be drawn instinctively towards the sanctuary building, the great uninterrupted expanse in front leading up to its facade and making manifest its qualities of breadth and mass. Measuring 200 feet in width and 90 feet in depth, this structure is clearly and intelligibly an archway flanked by an arcade of the engrailed arches, five on each sides forming the wings. At each end these wings terminate in tall minaret of four stages, while over the whole rise three large bulbous domes of white marble.(fig 2.43)

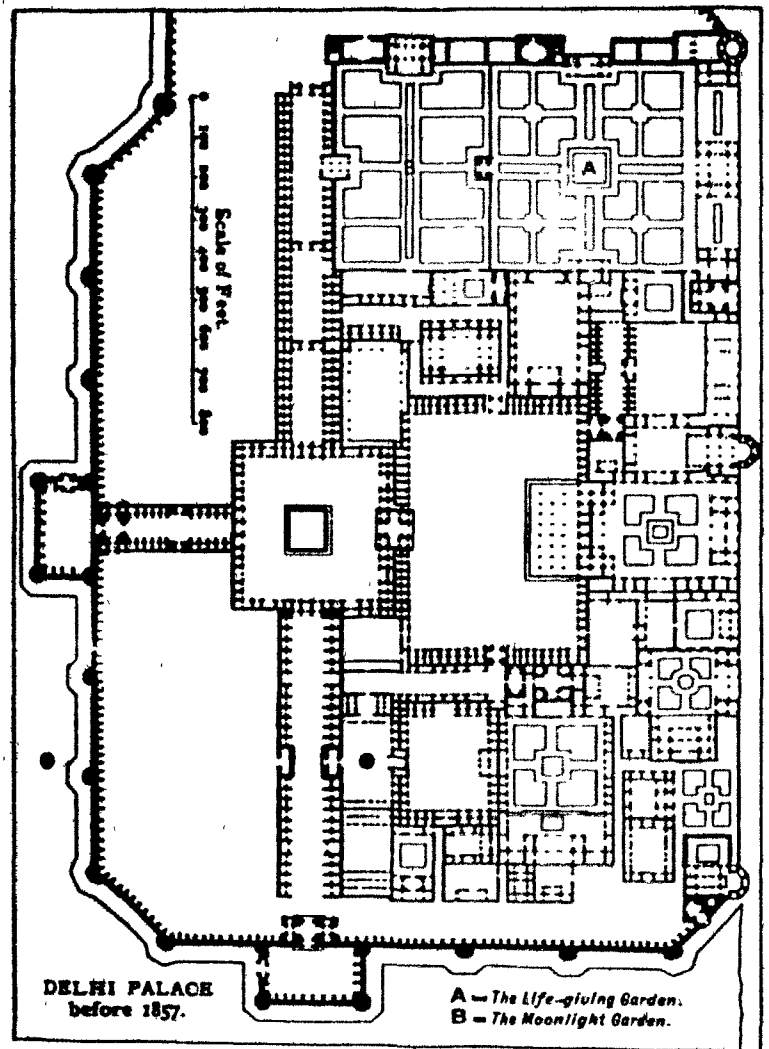
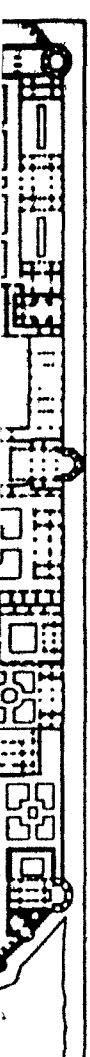


Fig 2.45 Plan - Delhi Palace before 1857 showing gardens



7.0 Gardens

The Gardens created by the Mughal dynasty undoubtedly rank as one of the great landscape traditions in the world. Their characteristics are distinct and their sense of design are impeccable. Water is the running theme throughout.

Shahjahan's major works are entirely urban and belong, more to the field of town planning than to landscape. Magnificent in scale, highly sophisticated in character, and executed with a wholly imperial disregard of cost, the city of Shahjahanabad, was primarily a splendid setting for court life and for the spectacle and ceremonial that court life entailed. The mosque too was designed as a part of the total effect, for the Jama Masjid, rises on its high platform to dominate the surrounding streets.

7.1 Palace Gardens

In his palace at Shahjahanabad the Emperor did not forego the pleasure of spacious gardens. These covered approximately the same area as the zenana, but were separated from it by the Emperor's private apartments. The two large gardens were called Bakhsh Bagh and Mahtab Bagh (Life-giving Garden and Moonlight Garden). The Life-giving Garden, was evolved from the Charbagh with subsidiary centers in diagonals and a water pavilion in the middle. Moonlight Garden no longer exists, but

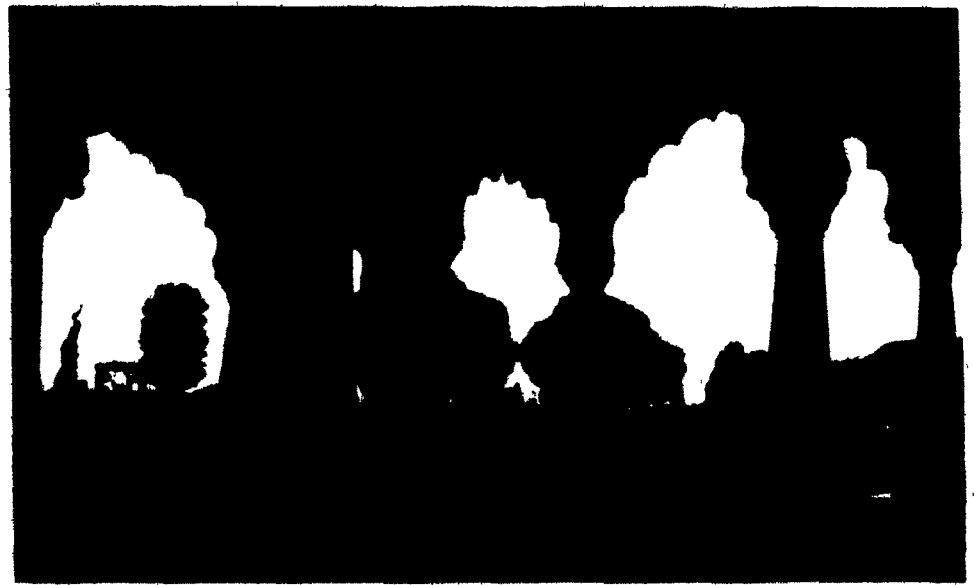


Fig 2.46 Life Giving garden at Red Fort, Delhi

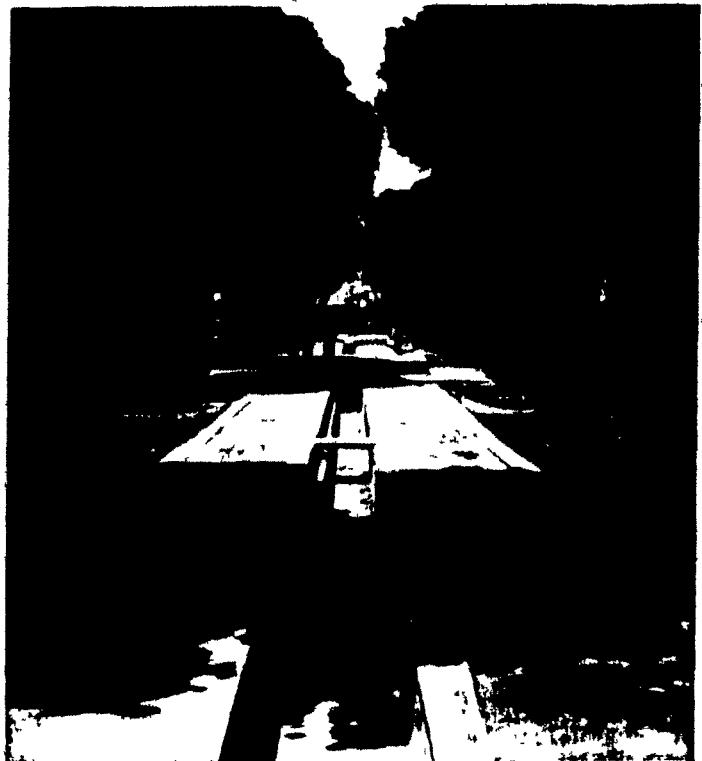


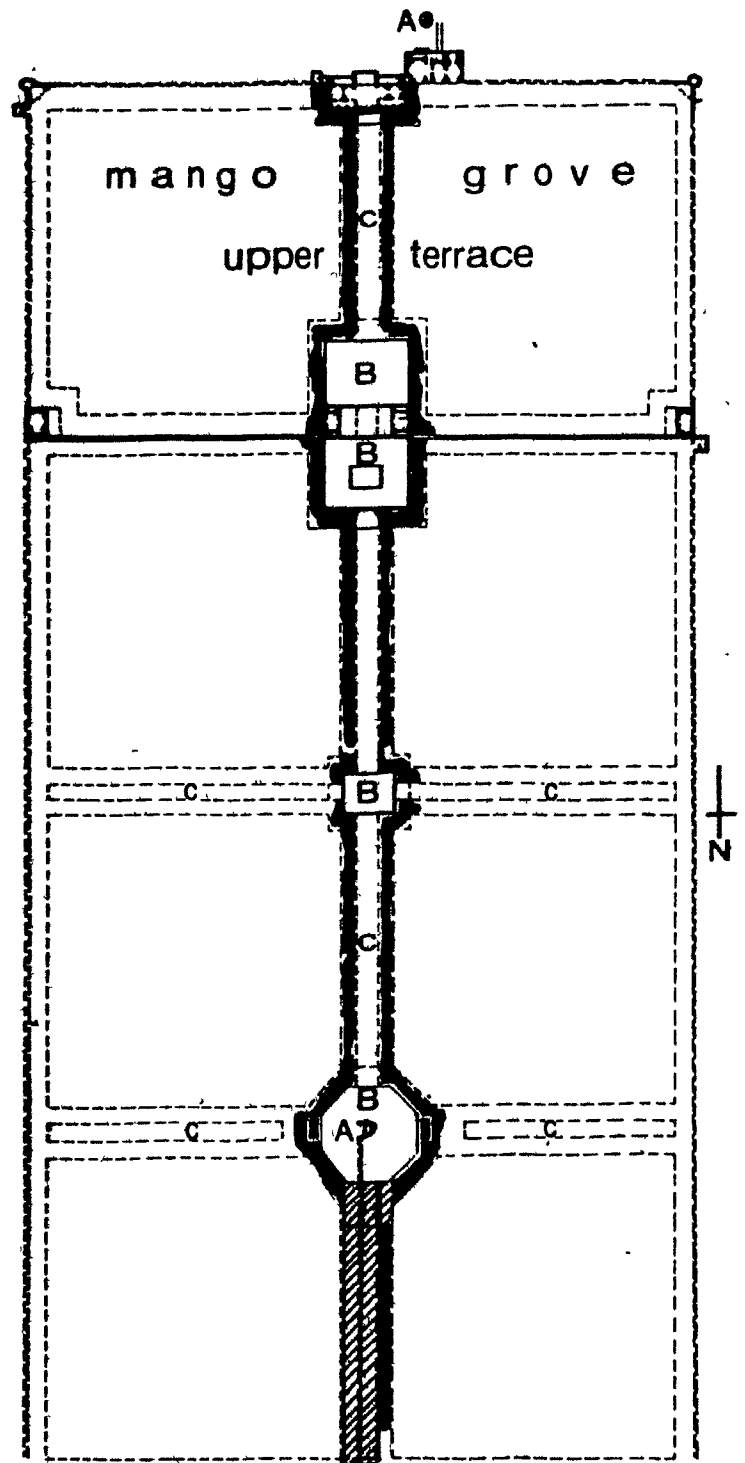
Fig 2.47 Water channel in Life Giving garden at Red Fort, Delhi

much of Life-giving Garden remains. (fig 2.45)

Along the terrace to the river was a water parterre, terminating in the beautiful little Shah-Burj pavilion, with its own fountain and water chute. Each of the canals had forty-nine fountains while the central had no less than forty-nine fountains inside and a hundred and twelve on the four sides. Each was plated with silver. Water falls fell from the pavilions and in the arch-shaped niches below them, gold and silver pots were placed, containing silver flowers by day and candles by night. Richly planted, the colors of the Life-giving Garden were predominantly crimson and purple and the scent prevailed the garden. The Moonlight Garden, by contrast, was planted with pale flowers only, while both gardens were enclosed by rows of cypresses.

7.2 Shalimar Garden

Lying to the north-west of Shahjahanabad, close by the Grand Trunk Road near Badli Sarai, was once yet another pleasure garden, comparable to those of the same name at Lahore and Srinagar. It was laid out by Shahjahan's favorite wives, A'Azza-un-Nisa, and evidently the Shalimar Bagh in Srinagar had been her inspiration. Its remains are recorded in a plan showing a garden of considerable size, its main feature being a central canal about eighteen feet wide, which ran the full length of the

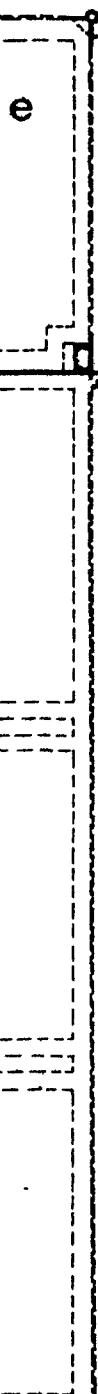


A=wells

B=tanks

C=canals

0 100 200 300 400 500 feet



garden.(fig 2.49)

The upper terrace stood some nine feet above the lower, and the change of level was a complex of tanks and buildings, with 'rows of pearl showering fountains'. Some distance below lay an octagonal reservoir, and from the records, it would seem that this reservoir originally marked the middle of the garden with a third and even larger terrace below it.

It took four years to build, and was opened ceremonially by the Emperor in September 1650, the occasion being marked by a festival. Bernier, visiting it, described as 'regal and beautiful, but a mere shadow of Fontainebleau or Versailles'. By the end of the eighteenth century much of the garden had already been destroyed.

Fig 2.49 Shalimar Garden, Delhi. A plan of the remains, prepared by the Archaeological Survey of India in 1903. Minor canals cross the principal ones.

8.0 Summary

Shahjahanabad, the last of the walled city of Delhi, assimilating the best of traditions, was built by the Emperor Shahjahan, the grand builder, in 1638 on the right bank of the river Jamuna. While almost all the ancient cities of Delhi fell into ruins, Shahjahanabad is still a thriving city and has now become the core of a vast extended metropolis accommodating the central business district.

Unlike the Hindu rulers, who mostly built planned cities, the Mughal ruler built first the wall and then a few landmarks within the wall. The walled city, thus built, imposing little restrictions on building and often grew organically in a web like pattern, within this peripheral wall and towards the landmark. Quila-Mulla, or the Red Fort, was built beside the Jamuna river, and a promenade, Chandni Chowk connected the palace with the Fatehpuri Mosque. The houses of aristocrats and businessmen abutted this promenade. South of this axis, Jama Masjid was built on the hill. Spaces formed by this kind of organic development - courtyards, streets and public squares look in on themselves and integrate the structures of the city. Shahjahanabad was thus an introverted city. For this essential city, the size had to be kept small. many outlets to the country-side were provided through various gates.

Chapter 3

Delhi

1857 – 1911



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1.0 Introduction

The main variables affecting Delhi's physical-spatial development in the second half of the nineteenth century are those of the power-relationship of colonialism and the introduction of industrialization. The period is characterized by five inter-related developments.

The first was a drastic modification in the structure of the large segments of the walled city as well as on parts of the immediate environs. Two culturally and functionally specialized areas were created, one colonial, and primarily military and administrative, the second indigenous, and primarily residential, commercial and industrial.

Related to this was the effective segregation of representatives of the two cultures, with the city wall, as well as extensive physical space, acting as the barrier between them.

The third development is the emergence of the colonial urban settlement of the Civil Station as a relatively independent self sufficient cultural area, with most of its essential requirements.

The fourth results from the introduction of technology into the indigenous city and its immediate region. This technology, including the railway, electricity, water supply and waste

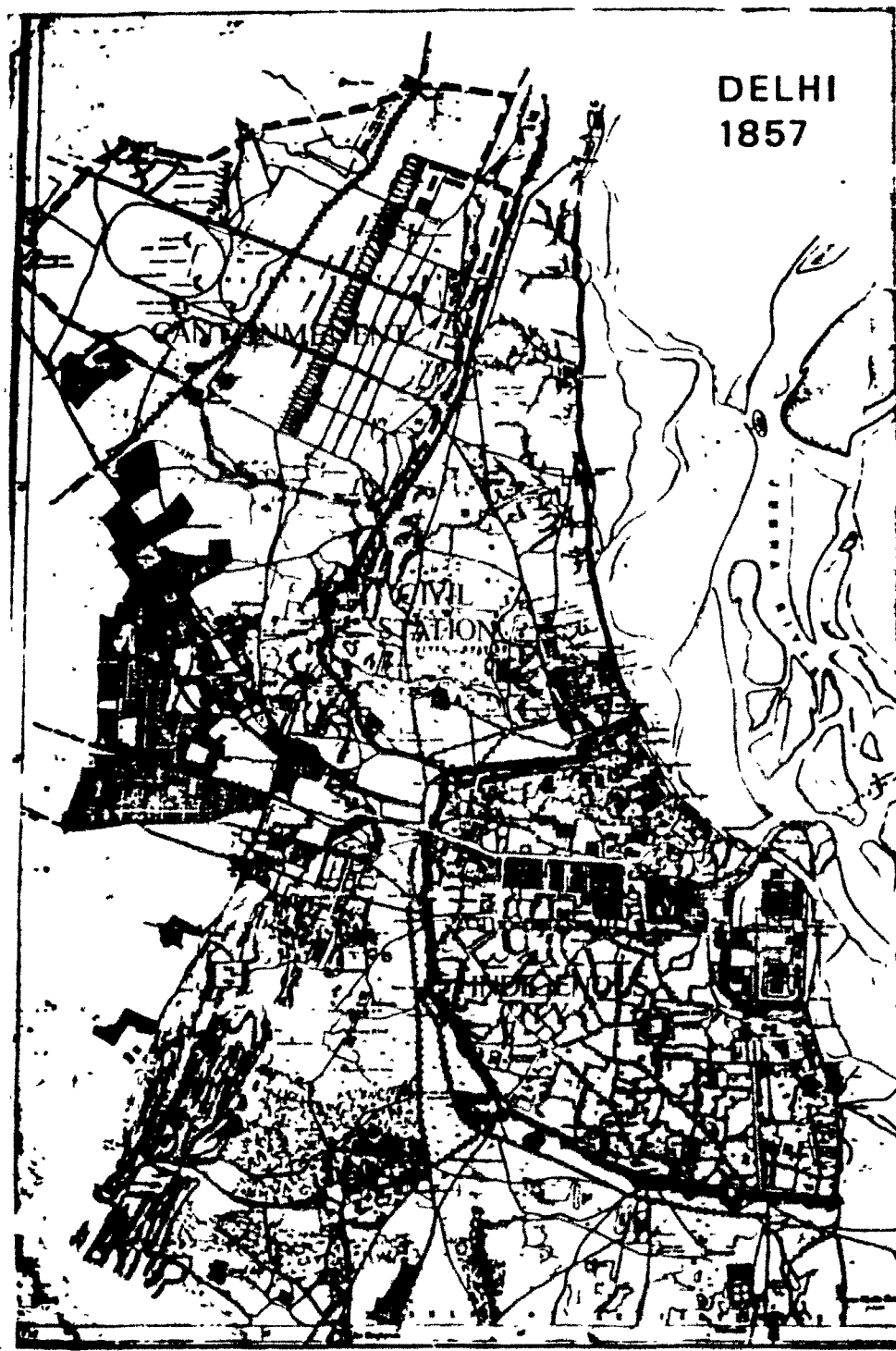


Fig 3 01 Map of Delhi in 1857

disposal systems and a road system suitable for automotive transport, was selectively introduced, priority being given to specific areas of the city.

Finally, the fifth, partly resulting from these technological innovations and partly from the political processes of colonialism, the immediate urban region of Delhi was greatly extended. In analysing these developments, attention is paid to the effects on the city resulting from what now became the total monopoly of government over the entire walled city and its environs by the colonial power.

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2.0 The Effects of 'Total Control of Government' on Shahjahanabad

Although the titular head of Delhi population, the Mughal Emperor, had been dependent on the occupying power, he had retained control over the royal palace (Red Fort) and what was practically a self-contained town within its walls. In earlier decades the 'Indian Ruler' and incoming 'Foreign Resident' had been on cordial terms. Treated with respect, the Emperor had commanded support in the city and the loyalty of the local elite.

His involvement in the mutiny formally ended the Mughal Empire in India. The Emperor was exiled, the palace confiscated. The slaughter of Europeans prior to the siege was followed by the slaughter of the local Indian population once entry to the city had been gained. The entire population, both Hindu and Muslim, were driven out and only gradually allowed to return. In 1859 a visiting journalist referred to the 'miserable sheds in which the outcast population of the city, forbidden to return to their houses, are now forced to live... For miles they stretch along the roadside'.¹ The total population decreased from 160,270 in 1846 to 141,709 by 1863.²

The monopoly of the government by the incoming culture was now based, not on the 'acquiescence' of the local ruler, but on the presence of the military force. The first requirement,



Fig 3.02 View - area in front of Jama Masjid
demolished after the Mutiny



Fig 3.03 View of garden around Jama Masjid

therefore, was military accommodation in the most strategic, visible sector of the city. This was the royal palace. Within this, most of the buildings were either demolished or occupied by European troops until their own four-storey barracks were built some years later. The official designation of the complex was changed from the 'Royal Palace' to 'Delhi Fort'.

Round the fort a strip of territory 500 yards wide, was zoned for military use. To provide a clear firing range from the ramparts, the built up area, previously existing between the main mosque and the palace, was totally demolished.(fig 3.2,3.3) Open ground to the rear of the mosque was laid out in gardens and a 500 yards security zone set up round all the city walls.³ Here, building was prohibited and agriculture restricted.

The cantonment was re-established in 1859, after removing in 1828, 3 miles away from its original location in 1803. It occupied an area enclosed on three sides by city walls running from Kashmiri Gate, down the eastern wall and round to Delhi Gate. On the west, the boundaries took in the entire area of garden surrounding Delhi Bank (previously Begum Bagh) and the cleared ground fronting the Jama Masjid. South of the Fort, property was confiscated and cleared so that the occupied area, previously bounded by the Daryaganj road running diagonally through the neighborhood, now reached as far west as the Faiz Bazaar which ran between two 'Delhi Gates', in the southern wall of

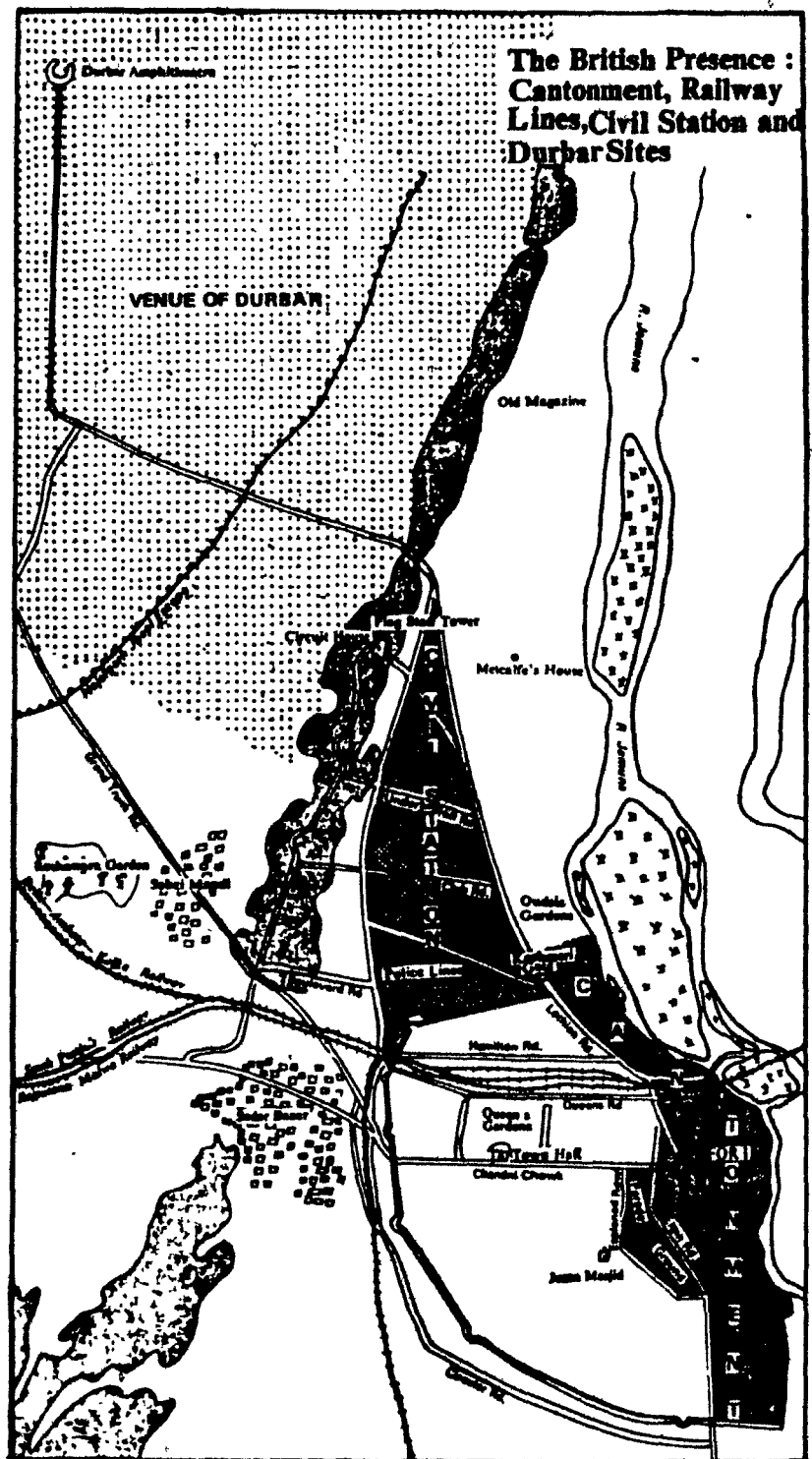


Fig 3.04 Plan of the British presence around Shahjahanabad

presence :
Railway
station and

the palace and the city wall. Mosques and houses were also taken over for accommodation of troops. The ground in front of the fort was used as the cantonment parade ground. Effectively, the cantonment occupied one third of the spatial area of the city, some 468 out of a total 1,437 acres enclosed by the city walls.(fig 3.1) In 1882, some 1,260 troops were stationed here with accommodation for a further 250 European soldiers in the fort barracks.⁴

These developments had an important effect on the socio-spatial structure of the city. Tendencies already apparent before 1857, were now given full expression. Within the cantonment, European troops were strictly segregated from Indian troops, the latter being located in the 'native infantry lines' outside the Fort.

Many European civilians moved out of the city to the Civil Station and those members of the local elite who had survived the outbreak were moved away from Daryaganj into the city on either side of Chandni Chowk. Occupants of dwellings demolished for the Military zone either crowded into the indigenous sector of the city or joined the rapidly growing 'squatter settlements' in the suburbs of Paharganj. These, including Sabzi Mandi and Pahari, had existed since at least 1830s. Maps of 1867-68 show that they were relatively small at that time.

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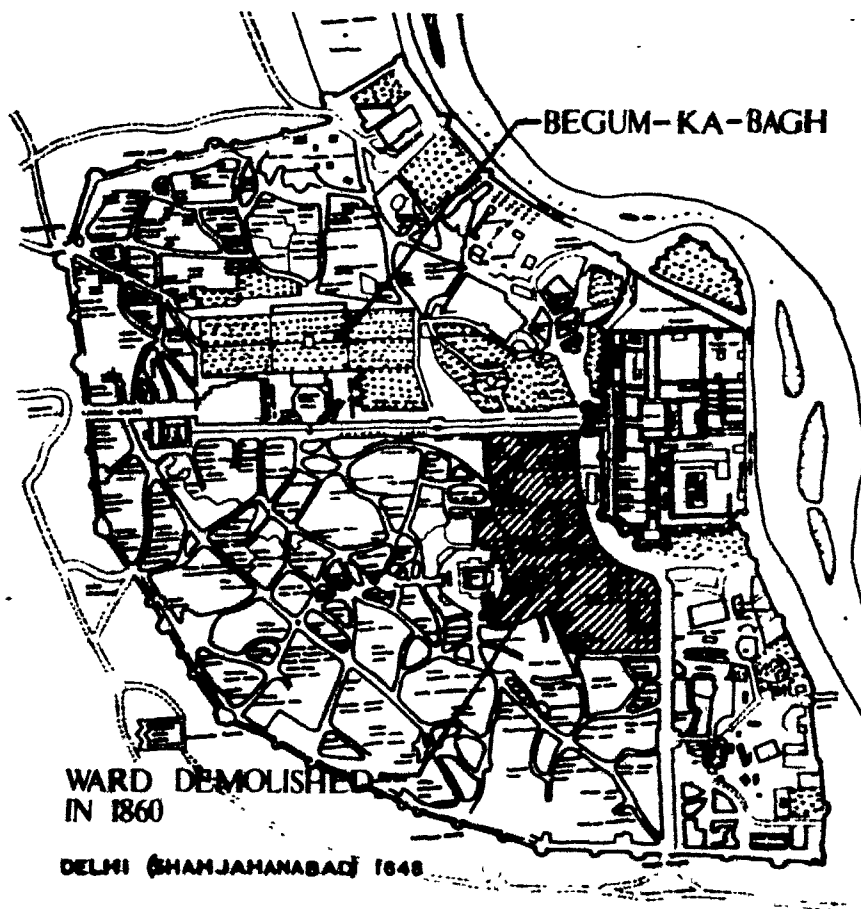


Fig 3 05 Plan of Shahjahanabad, Delhi - 1648

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The most important component defining the structure of the city was the wall. As a result of industrialization, population growth and introduction of new forms of transport, the medieval cities in Europe were transformed, their walls demolished or made ineffective as containers of the modern industrial city. In Delhi the situation was different. Between 1857 and the end of the century, despite suggestions to demolish various sections, the only openings in the wall were made for railway developments. The reason for its retention was that of 'military security'. With the continued expansion of the city outside the wall, this reason became obsolete. Not only was there no pressure from the British Government to demolish the wall but members of the Indian community also restricted its destruction.⁵ Though demolition of a large section was again considered in 1927, as a solution to the problem of overcrowding, the proposals were over-ruled by the government. As a physical barrier, most of the wall remained intact until the formal ending of British rule. It was not substantially removed till 1950.⁶

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3.0 The Residential Requirements

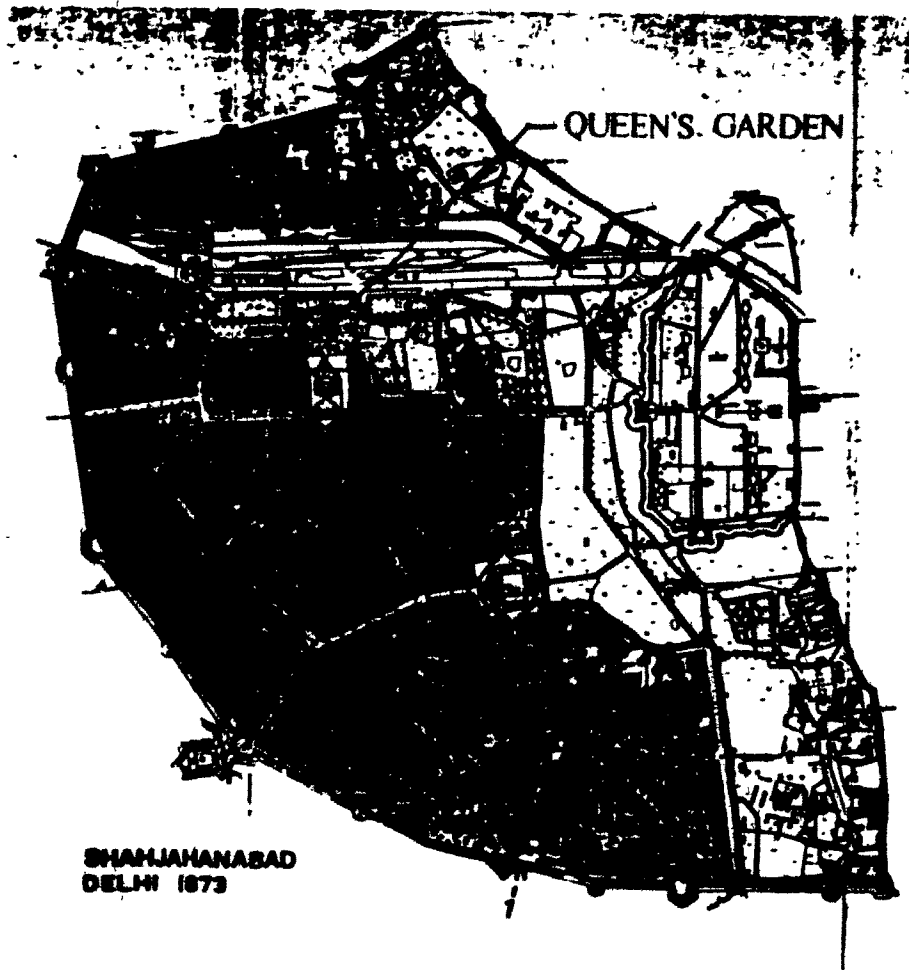
The effects of the military aspects of the government were mainly on Shahjahanabad. The results of the civil dimension of the colonial power were to be seen, over the next half century, in the expansion of the Civil Station.

Responsibility had been formally transferred from the 'East India Company' to the metropolitan government in 1858. As a result, the number of the metropolitan society in India, including the region of Delhi, increased. Out of a total city and suburban population of some 160,000 in 1847, Europeans had numbered about 300, less than 100 families. By 1864, in a city population of some 142,000, this had grown to between 1000 to 1500. By 1881, of a population of 173,000 there were some 1,800 Christians, of whom just less than 1,500 are likely to have been Europeans. About 500 of these were military personnel.

Following are the population figures for the metropolitan city of Delhi between 1847 -1911

Year	Population	Percentage Increase
1847	160,279	
1868	154,417	-3.7
1881	173,393	+12
1891	192,579	+11
1901	208,575	+8
1911	237,837	+12

(source: Bopegamage, 1957, p 33)



SHAHJAHANABAD
DELHI 1873

- CANTONMENT
- - - EXTENDED COLONIAL CULTURE AREA

Fig 2.06 Plan of Shahjahanabad, Delhi - 1873

For many of the civilian members of this community, the main residential sector increasingly became the Civil Station, separated from the indigenous city by the north wall, the 500 yard military security zone, a newly established 'Government Garden', the Qudsia Garden and a new burial ground established in 1861. The nearest houses were a third of a mile north of the city wall.

Ten years after the outbreak of mutiny of 1857, some thirty European bungalows had been established in three small groups, each with its characteristic two to three acre compound drive, stables and servants' quarters. All were solid masonry structures. The 'mud dwellings' which characterize the other two suburban developments to the east, in Sabzi Mandi and Paharganj, were entirely absent from the Civil Lines area. For the convenience of the inhabitants and for the access to the old former cantonment, all major roads had been metalled and shade trees planted on either sides.

The growth of the Civil Station, and the improvement of service roads after 1860 served to strengthen the north-east section of the city, behind Kashmiri Gate, as the principal European sector of the city. Here, particularly with the establishment of the cantonment in 1861, further provision was made for the religious, educational, economic, social and recreational institutions of the European community now resident in the Fort, Civil Station and to a lesser

extent, in Daryaganj. The extensive formal gardens, watered by the canal and laid out according to the geometric preferences of the seventeenth century Mughal founders of the city, were now re-modelled according to the values of the metropolitan society and re-named the 'Queen's Garden' after the head of state. (compare fig 3.5 and fig 3.6) New roads were laid out: Hamilton Road, slicing off the northern area of the city; Queen's Road, running parallel and north of the Queen's Garden; Lothian Road, running north-east from Kashmiri Gate to the Fort; Elgin Road, cutting straight across the Fort to join up with Daryaganj; Nicholson Road, marking the southern extremity of the occupied area; Esplanade Road, typically dividing the military zone from the area of indigenous occupation. The new occupants of the Fort now manifested their cultural supremacy by changing the names of the two main gates, from 'Lahore' and 'Delhi' to 'Victoria' and 'Alexandra'.

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Fig 3.07 St. James Church, Kashmiri Gate, Delhi

4.0 The Religious Requirement

The main religious building, the church of St James (fig 3.7) catered only for the 'Protestant' section of the European community, of whom there were some 1,500 Indian and European, adherants in Delhi in 1860s. With the increase in total numbers, as well as the intensification of 'missionary' activity, by 1865 provision had to be made for some 700 'Roman Catholic' inhabitants, in a 'chapel' constructed within the cantonment area, north of the gardens surrounding Delhi Bank. 'Missionary' activity was stimulated rather than diminished by the conflict of 1857 and a small 'mission house' was established south of Paharganj.

Religious values were also instrumental in bringing further changes to the indigenous culture. The first was in the socialization of the young; the second, in the treatment of the sick. In education and medicine, systems of ideas and behavior were introduced which had significant influence on the built environment of the city. By 1883, some thirty-two small schools had been established and provision made for an 'industrial school' and training of teachers.⁸

This process of direct cultural change was intensified after 1877. In addition to the schools, a 'college' catering for the Indian community was established in 1865 and 'St Stephen's College' in the European culture area of

Kashmiri Gate in 1881.

