

Dissertation

*The Garden Suburbs of Cairo:
a morphological urban analysis of Zamālik, Ma‘ādī, and Heliopolis*

zur Erlangung des akademischen Grades
Doctor philosophiae (Dr. phil.)

an der
Bauhaus-Universität Weimar

vorgelegt von
Mohamed Elazzazy
M.Sc.
geb. am 28-05-1985 in Giza, Egypt

Mentor der Arbeit
PROF. DR. RER. POL. HABIL. FRANK ECKARDT

Weimar, 10-07-2019

**The Garden Suburbs of Cairo:
A morphological urban analysis of Zamālik, Ma‘ādī,
and Heliopolis**

Dissertation to conferral of the academic degree
Doctor philosophiae (Dr. phil.)
At the Faculty of Architecture and Urbanism
Bauhaus Universität Weimar

Submitted by
Mohamed Mohamed Fikry Elazzazy
Date of birth 28. Mai 1985 in Giza-Egypt

Mentor der Arbeit
PROF. DR. RER. POL. HABIL. FRANK ECKARDT
(Bauhaus Universität Weimar)

Tag der Disputation 13-05-2019

EHRENWÖRTLICHE ERKLÄRUNG

Ich erkläre hiermit ehrenwörtlich, das ich die vorliegende Arbeit ohne unzulässige Hilfe Dritter und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe. Die aus anderen Quellen direkt oder indirekt übernommenen Daten und Konzepte sind unter Angabe der Quelle unmissverständlich gekennzeichnet. Teile der Arbeit, die bereits Gegenstand von Prüfungsarbeiten waren, sind ebenfalls unmissverständlich gekennzeichnet.

Weitere Personen waren an der inhaltlich-materiellen Erstellung der vorliegenden Arbeit nicht beteiligt. Insbesondere habe ich hierfür nicht die entgeltliche Hilfe von Vermittlungs-bzw. Beratungsdiensten (Promotionsberater oder anderen Personen) in Anspruch genommen. Niemand hat von mir unmittelbar oder mittelbar geldwerte Leistungen für Arbeit erhalten, die im Zusammenhang mit dem Inhalt der vorgelegten Dissertation stehen.

Die Arbeit wurde bisher weder im in- noch im Ausland in gleicher oder ähnlicher Form einer anderen Prüfungsbehörde vorgelegt. Ich versichere ehrenwörtlich, dass ich nach bestem Wissen die reine Wahrheit gesagt und nichts verschwiegen habe.

Weimar, 10 July 2019

Mohamed Elazzazy

@2019 – Elazzazy, Mohamed
ALL RIGHTS RESERVED.

Supervisors:

PROF. DR. RER. POL. HABIL. FRANK ECKARDT

Fakultät Architektur und Urbanistik

Bauhaus Universität Weimar

Examiners:

PROF. DR. ALAA ELHABASHI

Chairperson of the Architectural Engineering Department

Monofia University

PROF. DR.. HABIL. NIKOLAI ROSKAMM

Fakultät Architektur und Stadplanung

Fachhochschule Erfurt

To my wife & son

looking forward to overcoming more challenges in life together

Acknowledgments:

I am very grateful to my very good friend Tamer Gamal who has inspired me with this thesis topic while we were strolling one day in the streets of Zamālik. He kept on describing the beauty that he sees in the buildings of his neighbourhood and the joy that he feels when walking around its streets. I was very fascinated by the opinion of this resident with no architectural background. This conversation inspired me to pursue the search for the beauty of the urban design of Zamālik which led me to this PhD topic.

Moving from the overpopulated city of Cairo to the small city of Weimar was not easy. However, this move became easier with the warmth of the population of the city of Weimar. For this, I am really grateful to Mr. Amay Shah, my first roommate, Mrs Petra Graupe, our lovely neighbour, and the whole Hegazy Family. The last overwhelmed my family and I with their great kindness and genuine support.