The use of education in the language and culture of the colonial society had long been recognized as an instrument of cultural change.' In addition to 'missionary schools', other 'Government schools' and 'Colleges' were introduced as part of government policy, the largest being set up in the old Residency and in Chandni Chowk.

To compete with traditional medical systems, Western medicine was introduced.

The 'historical' orientations of the colonial community combined with religious beliefs to affect the built environment in other ways. Localities associated with the conflict of 1857 were commemorated with 'monuments' whose function was both religious and political. The most prominent of these, the 'Mutiny Memorial', was erected in 1870 on the highest point of the Ridge where intense fighting had taken place during 1857.

Over the decade, this and similar places, acted as centers of pilgrimage for the colonial community and visitors from the metropolitan society. Not only were the important landmarks in structuring the perception of physical-spatial areas but, as symbols in the evolving mythology of the colonial community, they helped to pattern activities and were instrumental in determining future directions of urban development. Thus, when the new city was

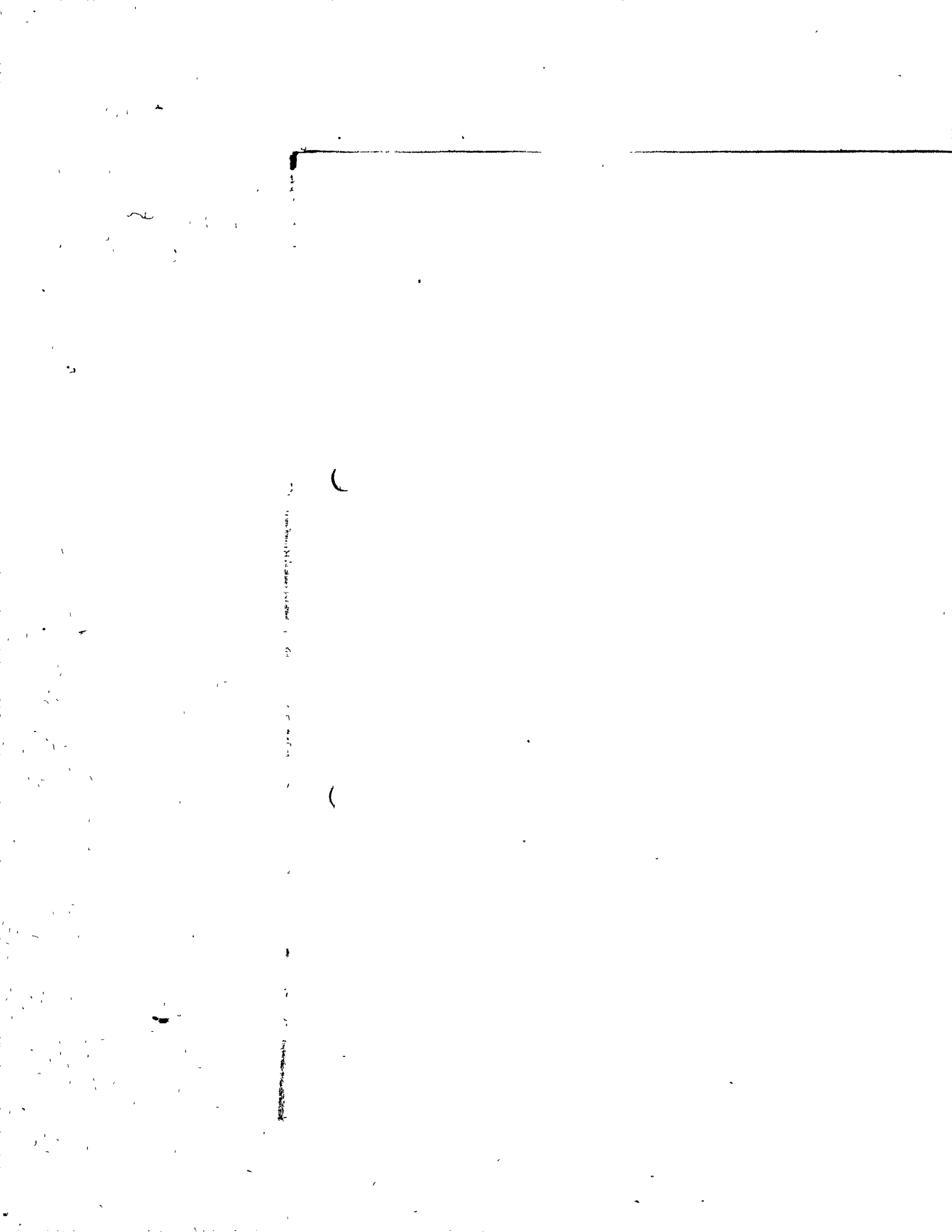
being planned in 1912, it was decided that 'the Ridge' would not be built on because of its historic associations. As each city makes its own cultural history and embodies it in the creation and preservation of significant physical-spatial areas, so the colonial city of Delhi, increasingly incorporated the collective past of its new occupants, incorporating their history into its urban form.

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5.0 Economic and Commercial Need

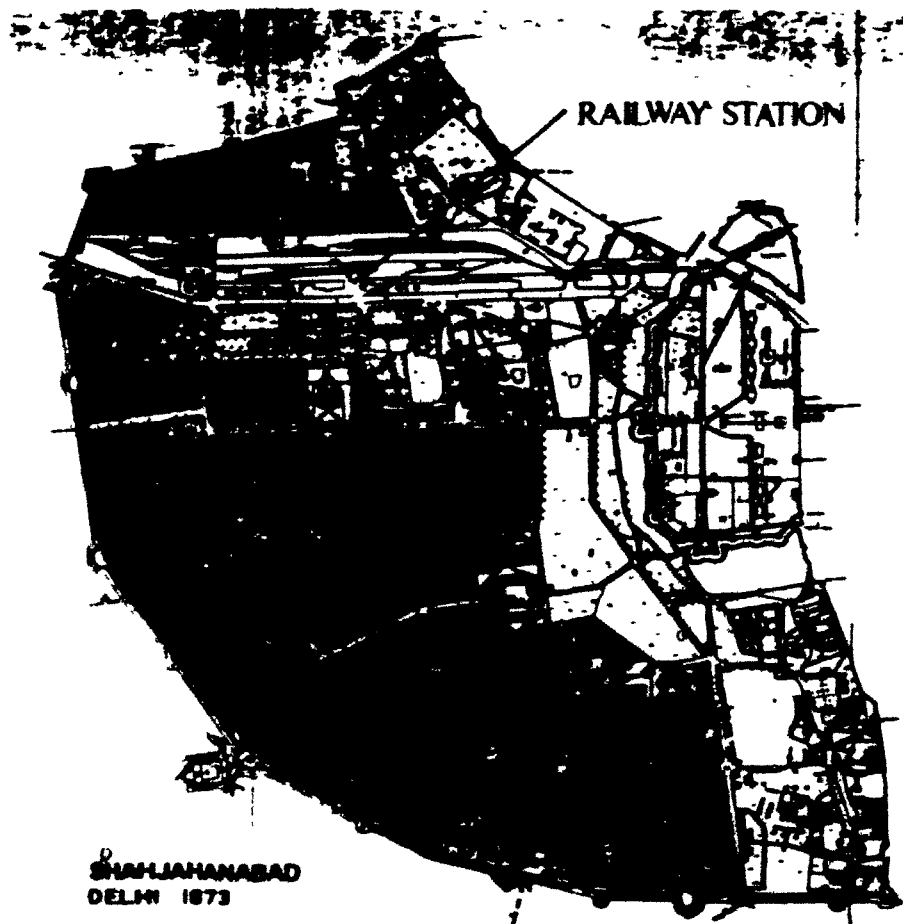
The economic needs of the European community was mainly met by the local society. Culture-specific furniture or clothing were made by local craftsmen using imported items, or pictures of these as models. At first, such craftsmen were located in Chandni Chowk. As the European population moved to the Civil Station, they increasingly occupied premises in the area of Kashmiri Gate.

Two important economic services not easily supplied by the local community were those of providing accommodation and preparing food for the visiting Europeans. For these purposes, the 'hotel' was introduced.

In the early days of the European settlement in Delhi, travellers had been accommodated in private dwellings. Increasing government control after 1857 increased the flow of short-term visitors and therefore the need for accommodation.

The ever increasing number of travellers led to the provision of hotels, the first of which, typically was located in the European sector behind the church.

Apart from the immense impact made by the military needs of the government, the most significant influence on the physical-spatial environment arose from the diffusion of metropolitan technology. The railway had been introduced into India just before the mid-century. The



SHAHJAHANABAD
DELHI 1873

Fig 2 08 Plan of Shahjahanabad, Delhi - 1873 showing
the introduction of railway in the City

events of 1857 had accelerated the need for extending this new means of communications and control to the major cities of India. By 1862 the Calcutta Gate or the north-east side of the city had been demolished to permit the East India line to enter over the Salimgarh Fort.

A part of urban land was cleared, north of the Queen's Road and as far as the eastern wall, to accommodate the line, sidings and the station. With the modified area, the introduction of the railway greatly extended the influence which the incoming culture made on the physical forms of the city.(fig 3.8)

With the new bridge over the Jamuna completed, the first regular train from Calcutta entered Delhi in 1867.¹⁰ Though these developments breached the walls at two places, causing the demolition of Kabul, Mori and Ajmeri Gates to permit the increased flow of traffic generated by the new stations, the remainder of the wall remained intact. Only in 1906 was the eastern wall, between Kabul and Ajmeri Gates, demolished.

Other urban technology was introduced. Between 1890 and 1910 a new water distribution system was installed. Storage tanks and a pumping station were constructed. Within the city, its European population equally affected the consequences of pollution, a new sanitation system was introduced which, by 1910, was bringing sewers into the suburbs of Shahjahanabad and Paharganj.



Fig 3.00 Victoria Clock Tower, Chandni Chowk, Delhi

Electricity had been introduced before the end of the century. Though this was available to both private houses and for public thoroughfares in the Civil Station, in the city it was conformed to the main streets. An electric tramway, begun in 1908, connected Sabzi Mandi, the railway station, Chandni Chowk and Jama Masjid.

The main symbol of this technological transformation, and the new institutions of urban government introduced in the 1860s, was the 'Victoria Clock Tower' erected in the most prominent thoroughfare in the city, Chandni Chowk, in 1873. (fig 3.9)

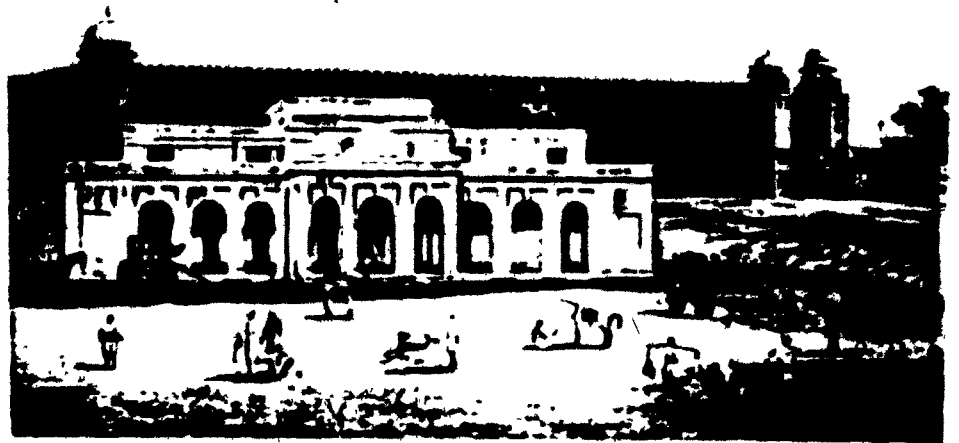


Fig 3.10 Delhi Club before 1857, south of the Palace

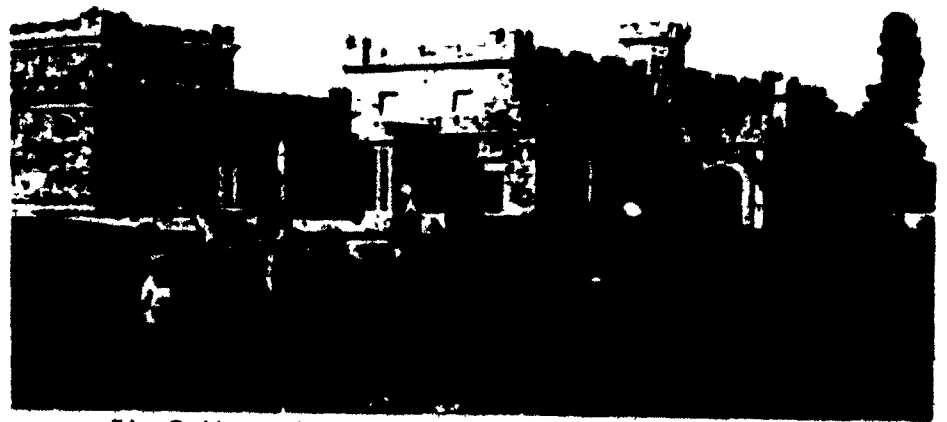


Fig 3.11 With growing racial distance: Delhi Club after 1858, in Ludlow Castle

6.0 Social Institutions

As European community grew, patterns of associations and behavior characteristic of metropolitan cities were introduced. Between 1862 and 1864 the 'Delhi Institute' was built, situated in the center of Chandni Chowk, at the heart of the indigenous city. Described in 1873 as one of the largest buildings in European style in India, it was symbolic of the new awareness of urban government. Within the building, in addition to the offices of the new municipality, created in 1863, were a 'Durbar Hall', the 'Station Library' (reserved for European residents), rooms for social activities, and a museum."

The museum, an institution arising from the historicist values of the metropolitan society, had been started by the European elite of Delhi earlier in the century. At first lodged in the college, the artifacts had later been transferred to the Audience Hall of the Fort. The museum consisted of 'objects of science, art and commerce'. Items of local craft, industry and art were also included.

As European residential preferences increasingly favored the Civil Lines, it was natural that the club should follow. Suitable premises existed in Ludlow Castle which, towards the end of century, were taken over for the Delhi Club.

7.0 Accommodation of Recreational Activity

Within the area of Shahjahanabad, recreational accommodation increased. In addition to the opportunities created for social and intellectual exchange at the Delhi Institute, a library was built. Behind the Institute, the Queen's Garden was further adapted to meet the expectation of colonial culture. In 1873 the area was seen as being 'very tastefully laid out in the English style'.

Apart from specialized recreational provision, the city itself and its environs provided opportunity for leisure pursuits. The Civil Lines provided a suitable restful environment, with its own compliment of parks and gardens. By 1865, the influence of this area on the city had led to Kashmiri Gate and Mori Gate in the northern wall being those 'principally used by Europeans'.¹²

CONORATION DURBAR.
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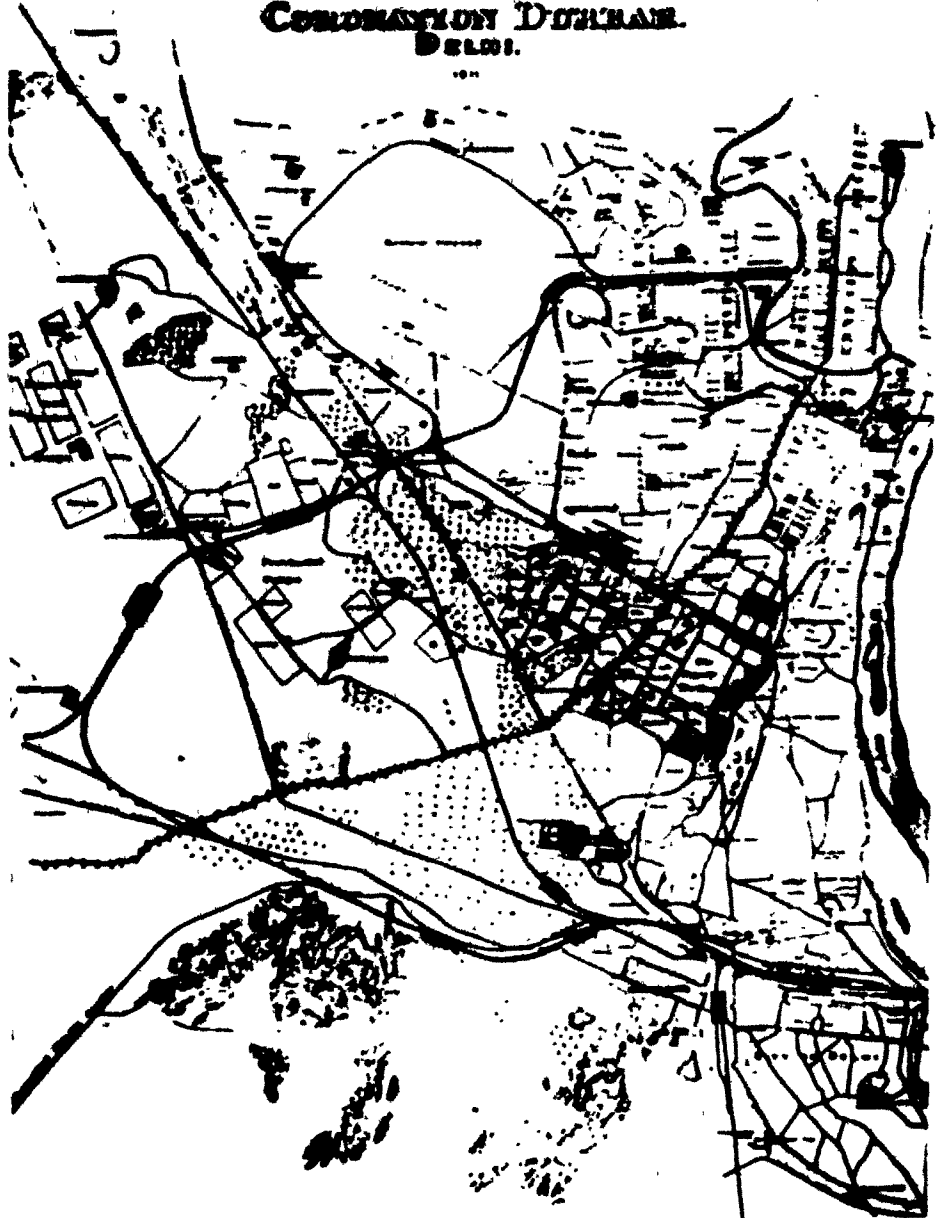


Fig 3.12 Durbar Site, Delhi

8.0 The Darbars: Extensions of Government

By the early 1870s, the requirements of the colonial government had resulted in the extension of Delhi's spatial boundaries by an area roughly two and half times the size of the walled city. Over the following four decades, another thirty square miles were to be added as a result of three imperial 'darbars'.

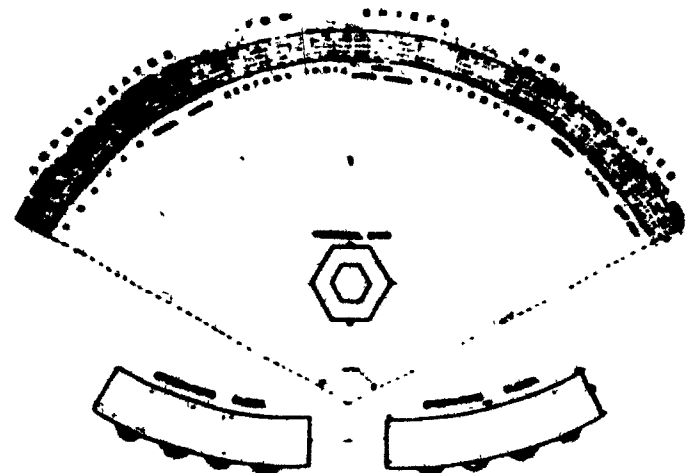
The assumption of responsibility for India by the government in 1858 was followed in 1877, by the declaration of the head of that government as ruler of the 'Indian Empire'. The darbars which followed may be seen as forms of institutionalized ritual to legitimize the new relationship.

The darbar was an indigenous institution. In this, the rulers appeared in the presence of their dependent subjects. It permitted those in authority to communicate to their dependents and vice versa. Particularly in pre-literate societies, the darbar acted as a visual symbol both of presence and power of the ruler and his continued existence.

By gathering the heads of the 'native states' in Delhi, a place for centuries associated with the ruler of India, and by exhibiting them in a subordinate position to the representative of the ruling power. The visual demonstration of this authority by the display of military power also had



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ENLARGED PLAN
 OF THE
 IMPERIAL DARBAR AND AMPHITHEATRE.

Fig 3.13 Imperial Darbar and Amphitheatre, Delhi
 Durbar, 1877

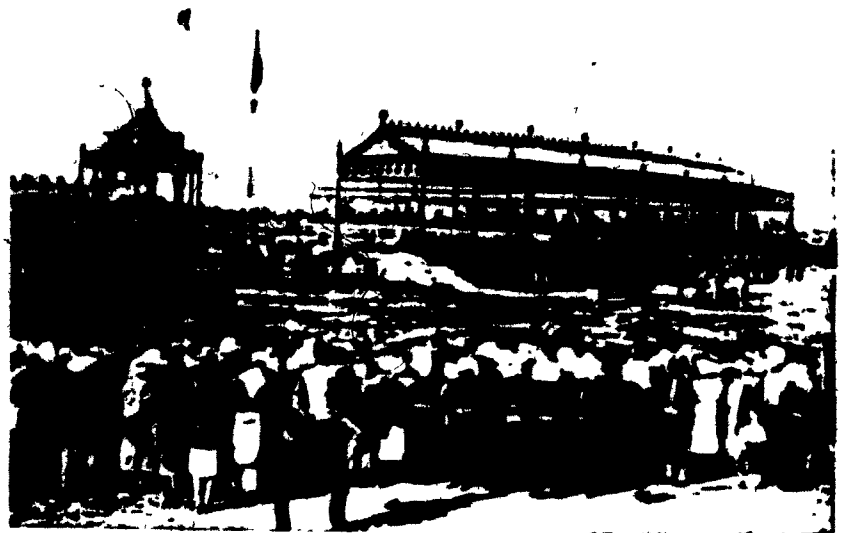


Fig 3.14 Durbar 1877

important effects on those participating as well as those who merely observed. In this display of power, the sources of power and the social and political relationships which power confers were demonstrated in symbolic forms of communication such as the necessity of allocating appropriate distances between 'King-Emperor' and members of the local elite, clearly have important spatial implications. It is these which make the durbars significant for the further development of Delhi. Three durbars were held, the first in 1877, to proclaim the assumptions of the title 'Empress of India' by the metropolitan head of state; the second and third in 1903 and 1911, to celebrate the 'coronation' of the new occupants of the Imperial Throne. As the third occasion was attended by the 'King-Emperor' and 'Queen' it provided the most extensive example of the ceremonial process.

The durbar of 1877 established the site. The area chosen lay north-west of the Rajpur cantonment and Ridge. The boundaries ran east-north-east to take in the site of what was to become the Durbar Amphitheatre. The site was retained and enlarged on the two following occasions. (fig 3.12)

The major spatial components were the tented camps of the Indian and colonial elites, the 'review ground' for the various durbar activities, the amphitheatre for formal ceremonial activity and areas for servicing, roads, water supply, sanitation and

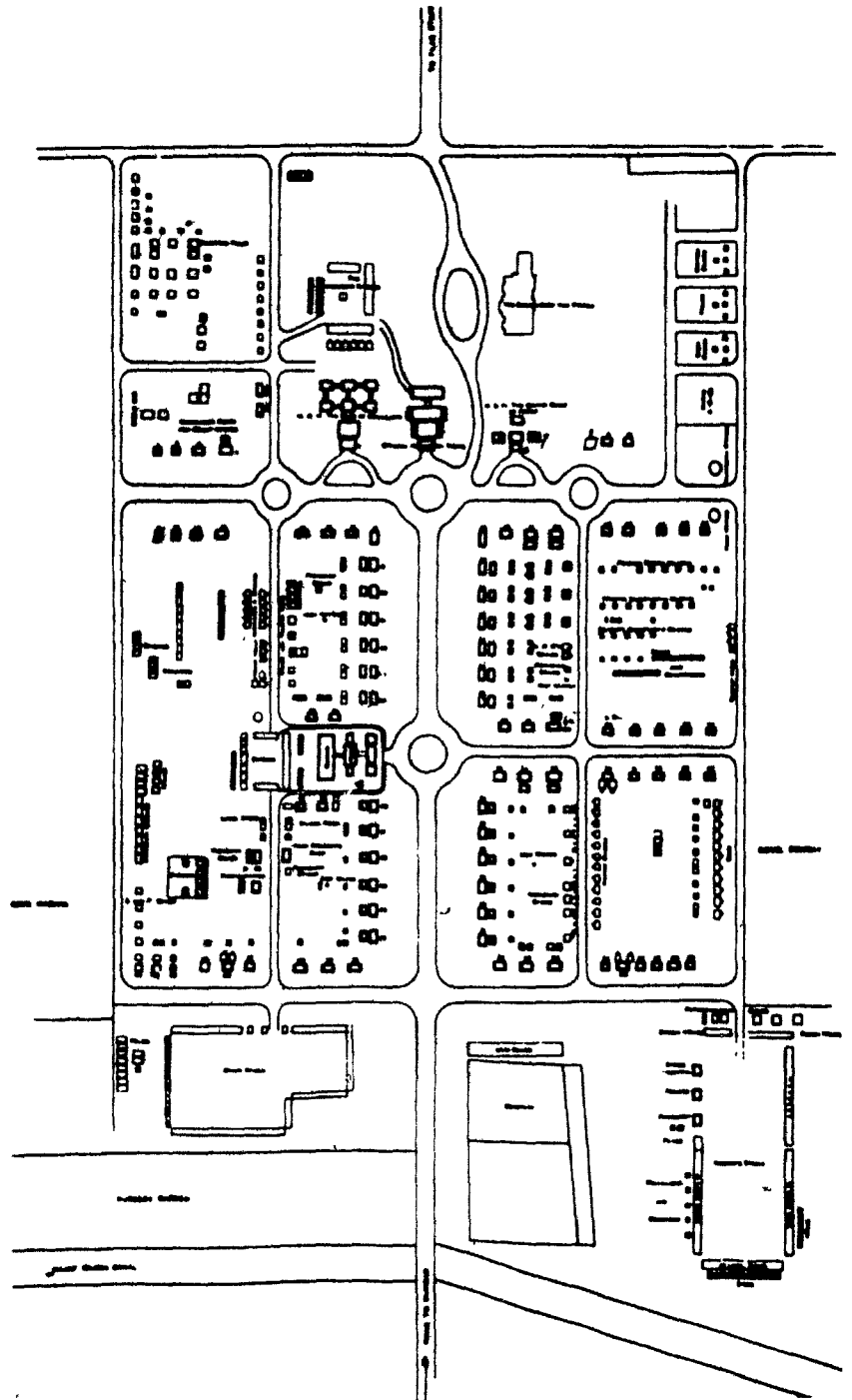


Fig 3 15 The Great Durbar in 1803, Viceroy's camp
British Museum



electricity. The base already existed in the cantonment road system and the road network linking this area and the Civil Lines to the city. This was developed for the durbars of 1877 and 1903, with the Colonial head of state occupying the newly built 'Circuit House' later to become 'Government House' in the temporary capital of 1911-21 and subsequently the Registry of the University of Delhi.

Anticipating the future structure of New Delhi, the layout of the Viceroy's camp of 1903 followed strict rules of socio-spatial hierarchy. The central area formed the Viceroy's personal territory and the remaining space accommodated his kitchens, immediate staff, offices and ancillary services.¹³ The King's representative, the Duke of Connaught, was accommodated immediately to the north of the Viceroy. To their immediate left, proportionately smaller in size, was the camp of the Commander-in-Chief. Smaller camps next marked out for the Governors of Bombay and Madras and the Lieutenant Governors of Punjab, Bengal and Burma. More distant and half the size, were the camps of those occupying roles lower down the colonial hierarchy, the Chief Commissioners of Assam, the Central Provinces and further away, the various residents.

A similar structure characterized the layout of 1911. However, unlike 1903, when some camps of local elite had been sited in what is now New Delhi area,

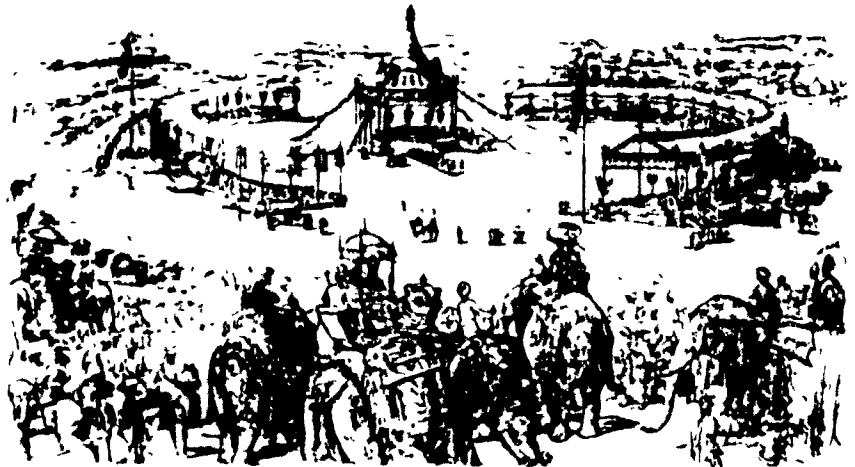


Fig 3 16 Imperial Durbar at Delhi, 1877 The Viceroy, Lord Lytton, proclaimed Queen Victoria the Empress of India

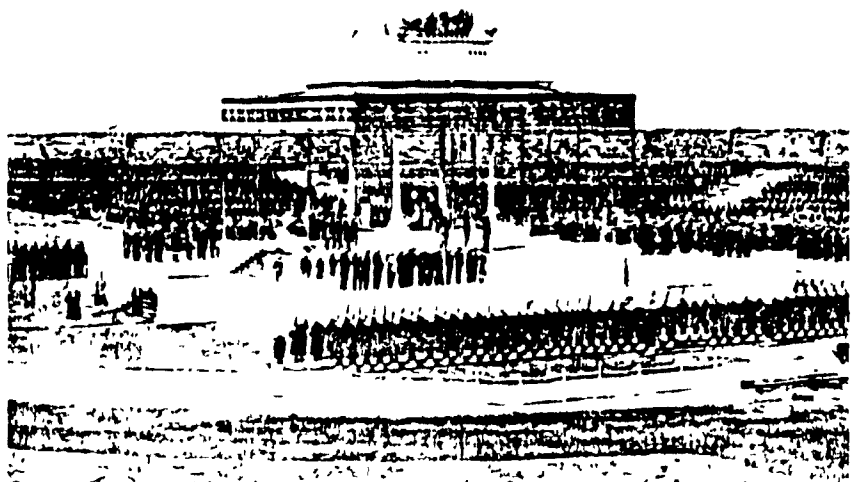


Fig 3 17 Coronation Durbar, Dec 12, 1911. King George V and Queen Mary at the Royal Pavilion

233 different camps occupied some 25 square miles north-west of the Ridge.¹⁴ As the King-Emperor was himself present in 1911, a large area of 85 acres was necessary for the royal camp. Again anticipating the hierarchies of New Delhi, the Indian nobility were accorded sites, their position and size appropriate to the status of their occupants, near to yet sufficiently distant from the source of prestige. The 30,000 troops, responsible for both security as well as ceremonial, were strategically situated round the perimeter of the durbar area, bounded by the river.

Given the visual functions of the durbar, the next largest need was for the 'review ground' covering an area equivalent in size to that of the walled city. Here, were performed the particular recreational and ceremonial activities associated with the durbar. In 1911 seating accommodation was provided for 100,000 spectators. (fig 3.17)

The original amphitheatre was laid out in 1877 and modified for subsequent occasions.

The fourth requirement was the provision of transport and other services for the main functional areas. By 1911 the development of the rail and road system had permitted a far more extensive demonstration to be undertaken than 1877. Roads within the city had been broadened, kept free of encroachments and maintained



Fig 3.18 Durbar Procession passing through Chandni Chowk, 1903

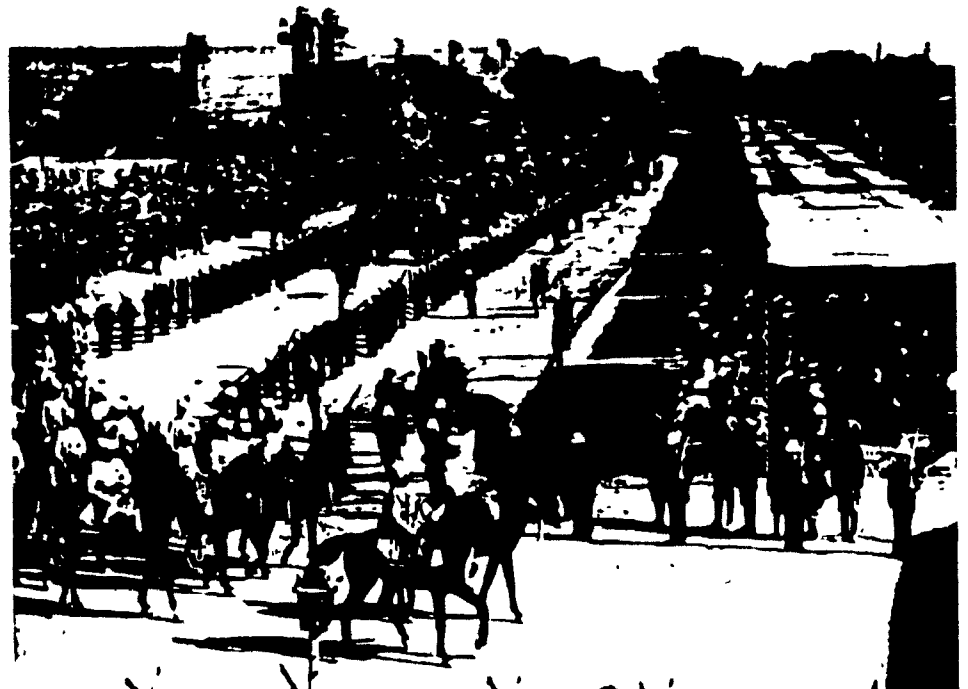


Fig 3.19 Durbar Procession passing through the Red Fort, 1911

for use by ceremonial processions. Outside the Fort, the 'maidan' provided a setting for the demonstration of political power.(fig 3.19) In the seclusion of the gardens within, social activities associated with the durbar enabled the mixing of indigenous and colonial elites.

The entire durbar population, accommodated under 10 square miles of tents, comprised of 250,000 people, the equivalent of the city of Shahjahanabad.¹⁵

9.0 Summary

By the end of the second main phase of development, urban Delhi conformed to the classical tripartite arrangement consisting of the 'Indigenous City', the 'Cantonment' and the 'Civil Station'. The city population of 233,000 was confined to just over one and a half square miles of the walled city and the three major suburbs of Paharganj, Sadar Bazaar and Sabzi Mandi. Cut off from expansion on the north, south and east the only area for growth was the west, where the gap in the ridge was being rapidly filled by growing suburban development.

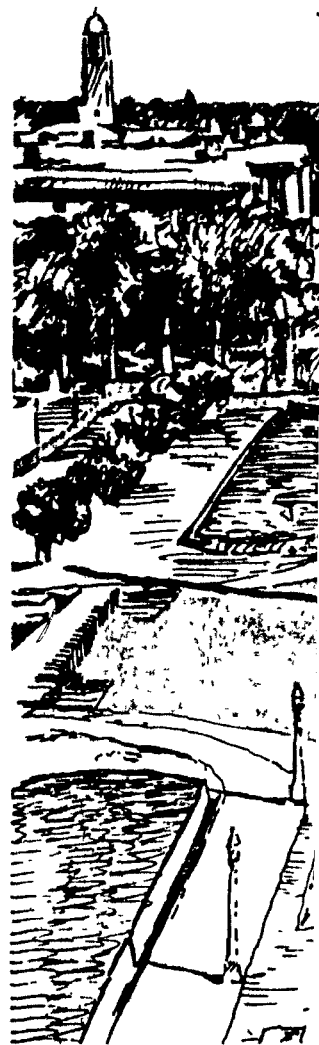
With the railway entering the city, its commercial and industrial activity expanded. To the traditional crafts of silver, brass and copperware, ivory, stone and wood carving had been added newer industries: cotton spinning and weaving, flour milling, soap refining and production of chemicals. European goods, including glass and china were imported here and distributed throughout northern India. The eastern sector of the city had changed little from the later 1880s. To the north-west lay the European enclave of the Civil Lines its population contained by the river and Ridge. Here on the two or three acre site, were less than 100 bungalows. Each family had its own transport, neither tramway nor train came in sight.

Metropolitan visitors could be accommodated at the most prominent buildings in the Civil Lines, including the club, 'Circuit House and Maiden's Hotel'. The area of Daryaganj, previously favored by Europeans had been largely abandoned.

The third component was the cantonment which, though vacated in 1861, had been moved back there in 1905. As it was now clear that with the development of the Civil Lines and suburbs outside the city, the remaining troops in the Fort were moved back to a site slightly east of the old cantonment in 1910. Here were provided necessary residential quarters and lines, with a polo ground, race course and golf links and also the old cemetery.

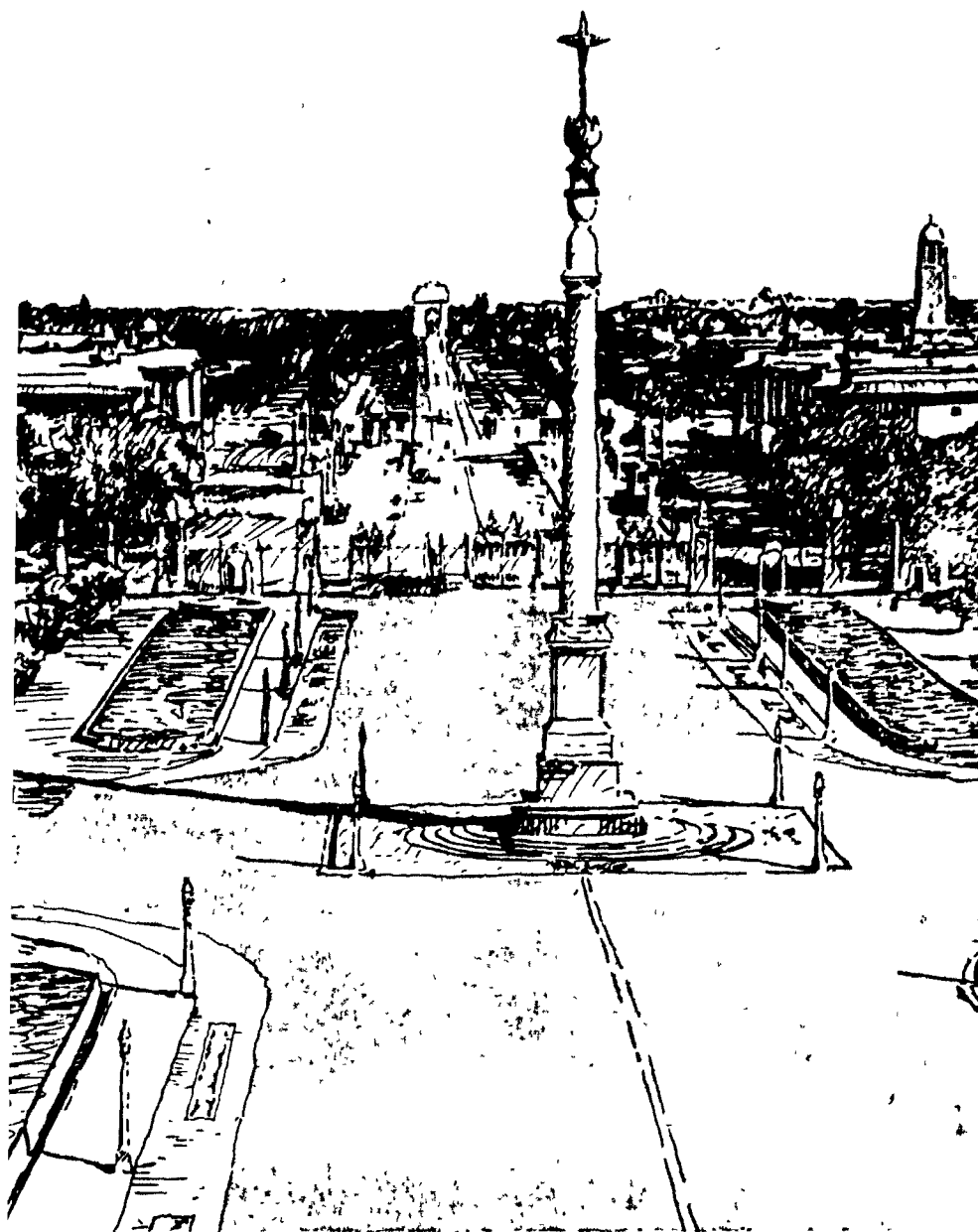
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Chapter 4



New Delhi

1911 - 47



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1.0 Introduction

The major phase in the development of Delhi begins with the decision to move the political and administrative capital of India from Calcutta to Delhi in 1911.

On December 12, 1911, His Majesty, King George V, at the Durbar in Delhi, proclaimed his decision that the capital of India should return to its ancient site. He expressed a desire that "the planning and designing of the public buildings to be erected be considered with greatest deliberation and care, so that the new creation may be in every way worthy of this ancient and beautiful city".¹

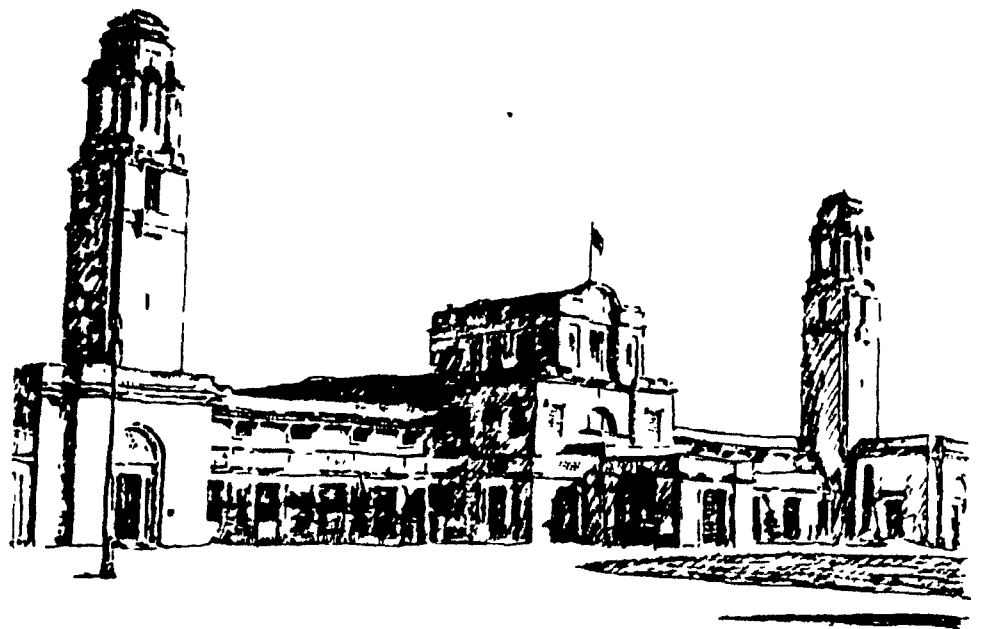


Fig 4.01 Old Secretariat, Delhi

2.0 The Temporary Capital 1912-21

Following the Durbar, a temporary capital was established, between 1912 and 1921, by extending the Civil Lines from Kashmiri Gate over an area of 500 acres to the north. This temporary capital was built mainly to facilitate the transfer of the Imperial Government from Calcutta to Delhi, and to make interim arrangements while the new capital was being built. The old Circuit House was remodelled and became the residence of Lord Hardinge, the Governor General and it is now part of Delhi University.

The Delhi population was expanding rapidly. Between 1911 and 1921, it increased from 232,837 to 304,420. Part of this growth was due to the rising number of government employees who increased from 9,628 (with over 20,000 dependents) to 17,326 (with over 30,000 dependents) in the same period.

A portion of the estate of the Metcalfe House was acquired for the building of the temporary Secretariat in 1912, it is still known as the Old Secretariat.

The growth in the number of Europeans males stimulated the provision of 'European-style' accommodation, particularly in the form of hotels, the extension of club facilities and building of extra bungalows in the Civil Lines. By 1911, there were 140 bungalow units in

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Fig 4.02 Map of Delhi Municipality, Notified Area, Imperial City, Western Extension, 1914

the Civil Lines.

Accommodation for the rapidly growing ranks of government clerks was made on the perimeter of the new temporary capital, the 'clerks quarters' being laid out at the northern and southern limits of the old cantonment lines.



Fig 4.03 The Delhi Town Planning Committee, Feb 1913.
Center row, left to right: Herbert Baker,
John A. Brodie, George S.C. Swinton, and Edwin
L. Lutyens.

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3.0 The Urban Form and Pattern

3.1 Choice of Site

In January 1912, a committee was appointed which was to work out the practical details of the political decision. Its chairman was G.S.C. Swinton who worked on the London County Council; John A. Brodie, municipal engineer in Liverpool, and the architect Edwin Lutyens, were appointed as committee members. (fig 4.03) As experts they all had some experience in planning but none of them had ever set foot in India before or been in close contact with Indian conditions. The selection of this all-English committee ensured that New Delhi would be developed in the same isolated form as the older cantonments and the Civil Lines.

King George V, expressed his view about the future capital, to the Committee on March 21, 1912, that the Ridge (of Mutiny fame) was not to be built upon and that the Committee 'need not feel themselves bound to the site on which the King and Queen had laid the symbolic foundation stones' at the northern Durbar location.

The Committee reached Delhi on April 15, 1912, and soon thereafter by foot, car and elephant set about its task then understood to be the identification of the site of about 10 square miles for the



Fig 4.04 The Delhi Town Planning Committee at work

capital and 15 square miles for the military Cantonment.

While examining the alternatives, it was found that the environs of Delhi fell into four natural divisions: the Delhi hill or the Ridge, the Jamuna riverain, the slopes of the hill to the south of Shahjahanabad, and the land irrigated by the Western Jamuna Canal. The geographic area that the Committee investigated for the new site were limited by peculiar physical circumstances like the amount of land to be acquired. All other sites were rejected in favor of the site south of Shahjahanabad and the Committee issued its first of three reports.

While the site thus chosen was in close proximity to Shahjahanabad it was also not far away from the site chosen for the cantonment on the other side of the Ridge.

The Committee's reason for rejection of the North Site included the following: impossibility of providing an area for a healthy city seven months of a year except at 'vast expense' and still not providing for expansion; flood hazard over extensive areas, marshes, malaria threat, infertile soil; site so low as to require constant pumping and a bund along the river for four miles; high cost of purchase of existing buildings and land; construction nuisance that would require vacating the area temporarily; loss of existing paved roads; natural beauty inevitably destroyed in the building process, loss of views existing at

present, bisecting the area by Ridge impracticable; sewage removal difficult and costly; with downwinds from manufacturing areas of Sabzi Mandi, impossibility of finding sites for cantonment and sports areas; and total cost very high for minimal site produced. In contrast the South Side had virtually none of these handicaps, was sheltered from winds in winter and cooler in summer, had better soil, provided ample space for amenities; and land was much cheaper. The Committee's report was sustained.

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Meanwhile, anticipating the decision in favor of the South Site, planning had proceeded and the Delhi Town Planning Committee's Final Report, was issued under a signature dated March 20, 1913. Lutyens had earlier been joined by Herbert Baker, who contributed to the actual building of New Delhi, particularly the Secretariat buildings, and was collaborator of Lutyens but frequently differed with him, as will be noted later.

The Final Report maintained that "A well planned city should stand complete at its birth and yet have power of receiving additions without losing its character". The planners stressed such elements as the following: 'beauty combined with comfort - convenience of arrangement as well as communication - main traffic routes must be parkways capable of extension both in width and length - the perfected whole should be obtainable with due regards to economy'.

Delhi, it said, "is to be an Imperial Capital and is to absorb traditions of all the ancient capitals".²

3.2 Planning

3.21 Evolution of the City Form

From the beginning, the mission of the expert Committee had been two fold. Lutyens, Swinton and Brodie were responsible for advising the Government of India not only on a site for the new capital but also on a city plan for the selected site.

The area on which Lutyens was to exercise his genius comprised the slopes and plain between the Ridge and Jamuna River. While the eastern and southern margins of the area were studded with monuments of vanished empires, the area from Qutb road west to the Ridge was less accessible to the river hence historically neglected. This well drained site offered virtually unlimited room for new buildings of all types, with additional attractions of vistas over landmarks in compassing the entire sweep of Indian history. The Committee described in their report, the historic landscape as seen from a prospect at the foot of the Ridge, "almost in the center of the site": a broad crescent from Shahjahanabad and Kotla Feroz Shah south to Tughlakabad and the Qutb, with the tombs of both Safdar Jang and the Lodhis as well the Jantar Mantar observatory in the foreground. This panorama, then, was the setting for the Committee's tentative layout.

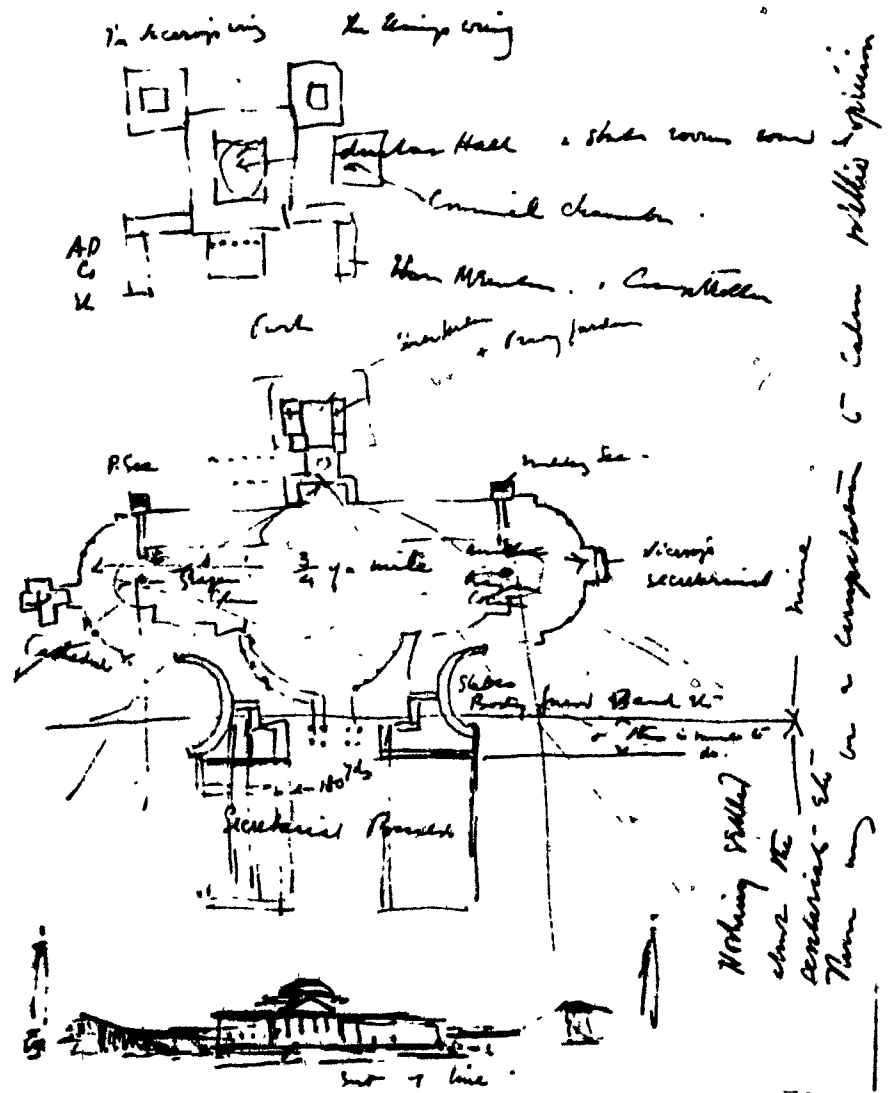


Fig 4.08 New Delhi. germinal sketch plan and elevation of Government House (later named Viceroy's House) and plan of the Capitol complex by E.L. Lutyens, June 14, 1912

By June 14, Lutyens could sketch the rough quadrilateral lines that the Viceroy's residence had taken in his mind. A drawing sent to Herbert Baker showed the palace and piazza that would rival the splendor of the Mughals. (fig 4.6)

The origins of the New Delhi which was officially inaugurated in 1931, in its general plan, lay in a tentative layout of the Delhi Town Planning Committee, a design in which the north Malcha site served as a crucial anchor for the central axis of the plan. This principal avenue, designated AB on the tentative layout, ran due northeast from Government House, its long uninterrupted vista crowned by the white domes and spiky minarets of the Jama Masjid at Shahjahanabad. The road followed the inclination of the ground, so that the avenue assumed a slightly concave form in a longitudinal direction, rising by easy gradients to the terminal features, "somewhat", the Committee noted, "on the lines of the Champs Elysees in Paris". At the point where the main A avenue was intersected by a line due north from Jantar Mantar observatory, a circus introduced at the juncture, a direct antecedent of the present Connaught Place. This vista from Government House to the great Mughal mosque, integral to the earlier conception of the new capital, was preserved in all succeeding plans.⁴

The tentative layout was characterized by some nine long,

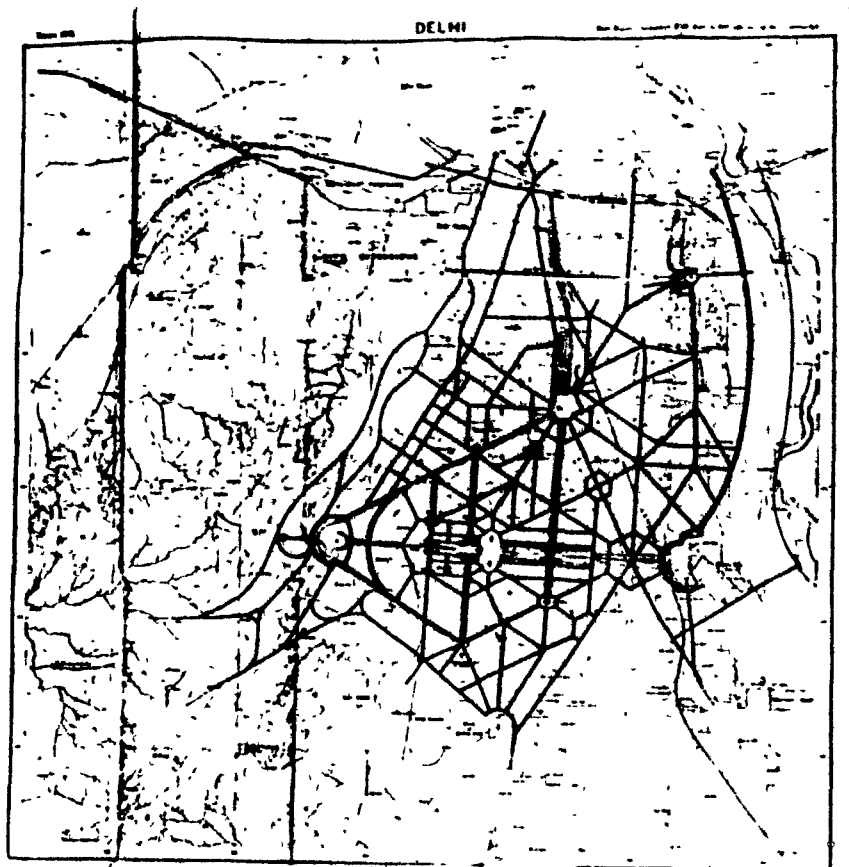


Fig 4.07 Layout labelled "Accompaniment to the Final Report of the Delhi Town Planning Committee on the Town Planning of New Imperial Capital". Signed and dated, George S.C. Swinton, Chairman; John A. Brodie and Edwin Lutyens, members; march 20, 1913

perfectly straight roads closely spaced, with frequent right angle intersections. This feature prompted anxiety on Viceroy's part. Visually perceptive, the Viceroy concluded that "extraordinary efforts of architectural elaboration could save such a checkerboard plan from monotony. If left unaltered, the tentative layout would be simply one more addition to the already lengthy list of grid-pattern cantonments and Civil Stations in India".⁵

Newly arrived from London, Henry Vaughan Lanchester, after appointed as consultant advisor, met the planning Committee in Delhi just before the three left India for the season. Lanchester did not want to change the main features of the proposed plan, but he assumed that a re-draft of the outer regions should be undertaken as well as a suppliment concerning future alterations and the extension of Shahjahanabad. This declaration harbours an indirect criticism of the Committee's work. Lanchester had discovered its greatest fault, the lack of integration and tried to bridge gap between English and Indian. His approach was radically different from that of Lutyens. Lanchester was born in 1863 and had been in practice since 1889. His work in a colonial environment, which began in India in 1910, included a series of town plans and individual buildings. Apart from Delhi he worked in Madras, Jodhpur, Gwalior, Lucknow, Rangoon and Zanzibar. He had been influenced by Patrick Geddes, he made use of "diagnostic survey", which aimed at the

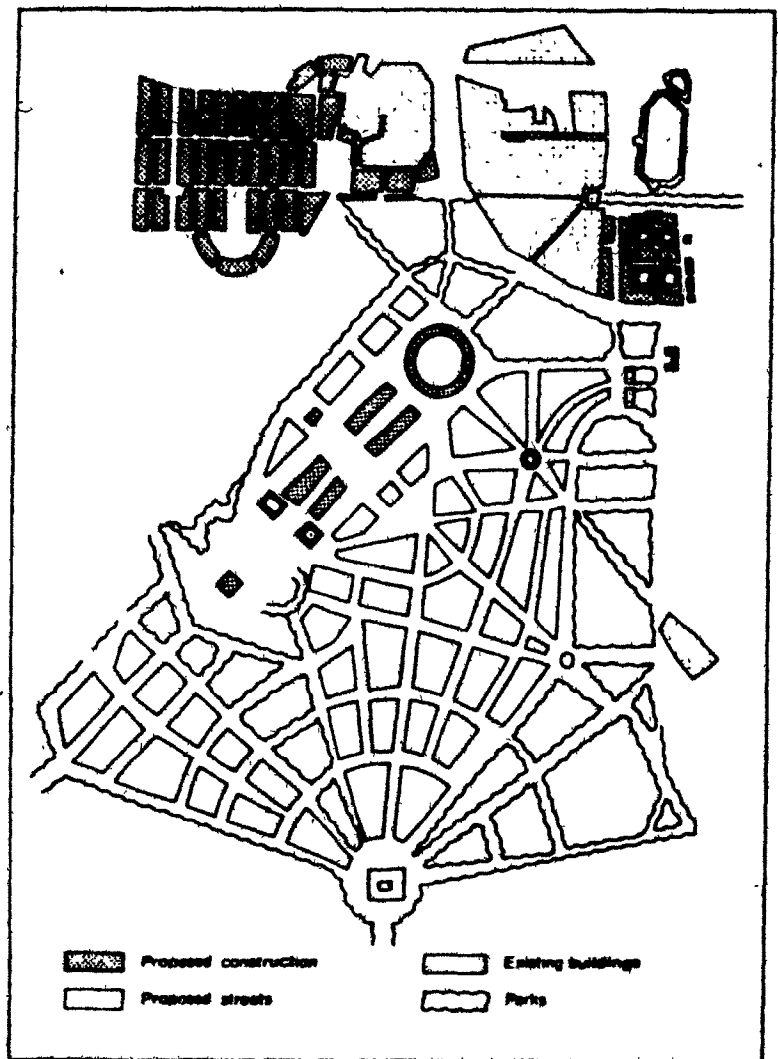


Fig 4.08 New Delhi, initial layout, with extensions to Shahjahanabad, by Henry Vaughan Lancaster, July 1912. Source: RIBA

general social, economic and cultural functions of the town that was to be changed.⁶ It is not surprising therefore that he found it hard to accept the early examples of English planning that he saw in India, and left doubtful about the plan proposed by the Committee which he feared had the same weaknesses.

Lanchester's appointment was for one month only. During this time, when the Committee was in England, he worked in close collaboration with Hardinge (the Viceroy) from whom he received his directives. Together they tested alternative solutions. In view of the short time at his disposal, Lanchester proved surprisingly farsighted. Hardinge was kept informed by a series of five reports.

With the Committee's principal AB axis clearly in mind, Lanchester suggested that such inventive treatment was essential to avoid monotony in the main avenues of considerable length. He cited the Champs Elysées and Regent Street to illustrate the successful use of unfolding variety to maintain aesthetic interest. Lanchester, thus proposed breaking the long line of closely packed buildings by cross-axial plaza on which two Secretariat blocks would stand recessed to provide subsidiary interest and terminal vistas for other roads - a compositional device which was ultimately in the plan as executed.

Hardinge had criticized the Committee's numerous long straight roads

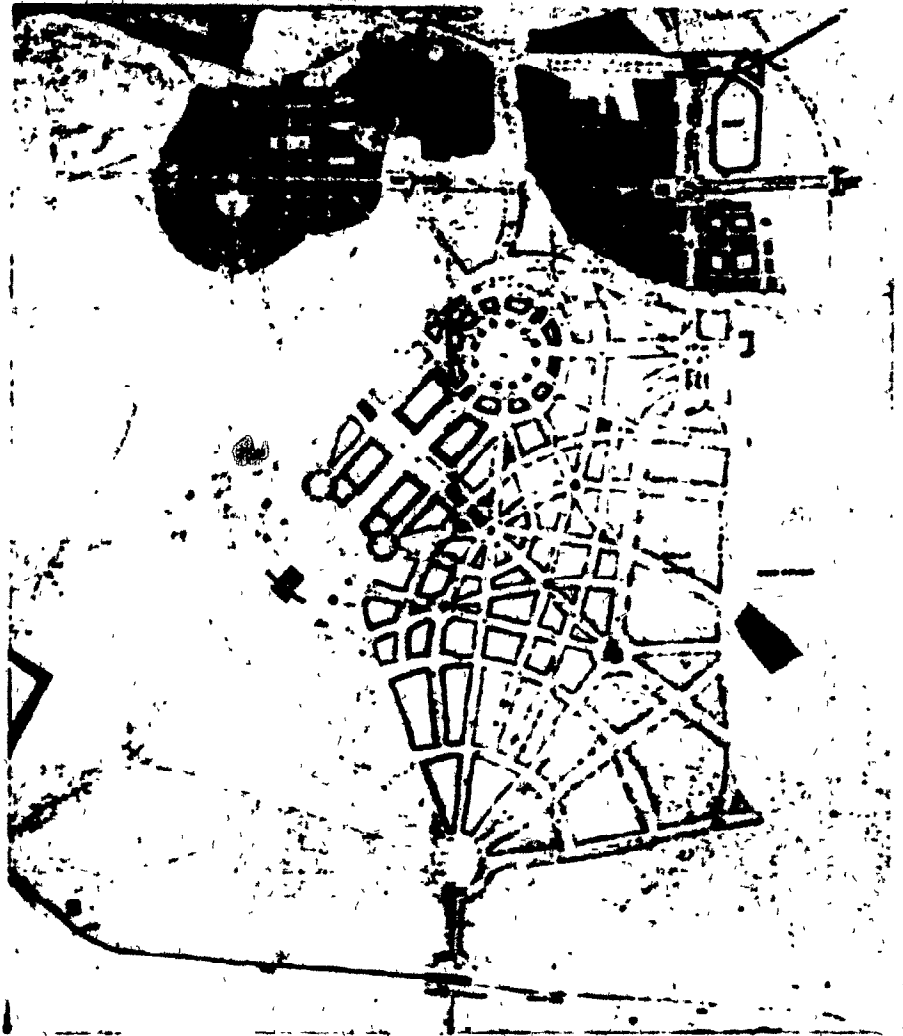


Fig 4.08 New Delhi, "Revised Layout", by
H.V. Lanchester, July 1912 Source: RIBA

and multitude of angular intersections as lacking visual interest. He had moreover predicted that the hot premonsoon winds, sweeping dust down their long stretches, would make roads insufferable, and he suggested hedges and trees along curved routes to mitigate this local nuisance. Not surprisingly, therefore Lanchester's layout deviated from the Committee's axial symmetry so typical of Ecole des Beaux Arts planning, to introduce curves. New views of historic Indrapat (Purana Qila) fortress further augmented vistas of Humayun's and Safdar Jang's tombs to heighten the scheme's aesthetic appeal.

Lanchester defined his actual task in six points:

- 1 The development of Indian city.
- 2 The diversion of the 'Great Indian Peninsular' Railway.
- 3 The approaches to the Imperial city.
- 4 The communications with the present Civil Lines and the Durbar area.
- 5 The treatment of the Jamuna riverain and adjacent areas
- 6 Buildings, their architectural treatments and constructional methods.

Lanchester's second report is more detailed and concentrated on the future expansion of Shahjahanabad. He suggests new bazaars and houses modelled on local Indian traditions. One of these was intended for 'the poorer classes'. He divided these into two categories:

"the first of which, comprising of weavers, cotton-stampers, washermen, daily laborers, and keepers of cattle plying for hire, are considered

respectable neighbors while the second, comprising sweepers, leather workers, brick makers and lime burners must be placed on the outskirts of the town".

Lanchester's grading anticipates an extensive categorization of housing in the planning of new towns in India. His classification is not based on social but on practical basis, however, those who are placed on the outskirts of the town, find themselves there because they require plenty of space for their crafts. He also wants to create space inside the town. The compactly built blocks must have air. Communications are stressed once more, on several scales, both between the parts of the town and along the Grand Trunk Road. He constructs a hierarchy of roads based on the requirements of the traffic.

In his first report Lanchester uses the Committee's basic project as his point of departure: Viceroy's House and the main axis with its orientation towards the Old city (Jama Masjid) are treated as permanent fixtures. This was what he, Hardinge and the Committee members had agreed on. But as work progressed and after renewed studies of the terrain in question, Hardinge began to change his mind. It was above all the cost of buying and in part demolishing the suburbs of Paharganj that he felt doubtful about. But Hardinge too wanted to make the axis from the Viceroy's House a central feature - in the Committee's project it was peripheral - so he asked Lanchester to draft a new plan in which

the axis was to run east instead of north-east. This sensational change was resolved at the end of July, just before Lanchester left India.

While all this took place during some hot summer months in India, irritation mounted among the Committee members in England. They had to stand by and see how their plan was altered in vital respects without their being heard or being able to intervene. But they were not entirely passive. They made combined efforts to have Lanchester removed, enabling Lutyens to continue to work on his project for the Viceroy's House.

The Committee then received Lanchester's plan for comment; they first examined it in England and then again in India where they resumed their work in December, 1912. They criticized details but not the general features, and the Committee's own final report which was published on the 20th of March in the following year represented an intensive study of the rapidly made decision to place the Viceroy's House on the ridge and to turn the axis towards the river.

In the meanwhile the Committee had to study on Hardinge's instruction the area rejected in order to see whether under modified conditions a city could be fitted on to the north site. The Committee had concluded that a small, closely built city could be placed on the north site at considerable expense -

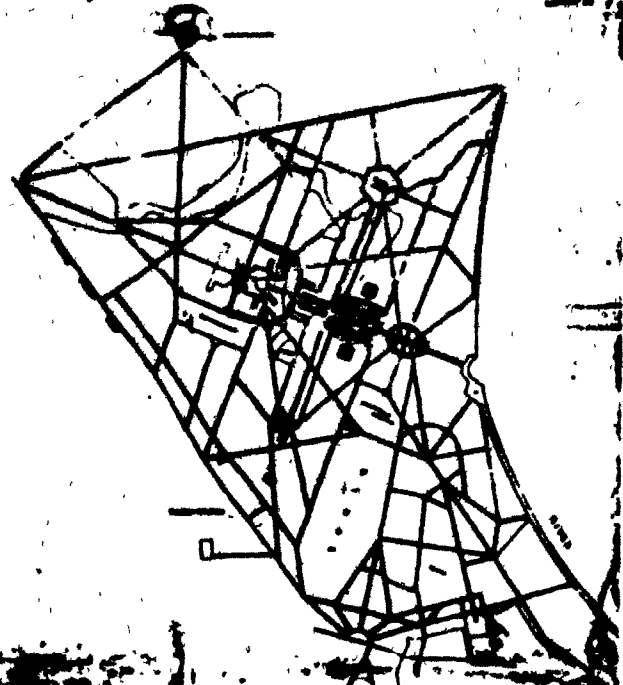


Fig 4.10 New Delhi, "Layout A", for a site north of Shahjahanabad, by the Delhi Town Planning Committee, Feb 1913 Source: RIBA



Fig 4.11 New Delhi, "Layout B", for a site north of Shahjahanabad, by the Delhi Town Planning Committee, Feb 1913 Source: NISA

provided that there was no subsequent expansion. (fig 4.10, 4.11)

Lutyens produced a carefully ordered but compact layout centered on Raisina, its southern terminus at Safdar Jang's tomb rather than the distant Qutb Minar. (fig 4.12) The route from Government House to the Jama Masjid was retained but only a subsidiary road. There were instead three large terminal vistas: one from the Viceroy's House to Indrapat; a second ceremonial route emanating from a new railway station and plaza at Jaisingpura (around Jantar Mantar) crossing the Indrapat avenue at right angles and closed on the south by a cathedral; and last an avenue leading south-southeast from the railway plaza until it turned to a north-south alignment on Government House. The Viceregal residence commanded the city in solitary splendor on top of Raisina Hill. Substantial buildings lined the Indrapat vista, four especially impressive buildings at the junction of the two major ceremonial cross axes. The banks of the river Jamuna were decoratively landscaped.

The layout of the new city was rapidly approaching its ultimate form. The penultimate stage was reached, at the initiative of Herbert Baker, Government House was moved westward from its exclusive situation, and the Secretariat buildings joined Viceroy's House on a broad platform on the crest of Raisina Hill. Baker's success in designing on

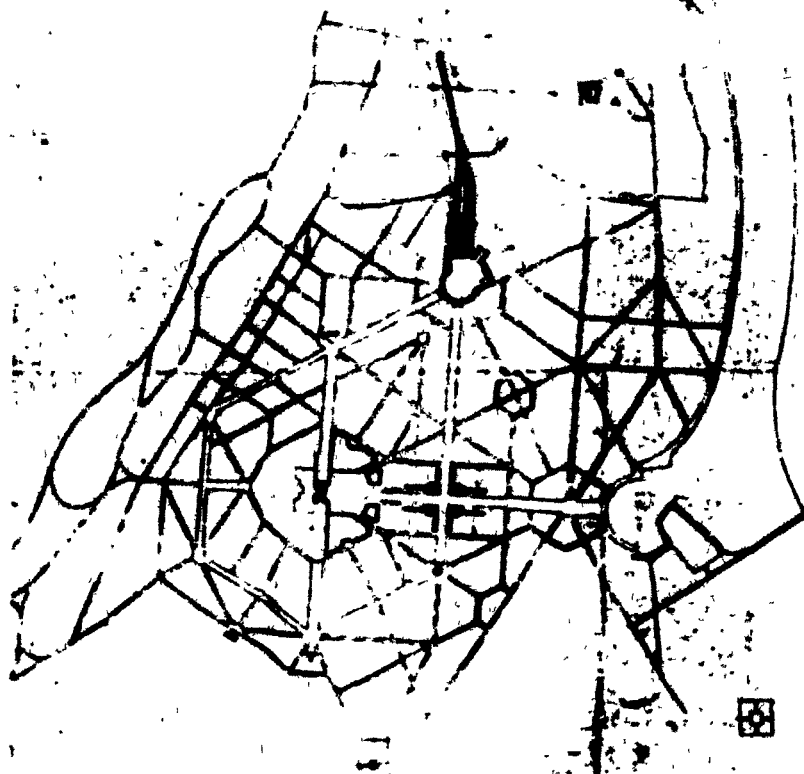
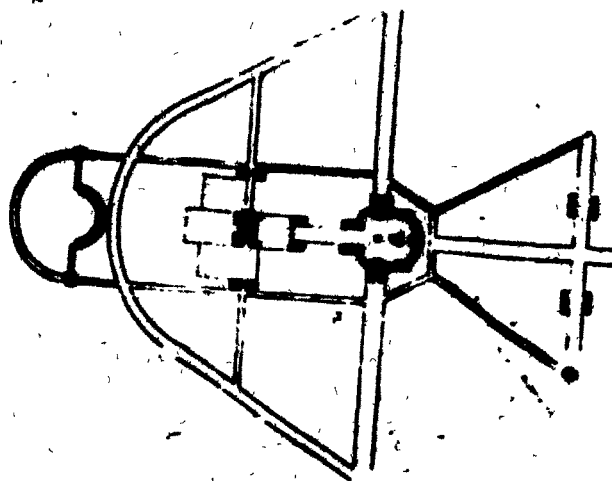


Fig. 4.12 New Delhi, layout with Government House
 site on Raisina Hill, by E.L. Lutyens
 Source: RIBA



the South African Kopje made insistent that the Secretariats, for which he alone was responsible, should share the elevated and dominant position. He cited as a precedent Darius the Great's "stupendous platform" at Persopolis, and he argued the symbolic value of such an arrangement, expressing the unity of the Viceroy with its Government.