Besides the international environment of the Bauhaus Universität Weimar introduced me to several international colleagues whom I shared with them great memories and experiences. For this I would like to thank Mouloud Allek, leila javan, Blerim Lutolli, and Yomayra Puentes. I would like to thank everyone who works at the Bauhaus Research School who provided us a beautiful work environment. The employees at the Bauhaus Universitätsbibliothek have also supported me a lot to acquire needed references from international libraries and archives. I am also very grateful to Hadia Abdul Latif Jameel Co. Ltd for funding my PhD thesis.

I am also very grateful to my supervisor Prof. Frank Eckardt who have gave me a lot of his time and did a lot of efforts in order to achieve this outcome. I am also very grateful to many professors who have supported me with comments and references when I was in desperate need especially Prof. Dina Shehayeb. I am also very grateful to several colleagues for their assistance and support who have helped me to improve this thesis especially Abdelmalek Abdelmawla, Mirihan Damir, and Iman Hegazy. I am also really grateful to my great friend Mr. Osama El Batran for all his care and support.

I would like also to express my sincere gratitude to all my professors in the undergraduate and post graduate studies at the Arab Academy for their genuine effort in transferring knowledge to the forthcoming generation of researchers and architects. I would like to especially thank Assoc. Prof. Marwa Hassan, Prof. Alaa Elhabashi, and Assoc. Prof. Yasser Mostafa who were my mentors during my master studies whom have enriched my research experience. I am also grateful by the genuine effort of Prof. Sherif Elfiki, the head of the architectural department, who have supported me a lot throughout this journey.

No words can express how much I am grateful to my wife, son, and all my family and friends whom have supported me enormously all the way long during my PhD journey. They suffered a lot from my absence and sometimes the bad temper. They have also encouraged me and push me forward to surpass all the struggles during difficult moments. This thesis could not have been accomplished without the sincere prayers of my mother to God.

CHAPTER 6: CONTRAST, MUSHROOMING AND TRANSFER**82**

6.1 Contrast between a Garden City and a Garden Suburb	82
6.2 The Misconception between a Garden City and a Garden Suburb	85
6.3 The Transfer Process	86
6.4 Summary of the Mushrooming and Transfer Process	90

PART TWO: GARDEN SUBURBS AROUND CAIRO.....91**CHAPTER 7: THE TRANSFER TO EGYPT.....92**

7.1 The Rise of Land Development Companies during the 20 th Century	92
7.2 The Analysis of the Transfer Process	103
7.3 Summary on the Transfer to Egypt	108

CHAPTER 8: ZAMĀLIK109

8.1 Background	110
8.2 Main Principles	111
8.3 Authority in Power Responsible for the Development	113
8.4 Urban Context	114
8.5 Urban Design Concept	116
8.6 Street Typology	118
8.7 Residential Block Typology	118
8.8 Social Infrastructure	124
8.9 Social Target Group	127
8.10 Summary on Zamālik	128

CHAPTER 9: MA‘ĀDĪ.....129

9.1 Background	130
9.2 Main Principles	130
9.3 Authority in Power Responsible for the Development	131
9.4 Urban Context	132
9.5 Urban Design Concept	132

9.6 Street Typology	134
9.7 Residential Block Typology	136
9.8 Social Infrastructure	139
9.9 Social Target Group	140
9.10 Summary on Ma‘ādī	141

CHAPTER 10: HELIOPOLIS142

10.1 Background	143
10.2 Principles	143
10.3 Authority in Power Responsible for the Development... ..	147
10.4 Urban Context	151
10.5 Urban Design Concept	154
10.6 Street Typology	160
10.7 Residential Block Typology	162
10.8 Social Infrastructure	168
10.9 Social Target Group	170
10.10 Summary on Heliopolis	171