Hardinge's idea had always been that the Viceroy's House alone should crown Raisina so that it was visible without obstruction from every part of the New Delhi. But the architects pressed him to accept their platform scheme. Despite the obvious disadvantage that the views of Government House from the city would be frequently blocked by intervening Secretariats, Hardinge at the time thought the acropolis a fine architectural conception. (fig 4.13)

◀ Fig 4.13 New Delhi, layout with Government House and Secretariat Buildings sharing Raisina Hill. by E.L.Lutyens, with Herbert Baker Source: RIBA

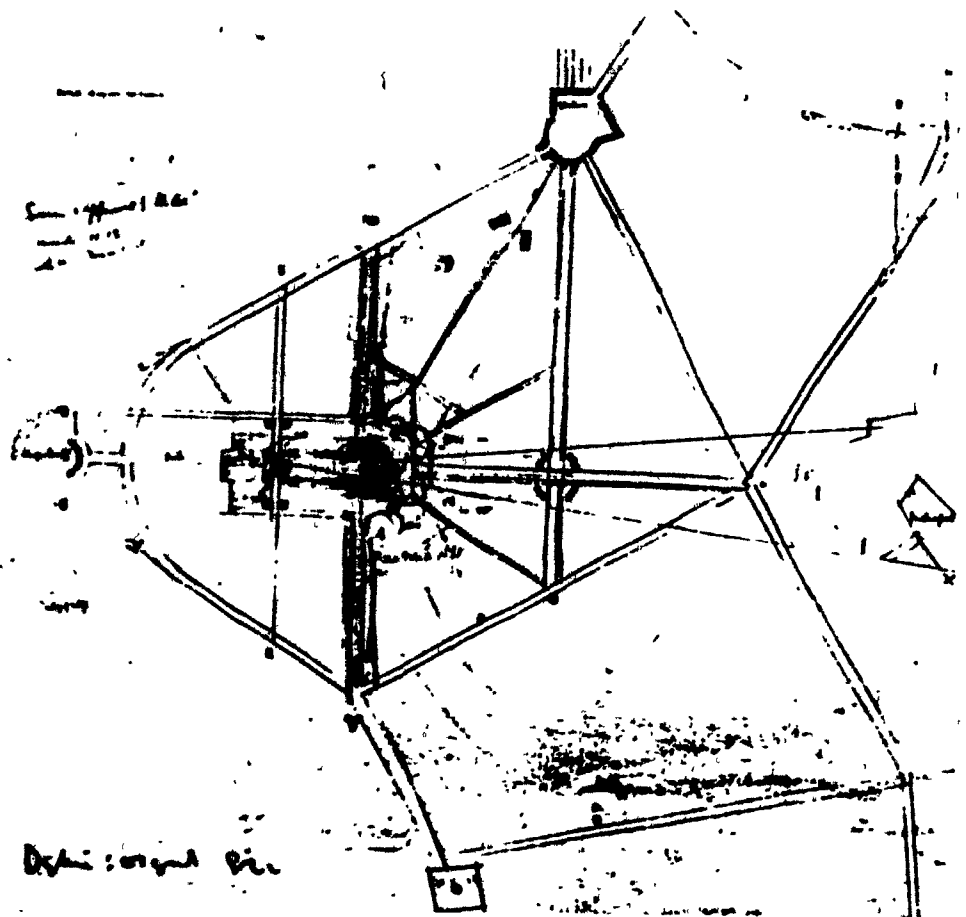


Fig 4.14 New Delhi, sketch of the Raisina Acropolis, in relation to the entire city, by E.L.Lutyens, March 6, 1913, and marked and approved by H.Ex. March 11, 1913 with bigger Place in front

3.22 The Final Layout

The final report made it plain that the Committee did not consider town planning as simply street layout but as a three-dimensional problem in design that encompassed numerous physical elements.⁸ Besides the pattern of streets and plazas and traffic circles, the 'Delhi experts' exhibited concern for such diverse elements of the plan as water supply, sewage system, refuse collection, railway facilities for passengers and freight, tram and bus and open-air spaces for ornament and recreation. While the Committee was certainly much concerned with the visual impact of monumental arrangements of public buildings, their report showed a genuine awareness of the social implications and consequences of town planning.

The layout which accompanies the Committee's final report includes the area bounded on the north by Shahjahanabad, on the east by the Jamuna, and on the west by the Ridge. The southern boundary no longer encompasses the Qutb Minar as in earlier designs; a line drawn from a point on the Ridge west of Talkatora to Safdar Jang's tomb and due east to the river marks the planned city's southern limit. The tract between the line and the Qutb, eminently suitable for buildings, is designated for further expansion.(fig 4.14)

The plan exhibits numerous features common to earlier versions. The focal

point is the Raisina acropolis, comprising the Government House (now Rashtrapati Bhavan) with an integral Council and large Secretariat blocks that have the individual departments not simply the heart of the new city, but as it to be, as the report declares, "the keystone of the rule over the Empire India; this is the place of Government in its highest expression". The visitor normally approaches the raised platform or forum from the east and reaches the wide steps, portico and dome of Government House after passing between the massive Secretariats. This progress is deliberately symbolic: "The imagination is led from the machinery to the prime moving power itself". East of this forum lies a spacious forecourt, defined by trees, from which the principal parkway - King's Way (now Raj Path) - leads to Indrapat, site of the oldest Delhi of all Indraprastha. North and south of the forecourt, avenues radiate in a tripartite pattern, linking empires past and present, and uniting the business and lives of the new Delhi's people with the Government of India.'

Crossing the 440-foot parkway at right angles is a north south avenue, the Queen's Way (now Janpath), terminating in a new railway station on the north and the Anglican cathedral on the south. Around the grand plaza at the railway station are grouped municipal offices, banks, shops and hotels, the post office is symmetrically juxtaposed to the station. The intended ceremonial or processional route leads due south from

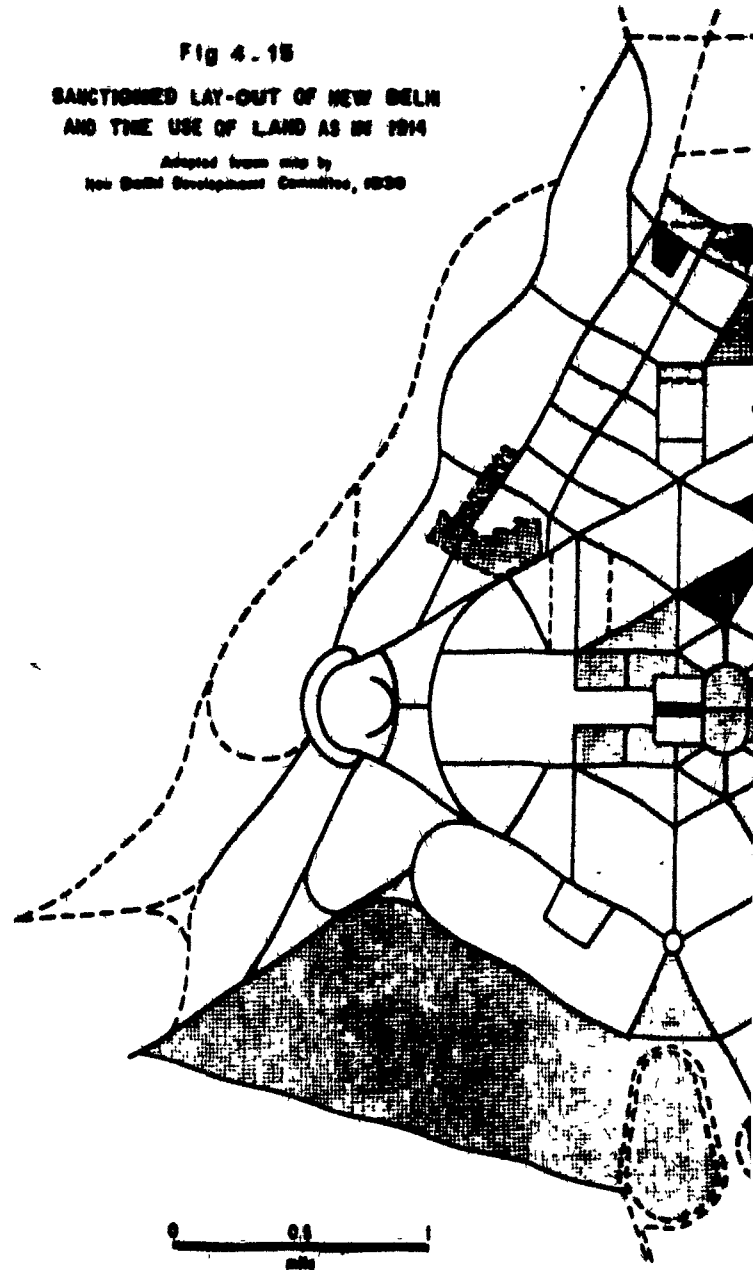
the railway to the intersection of the Queen's Way and the King's Way and then west to the Government House. At the junction of the two avenues, four large buildings are placed within the central vista or mall, forming a cultural or intellectual plaza: the Oriental Institute, National Museum, National Library and Imperial Record Office. A long, alternative processional route extends south from the Delhi Gate of the fort and Shahjahanabad past the houses of the Indian rajas and nobles and affords handsome views of the Jamuna river and artificial lake proposed for the environs of Indrapat. Halfway from the old city, the route is inflected southwest towards a commemorative column at the east end of the King's Way. Seven main roads converge on the forecourt of the Government acropolis at the opposite end of the central vista. With the exception of the central parkway, the city's avenues range in width from sixty to three hundred feet.

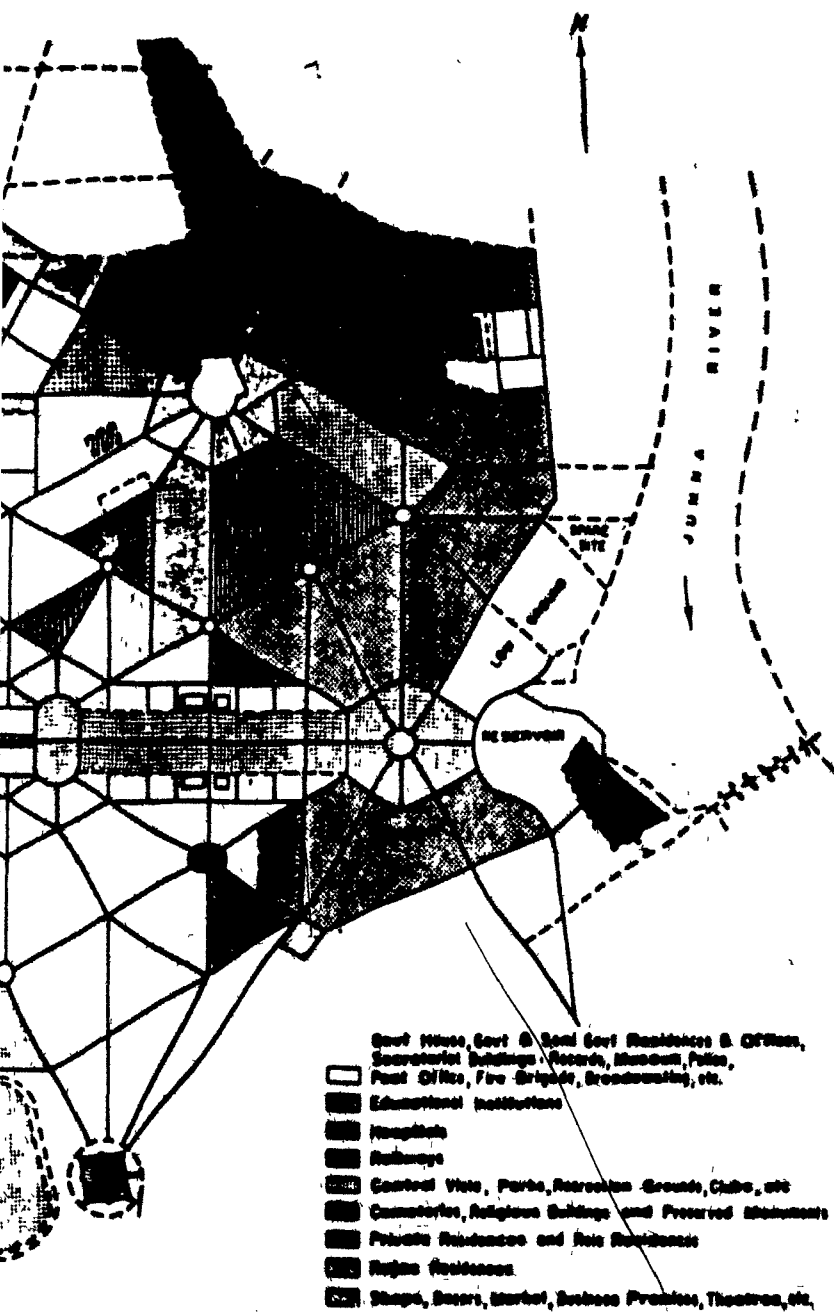
The axis leading north-east from the Secretariats to the railway plaza, in the direction of Jama Masjid, form the city's main business avenue. In this area southwest of the station lie the houses of the local administrators and the European clerks' residences. Segregated to the west, by income, between Talkatora Gardens and Paharganj, are the residences of the Indian clerks. Land is allocated in the immediate vicinity of the Raisina acropolis for housing Members of Council and other highest officials. The Commander-in-Chief's residence lies

Fig 4.15

**SANCTIONED LAY-OUT OF NEW DELHI
AND THE USE OF LAND AS IN 1914**

Adapted from map by
New Delhi Development Committee, 1939





directly south of the Secretariats.

The Committee placed the club an indispensable fixture of the colonial era, southwest of the Viceroy's House, easily accessible from European residences in the city and the military cantonment. The planners judged the land adjoining the club on their layout to be well suited for golf and that absolutely essential feature, a racecourse. Parks were projected for the area of Safdar Jang's and the Lodhi tombs on the new city's southern margin, while other parks separated Imperial Delhi from Shahjahanabad and encompassed the Ridge and riverside, forming a greenbelt that virtually ringed the Capital.

The avenue from the new railway station aligned on the Jama Masjid connects the new city and Shahjahanabad on the layout. Inside the city walls this route divides: one branch thrusts its way through densely packed quarters to the King Edward VII Memorial near the Fort, the other pushes through the center of the old city, across its principal artery, Chandni Chowk, and the Victoria Gardens to terminate at St James' Church. Broad roads straight through the heart of the crowded Sadr Bazaar connect the New Delhi with Civil Lines.

The passion for order and symmetry exhibited in New Delhi's layout had an honourable ancestry in India: it was one of the Mughal's chief gifts to the sub-continent. The processional routes which distinguished the layout of the

seventeenth-century Shahjahanabad gave it claim to be the first examples of modern city planning in India, as imposing as its Persian contemporary, Shah Abbas's nobly conceived capital of Isfahan.

Lutyens found major historic monuments useful to terminate the main axis of Imperial Delhi and to provide strong visual accents emphasizing his street pattern, in a fashion of contemporary Beaux Arts or City Beautiful planners. He enthroned these sacred landmarks in open spaces, approached directly. Lutyens had less use for monuments lacking a major reputation. He had reduced the elements of his plan to a simple, unified hexagonal pattern. His instincts for preservation did not extend to the minor tombs, dotting the site which would interfere everywhere, spoiling avenues and building sites, "Imagine the Place de Concorde in Paris", he wrote to his wife, "with tombs anywhere or everywhere about it, in the middle of the road, half on and half off pavements".

Lutyens was familiar with Haussmann's boulevards as well as the Avenue des Champs Elysées, whose monumental sweep terminated in the Place de l'Etoile, and Jacques-Agne Gabriel's Place de la Concorde. Equally important, he knew the fan-like town plan of Versailles and Karlsruhe as well as the intricate palace parterres and great royal parks which shared features common to civic design.

Pierre Charles L'Enfant had also

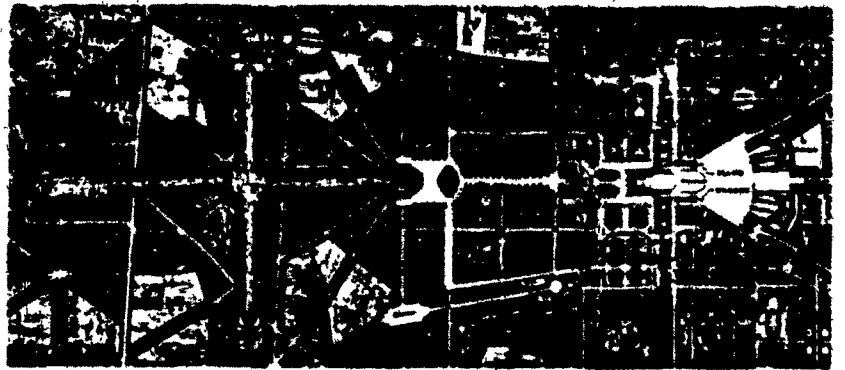


Fig 4.16 Plan of Versailles

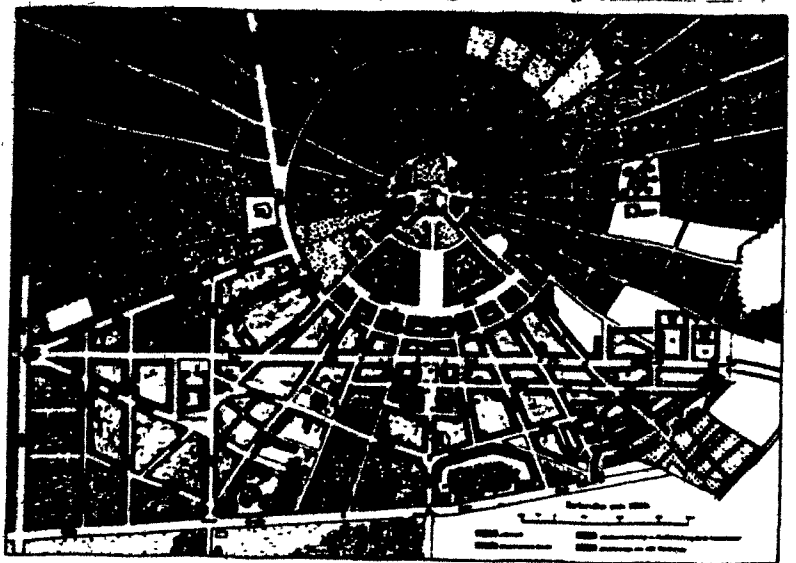


Fig 4.17 Plan of Karlsruhe

known at first hand the gardens and town of Versailles and the avenues of the capital city, where he had been a student at the Royal Academy of Painting and Sculpture. Diagonal avenues, axial arrangements of buildings and open spaces, and terminal vistas were all integral parts of L'Enfant's design vocabulary when he drew the plan for Washington, the capital city of the American republic.

Had L'Enfant's layout (or its twentieth century revival) influenced the Delhi planning in 1913? Certainly Herbert Baker, so closely involved in the Delhi Town Planning Committee's deliberation over a layout in 1913, had four years earlier expressed his estimate of L'Enfant's scheme as "at once original, practical and beautiful", and had commented that it had not been adopted by the American Government, to serve as "an ideal and stimulus" for all future efforts. Washington's layout with its "wonderful vistas", had "greatly impressed" Lord Hardinge while posted there (1885-86) as a young diplomat. Nearly thirty years later, during the conception of New Delhi, "the first thing" he did, in his words, "was to send for plans of Washington and Paris". On visiting the American Capital in 1925, Lutyens told his wife frankly and without false modesty he thought the plan "not as good as Delhi or as fine" but he confessed that the buildings, the bulk of them in marble, were "far better".

Unquestionably, there are remarkable correspondences as between the plans of



Fig 4.18 Plan of Paris showing Champs Élysées

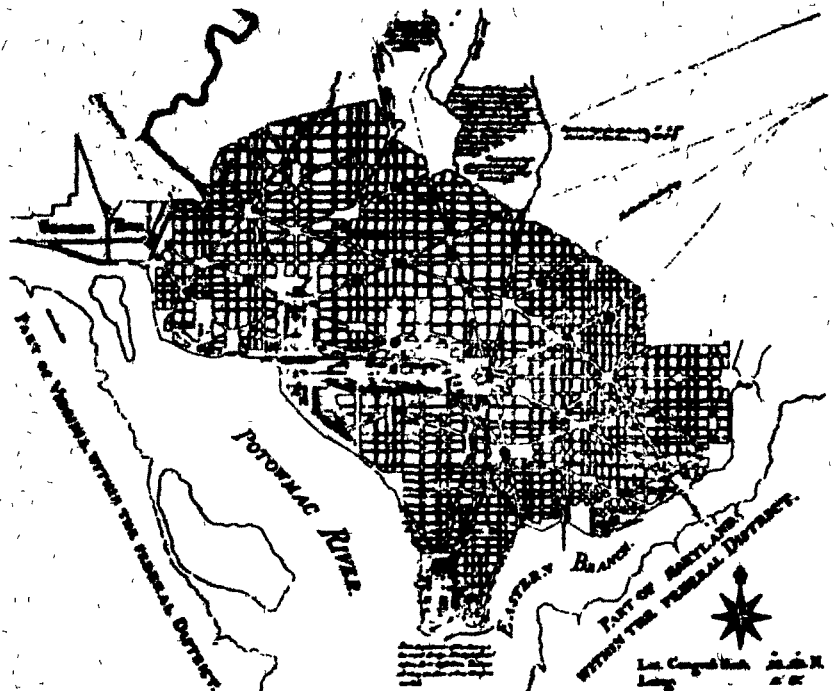


Fig 4.19 Plan of Washington D.C., by Pierre Charles L'Enfant

Washington (fig 4.19) and New Delhi: a system of grand diagonal avenues and road-points delineating giant hexagons, interlocked with a grid pattern; a commanding acropolis from which radiates an avenue, including a broad two-mile parkway terminating at a monument at the river's edge; and a bold axis crossing the center of this leafy mall, one end crowned by a church intended for national ceremonies. If the American plan is viewed from the north, the correlations with the Indian capital are even more obvious. Evidently these similarities did not escape Herbert Baker: in 1930 he characterized New Delhi's "ingenious" layout as "a noble development of the germ of L'Enfant's plan of Washington and Wren's rejected design of the City of London" (fig 4.20)

Neither the individual buildings nor the plan as a whole could have worked without a lot of greenery. The huge gardens and plantation along the streets were a vital component in the sparse grid. New Delhi was built as a "winter capital", a compliment to Simla. But all civil servants could not move up there, and during the cool months a shield against dust and the biting winds was necessary.

But for its greenery, the plan would have been impossible no matter what season of the year. The idea of a garden city had been adopted by Lutyens and the Delhi Committee right from the start. Thus the final report states: "Every effort must be made to ensure that the

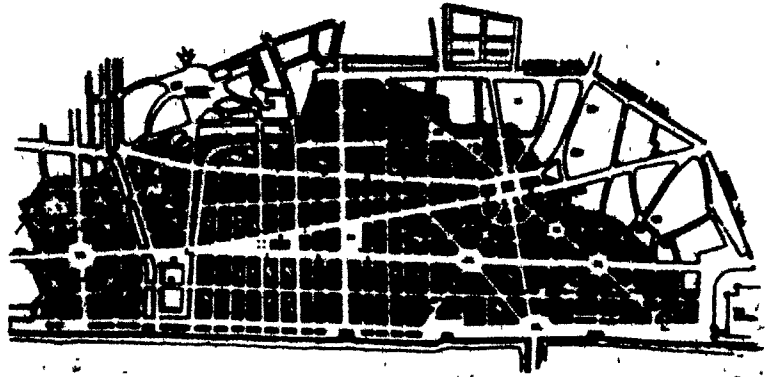


Fig 4.20 Wren's Plan of London after Great Fire, 1666

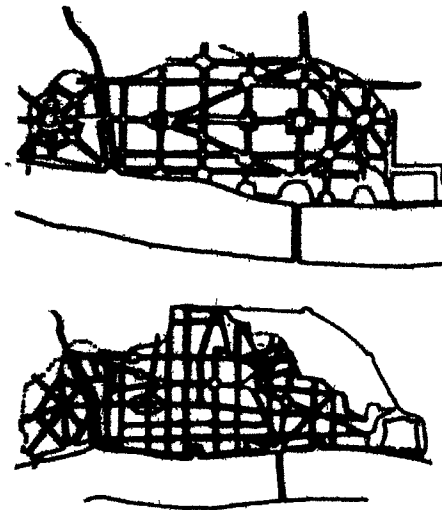


Fig 4.21 London, Plan for rebuilding the city, by John Evelyn, 1666

parks are real features. All over greater Delhi there is ample space for parks and smaller recreation grounds of every description ...".

Inspite of the architects' aspirations and the apparently successful result, New Delhi's role as a "garden city" can be challenged. The author of the idea, Ebenezer Howard, had presented his theory as a solution to the problems of the expanding large cities, and Raymond Unwin who applied the idea in Letchworth and Hampstead also had a social ambition. It was not only a question of moving people out of the congested cities into more healthy rural surroundings; there was also a will to break the patterns that had developed in individual society; different classes should be able to meet in the new environment without frustration. The plan of New Delhi does not fit in with these idealistic theories. Its strict hierarchy of housing does not only represent a dilution but an inversion of the original program. New Delhi represents the garden city idea in its most superficial form only and that the lush greenery conceals a social structure which is far from democratic.

What is certain is that by 1913 Lutyens was fully acquainted, in both theory and practice, with the Garden City and City Beautiful planning principles. Granted the contributions of many other persons, the plan of New Delhi is primarily the fruit of the mind and heart of Edwin Lutyens. Possessed of a genuine

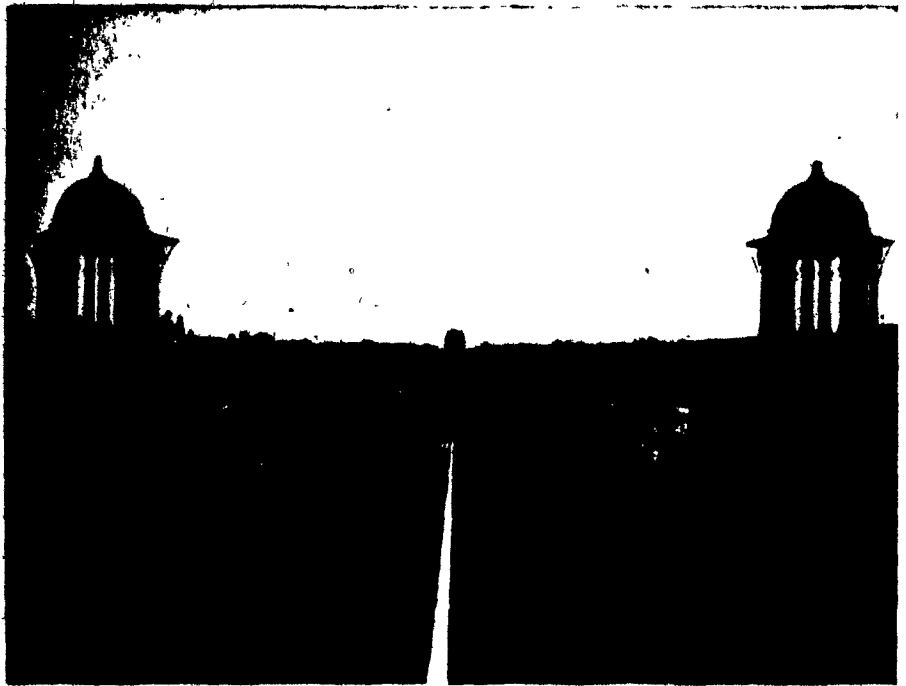
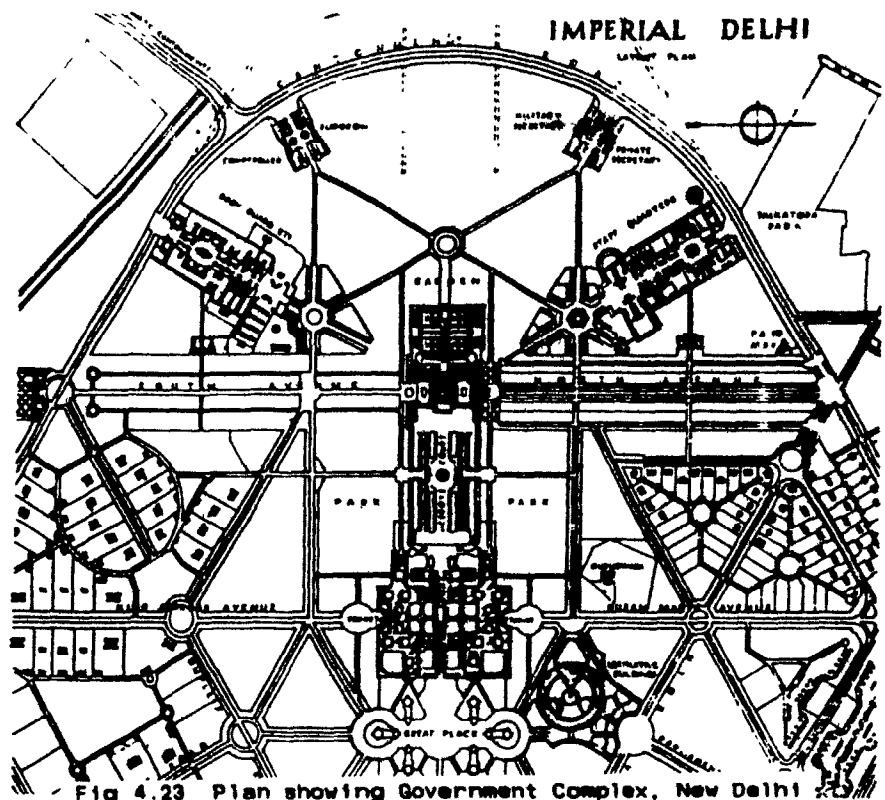


Fig 4.22 As a garden city, view of the central vista

historical perspective he was at the same time keenly sensitive to the art and science of town planning.

As the Daily Telegraph reported, New Delhi's buildings embodied classic purity of design, its layout was certainly an expression of the classical conviction that man through his own reason can discern the world's basic order, can determine a framework of human behavior, and can control his environment. New Delhi testifies to the founders' faith that art and life as they ought to be can be realised in this world, that ideals can be translated into practice.



4.0 The Spatial Structure of New Delhi: Physical Layout

4.1 Government: The Civil Requirement

As the first three government requirements of earlier European settlers in Delhi had been a cantonment, 'Residency' and accommodation for a small bureaucracy, a century later similar provision was made on a larger scale.

Government House was built on the highest point, its topmost point symbolically like the 'Mutiny Memorial' before it, higher than the tallest indigenous structure in the vicinity.¹¹ The site covered some two thirds of a square mile. Apart from accommodation of the Viceroy's staff, the house, completed and occupied in 1929, like all other bungalows in the city was surrounded by gardens. (fig 4.24) Within this the 'temple of imperial power'¹² were those culture - specific social spaces required by the colonial elite: a 'darbar hall', three 'state drawing rooms', 'ballroom', 'billiard room', 'library', 'state dining room', 'Her Excellency's Private Sitting Room', 'His Excellency's Private Staircase', large number of 'bed rooms' and 'bath rooms' and similar divisions of space.¹³ The vast compound was carefully railed off and planted with dense vegetation.

East of 'Government House' were two large offices accommodating the imperial

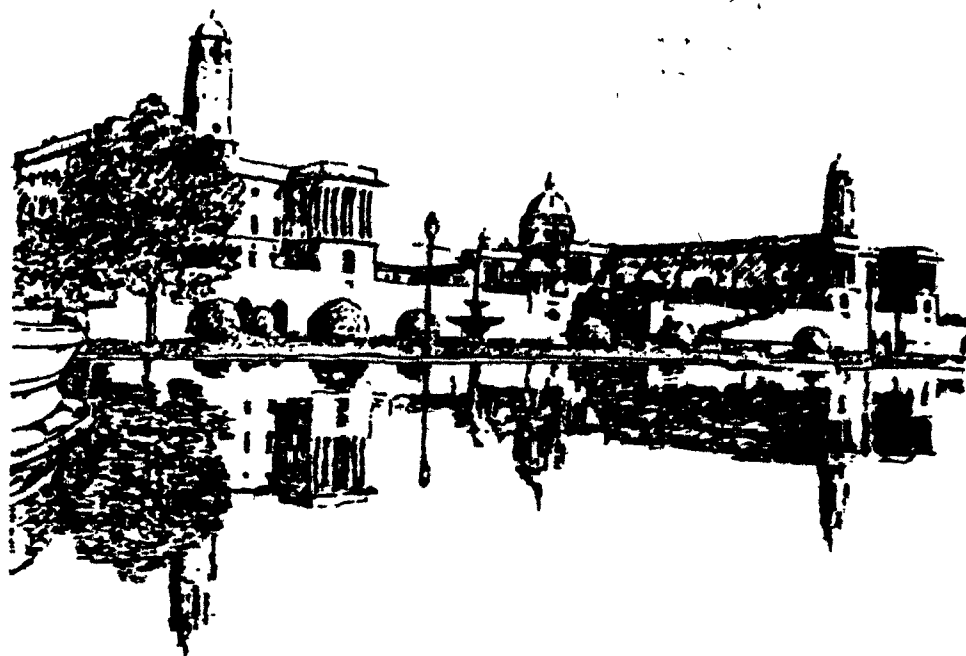


Fig 4.25 The Secretariats, New Delhi. View of South and North Blocks

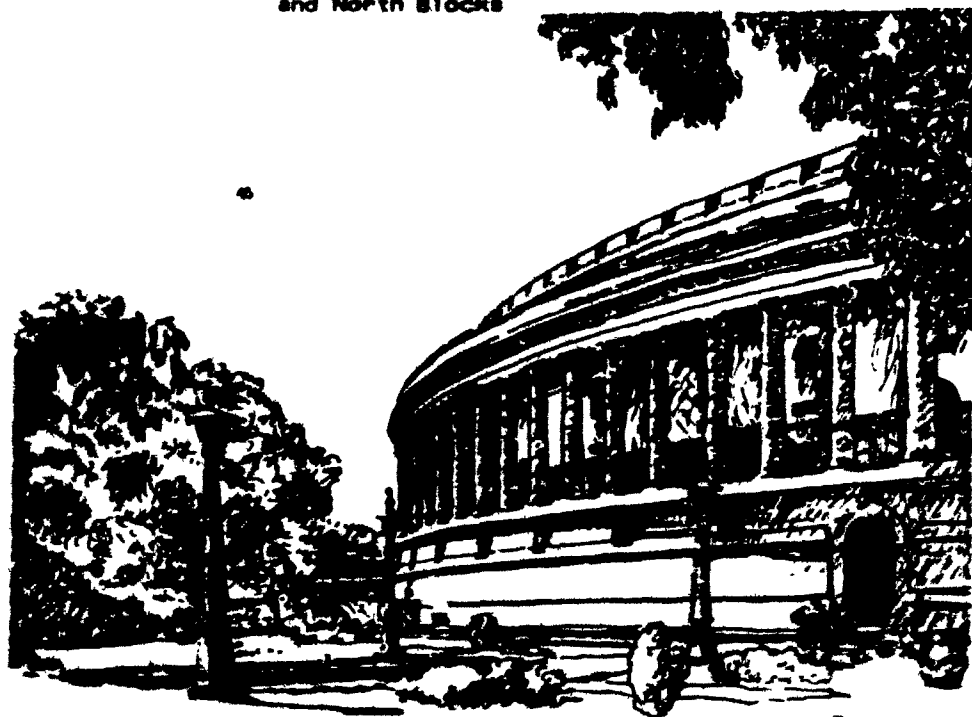


Fig 4.26 The Parliament House, New Delhi

bureaucracy, the north and south blocks of the 'Secretariat' completed in 1926.(fig 4.25) The remaining developed area was allocated almost entirely to the residential and institutional need of the government and its accompanying network of roads. Only in 1919 did a change in political relationship lead to a new, unit of government a 'Council of State' and 'Legislative Assembly' which therefore required accommodation. The circular 'Council Chambers' (now Parliament House) (fig 4.26), was symbolically inferior in size and elevation to both 'Government House' and the 'Secretariat' of the imperial bureaucracy.

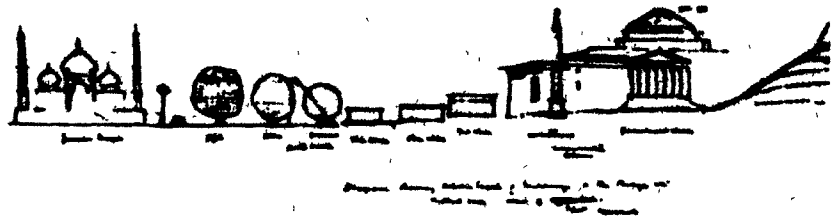


Fig 4.27 New Delhi, sketch showing the relative heights of the proposed buildings and the Ridge, by E.L. Lutyens



Fig 4.28 Palace of Bir Singh Deo in Datta



Fig 4.29 Edwin Lutyens' sketch of Viceroy's House, 1912. Source: RISB

4.12 The Acropolis

The dominant position of government buildings is clearly stated in the final report of the committee. From this position on Raisina Hill the government buildings dominate the city and its surroundings. They are always part of the view as the mightiest outline against the horizon. (fig 4.53) From the broad flanks of the Secretariats the eye is forced over to the dome of the Viceroy's House. This arrangement probably fits in with the general idea of the English role in India that was current then. The idea of an acropolis had been suggested already by the Committee who examined the nature of the ground, and Hardinge had seized on it. Lutyens and Brodie were instructed to go and look at old Muslim cities in India. This study, may have produced one result: Lutyens saw structures like the rock fortress of Chitorgarh and above all the Govind Palace of Bir Singh Deo in Datia. Today it is inhabited mostly by bats and it was in ruins even when Lutyens saw it, but the deserted buildings still dominated the town and the surrounding plains, and the outline of the roof with domes, towers and chattris inspired Lutyens' New Delhi plan.

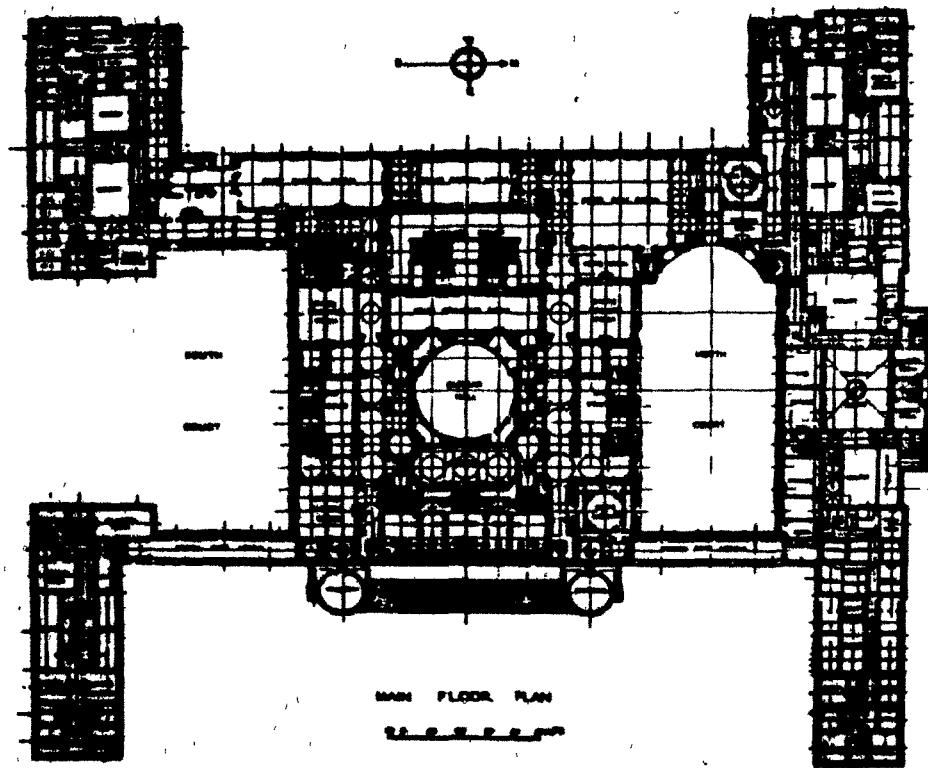


Fig 4.80 Plan of Main Floor, Viceroy's House

4.13 The Viceroy's House

The evolution of the Viceroy's house in all its stages has been dealt with more recently by Robert Grant Irving, Christopher Hussey and A.S.G. Butler; Robert Byron published a series of articles in the Architectural Review and Country Life, which describe his feelings for the finished building and the town that surrounded it at the inauguration. Here will be discussed a couple of characteristic features in the design of the building only. For further particulars the works of the above authors may be consulted.

Viceroy's House was sketched already on a minute plan which Lutyens drew in Simla at the end of May, 1912, and which he never greatly deviated from. The basic plan of the house is a symmetrical arrangement of rooms within a square or an H-plan, a void (more often a solid mass) which deflects movement around the intersection of the main axis, circumbulatory circulation, and symmetrical massing. The palace as eventually executed, its portico framed by outstretched L-shaped wings, remained faithful to a pair of hasty sketches Lutyens sent Herbert Baker from Simla on June 14, 1912. (fig 4.06) From the outset the circular Durbar Hall, inscribed within a square, formed the center piece. The rectangles labelled "State Garden" and "Privy Garden" reflected the eventual pattern of ceremonial and domestic activity in the Mughal Garden. (fig 4.30)

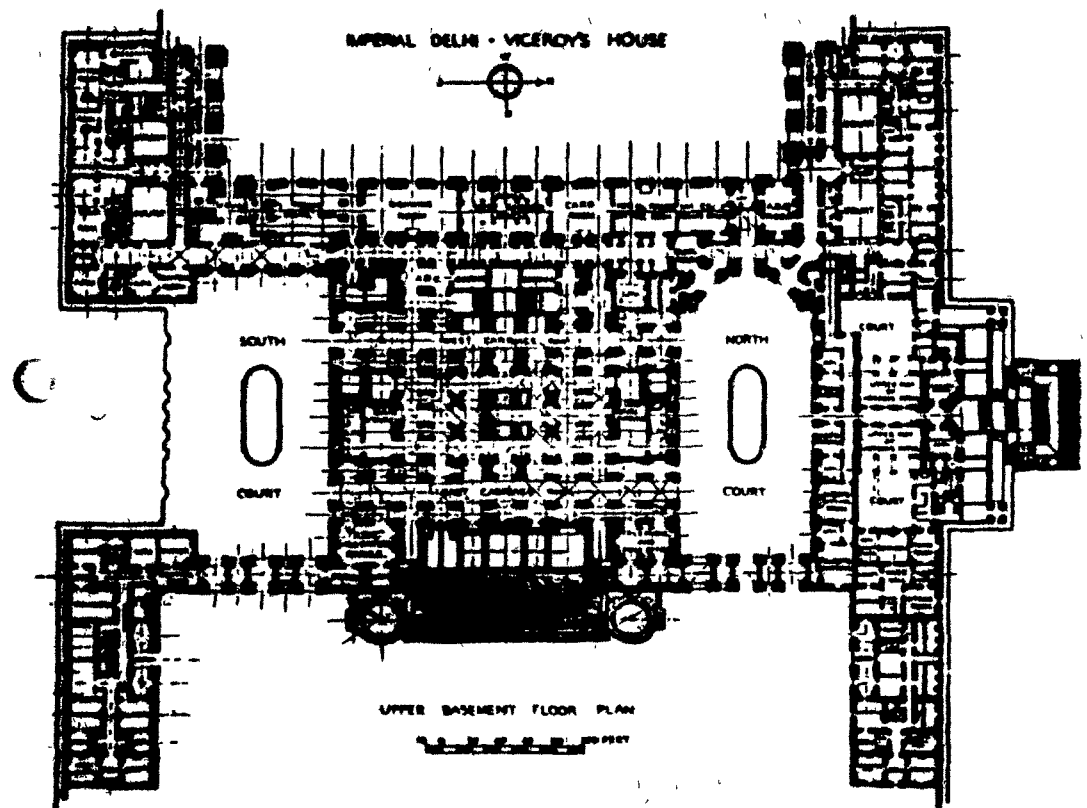


Fig 4.31 Plan of Upper Basement Floor, Viceroy's House

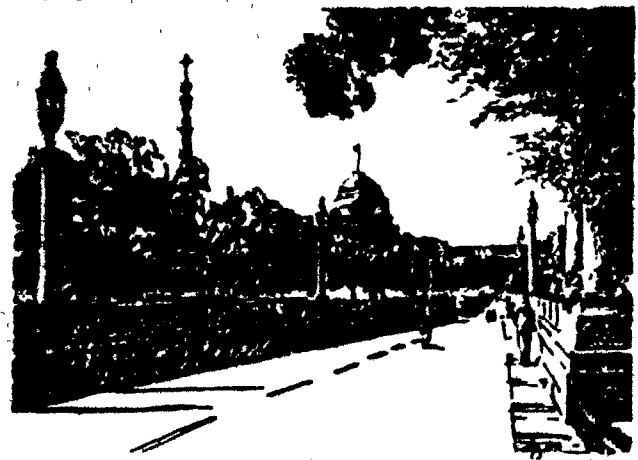


Fig 4.32 Side road in the Viceroy's forecourt

The central part of the plan is for official functions, the wings for private use and for guests, the court and the park are all there too, for official and private uses. The exterior is dominated by an enormous flight of steps, colonades and verandahs.(fig 4.24)

The sub-structure of the building are solid, like a part of the rock it rests upon. The side roads are deeply entrenched - Lutyens may possibly have been inspired by the approach to the Agra fort which runs between the high walls.(fig 4.32) Above the main facade rises the central dome which Robert Byron described as "the emblem of sovereignty the pivot and the reason of the city".¹⁴

The Durbar Hall has been provided with a counterpart in the staircase court at the other end of the state drawing room. Right at the top of the walls Lutyens has put in broad moulding which frames - the sky. The surprise on first discovering the deep blue rectangle is complete. The arrangement could be thought as an illusion of the Roman ceilings created during the Baroque era.

The stress laid on massive stone in Viceroy's House must be seen in relation to the open spaces around it and to the gardens on the west side of the house. When he was engaged for the Delhi project, Lutyens was already famous for his gardens. India signified something new as he was familiar with his English work. He had ended his first stay in Delhi by visiting the Red Fort, where he



Fig 4.33 The south approach to Viceroy's court

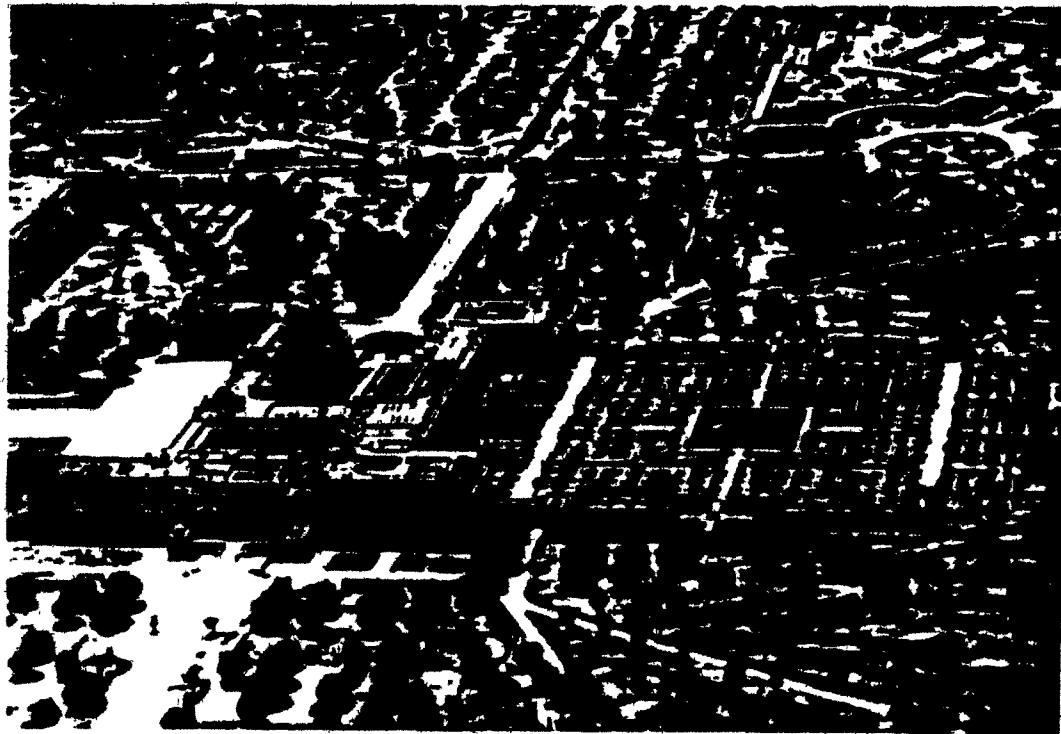


Fig 4.34 Aerial view of Viceroy's House and Mughal garden

asked the water to be turned on so that he could watch it flow through ponds and canals, spirt from fountains and wash the sculptured marble floors. This was how the Mughals had used it, as a counter to the heat, to cool air around and inside the buildings. The sound and sense of flowing water had pervaded this whole environment. Later on Lady Hardinge had sent him an exulted description from Kashmir, promising to send him pictures of the terraced gardens on the shore of Dal Lake. As he saw himself the arrangements at Agra and Fatehpur Sikri, even if some of them were dry.

The Mughal Garden

The garden was one of the chief pleasures of the palace. The Viceregal garden scheme which Lutyens submitted to the Government of India in 1918 was explicitly intended to be "of the Mughal type". Certainly Lutyens' Viceregal garden may be regarded as an extension of the house; the massive, nobly severe walls which enclose the garden literally grow out of the Lower Basement, while the interlocking rectangles of the house plan pervade the parterres. Walls and terraces cascade across the landscape in three waves down to the level of the plain, where the tranquility of a circular pool climaxes the main urban axes and faintly echoes the War Memorial rotary, more than two miles distant. (fig 4.36) Water gives a unity to the whole. Two glistening channels run westward from beneath the Garden Loggia and intersect

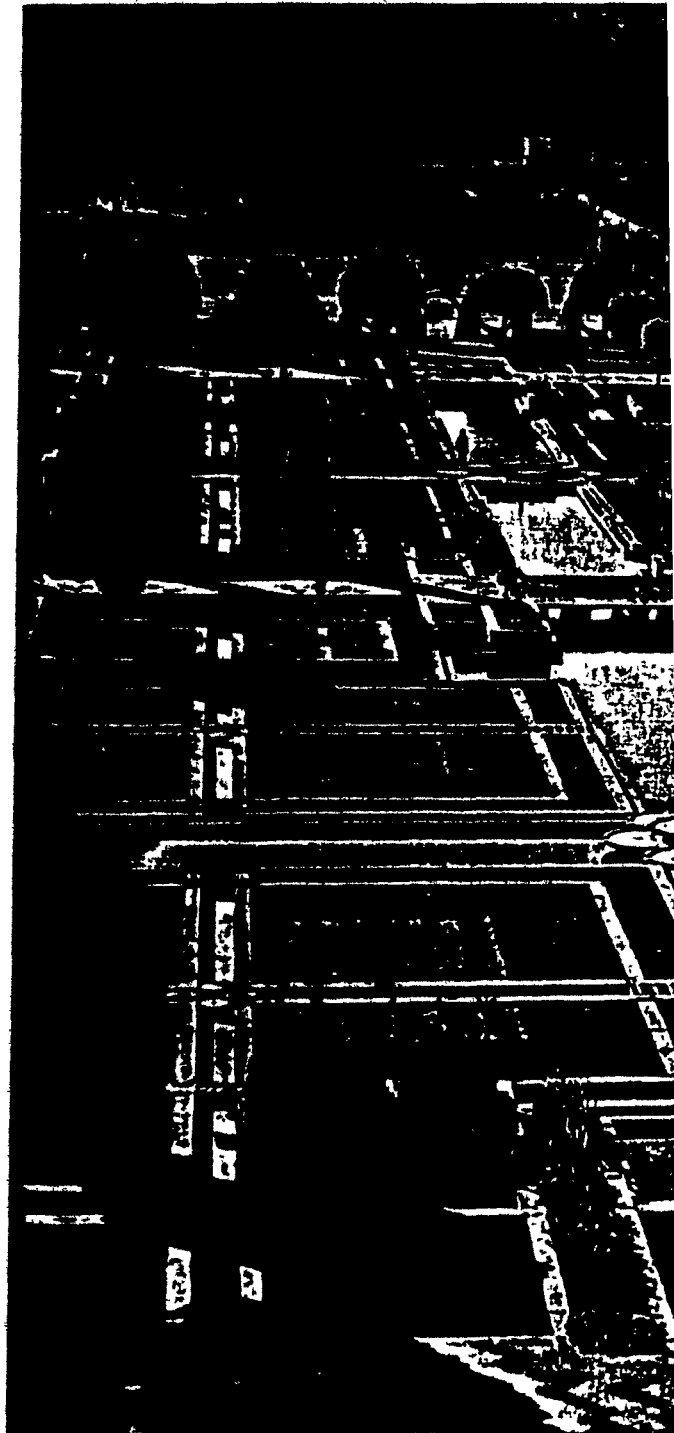
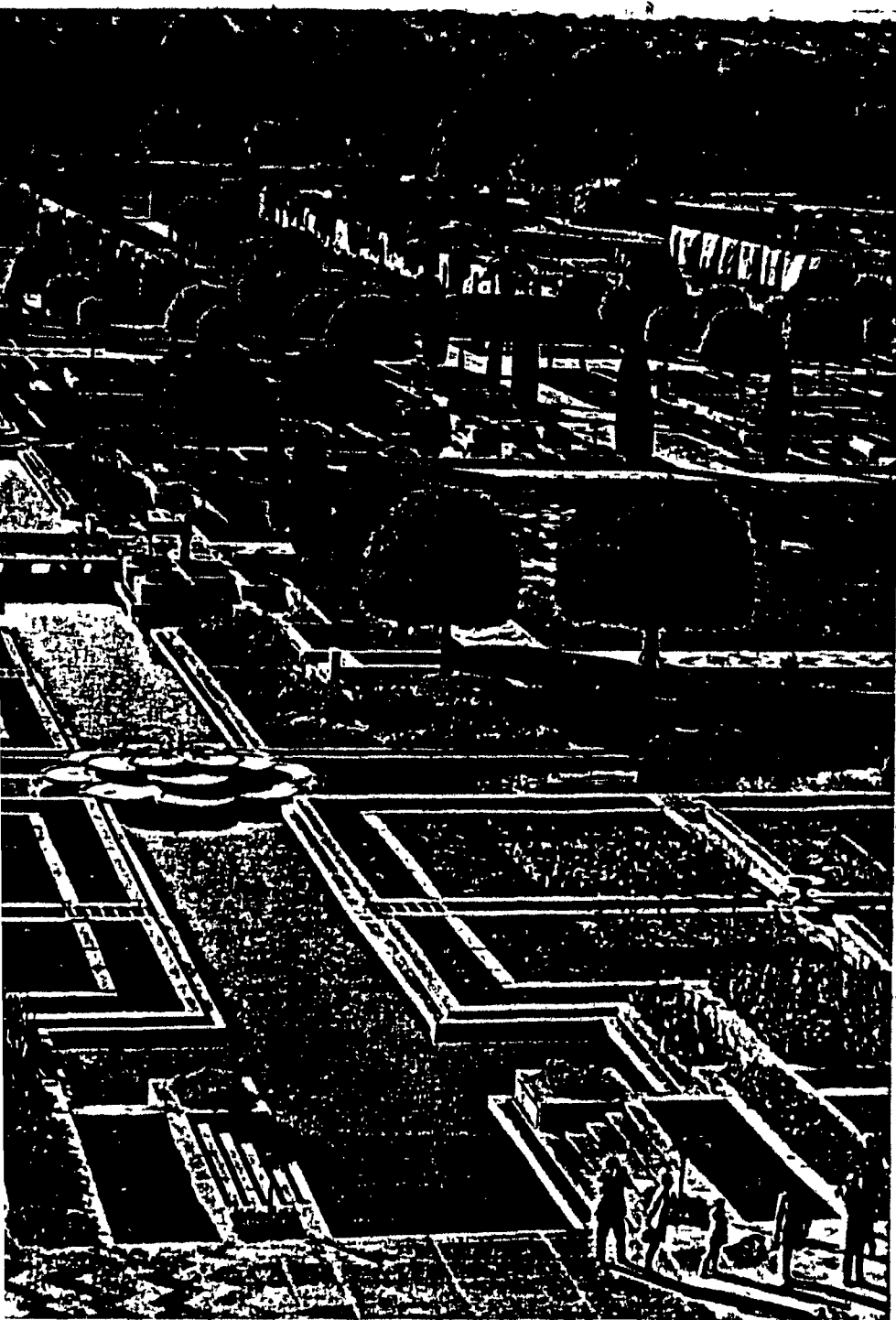
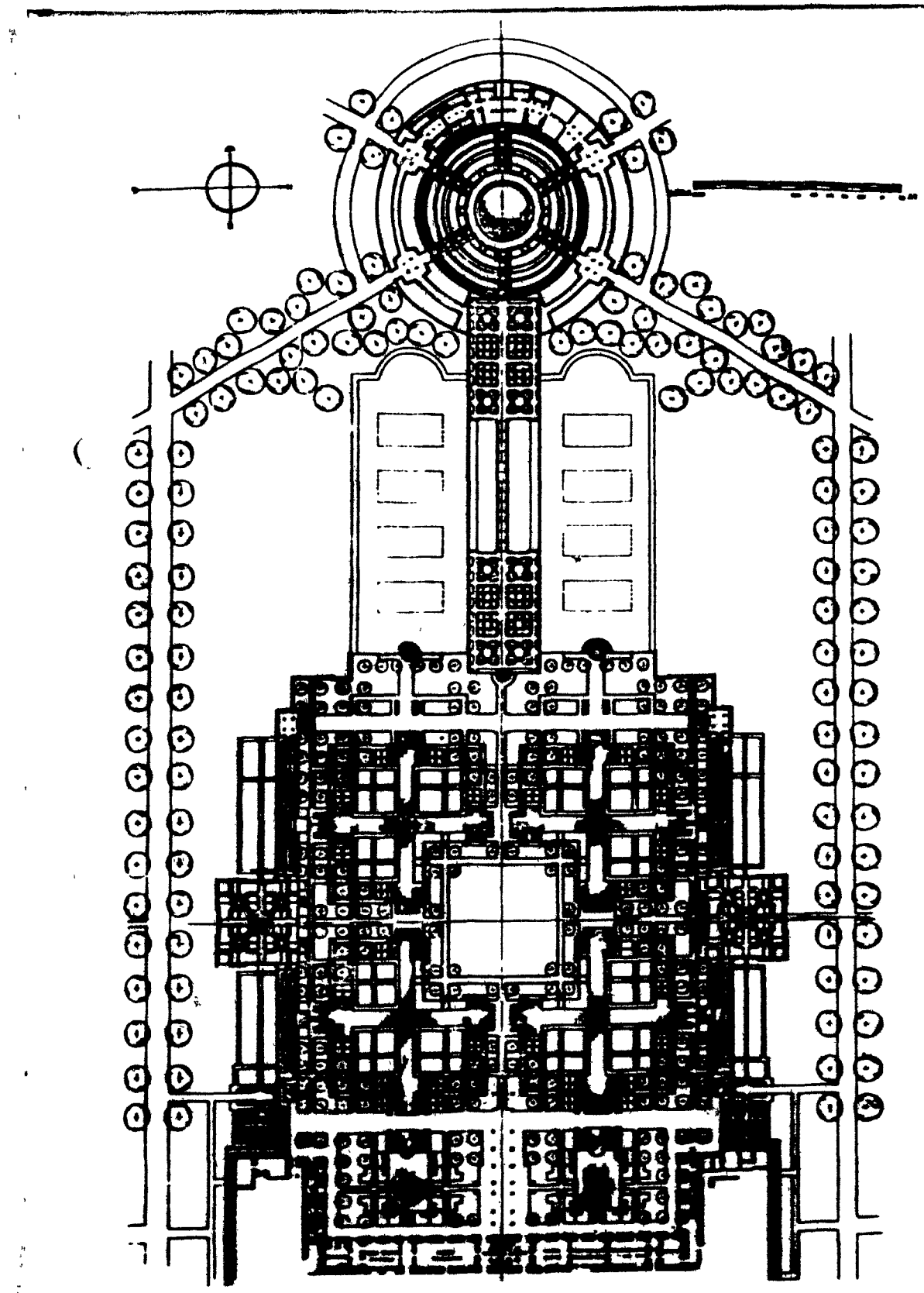


Fig 4.35 The Mughal garden by E.L.Lutyens, west from Viceroy's House



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with a pair of north-south canals. Circular fountains of sixteen-tiered lotus leaves (fig 4.35), carved from sandstone, scatter water in perfect rainbows from their twelve foot jets. Besides the palace, two larger fountains of eighteen leaves grace rectangular pools. At the heart of the water courses a 200-foot-square island provides a pleasant garden party terrace and outdoor reception. Intricate variations in levels, as well as scores of trees and two tall sandstone gazebos, endow Lutyens' composition with a sculptural quality.

The lushness of this 10 acres Mughal Garden accentuated the inhospitable nature of the surrounding landscape. The patterns of water, color, and symmetry from Lutyens' hand were in marked contrast to the arid, drab wilderness outside the estate.



Fig 4.37 The east front of the Secretariat blocks, New Delhi, by Herbert Baker, from a fountain in the Great Place

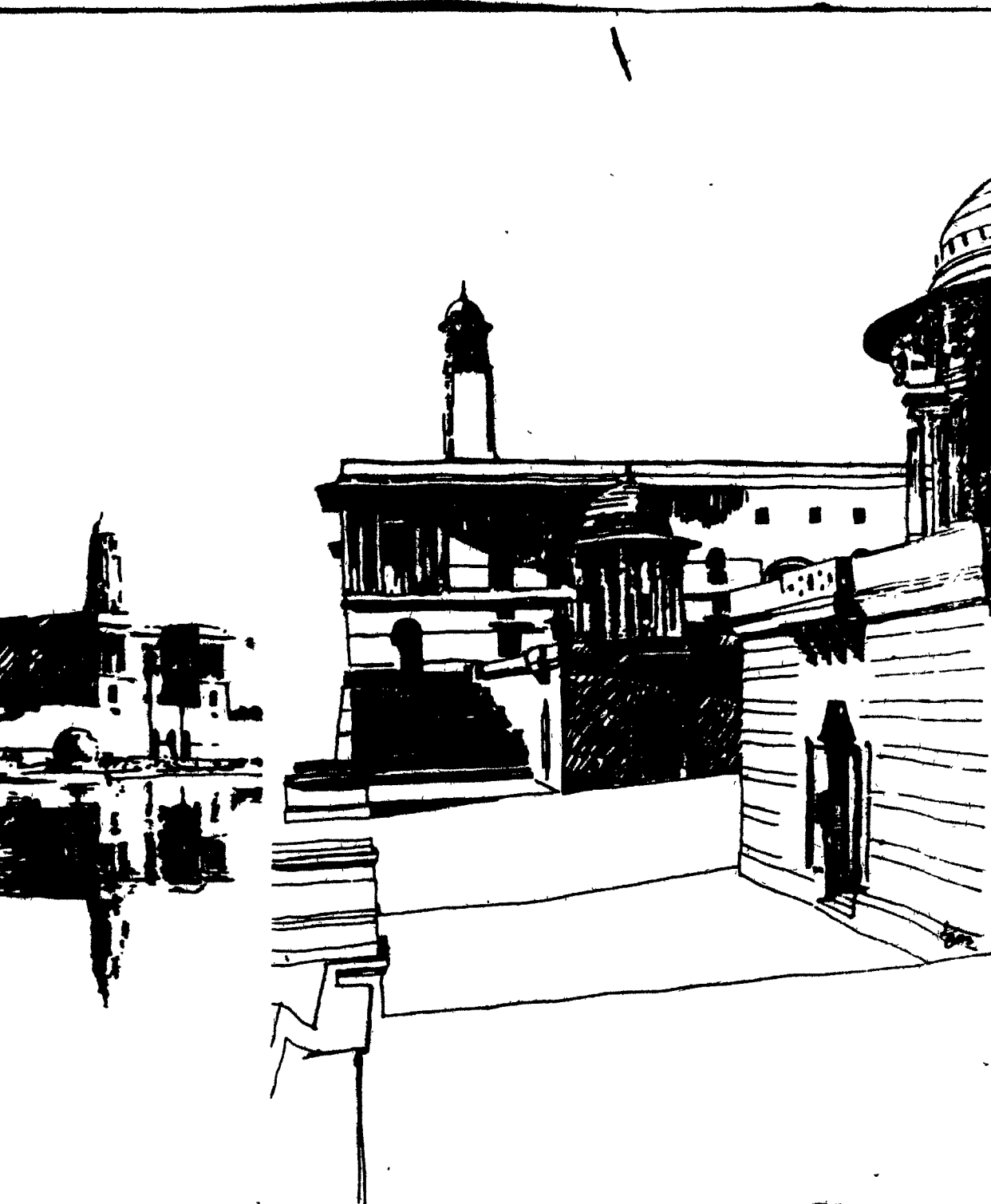


Fig 4.38 View of 30-foot wide stairs at the south
block of the Secretariat

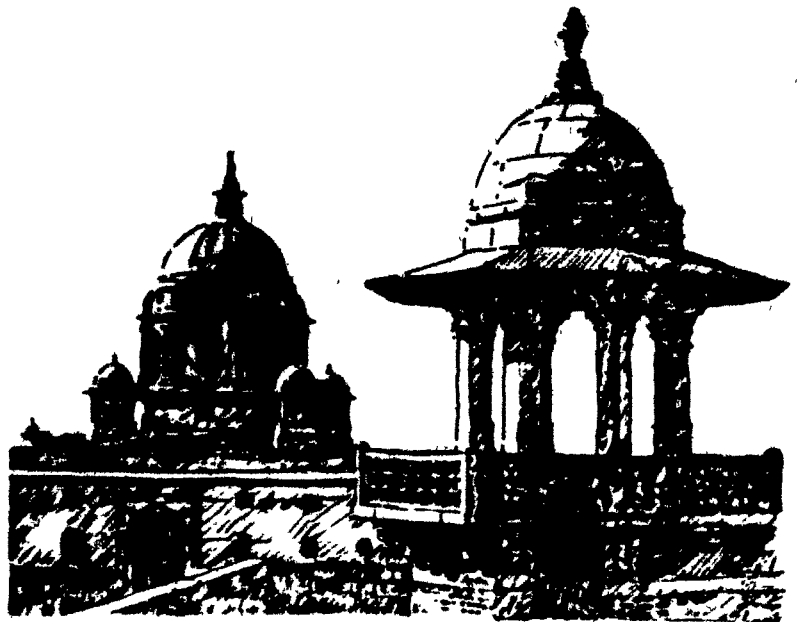


Fig 4.38 Dome of the North Block, Secretariat, from a chattri in the South Block

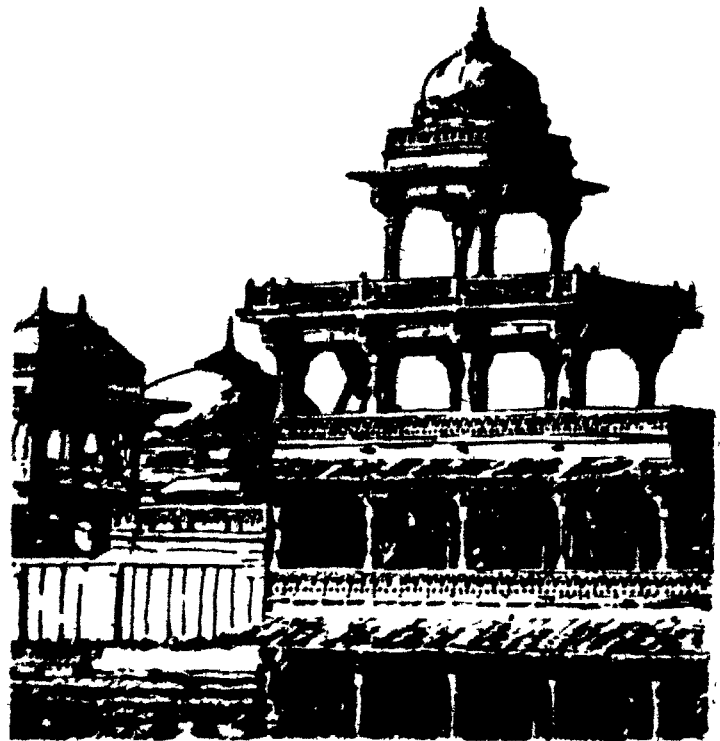


Fig 4.40 Chattri at Fatehpur Sikri, Agra

4.14 The Secretariats

The Secretariats were placed at a distance of 1,200 feet from the Viceroy's House. The two vast Secretariats buildings, each three stories high and nearly a quarter of a mile long, house every administrative department of the Government of India. Their dominating hilltop position, removed from ordinary traffic - was meant to impress and indeed to inspire a sense of reverence in all who approached. Such a piazza, Baker felt, reflected the spirit of Indian tradition as found at "all the palaces, big tombs and mosques", which were raised upon a natural plateau or manmade plinth. Ample precedents existed elsewhere in the East, notably at Persepolis, Babylon, and the ruined mount sites of Mesopotamia!¹⁵(fig 4.37)

The Secretariats' location served practical needs by convenient proximity to Viceroy's House. But equally the site expressed an ideal, the unity and "common dignity" of the Government of India as a whole. Baker thought that for Government House to have sole splendid occupant of Raisina's crest would have given too pointed emphasis to the Viceroy as supreme authority.

The question which seriously engaged all of them who were involved, as well as Hardinge, was that of the style. Hardinge and Baker believed that choice of style had political implications. The compromise between English and Indian would be a gauge of the ruler's general



Fig 4.41 Garden court, Secretariat, looking towards North Block



Fig 4.42 Arcaded courtyard in the Secretariat

attitude towards the ruled. Already at a very early age Hardinge had declared that pure Eastern or pure Western architecture would be equally out of place, and have to find a blend. His guiding principle at Raisina, Baker recorded, was "to weave into fabric of the more elemental and universal forms of architecture the threads of such Indian traditional shapes and features as were compatible with the nature and use of the building". He thought his duty not simply to draw upon the collective knowledge of great masters of European architecture, but also to accept the best of Indian sentiment and achievement in art.

As at Viceroy's House, indigenous architectural forms in the Secretariats were a response to practical climatic needs as well as to the requirements of political symbolism. Baker employed the characteristic Indian features of the open canopied chattri, an ancient royal emblem; the widely overhanging stone chujja, which protected walls and windows from driving rain and midday sun; and the intricately carved stone and marble jali, which admitted air but not noontime sun. Unlike Lutyens, he used recessed porch, a re-entrant vaulted portal that distinguishes many Mughal buildings. In Baker's adaptation a rectangular architrave enclosed a round-headed arch of two or more stories. Designed originally as cold-season offices, the Secretariats, were constructed without the continuous verandahs which normally served in India as sun shields. Instead, windows were kept small in proportion to

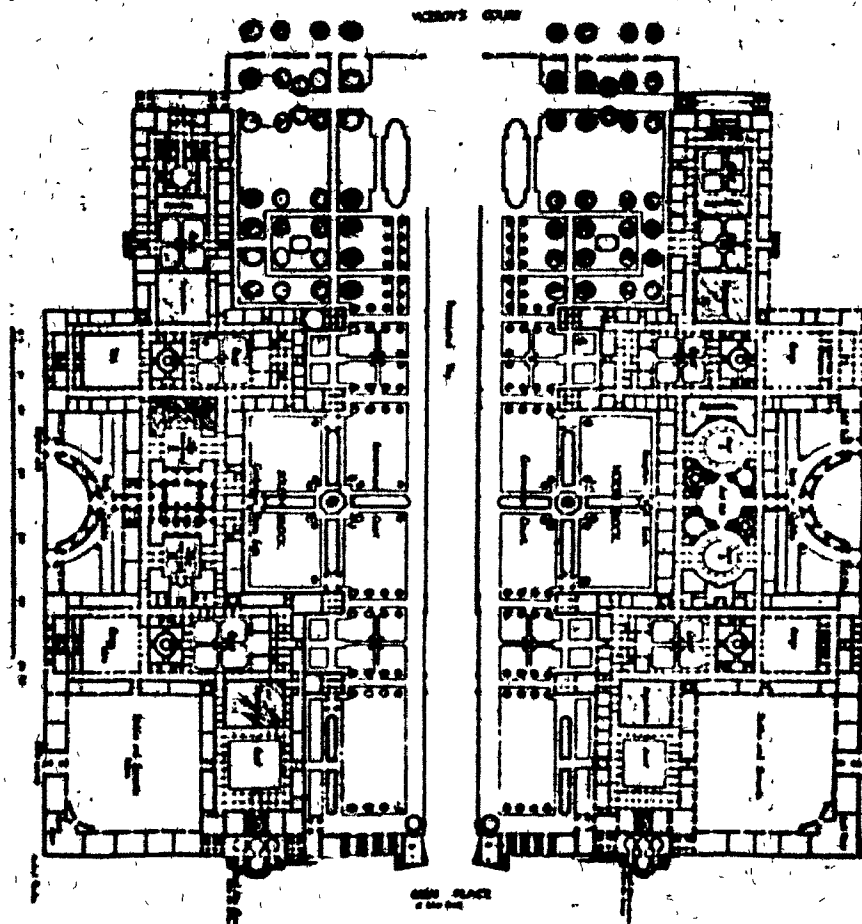


Fig 4.42 Plan of the Secretariat block

wall area, and their glass was deep set in thick wall away from the high rays of the sun. Teak louvered shutters screened the low sun of morning and evening. Lighting of rooms could be better as a result, and offices were not as gloomy in winter as with verandahs. (fig 4.41)

In each block, the basement contains garages, godowns, and archives; the first two floors comprise officers' rooms; and the top floor houses clerks. The multitude of high ceilinged rooms are arranged around a series of open arcaded courtyards which Baker called the most important feature of the Secretariat design. These courts forcefully conjure visions of elegantly harmonious Renaissance palazzi. But Mughal balustrades and the arches of the middle tier, broader than those below, inject a gentle dissonance of culture and proportion. The straight forward plan is an evident heir of palatial sixteenth and seventeenth-century schemes, giant symmetrical piles interwoven with inner courtyards, such as the Escorial and the Tuileries or, in particular, Inigo Jones' projected Whitehall, which Baker illustrated in an article.¹⁶

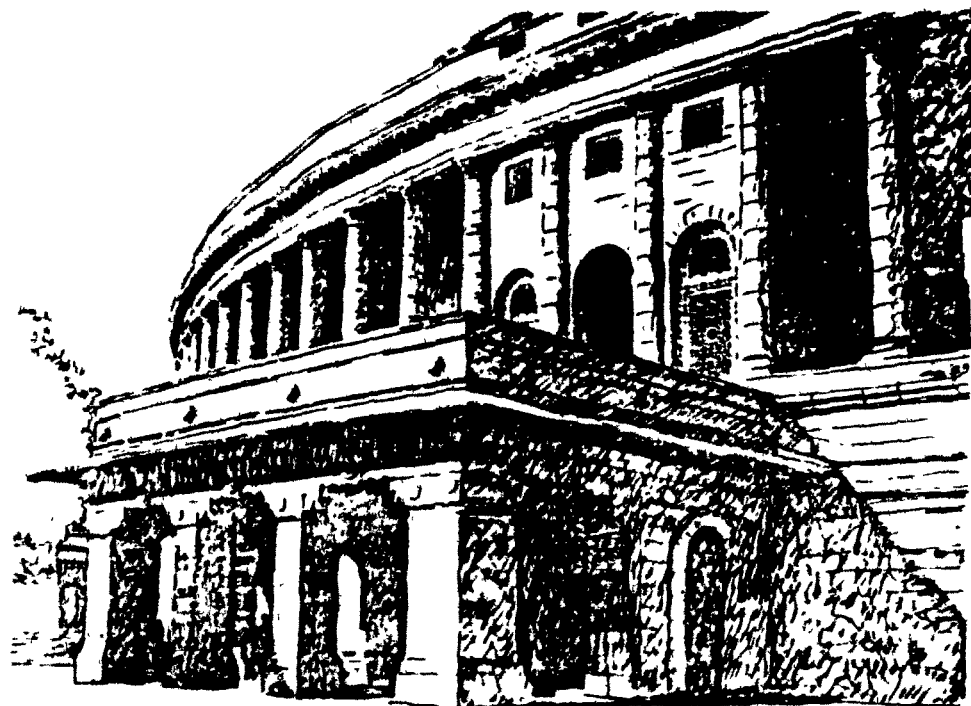


Fig 4.44 Main entrance, Council House, New Delhi,
designed by Herbert Baker

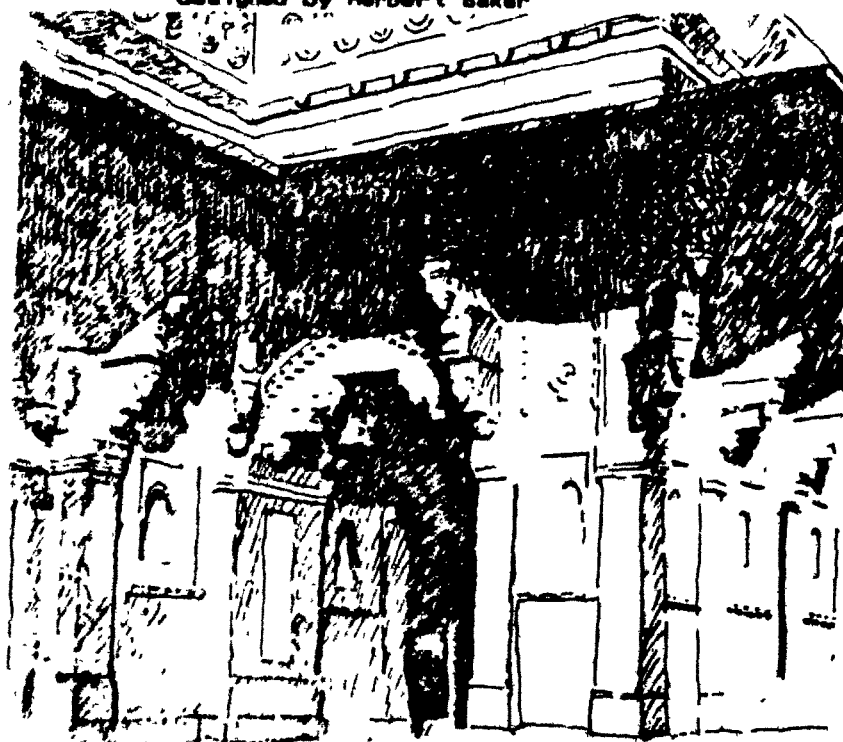


Fig 4.45 Entrance porch, Birbal's House, Fatehpur -
Sikri, Agra

4.15 The Council House

Baker's Council House at New Delhi likewise reflected the march of constitutional progress. The chosen site formed an equilateral triangle of more than a thousand feet each side. Baker first designed a monumental edifice of three wings, each containing a council chamber and linked to a higher central dome representing unity of the three estates. (fig 4.76, 4.48) Lutyens protested that the scheme was all wrong for the location, not properly related to the vistas and inadequately masking the offensive junction of Secretariats and avenue. He proposed instead the simplicity of basic geometry - a circular colosseum design. Baker quickly devised what he called a fairly good plan whose three chambers placed at equal angles around a low-dome circular hall precluded disputes over ceremonial precedence, but he dubbed it the "merry-go-round" and expressed doubts privately that it would be "the best for the purpose". He had to abandon his vision of a high dome seen rising from its base, for the outer perimeter wall would have cut in two any close view of it. The unifying symbolism of a prominent dome was lost. It was yet another case, he lamented, of geometry overruling sentiment and expression.¹⁵

DELHI
LEGISLATIVE BUILDING

FIRST FLOOR PLAN
1946-47

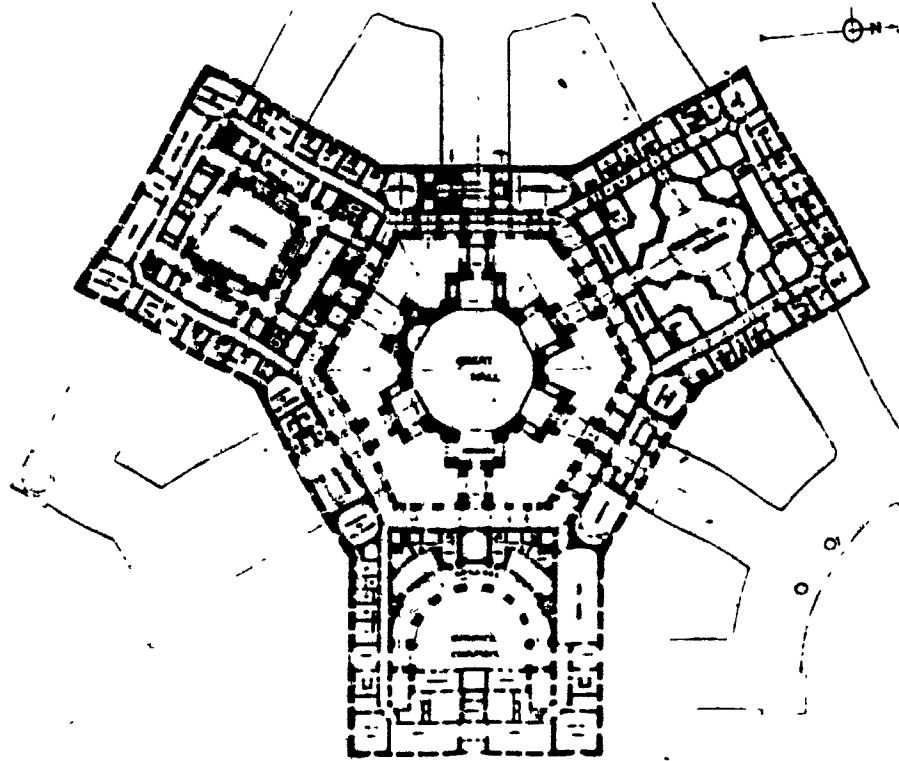
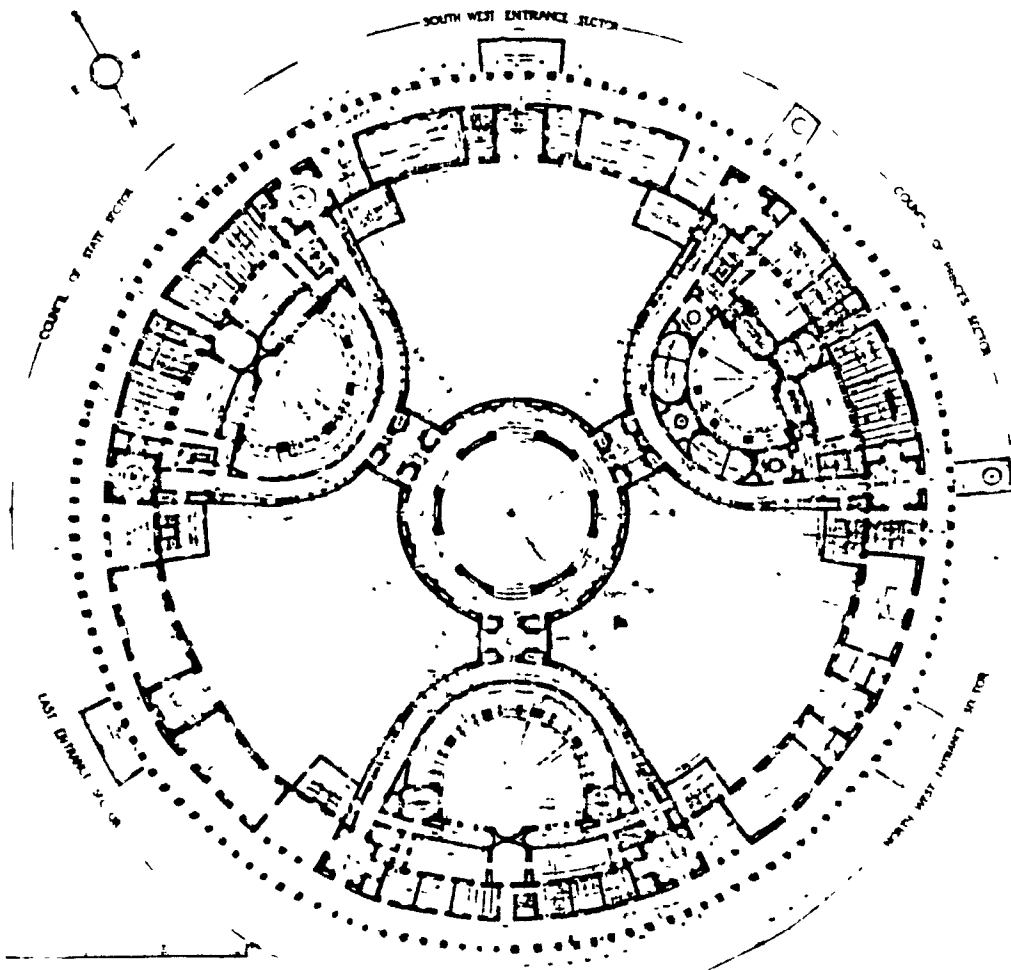


Fig 4.46 First floor plan of the original proposal for the Council House by Herbert Baker



FIRST FLOOR PLAN — ASSEMBLY SECTOR

Fig 4.47 Plan of the circular Council House, New Delhi, as completed, by Herbert Baker



Fig 4 48 Great Place at the Beating of the Retreat

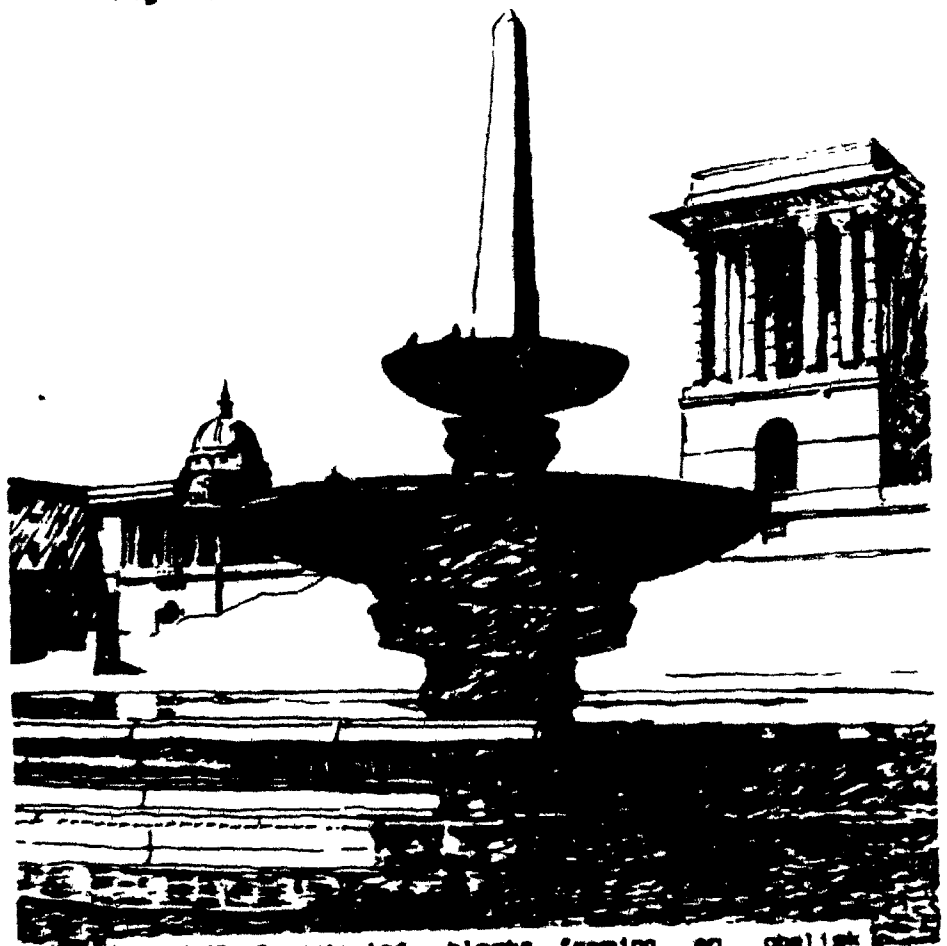


Fig 4 49 Secretariat blocks framing an obelisk fountain at the Great Place

4.16 The Great Place

The Great Place, or present Vijay Chowk, forecourt of the entire palatine acropolis at Raisina, was equally unambiguous as a statement of imperium. With its geometric bounds Lutyens tamed the limited plain, uniting indigenous and alien forms in a symmetrical plaza. Red stone Sanchi railings screened either end, recalling the plait that girdled the dome at Viceroy's House while six rhubarb-red obelisk fountains evoked at once memories of piazzas in Renaissance and Baroque Italy. Indeed critic Robert Byron unhesitatingly compared Lutyens' forum to St Peter's Square "for spaciousness and economy of design".¹⁹ Like that celebrated plaza, the Great Place served a ceremonial purpose and its austerity provided an effective foil to brilliant pomp and ritual state occasion.

Great Place, a rectangle with elliptical ends, 26.5 acres in extent, is lying across the axis of the main design. The middle is empty, save for the necessary traffic islands; so that nothing interrupts the view of the gradient between the Secretariats and the central dome above it. (fig 4.53) But at the either end of the Place are set of fountains, each 240 feet in length and consisting of two circular sheets of water joined by an oblong on a slightly lower level. (fig 4.49) In each of these triple groups, the fountains are set at right-angles to one another, the center one laterally, pointing outwards along the length of the Great Place, the other

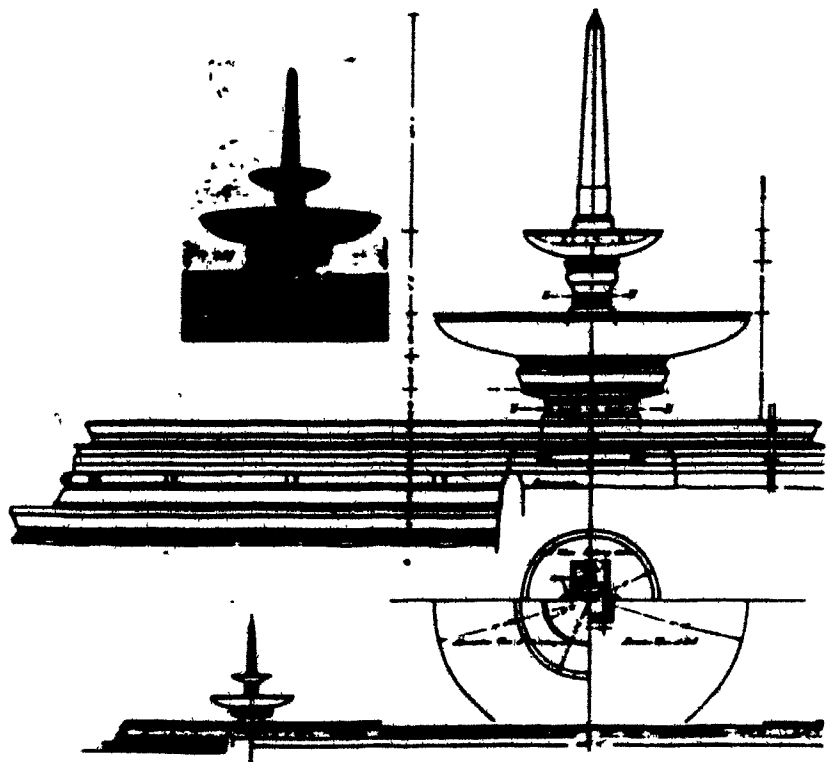


Fig 4.50 Plan and elevation of the fountain



Fig 4.51 View of the canal

two parallel with the King's Way and exactly in line with the flanking waterways, with which one of them actually connects, while its opposite number lies across the Place immediately beneath the end facades of the Secretariats. The circular sheets at either end of the fountains are of different sizes; the larger placed outermost in each case, and sprouting a stone obelisk; the smaller and inner decorated only with tiny curling jets. All six fountains are executed in the red sandstone, which turns a rich rust color when wet. Finally, the ellipses of the Place are rounded off with curving rush-plaited railings of the same stone, 15 feet high and finished with post bearing stone lanterns. From the plaza, broad canals, carried the eye down the vista of King's Way, linking the acropolis to Indrapat, the newest Delhi to its oldest site.

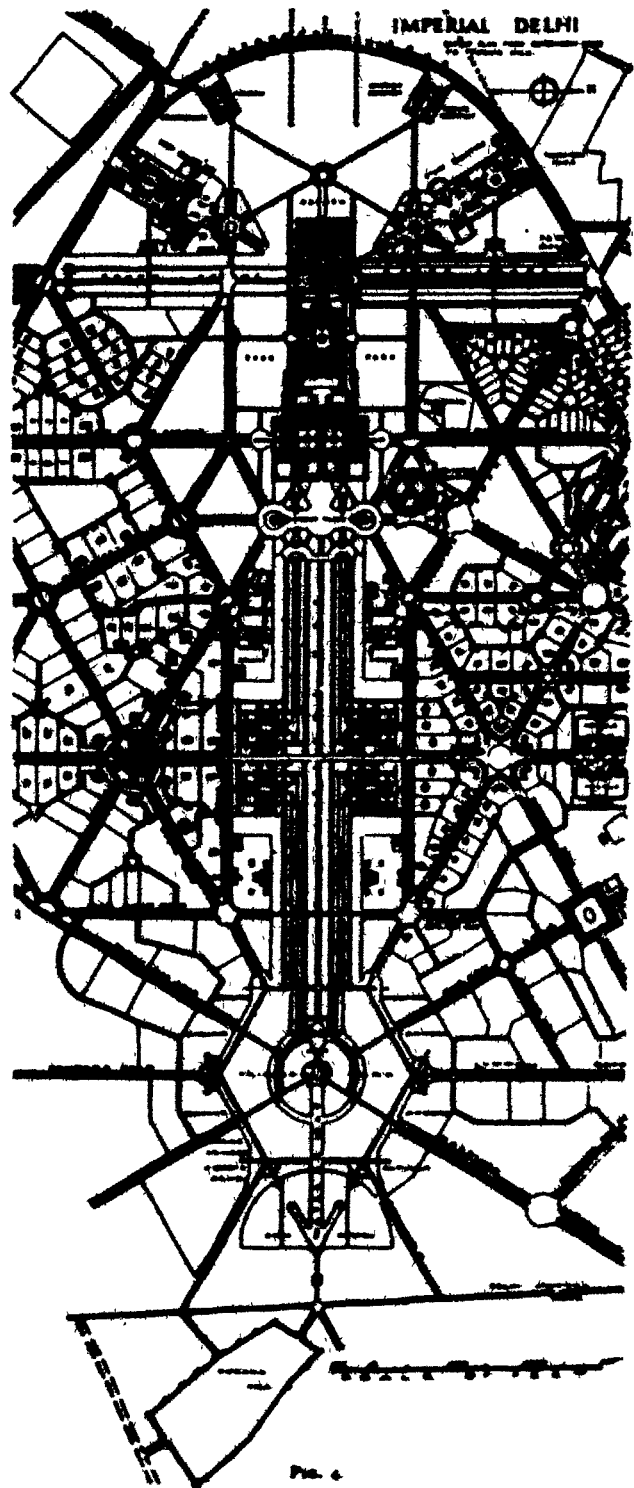


Fig 4.52 Plan - The Central Vista, New Delhi

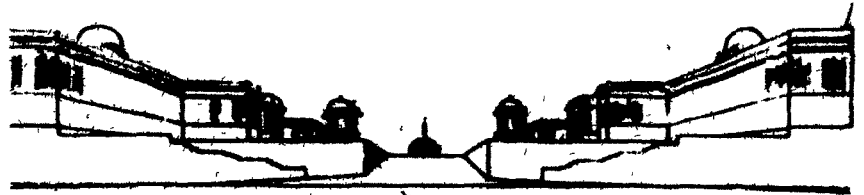
4.17 The Central Vista

Lutyens had planned Viceroy's House to an absolute scheme. The Secretariats were placed on either side in strict symmetry, and below these was the Great Place with its two fountains. The whole arrangement brings the mind back to Rome of the Baroque era. In baroque fashion this mighty ensemble was provided with a sequel in the form of the dominant central axis, the two-mile long King's Way, which extended from the house towards the river.

Viceroy's House and the King's Way justified each other, and Lutyens took it for granted that the portico and the dome should serve as the focal point during the entire length of the journey along the mall. But he failed to see the change that occurred in the perspective when the Houses of Government were moved up on the rise. Having been placed far back on the acropolis Viceroy's House was concealed by the knoll between the Secretariats. It disappears in front of the spectator, was reduced to a dome, re-appearing again, but the intended effect had been ruined. (fig 4.53) This mistake in the planning caused a bitter quarrel between the two architects. For this was a serious matter for Lutyens. He had not intended to play hide and seek. In fact, Baker and all others around him seem to have been conscious of the phenomenon, as it was anticipated already by the critic in the Town Planning Review.²⁰ But Lutyens discovered it too late. Work had progressed so far



Fig 4.53 from the Great Place, only the dome of Lutyens' Government House is visible



*Outline perspective view from centre of Great Court,
Grade (as agreed)*



*Outline perspective view from centre of Great Court
Steps cut back to a point the feet from centre of Column
showing bases of pillars of Government House (as proposed)*

Fig 4.54 Approach to the Government House, as designed (above) and proposed by Lutyens (below). Drawing by W.H. Nicholls, Architect Member of the Imperial Delhi Committee, March 28, 1916

that the fault could not be corrected. He appealed to all instances, even to the King himself, in vain. His plans had been crossed at a vital point and having such a delicate aesthetic conscience, he experienced it as a disaster. Those around him accepted it more philosophically. Baker remarks in his memoirs: "In a two mile vista a prospect which for a part of the distance hides and then reveals itself again is rather an attraction than otherwise".

More recently critics of architecture - Gordon Cullen - have agreed with him. "Travelling it from the Central Vista we see the two Secretariats in full, but the Rastrapati Bhavan (Viceroy's House) is partially hidden by the ramp; only its upper part is visible. This effect of truncation serves to isolate and make remote. The building is withheld. We are Here and it is There. As we climb the ramp the Rastrapati Bhavan is gradually revealed, the mystery culminates in fulfilment as it becomes immediate to us, standing on the same floor. But at this point the railing, the wrought iron screen, is inserted; which again creates a form of Here and There by means of screened vista. A brilliant, if painfully conceived sequence".²¹ (fig 4.55) But seen Lutyens' standpoint, King's Way was not intended to provide diversity. The route, had been planned from the Viceroy's absolute position in the Durbar Hall, the single place from which the entire axially could be grasped. The ordinary spectator on ground level finds the dimensions

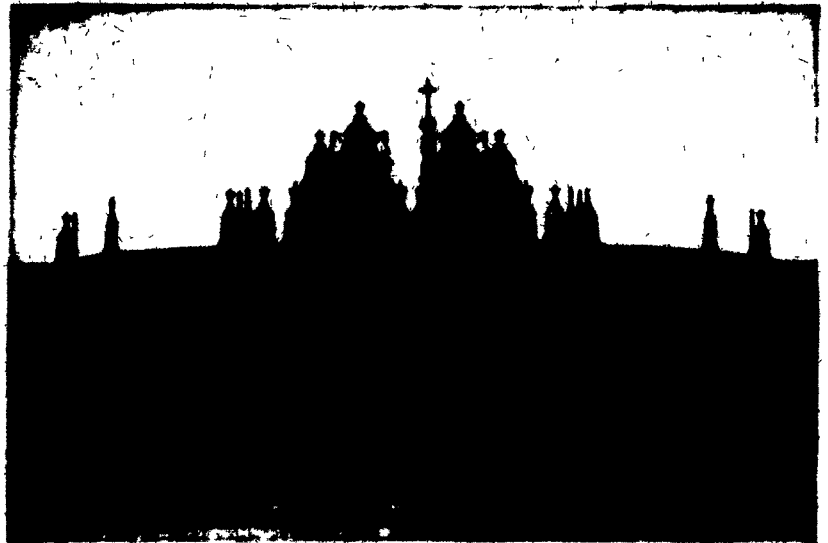


Fig 4.55 The iron grille at the east entrance to Viceroy's court

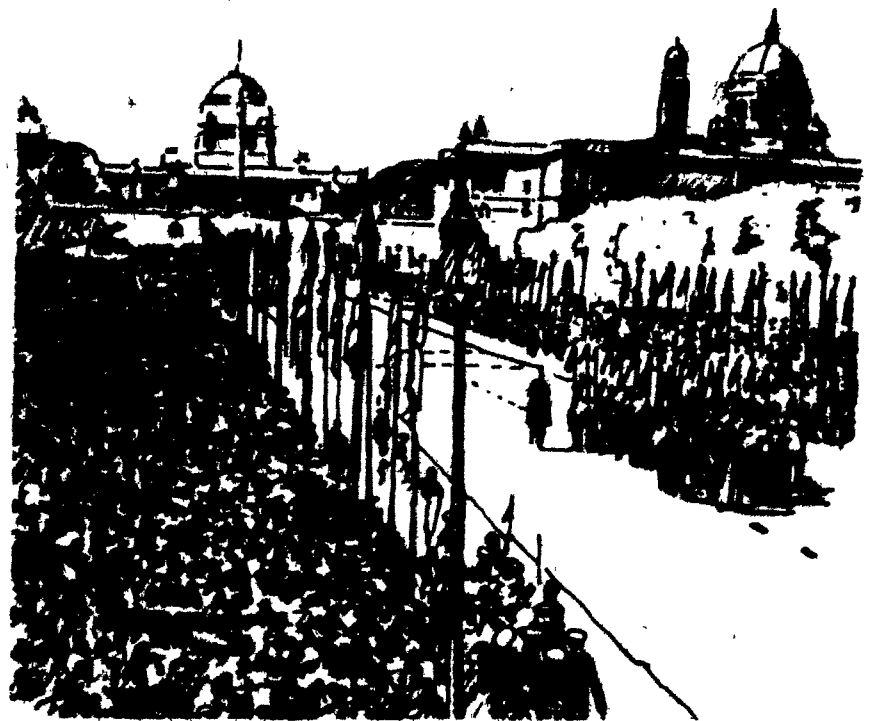


Fig 4.56 The central vista continues to serve as a setting for ceremonial. The Republic parade, held annually on January 26

over-powering, and clearly calculated to re-enforce the effect of parades in which people are reduced to triviality and elephants determine the scale.

Like other conventional parade routes King's Way was given a rounding off with a triumphal arch on which work was begun in 1921, to commemorate the thousands of soldiers who died in the First World War and during a series of campaigns on the North West Frontier.

Champs Elysées served as a criterion for the working out of details of King's Way on several occasions. The architects suggest a width of 480 feet, Hardinge, who found the whole thing over-dimensioned, pointed out that Champs Elysées was only half that width, and this in spite of the fact that the street was real city street with tall buildings on either side. In New Delhi it would be impossible to fill out the long flanks. But Lutyens' idea was to fill the gap with gardens, and King's Way came to be characterized by strings of grassland, avenues of trees and extensive ponds instead of buildings. Throughout its enormous width, the vista became a simplified version of the Mughal Garden at the other side of the Viceroy's House. (fig 4.58)

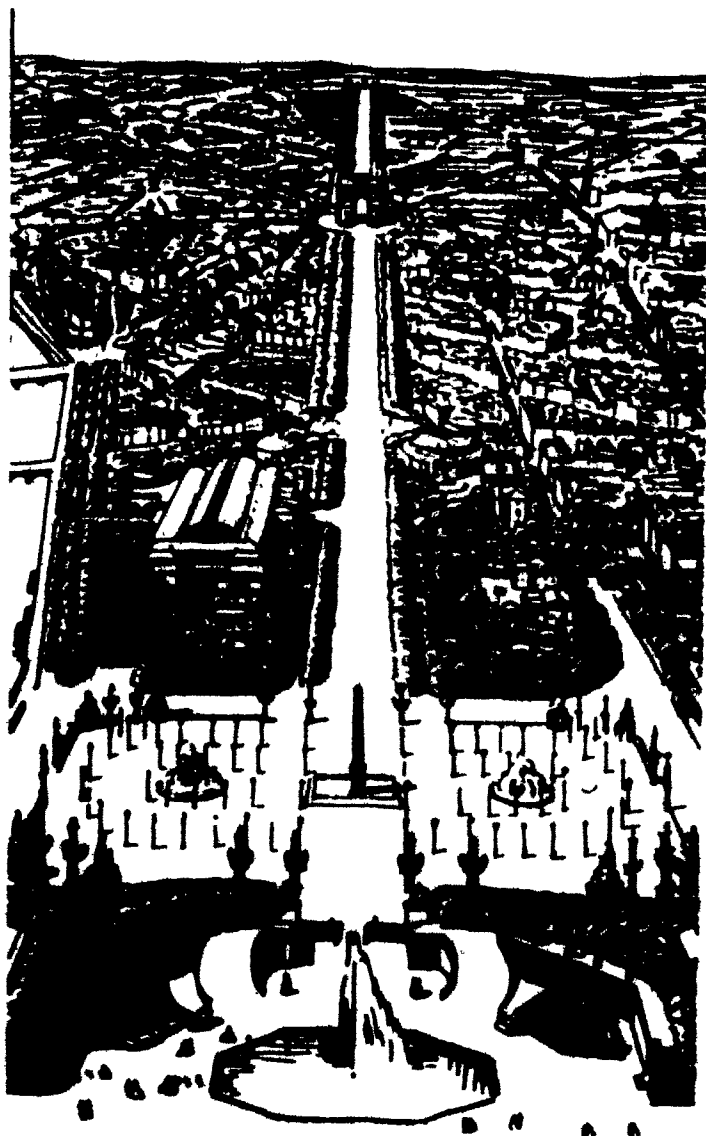


Fig 4.57 View of Champs Élysées



Fig 4.58 Central vista, looking from Vicer



from Viceroy's court

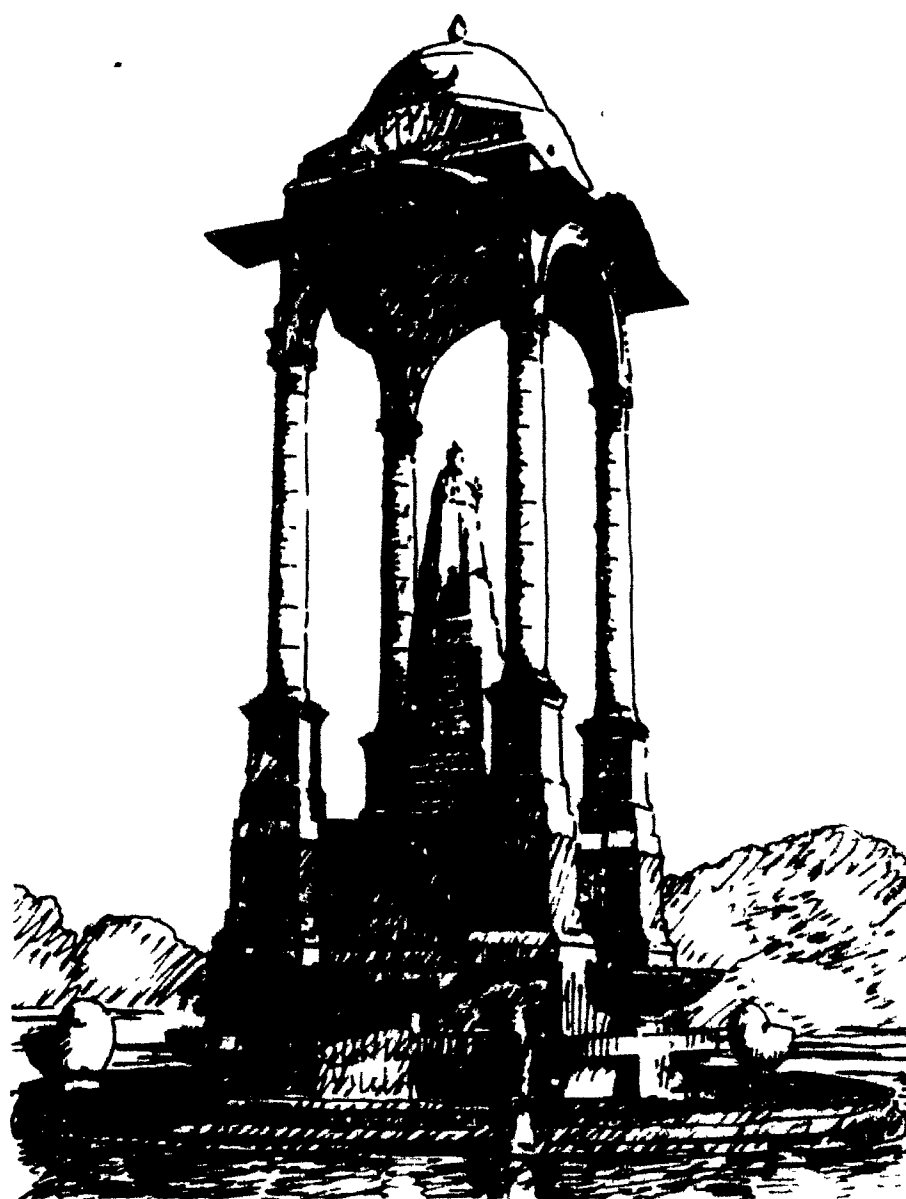


Fig 4.38 King George V Memorial, Princes Place

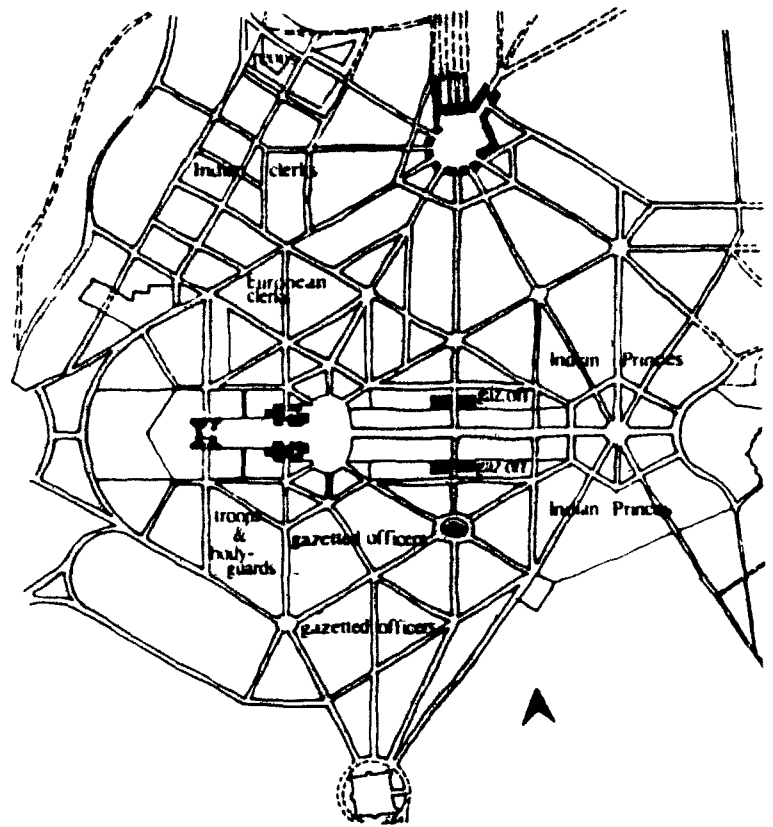


Fig 4 60 Plan - The segregated pattern of New Delhi
After revised index plan, 1914. India Office
Library

4.20 Residential Requirement

Within the hexagonal grid areas were allocated on criteria of race, occupational ranks and socio-economic status. Five basic types of areas were created:

- 1 for gazetted officers, mainly, though not entirely European
- 2 for European clerks
- 3 was set aside for Indian clerks and lower ranking officials
- 4 for members of the Indian elite, the nobility of the native states
- 5 'non-official' space, occupied by those with insufficient rank for status to qualify for a place within the Imperial City (4.60)

In each of these main sectors, accommodation, varying in size of house and compound, was allocated according to status with the highest-ranking positions, where, possible, nearer to 'Government House'. From the Viceroy, via the Commander-in-Chief, Member of the Executive Council, senior gazetted officers, down to superintendents, peons, sweepers and washermen, a carefully stratified spatial order was integrated, both in terms of physical distance and spatial provision, to the social structure of the city.

In front of the Secretariat on either side of the 'Central Vista' were the Honourable Members of the Executive Council. South of the Vista, the entire area was occupied by the gazetted

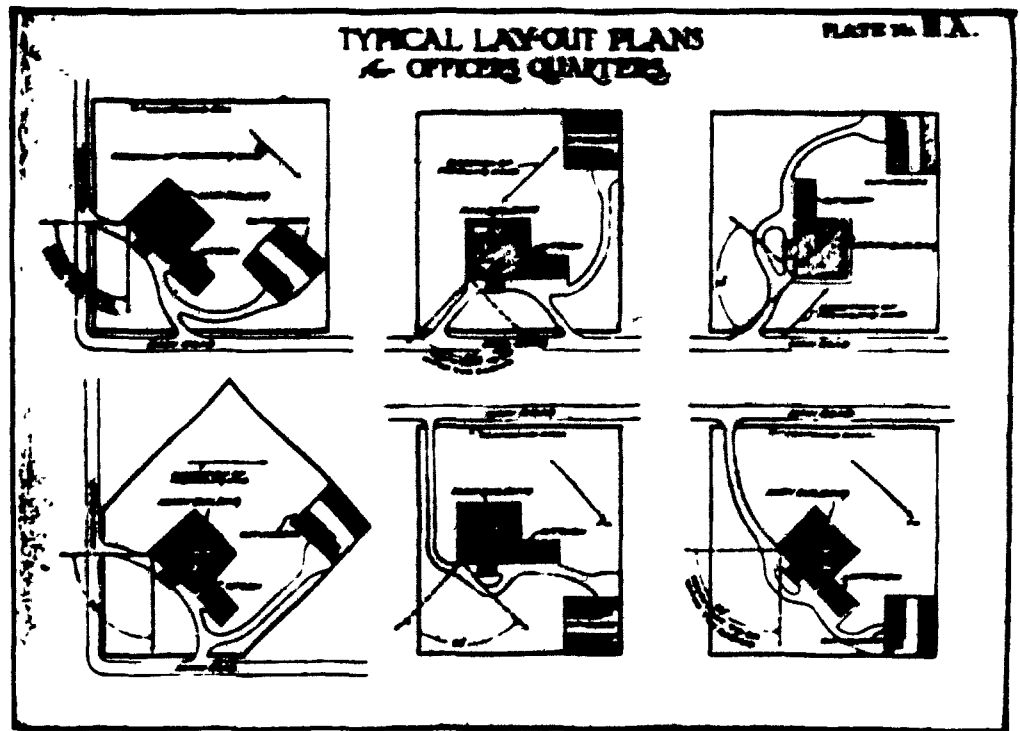


Fig 4 63 Bungalow-compound complexes of New Delhi

3

The original plan of 1912, the relationship of size to status in the official hierarchy had been:

Member of Council	- 6 acres
Class I officers	- 5 acres
Class II officers	- 4 acres
Class III officers	- 3 acres
Class IV officers	- 3 acres
Others	- 1.75 acres

This scale was subsequently revised, sites allocated to the ruling Princes varied between 4 and 8 acres, the gazetted officers 2 to 3.5 acres and .25 for Member of the Legislature. Residential sites leased out for private use ranged between 1 and 3 acres though these were subsequently reduced.

The reproduction of the basic bungalow compound unit, together with main and service roads, paths and service areas clearly meant very low residential densities. By 1940, within the main 4.5 square miles (about twice the size of Shahjahanabad with its 250,000 inhabitants) some 640 residential units had been laid out, each with its frontage of between 50 and 120 yards.

4.22 Bungalow

Each bungalow-compound unit accurately conformed to the basic model evolved by the colonial culture over the previous two centuries. The colonial bungalow, more accurately described as the colonial bungalow-compound complex, is the basic residential unit of the

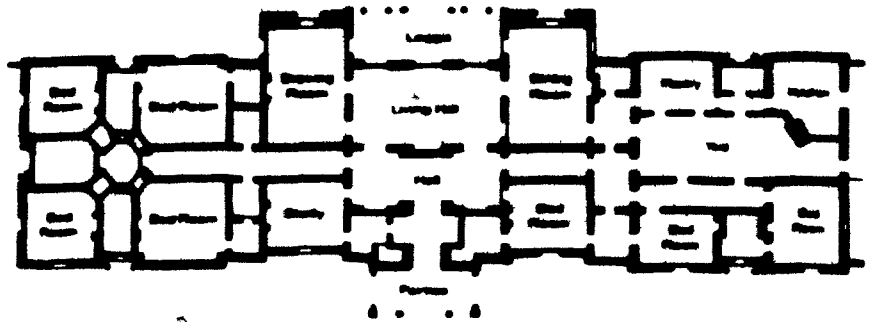


Fig 4.64 Plan of a bungalow



Fig 4.65 View of a bungalow

colonial urban settlement.

The typical bungalow consists of a low one storey, spacious building, internally divided into separate living, dining and bedrooms, the latter with attached rooms for bathing. A verandah, forming an integral part of the structure, or alternatively, attached to the outside wall, surrounds part or all of the building. The bungalow is invariably situated in a large walled or demarcated 'compound' with generally one main exit to the road on which it is situated. The kitchen, as well as servants quarters, stabling and room for carriage and car, are separated and placed at the rear of the bungalow. (fig 4.64)

Both Lutyens and Baker had delivered drawings of residential bungalows which, however, were too expensive to construct. Once the idea of an open competition had been dropped, the undertaking was handled by the Public Works Department's architects. The first houses for gazetted officers were erected in 1917. The war and the ensuing financial restrictions, slowed down the building program for few years till it was in full swing once more at the beginning of 1920s. The houses were arranged in classes, the size of the gardens and of the servants' quarters depended on the owner's years of service and financial standing although the style was always the same. All houses have one storey only, with the possible addition of a high parapet or attic.

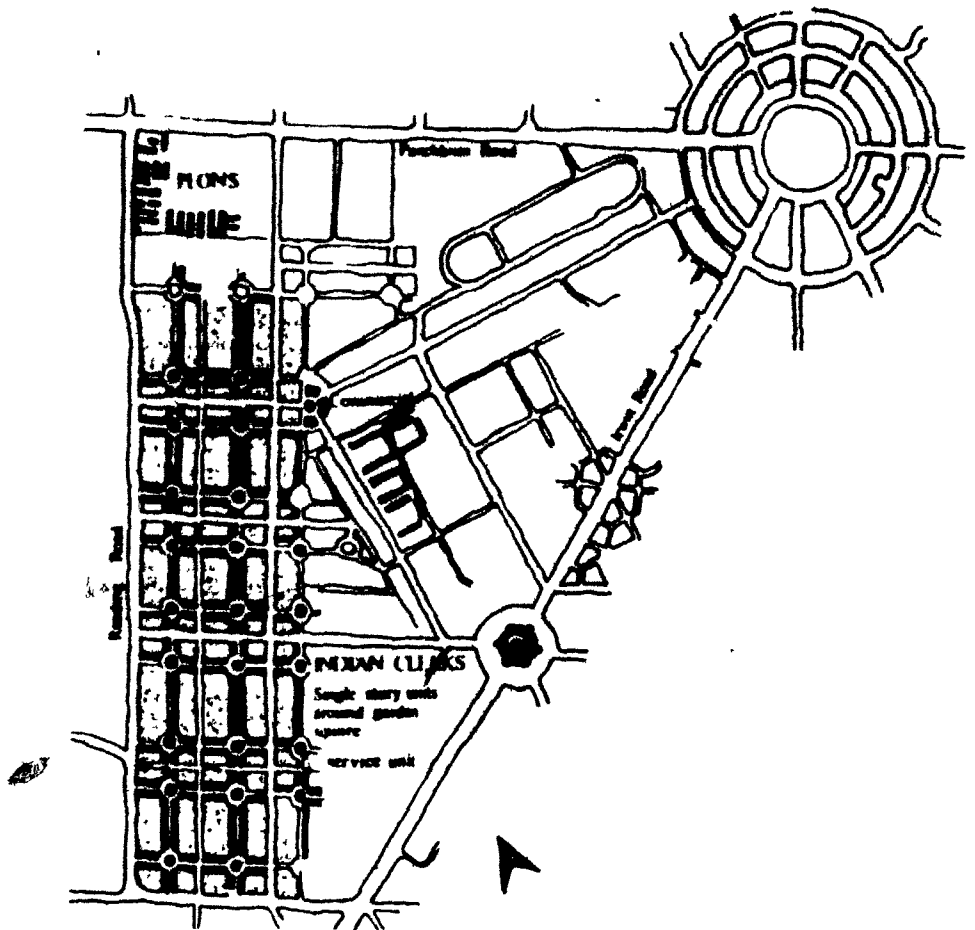


Fig 4.66 Layout plan of clerks' quarters in the north-west corner of the city



Fig 4.67 Clerks' quarters around a central square

The more superior residences have deep verandahs with Tuscan columns. The houses are all without exception white or cream in color. The paths around are surfaced in red brick dust, and facades are shielded by screens of greenery. The casual passerby receives an impression of a very private environment. There is an atmosphere of seclusion and aloofness about the whole plan.

In the north-west corner of the city, enclosed by Irwin and Reading Roads, was the sector for the Indian lower status assistants, stenographers and clerks. As elsewhere, the size of the quarters varied according to the status of their inhabitants. Accommodation was divided between 'orthodox' and 'unorthodox' Indians and the form of single storey, quadrangular terraces facing on the central square. (fig 4.66, 4.67)

Along the boundary demarcating the new from the old city and its suburbs of Paharganj, were the laundry, Mohammedan cemetery, peons' quarters, and further removed from the center of social power, quarters of the sweepers.

Accommodation for European clerical personnel lay south-east of that for the Indian clerks, along the Irwin Road. For unmarried European males, specially designed accommodation existed in the 'chummeries'.

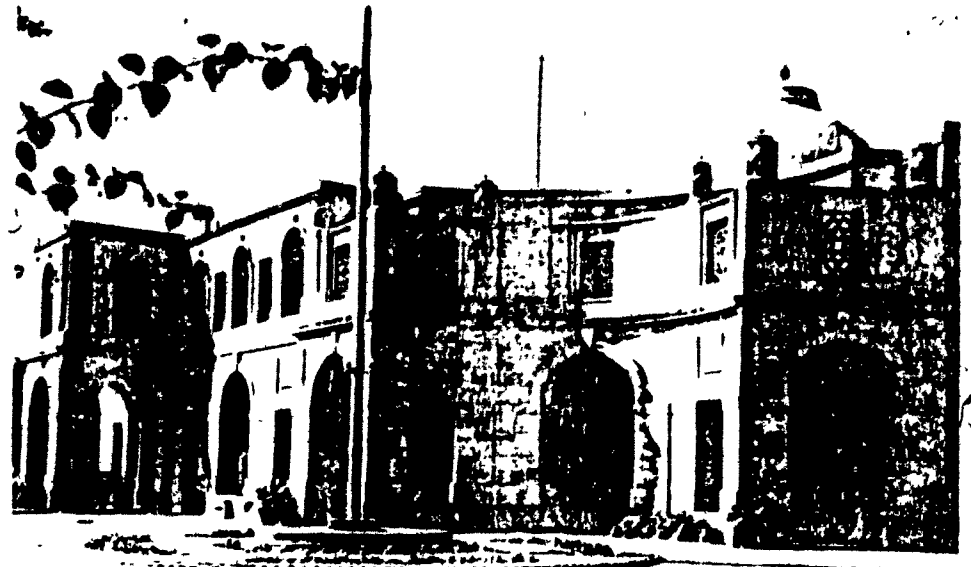


Fig 4.68 Baroda House, Princes Place, New Delhi, for the Gaekwar of Baroda, by E.L.Lutyens



Fig 4.69 Hyderabad House, Princes Place, New Delhi, for Nizam of Hyderabad, by E.L.Lutyens

The local elite were located at the Eastern side of the settlement, their distance from the center of authority compensated for by the size of their individual territories. Grouped around 'Princes Park' were the 6 or 8 acres sites in each of which were the palaces of the principal indigenous rulers. (4.68, 4.69) Along the boundary road of Hardinge Avenue and Sikandra Road, on the north side of King's Way, official bungalows were allocated to Indian members of the 'Council of States' or 'Upper House' of the newly formed legislature.

New Delhi's character of a permanent camp is obvious, the connection with the Durbar camps is clear. Various other circumstances show that planners such as Curzon, Hardinge and the other camp-arrangers, saw their task first and foremost as a question of organization. It was a matter of providing accommodation on a large scale and as such it was solved along the simplest lines possible. In Delhi, a total of 1,667 houses were required for officers of all ranks, 1,157 smaller residences for clerks and 850 quarters for menials.



Fig 4.70 Location plan - Connaught Place

4.3 Commercial Development

In contrast to residential provision in the city, retailing and marketing took second place. In the two decades between 1911 to 1931, the economic needs of the colonial community continued to affect sections of the old city rather than the new. This was particularly so in the traditional European enclave of Kashmiri Gate.

The use of the Civil Station as the temporary capital reinforced this trend. As the station itself typically provided few facilities, the neighborhood of Kashmiri Gate emerged as an area of specialized Western trading. The influx of Europeans between 1911 and 1921, low in number though high in status, was followed by institutions to meet their needs. But by 1931, Kashmiri Gate had become the principal entrepot for the Western goods and services into Delhi.

For less frequent needs, of those more easily supplied by the local population, the main retailing outlets were in Chandni Chowk and other parts of the old city where 'oriental perfumes', 'cloth and silk' were purchased. Other favored marketing areas lay, like Kashmiri Gate, on the edge of the old city, the frontiers dividing old from the new.

The new marketing center, established mid-way between old and new cities was slow to start and only

gradually attracted any but the largest of concerns. The layout, visual characteristics and scale of 'Connaught Place' confirmed to the cultural norms of the new Capital. (fig 4.70, 4.71)

4.31 Connaught Place

Connaught Place became New Delhi's commercial center, almost as busy as Shahjahanabad's Chandni Chowk, but more sophisticated, a market for imported goods.

Connaught Place, which had borne the name of the King-Emperor's uncle since his farewell visit to India in 1921. In the final report, the Delhi Town Planning Committee, had envisioned a monumental plaza at this focal site, ringed by shops, hotels and business and dominated by a terminal railway station. The Imperial Delhi Committee who considered the plaza next in importance to the Raisina acropolis, strongly seconded this ambitious scheme. Members suggested municipal and local administrative offices as well as post office on the projected circus but acknowledged that private enterprise must provide most of the buildings. W.H. Nicholls, the Committee's architect from 1913 to 1917, emphasized the need for uniformity to ensure a dignified and harmonious architectural effect. To enclose the circus 1,100 feet in diameter, Nicholls proposed seven colonaded facades, each 177 feet in length and at least three stories or 60 feet in height,



Fig 4 73 Connaught Place, India Office Library, ph
66/2, pt 2, p 181

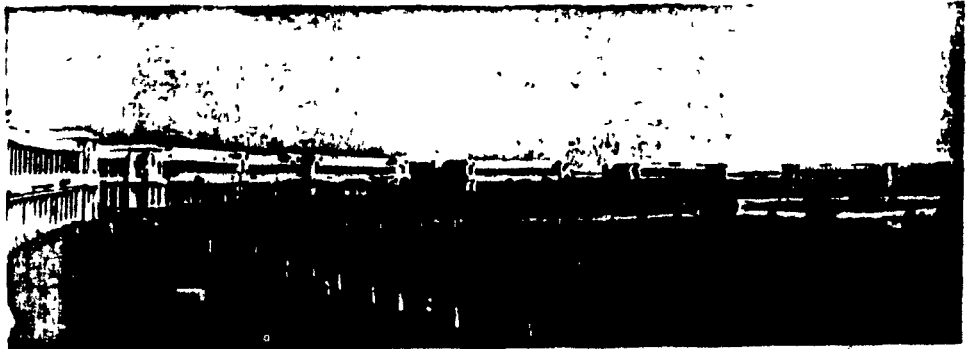


Fig 4 74 Connaught Place

symmetrically treated, with their horizontal lines at one level. Since the average 110-foot width of the seven roads piercing the ring impaired its visual integrity, Nicholls recommended spanning three avenues by great archways and a continuous upper cornice. Financial realities, he recognized, would permit nothing approaching the magnificent spirit event at Akbar's Fatehpur Sikri, but he hoped that the projected structure, while simple and straightforward, might display good workmanship and durable materials.²²

Railway authorities, however, decided that a terminal station at Connaught Place was impracticable and abandoned the idea in favor of a large interchanging station at Paharganj. Without the catalyst of government building, private enterprise proved reluctant to invest. Not until 1928 were all lots on the inner circus sold and construction begun on the first blocks of shops. The ring was only completed three years after New Delhi's inauguration ceremonies in 1931.

R.T. Russell, Chief Architect to the Government of India, and his office prepared the detailed designs for Connaught Place along the lines which Nicholls had advocated before leaving Delhi in 1917. Airy stuccoed colonades, punctuated by Palladian archways, afforded protection to shoppers from sun and rain alike, understated classicism prompted admiring comparisons with terraces at Bath and Cheltenham. Built only two



Fig 4.75 View of one of the blocks in the inner circus



Fig 4.76 View of service road between blocks in the inner and outer circus

stories tall, however, the blocks failed to achieve intended effect of urban enclosure, even before trees in the central park grew to obscure views across the circus. Furthermore, as Nicholls had feared, the sheer width of avenue entrances interrupted the desired circular continuity and rendered the boundaries of the plaza ambiguous. But these visual defects did not hamper the magnetic popularity of the stylish shops which eventually eclipsed fashionable Chandni Chowk. In contrast to the narrow, tightly knit, linear bazaars of the indigenous city, adapted to the pedestrian needs, the spacious, circular layout of Connaught Place with its colonnaded frontage, tree lined pavements and extensive perimeter distances, was geared to the needs of the new, car-driving elite of New Delhi.

Retailers from the old city were slow to take up premises here, because of high rent and the seeming dependence on European, Westernized Indians and government service population of the city. Earliest to come were government departments such as the Railways and Post Office, the largest metropolitan firms and organizations, previously based in Calcutta. By 1930, those European and Indian retailers particularly catering to the Western and Westernized market had moved in: banks, upholsterers, caterers, chemists, cloth merchants, drapers and dress makers, some five general merchants, three hair dressers, an insurance company, a firm of architects, a tobacconist, wine sellers, a music shop,

furniture suppliers, photographers, stationers and Western food stores.

Other smaller shopping areas, less important for the European population but relying on trade from lower-status government employees, were situated near clerks' quarters, in Panchkuin Road, Baird Road, and Gole Market.

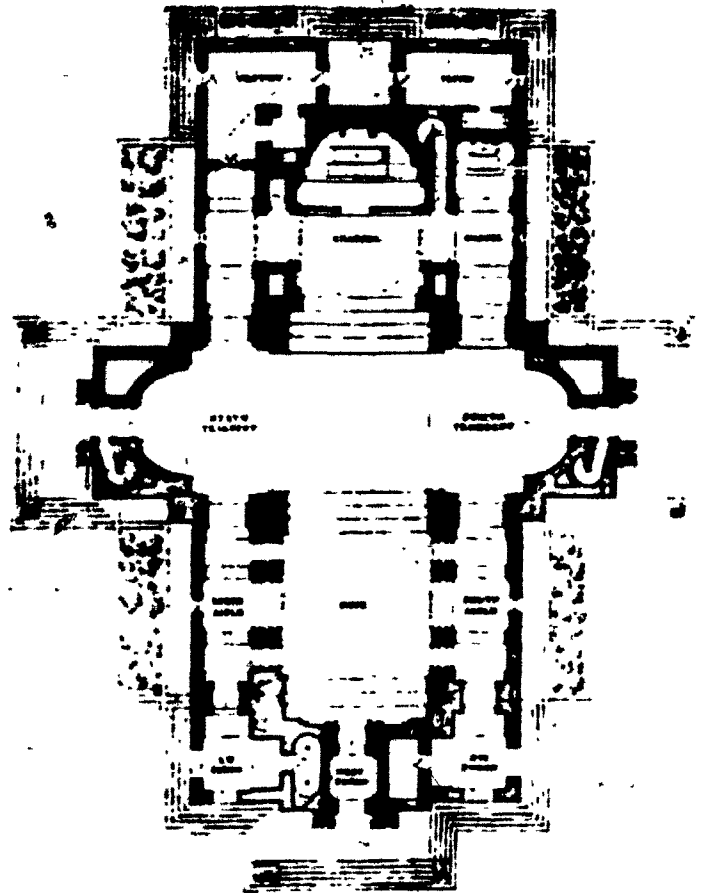
The establishment of these shops had important cultural effects. With the European and Westernized Indian elite, acting as reference groups for everyday social behavior such as were associated with eating, sitting, sleeping, entertaining and other leisure activities, growing numbers of the Indian population having access to the necessary artifacts of cutlery, crockery, chairs, tables, curtaining, upholstery, and increasingly purchased these and incorporated them into their own forms of behavior.

An institution which did much to foster such change was the hotel, of which many were built in the early development of the new Capital. Each hotel, however, catered primarily for either an Indian or European clientele, was situated in the appropriate area of the city.

Apart from the economic needs of the local European population the new Capital also accommodated national-level institutions. Three of these, the

'airport', 'All-India Radio Station' and the 'Imperial Agriculture Research Institute' all depended on the diffusion of science and technology, mainly since the foundation of the capital.

**THE CATHEDRAL CHURCH OF THE REDEMPTION
NEW DELHI.**



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Fig 4.77 Plan of the Cathedral Church of the Redemption, New Delhi

4.4 Religious Needs

Religious needs in the colonial and local communities were accommodated in appropriate places and forms. In the original plan the official church of the colonial community had been placed forward, and immediately left of Government House, occupying a position symmetrically opposite the house of the Commander-in-Chief which lay forward and to the right of the Viceregal residence. In this arrangement, the symbolic significance of the relationship between these three units is more easily perceived: the head of the government is located prominently on the highest knoll. On his left the head of the religious system, to his right, the head of the military system. The triangle connecting the heads of these three core institutions of civil government, military organization and religion occupied a key position in the capital.

Other central parts of the city were made available to other religion groups. A 'Roman Catholic' cathedral and convent, occupying an extensive site, was opened in 1935. This was in a relatively low-status area of the city on residential sector of the European, Anglo-Indian and Indian clerks. It accommodated the estimated population of some 3,000 Roman Catholics in Delhi. The needs of Indian government employees were met by allocating land situated on the boundary of their residential sector. Here, principal Hindu temples were



Fig 4.78 The Cathedral Church of the Redemption

erected, financed by the leading Indian industrialist, its massive form providing an appropriate cultural symbol to the main area of indigenous habitation. Close to the Lakshmi Narayan Temple, were other indigenous places of worship: Kalibari Temple, and for Indian Christians a separate church of St Thomas. A Hindu cremation ground and Muslim cemetery existed on the edge of the clerks' quarters. In the same area, appropriately near the quarters of government employees of mixed European and Indian descent, a separate cemetery being in Prithviraj Road, south-east of the European side of the city.

5.0 Summary

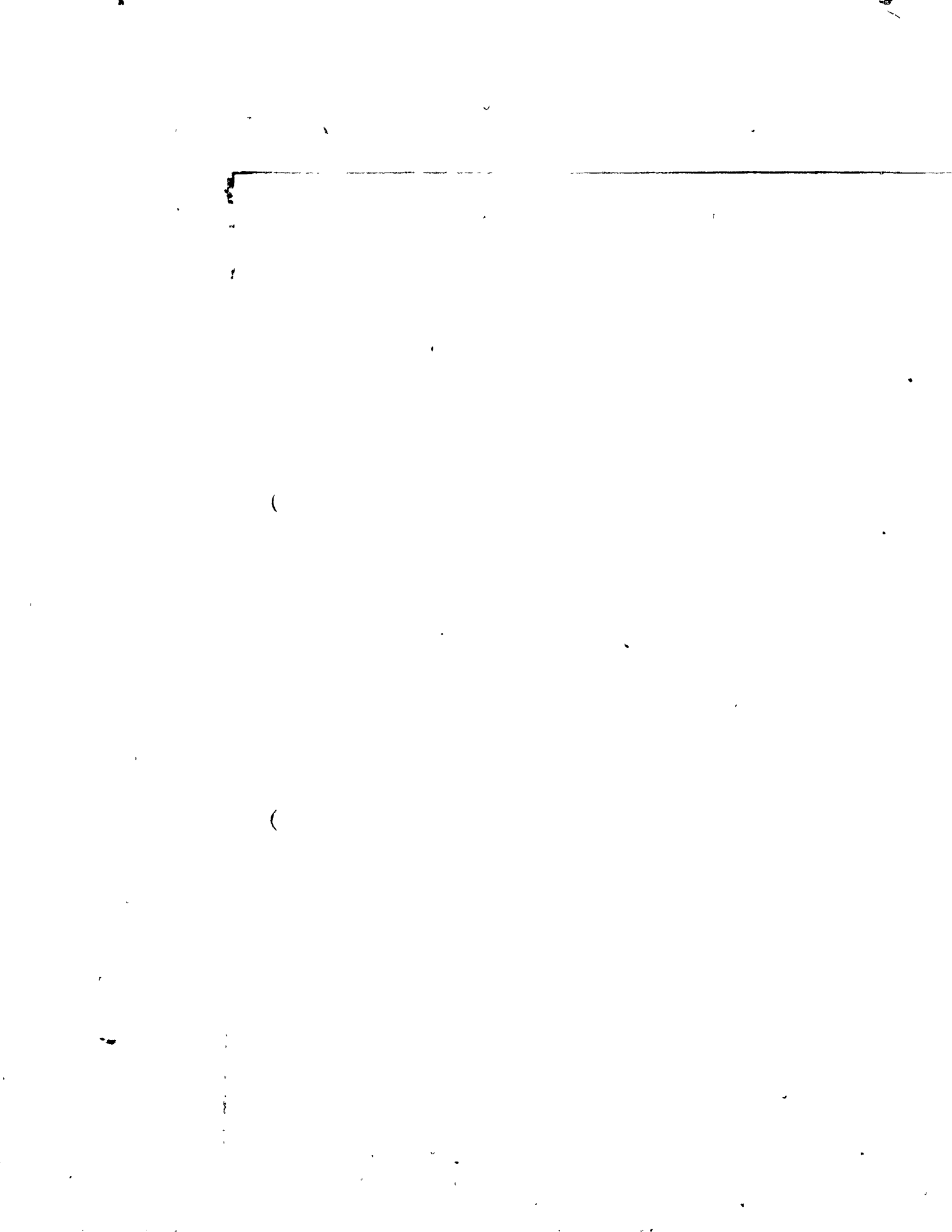
Lutyens' New Delhi is an Imperial island separated from the walled city of Shahjahanabad. With broad straight avenues it reminds one of L'Enfant's plans for Washington, of Haussmann's Champs Elysees in Paris fifty years earlier, and little like Canberra, another planned capital city. The concept of the 'garden city' is reflected in the large hexagons and tree lined roads. The extremes of climate in Delhi needed the buffer of green spaces to protect the open city from dust storms. The Durbar pattern is seen again - in the rigid hierarchy by which gazetted officers were nearest the center of authority and ceremonial. The Indian Princes were beyond them, at the same distance from the center as were the European clerks. The outermost ring was that of Indian clerks.

The focus of Lutyens' plan remained the Government Center. Connecting the Jamuna river and the Ridge, two natural elements, the Government Center was a great complex of buildings in a grand sweep of space enhanced by the Central Vista with rows of trees and water canal along King's Way.

Chapter 5

Conclusions

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The development which followed in the conurbation of Delhi, shows quite clearly that the part dominated by Lutyens in his capacity as architect and planner, was foreign - which had been created, for two different cultures, the 'European' and the 'local Indian', for the ruler and the ones who were ruled. This notion of dualism is the starting point for any explanation of the structure of the city, and a comparison between the two cities - Shahjahanabad and New Delhi.

It is evident that any physical or spatial aspect of the city, in any cultural section, relates to the provision made for a particular need in that section. As all structures or spatial areas are related to some human, social or cultural purpose, the total urban form of the above mentioned areas is a direct outcome of the needs of the individual cultural institutions. The basic institutions considered in the earlier chapters are those of government, community and residential need, religious, educational, certain economic and commercial, recreational and social institutes. These were discussed selectively and primarily with reference to the urban forms and spatial areas to which they gave rise.

1.0 Government

As the structure of the colonial city of New Delhi reflects, the structure of the colonial society with its main institutions of government, both military and civil, which exist in the city, are the monopoly of the colonial cultural section. They are first separate from the settlement area of the local culture and second, they manifest the physical-spatial characteristics associated with the dominant cultural section. The most important characteristic of the city is its tripartite divisions into the 'indigenous city' the 'cantonment' and the 'civil station'.

As the government is the monopoly of the European cultural section of New Delhi, the comparable physical-spatial provision made in the city of Shahjahanabad is the fort and the palace, provision for civil and military branches of government which were represented by the palace of the King and his court, and the fort and the palace providing accommodation for troops.

2.0 Residential and Community Needs

As cities are, at the lowest level of definition, aggregation of people, the provisions made for shelters constitute the most important physical-spatial units in the city. It is therefore appropriate to consider dwelling forms and physical-spatial needs in Shahjahanabad and New Delhi.

In the indigenous culture, the extended family consists typically of three generations. Household units may thus consist of upwards of fifteen members. The preparation of food, its consumption, ritual observations, sanitation practices, and system of social behavior are all governed by caste beliefs and practices. Recreation is largely kin-centered and generally associated with certain religious festivals. Such ideational and structural factors of the family are obviously important in determining the form of the traditional urban courtyard houses in Shahjahanabad. Houses are of three or four storeys each containing numerous rooms oriented around a central yard. Segregation of kin members on the basis of age and sex, the authority structure of the family and caste rules governing association with guests, servants or neighbors are dimensions of family activity which the traditional courtyard house is designed to accommodate.

The corresponding built form provided for the family unit in the colonial community of New Delhi is the 'bungalow-compound complex'. This dwelling typically consists of large, single storey building sited on an upwards to one, two or more acres, of enclosed ground, the 'compound'. Each residential unit caters for one nuclear family, although functional constraints in the colonial community frequently means that only the husband and wife occupy the dwelling.

Within this dwelling, space is functionally divided with separate rooms for sitting, dining, sleeping and bathing. The external appearance of the bungalow is determined not merely by climatic and economical factors but frequently, also by the superimposition of symbolic architectural features transposed from interpretations of Roman and Greek classical forms.

3.0 Religious Needs

The institution of religion finds different expression in each of the cultural sections in the city of Delhi. These differences are likewise reflected in the physical spatial environment.

Typically, spatial areas in the indigenous city of Shahjahanabad are occupied, inhabited and modified according to caste criteria. Apart from the major festivals, religious observance is generally at an individual and family level rather than at the level of community. This is reflected in the existence of domestic shrines in each house and many small temples distributed throughout the city.

In the colonial community, religion is manifested in a formal adherence to denominational Christianity, such as the Roman Catholic, Anglican, Methodist and Baptist churches. The belief in the corporate community worship of one rather than many gods gives rise to the construction of churches for each congregation of the Christians denominations. As with the other built forms, these manifest the structural and visual characteristics of the colonial culture. In comparison to religious beliefs in the Indian Society, there is a greater distinction between 'sacred' and 'secular' activities. Formal worship and ritual in the Christian community are therefore more specialized, both spatially and temporally with the worship

taking place generally only, once a week
and mainly in 'church'.

4.0 Economic Institutions and Commercial Needs

The main cultural sections also differ in their economic institutions. Taking saving, marketing, property, employment, the various institutional forms and roles can be clearly identified for each cultural section of the city. In the colonial community, such functions as saving or credit facilities are provided by the bank, marketing, partially by the indigenous bazaar, but more specialized commodities, by the European shop. Property is most usually in the form of houses. In the Indian society, saving is traditionally an individual, domestic activity, with surplus wealth invested in jewellery or gold ornaments, or where it is of larger amounts in land. Credit facilities are supplied by the moneylender, generally a member of a particular caste. Property is mostly held in the form of land.

In a colonial community, employment and occupation is decided by criteria which is based partly on ascribed and partly on achieved characteristic. Ascribed characteristics are mainly social and related to birth. Achieved characteristics are mainly economic and consist of skills and knowledge which are either self-acquired or gained through a formal system of education.

In the indigenous Indian society, employment and occupation are typically decided by caste. Caste being at one and



Fig 5.01 Retailing character in the walled city, Delhi



Fig 5.02 Retailing character in New Delhi

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same time a social, economic and religious institution. Traditionally, each member of the local culture is ascribed, on the basis of birth, to a specific trade or occupation or to a narrow range of occupations within a particular sphere.

These few illustrations in dictating the differing cultural expression of basic economic institutions all have a physical spatial dimension which is reflected in the urban form of each cultural section of the city of Delhi.

Thus, in the colonial urban settlement of New Delhi, saving, marketing, property and employment are embodied in banks, the offices of insurance agent, shops specializing in European goods, housing of different types and sizes allotted according to occupational rank and status which is partially ascribed and partly achieved. Schools are provided for children of members of colonial community.

In Shahjahanabad however, the same economic institutions find quite different physical-spatial expression. Credit facilities are reflected in the house of the moneylenders, savings, in the shops of jewellers and workshops of silver and goldsmiths who occupy a distinct quarter in the indigenous city. Because of different styles of marketing and retailing behavior, the bazaar, with its line of open stalls or shops giving directly on to the thoroughfare and with constant movement along it, has a totally

different-spatial character than has for example, the European market. (fig 5.01, 5.02)

At different stages during the period of colonial rule, the different modes of technology manifest in each cultural section in the city are important in affecting its physical-spatial structure. During the earlier period of settlement, in the early nineteenth century, each section largely shared the same technology. Later, in the nineteenth and twentieth centuries, industrial technology was introduced, making an immense impact on the scale and the form of the colonial urban settlement of New Delhi and modified both the physical and social structure of the indigenous city. Transport and communication in this later period, based on industrialization, thoroughfare are therefore widened, intra-urban distances magnified and specialized provision is made for a new means of communication such as the railway station, telegraph, telephone, automobile and aeroplanes.

This brief summary of economic institutions and the differences in their cultural expression is obviously over-simplified, mainly to highlight the differences between the main cultural sections. It is acknowledged that, both over time and at different levels of society, changes occur. Over time members of the indigenous culture not only increasingly came to use the institutional forms of the colonial

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culture (the banks, schools, and
retailing facilities) but also created
their own form of these within their own
cultural sections.

5.0 Recreational Pattern

It is in their recreational patterns that the two cultural sections differ mostly and it is these recreational patterns which account for much of the contrast in the physical-spatial characteristics of Shahjahanabad and New Delhi.

In the indigenous city, the recreational activities are family and community centered, and are frequently related to religious festivals. Daily recreation is comparatively unstructured, consisting between social interaction between groups of kin or caste members, groups frequently being formed according to criteria of age and sex. Adult male recreation generally takes place in small groups, with participants talking, sharing a hookah, or playing cards. Children play in relatively small unstructured groups, with little specialized equipment or toys. The kite is one of a small number of exceptions. Occasionally, larger groups gather for 'spectator activities' such as music, wrestling or dancing. On certain religious festivals the entire community is involved in watching a dramatic performance or spectacle of a procession passing through the streets. Depending upon the numbers involved, such activities take place in the house, or like the processions, in the main streets of the city which serve multiple purposes for recreation, social interaction, transport and economic activity.

Occasionally, a tent or a shamiana is erected in the street of a built up area or on one of the few open spaces or the maidan within the city.

In the colonial community, recreational patterns are those generally associated with an urban industrial society. In such a society, time divisions are more structural and recreational activities have become more formal and specialized, demanding not only more specialized equipment but also specialized buildings and spatial areas in which activity and music performances require a 'theatre'; organized forms of sports such as soccer and cricket require specially maintained pitches; tennis, badminton and squash require purpose-built courts. Special tracks and stadia which stands for spectators and other facilities are constructed for horse-racing and polo.

6.0 Delhi : After Independence

New Delhi (eighth Delhi), was designed to be an Imperial City that would last 300 years; which was infact overtaken by a national movement and a world war; in 1947 by Indian Independence and Partition of India.

More practically, a city built for a few thousand people, has now crossed the six million mark. The 'garden city' is now hemmed by sprawling crowded suburbs. As the price of land rocketed skywards, the green spaces disappear and new buildings rise each higher than the last.

6.1 The Ninth Delhi

The most important factor affecting Delhi's post-colonial development has been its immense growth in population. In thirty years between 1941 and 1971 it has expanded by almost three million, one of the fastest growing city populations in the world.

Growth of Delhi between 1901 and 1971
(Census of India, 1971)

Year	Actual Population	Absolute growth in a decade	Percentage growth in a decade
1901	214,115		
1911	237,944	23,829	11.13

1921	304,420	66,476	27.94
1931	447,442	143,022	46.96
1941	695,686	248,244	55.48
1951	1,437,134	741,448	106.58
1961	2,359,408	992,274	64.17
1971	3,629,842	1,270,434	53.85

The immediate cause of this phenomenal growth was the partition of India and Pakistan. Between 1947 and 1952, over 300,000 Muslims left Delhi and 500,000 Sikhs and Hindus moved in, an overall gain of 200,000. Between 1941 and 1951, the population more than doubled in size, from less than 700,000 to well over 1.4 million.

No city in the industrialized world, even at the height of growth rates in the nineteenth century, has had to cope with such rapid increases and with such comparatively few resources. The sheer accommodation of numbers has been an unparalleled achievement. In 1971 the population was well over 3.5 million.

The accommodation of these migrants and the increase from natural growth, has rapidly expanded the built-up area of the city. The boundaries of 1947 have been massively expanded. Yet at the core of this region is still to a large extent true today. In recent years new hotels, government blocks, private houses and buildings of all kind have sprung up, though there has been no major change in the pattern of the city.

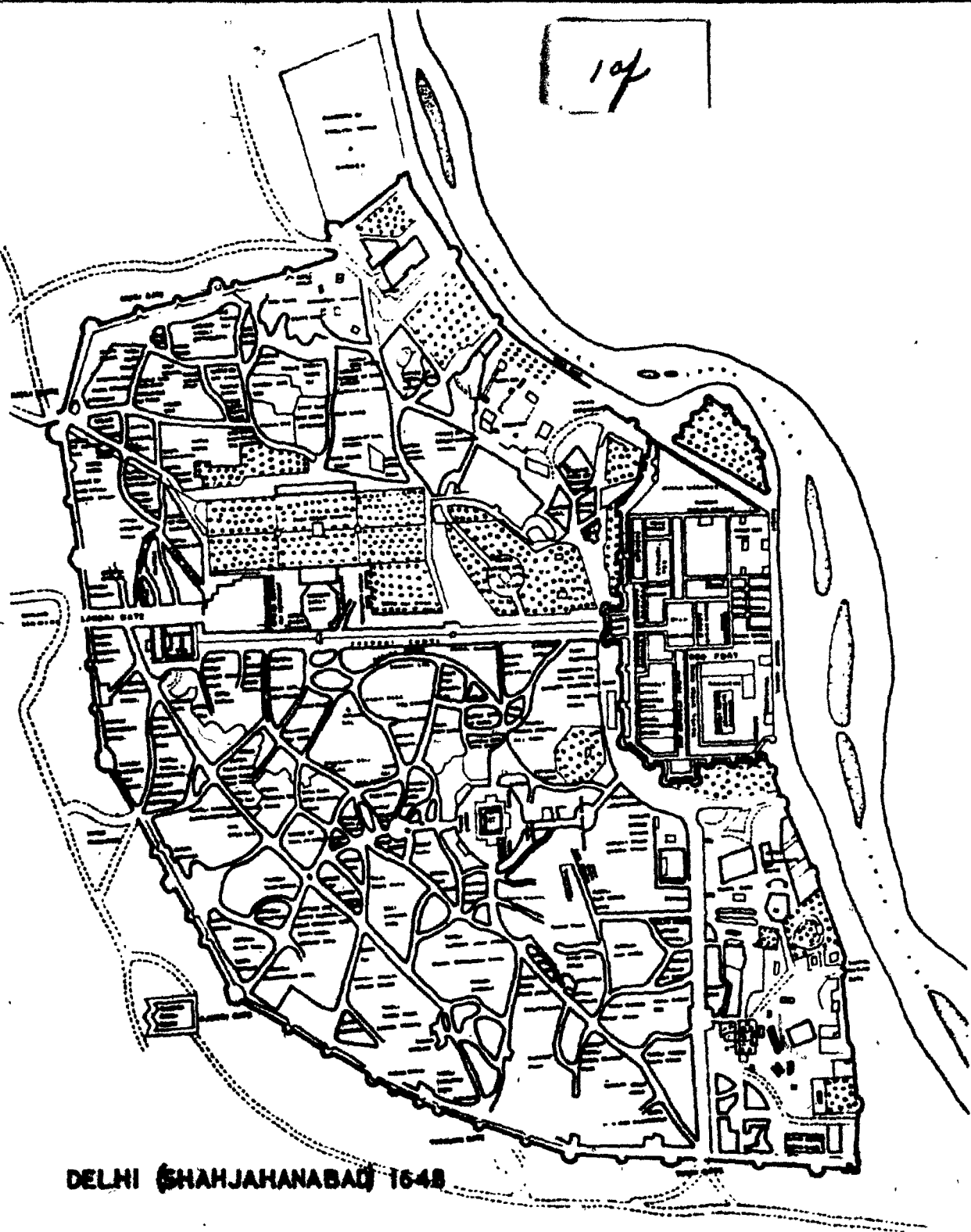
Ten years after independence, the walled city, with 10 percent of the

built-up area of Greater Delhi, has 60 percent of its total population; New Delhi with 28 percent of its area, has 17 percent.¹ Vast differences in population densities characterized different parts of the city. In Shahjahanabad gross densities were 106,197 persons per square miles, in New Delhi, 9,472, in the Civil Lines, 9,248 and in Cantonment, 1,909 persons per square miles.² In 1961 certain wards of the old city had over 1,100 persons per acre.³ These figures indicated among other things, different living standards, life styles, incomes, behaviors, expectations, opportunities as well as cultural traditions. In 1975 estimate of the average gross density of Shahjahanabad suggests 487 persons per acre, with certain wards still having the highest density distribution in the world.⁴

This ninth Delhi, unlike its predecessors is not clearly defined. It is a national capital seeking to consolidate all nine Delhis and to fuse them into a Greater Delhi, by building infrastructures, by infilling, by redensification.

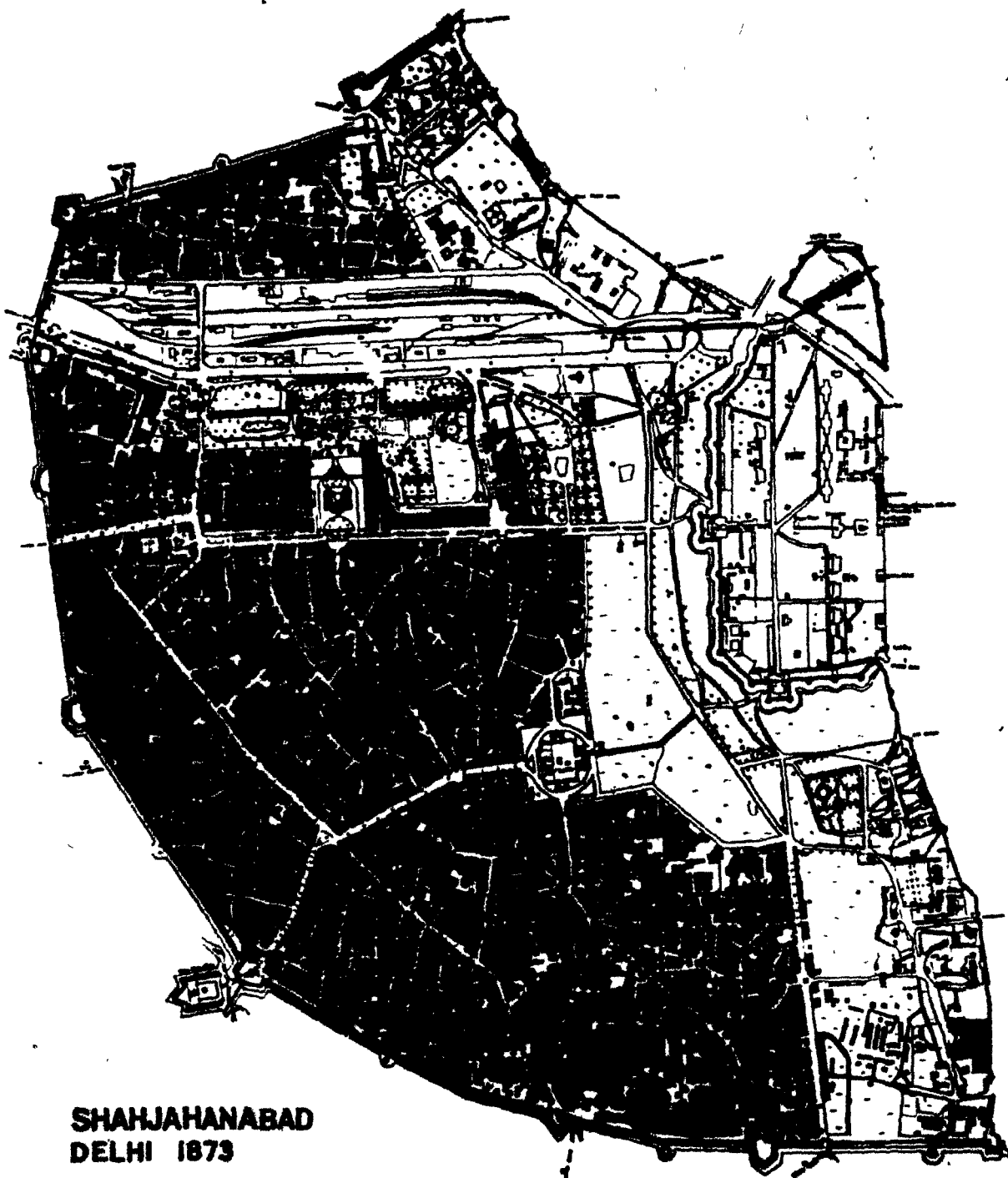
Immediately after Independence, the development of Delhi, under circumstances already described, was explosive. It was a city bursting at the seams with a seemingly endless stream of refugees. The problem was to rehabilitate them. A sprawl of new suburbs sprang up round the city. A master plan was prepared; work on it began in 1955 and the Plan finally adopted in 1962. The Delhi Development

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DELHI (SHAHJAHANABAD) 1648

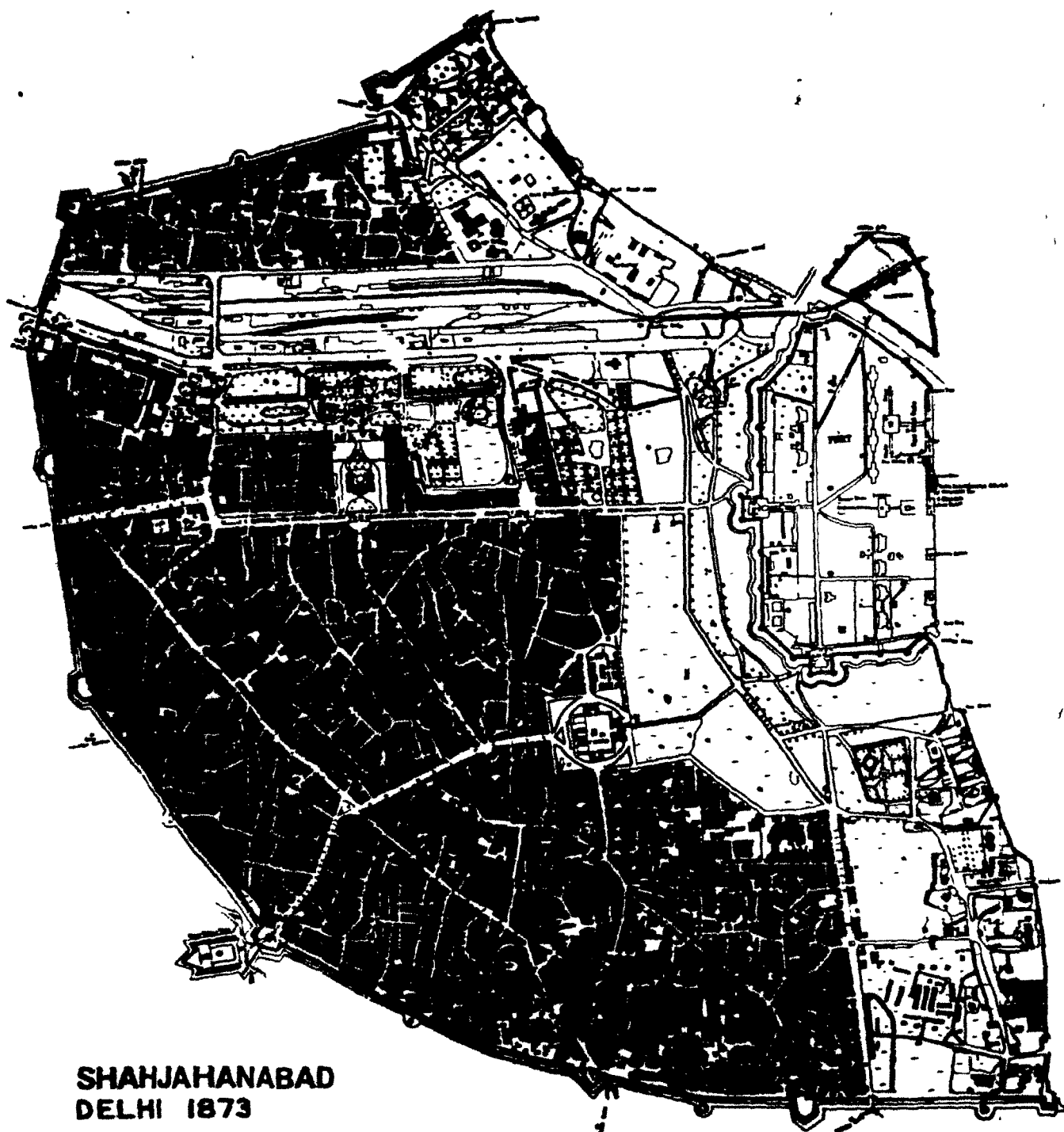
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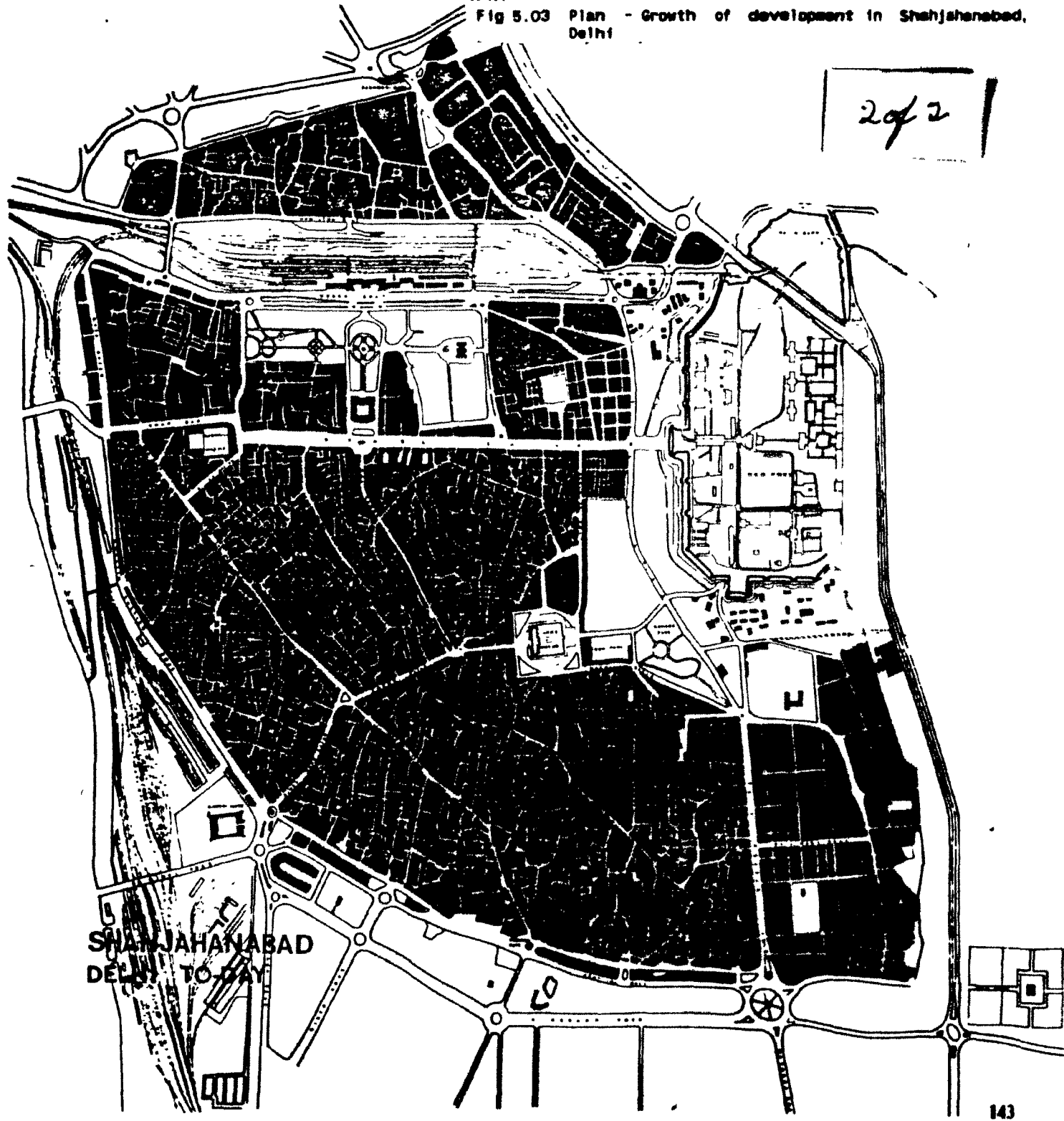
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Fig 5.03 Plan - Growth of development in Shahjahanabad, Delhi

2 of 2



ZONE WISE POPULATION, AREA AND D

Sl No	Zone	Population 1971	Total Area (acres)
1	2	3	
1	A-13 Kutchha Pati Ram	46,551 (2)	63.15 (11)
2	A-14 Sulwalaan	24,212 (7)	52.00 (12)
3	A-15 Matia Mahal	45,374 (3)	56.16 (5)
4	A-16 Lal Dervaza	42,487 (5)	70.05 (6)
5	A-17 Farash Khana	28,804 (6)	63.70 (10)
6	A-18 Naya Sans	18,533 (10)	40.00 (14)
7	A-19 Phatak Habash Khan	22,201 (8)	65.00 (9)
8	A-20 Darya Ganj	12,378 (11)	162.25 (3)
9	A-21 Jama Masjid	Monuments and District Pa	
10	A-22 Ballimaran	48,103 (1)	95.50 (6)
11	A-23 Malivara Dariba	44,805 (4)	100.00 (7)
12	A-24 Katra Noel	10,558 (12)	58.73 (7)
13	A-25 Lajpat Rai Market	9,513 (13)	56.00 (12)
14	A-26 Red Fort and Raj Ghat	5,378 (14)	226.50 (2)
15	C-1 Kashmiri Gate	30,098 (8)	311.23 (1)
Total		4,08,105	1,475.27

Note: Figures in bracket indicate ranking.

Source: Census of India, 1971, Delhi District Census Planning Organization. Master Plan for Delhi, I

AND DENSITY IN THE WALLED CITY, 1971

	Overall Density (ppa)	Gross Res area pp in ZDP (acres)	Gross Res Density (ppa)	Master Plan Recommend- ation for 1981(ppa)
	4	5	6	7
15	740	57.01	818	250
1)	(1)		(1)	
00	680	50.12	685	250
2)	(2)		(2)	
16	460	62.77	580	250
5)	(7)		(7)	
05	606	63.42	678	250
8)	(4)		(3)	
70	610	57.80	670	250
0)	(3)		(4)	
00	485	28.88	640	250
4)	(6)		(6)	
00	342	(Commercial Zone)		
9)	(8)			
25	77	74.25	165	200
3)	(13)		(12)	
District Parks, no population				
80	500	88.78	540	250
8)	(5)		(8)	
00	448	68.30	680	250
0)	(8)		(5)	
73	120	23.88	440	250
7)	(11)		(10)	
00	170	18.20	485	250
2)	(10)		(8)	
30	30	Monuments and District Parks		
2)				
33	87	80.65	330	250
1)	(12)		(11)	
37	280	707.75	580	250

Census Handbook. Zonal Development Plans, Town and Country
Delhi, Delhi Development Authority.

**TABLE SHOWING THE EXISTING (1971)
WALLED CITY (EX**

Sl No	Land Use	A (ac)
	1	
1	Residential	42
2	Commercial	12
3	Industrial	2
4	Public and Semi-Public Facilities	18
5	Parks and Playgrounds	22
6	Government Uses	3
7	Vacant Land	
8	Roads and Streets	18
	Total	1.23

Note: This area does not include monuments, reli-
gious sites such as hospitals and large commercial
Zone.

Source: Zonal Development Plans, Town and Country Planning

**1971) AND PROPOSED (1981) LAND USE IN THE
TY (EXCLUDING ZONE C-1)**

1971

1981

Area (acres)	Percentage	Area (acres)	Percentage
2	3	4	5
428.388	34.60	434.70	36.30
121.780	10.70	101.72	8.50
29.080	2.40	...	...
185.100	14.80	244.47	20.40
231.688	18.70	240.92	20.10
38.810	2.90	2.20	0.20
2.681	0.20	...	...
193.212	15.60	173.68	14.50
1,237.867	100.00	1,187.68	100.00

religious buildings and area under Master Plan roads and commercial area which serve the larger area than that of the

y Planning Organization, New Delhi.



Fig 5.04 The interface between Old and New Delhi, 1942. Source: Tyrwhitt, 1947

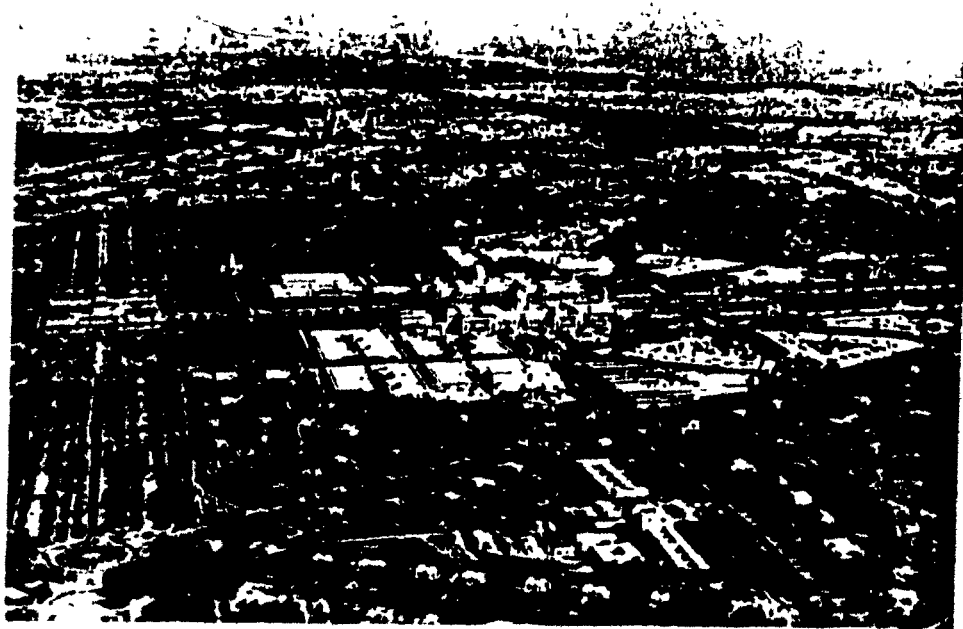


Fig 5.05 Aerial view of central New Delhi, 1946. India Office Library, ph 18/E

Authority (DDA), set up an Act of Parliament, was appointed to oversee Delhi's development.

The main principles on which the Master Plan is based are as follows -

- i) The future growth of Delhi should be functionally balanced and every effort be made to provide residential accommodation and community facilities near the employment centers. These facilities should be decentralized and organized into self-contained zones and planning divisions with a view of reducing the burden on the public activities;
- ii) Pending large scale clearance of the walled city of Shahjahanabad, it should be decongested by separating residential components from undesirable components, by shifting the industries to other areas within a specified period, and by accomodating petty trades in urban villages.
- iii) To give a balanced economic base to future development of Delhi, a few selected industries should be allowed and the city's position as a major Government employment and commercial center be recognized; and
- iv) The future growth of urban Delhi should be linked with neighborhood areas, keeping in view the

COLOURED PICTURES
Images en couleur

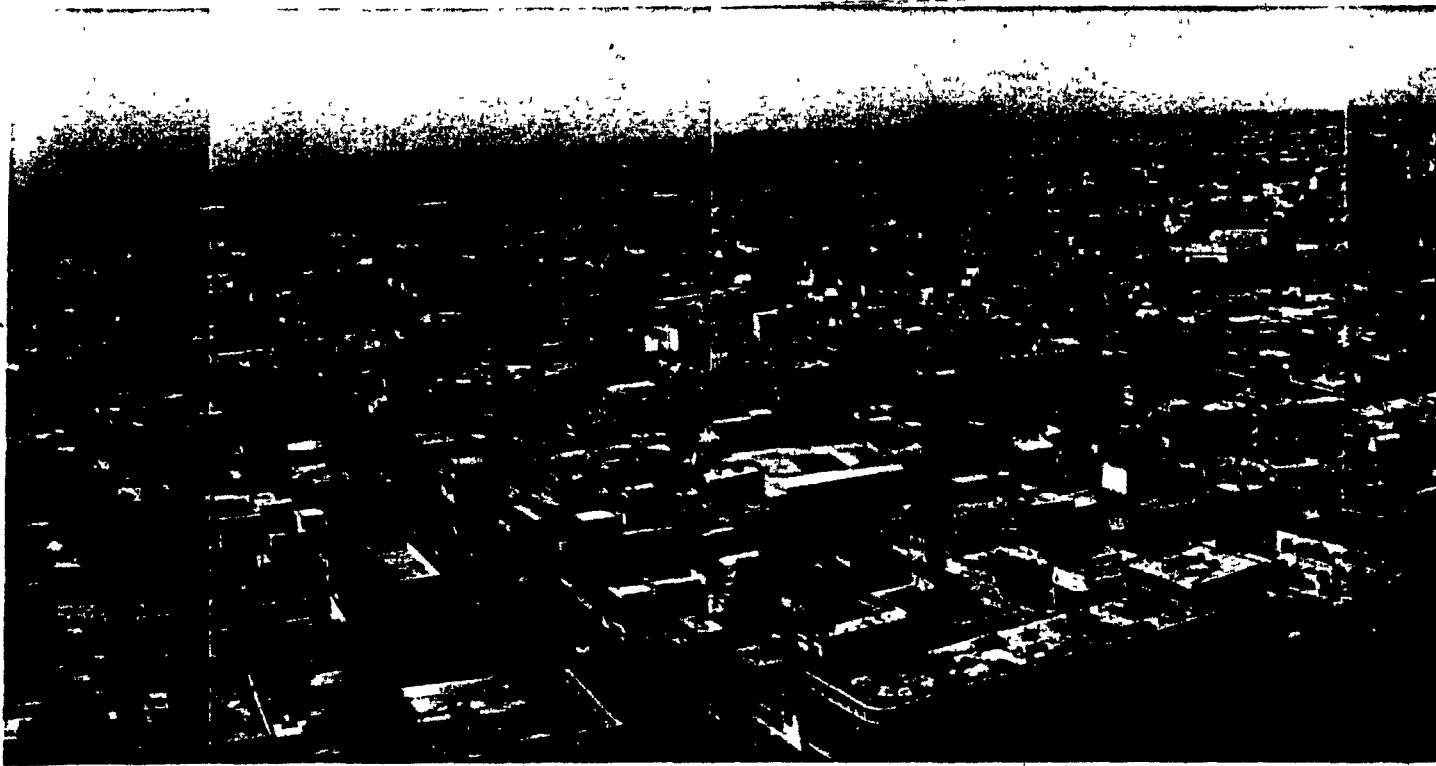


Fig 5 06 Panoramic view of Shahjahanabad today



Fig 5 07 Panoramic view of New Delhi today showing recent development around Connaught Place area

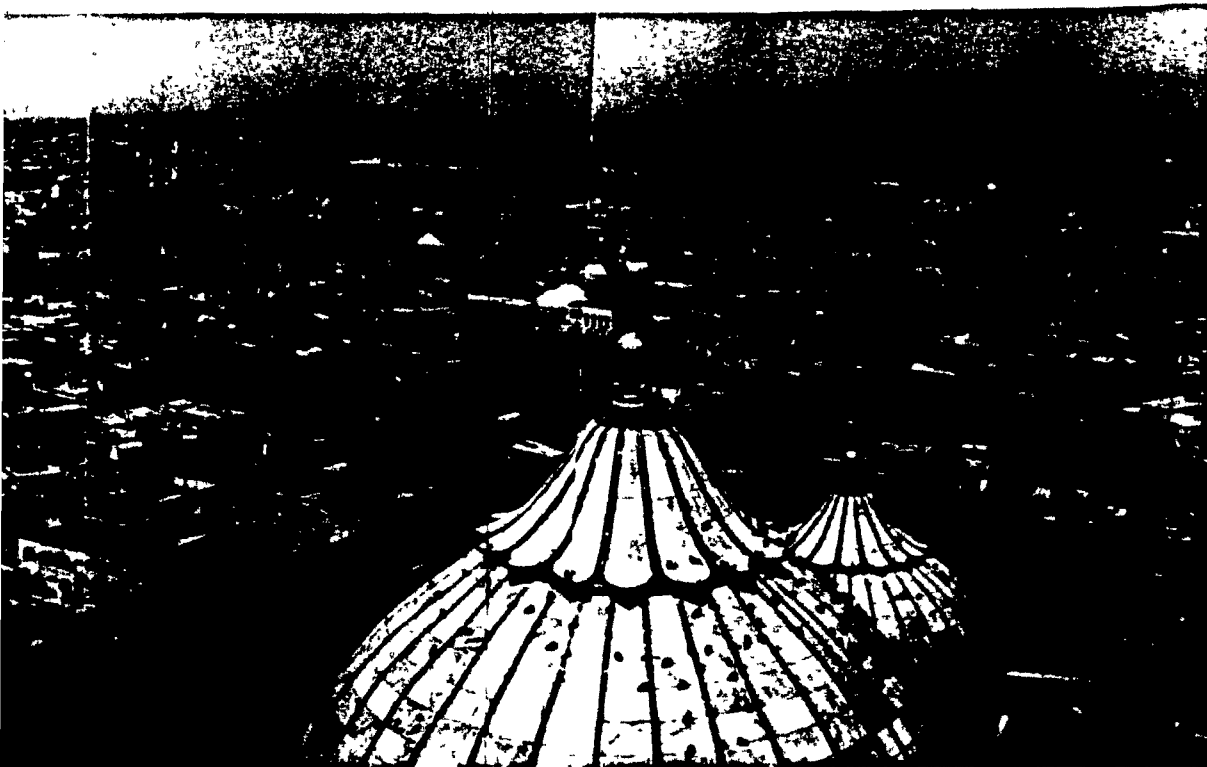




Figure 1
GROWTH OF DELHI-NEW DELHI
1803, 1912, 1939, 1947, 1959, 1969



Fig 5.08 Plan - Growth of Delhi-New Delhi (1803-1969)

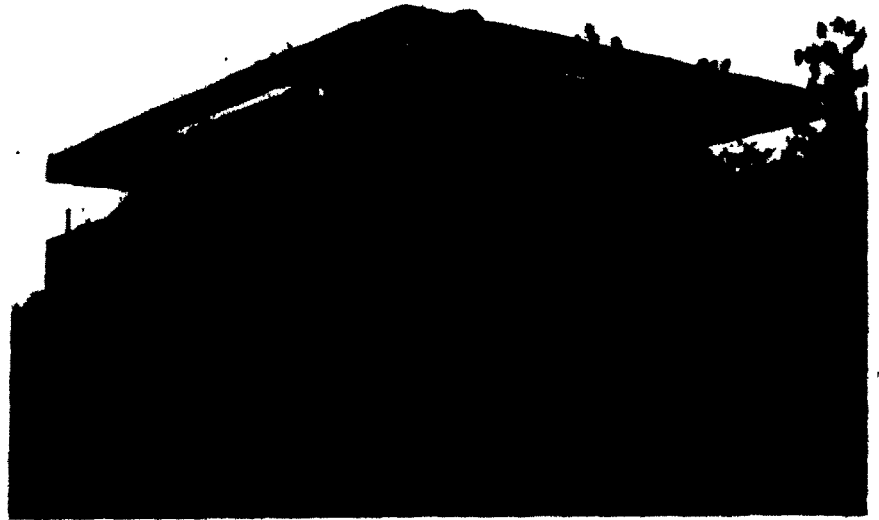


Fig 8.08 New Bungalow in place of an old bungalow



Fig 8.10 High rise apartment building within the bungalow compound complex

socio-economic, geographical, and cultural unity.

According to Colin Amery, a British Planner and editor of Britain's Town and Country Planning Association Journal, Lutyens' New Delhi rigidly reflects an absolute regime based on a strictly controlled social work.⁵

The city's growth depends on its capacity to reflect India's new national ideals. Lutyens' design was concerned with the architecture of power. The plan of New Delhi and the form of its buildings were both physical manifestations of Imperial power politics. Amery was of the view that the city need no longer be divided into New and Old Delhi. There was need, he argued, to blend its ancient character with, the sense and order that are Lutyens' gift to India. Though Lutyens' architecture was undeniably grand, it had elemental simplicity and could be adapted by successive buildings. The timeless architectural quality that belonged neither to East nor West is what must be retained. Delhi was fortunate in having such an example of architectural values at its heart. This must not be sacrificed.

Dr Narayani Gupta, historian, observed, "Tocqueville said that the most dangerous moment for the government was when it began to reform itself. In the colonial context the most dangerous moment could be when the government



Fig 5.11 Recent redensification of residential areas
of New Delhi by Delhi Development Authority

started to isolate from the people. This danger still exists in Delhi".⁶

Delhi's new Lieutenant Governor, Jagmohan, referred to the relative density of population in Old and New Delhi asked for the re-densification of New Delhi as this was envisaged in the Master Plan. The question that should concern planners was not so much the extent to which the existing density of New Delhi be increased, but the character and composition of the additional population that would be allowed to settle in the re-densified New Delhi. He admitted that there had been some criticism of Master Plan. Much of the criticism emanated from the fact that the people were misinformed about the Plan. Several independent speakers felt that Lutyens' style of architecture was too imperial for the capital city of a democratic republic that claimed to be socialistic. Complex socio-political reasons had led to the transfer of British India's capital to Delhi and these would have to be recognized. The ninth Delhi could not, with any sense of realism, emulate Lutyens.

A recent seminar on Delhi, recommended that, New Delhi, which covered an area of about 40 square kilometres and was unique in its buildings of historical importance, should be preserved while the city was being redeveloped. New Delhi should be integrated with its surrounding areas when future planning was undertaken. The height and shape of buildings should

conform to the total urban form of the New Delhi area. The bungalow area of New Delhi, which at present has a very low residential density, should be redensified at higher net residential densities with very small apartments of heights, which gives due prominence to trees, to make effective use of the bungalow areas in the city system.

Magnificent, elevating and triumphant as several of eight Delhis undoubtedly were, they have been overtaken by historic events. Some of these were visibly man-made, other were by imperceptible world and Indian movements only remotely triggered by this or that individual and so more easily described as 'History'. Three hundred years in Lutyens' plan shrank to sixteen when India won her Independence, was partitioned, was over run by refugees from what is now Pakistan and ninth Delhi sprang up, rather than grew. The problem now is how to reconcile what Colin Amery calls the "universal architectural values" of the eighth Delhi with more pressing concepts, such as an explosive population determined to reside in the capital and other democratic features that have developed between 1931 and 1980.

In reviewing the long history of the cities of Delhi and their planning one can progressively see reflected the images of this city from the perspective of both conquerors and contrymen. What does seem to be certain is that, come what may, 'There will always be a Delhi'.

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Glossary

Glossary

bagh	garden
bazaar	market
bara	house
charbagh	four gardens
chatta	use of air-rights above public right of ways
chattri	a small kiosk or pavilion constructed on the roof of a building
chowk	open space at the crossing of the roads
chowkidar	watchman
dharamshala	inn, hostel
Diwan-i-'an	public audience hall
Diwan-i-khas	private audience hall
Durbar	Ruler's court, audience
Durbar Hall	Audience Hall
godowns	warehouse
Gurudwara	worship place for Sikhs
hamam	bathing place
haveli	a large traditional house

hookah	water pipe
gali	street
ganj	market place
katra	market
kotwal	chief of police in town
kutcha	lane
mahal	house, palace
maidan	ground
Masjid	mosque
minar	minaret, turret of mosque
mohalla	identifiable area of neighborhood separate town;
panchayat	committee of arbitration, with five members
sarai	inn
Shilpashastras	Hindu manual of art and architecture
thana	police station
vaidya	hindu physican
zenana	that part of the house which is inhabited by women (opposite of mardana)

The Terminology of Colonial Urbanization

bungalow	(Hindi bangla, lit.(house) in the Bengal style) = main dwelling unit usually one-storied with a low-pitched roof
cantonment	a permanent military station
Civil Station/ Civil Lines	Government Housing Area
compound	(by folk etymology fr. Malay kampong group of buildings, village) = a fenced or walled-in area containing a group of buildings and esp. residences.

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Notes

Notes to Chapter 1

- 1 The discovery of some large bricks, however, which may date from as early as 4th century A.D., show that the site of Indrapat is of some antiquity.
- 2 Spear 'Cities of Delhi', p 404.
Thomson 'Delhi as Capital', p 109.
- 3 Breese, 1974, p 4
- 4 Hearn, 1906, p 78
- 5 Sharma, 1964, p 7
- 6 Bopeganage, 1957, Citing the Mahabharata.p -
- 7 Sharma, 1964, p 7
- 8 Spear, 1937, p 12
- 9 Spear, 1937, p 21-22
- 10 Bopeganage, 1957, p 5
- 11 Spear, 1937, p 5
- 12 Sharma, 1964, p 23
- 13 Spear, 1937, p 39
- 14 Bopeganage, 1957, p 51
- 15 Spear, 1937, p 51
- 16 Hurlimann, 1964, p 74

Notes to Chapter 2

- 1 Dayal, 1982, p 12
- 2 Wiser, 1958, p -
- 3 J.Marshall excavating Mohenjo-Daro in the Indus Valley uncovered an identical fabric 13% streets and 23% courtyards

Marshall, J., 'Mohenjo-Daro and the Indus Civilization' London: Probsthain, 1931
- 4 Bernier, p 245

Notes to Chapter 3

- 1 Russel, 1860, Vol I, p 71
- 2 Gupta, 1971, p 63
- 3 Ibid, 1971, p 72
- 4 Gazetteer, 1883-84, p 158
- 5 Gupta, 1971, p 75
- 6 Thakore, 1962, p 158
- 7 Bopegamage, 1957, p 33
- 8 Delhi Report, 1921-22, p 153
- 9 Spear, 1965, p 127
- 10 Hearn, 1906, p -

- 11 Harcourt, 1873, p 21
12 Ibid, 1866, p 19
13 Nilsson, 1973, p 38
14 Hardinge, 1948, p 42
15 Ibid, p 29

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- 1 Town Planning Review Vol II,
Janaury 1912, p 247
2 Final Report, p 4
3 Final Report, 1913, p 6-7
4 New Imperial Capital, Delhi.
December 1912, No 18, p 11
5 Note by His Excellency, July 16,
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6 Patrick Geddes in India, London
1947, p -
7 Notes by His Excellency, July 16,
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8 Final Report, 1913
9 Town Planning Review, editorial,
1912
10 Architectural Design, p XVIII
11 Nilsson, 1973, p 72

53

- 12 Hussey, 1950, p 319
- 13 Ibid, p 508
- 14 Byron, 1931, p 6
- 15 Baker "The Government Offices of Pretoria and New Delhi", p 73
- 16 Ibid, "Architectural Needs of South Africa", p 512-24
- 17 Ibid, "Architecture and Personalities", p 75
- 18 Ibid, p -
- 19 Byron, 1931, p 6
- 20 Town Planning Review, 1913, p 187
- 21 Cullen, 1961, p 13
- 22 Final Report, December 1913, p 13

Notes to Chapter 5

- 1 Rao and Desai, 1965, p 33
- 2 Ibid, p 31
- 3 Census of India, 1961
- 4 Jagmohan, 1975, p 33
- 5 Ghosh, Gupta and Singh, 1980, p 34
- 6 Ibid, p 35

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p 187

, p 13

10, p 34

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