**CHAPTER 11: COMPARATIVE ANALYSIS & CONCLUSION
172**

11.1 Comparative Analysis	172
11.2 Discussion	191
11.3 Conclusion	196

List of Figures197**List of Tables201****References202**

**The Garden Suburbs of Cairo:
A morphological urban analysis of Zamālik, Ma‘ādī, and
Heliopolis**

Abstract

During the British occupation of Egypt in the beginning of the 20th century, several suburban developments were established on the periphery of the city of Cairo. These initially attracted the small British community and later foreigners and Egyptians, mainly from the elite community. These suburban developments, including Ma‘ādī, Zamālik, Heliopolis, Qubbah-Gardens, and Garden City, became the fashionable residential quarters of Cairo. Until now, some of these areas still represent the distinguishable residential settlements of the city. Ma‘ādī, Zamālik, and Heliopolis specifically are nostalgically appropriated in the design of recent suburban developments around Greater Cairo.

Some of the 20th century suburban developments around Cairo are labeled or described as “garden cities.” During the early 20th century, two thriving British town planning movements emerged, namely, the garden city movement and the garden suburb movement. This study investigates the hypothesis that these suburban developments, are indeed “garden suburbs” like the British movement, despite that few are labeled or described as “garden cities.” Although several studies have examined the historical development of such settlements, their relation, however, to the British planning movements and their transfer process received little attention from planning historians. Few studies also analyze the urban

design aspects that made these suburban developments distinguishable since their foundation and until today.

To guide the validity of this study’s hypothesis, a set of research questions are formulated: (1) What is the difference between the garden city and the garden suburb movements? (2) How were the British planning movements transferred to Egypt? (3) What are the urban design aspects that makes these suburban developments distinguishable as garden suburbs? To answer these research questions, a historical morphological urban analysis is conducted through case studies.

The study first studies the difference between the garden city and the garden suburb movements, mainly in Britain, through the analysis of publications on the promoter of both movements: for the garden city, E. Howards’ book “The Garden City of Tomorrow,” published in 1902, and for the garden suburb, R. Unwin’s books “Town Planning in Practice,” published in 1909, and “Nothing Gained from Overcrowding,” published in 1912. Then a morphological urban analysis of Letchworth Garden City and Brentham Garden Suburb, considered the first examples of each movement, is conducted. In order to analyze the transfer process, the study adopts M. Volait and J. Nasr’s theory on transporting planning, through investigating the authority in power responsible for the establishment of these suburban developments. This is followed by the morphological urban analysis of three suburban developments around Cairo, namely, Zamālik, Ma‘ādī, and Heliopolis. The morphological analysis focuses on the background of their establishment, authority in power responsible for the development, design principles, urban context,

street typology, residential block typology, social infrastructure, and social target group.

Finally, the study compares between Brentham, Letchworth, Zamālik, Ma'ādī, and Heliopolis. The comparative analysis aims to highlight the differences between the studied cases of Cairo and how they are different from or alike the British movements. This study concludes that the suburban developments around Cairo during the British occupation, are in fact garden suburbs, despite that some are being described or labeled as garden city. This movement was exported via urban land development companies with foreign European capital, rather than via colonial dominance. It finally highlights a set of urban design aspects that distinguish them as garden suburbs of Cairo. This study hopes to support future conservation plan of these areas and the design of future suburban developments.

Keywords: development, Egypt, Britain, transfer, town planning

List of Abbreviations

- K.I. – Khedive Ismail
 B.T.E. – The British Troops in Egypt
 O.B.E. – The Officers of the British Empire
 GLC – Gezira Land Company
 GSC – Gezira Sporting Club
 DLC – Delta Land Company
 MSC – Maadi Sporting Club
 HOC – Heliopolis Oasis Company
 HSC – Heliopolis Sporting Club

Arabic Text Romanisation

This study contains multiple words, mainly referring to certain location, that are derived from the Arabic language. These words were written in previous English and French literature in diverse way which affect their pronunciations. Therefore, this study abides to the Arabic text romanization by the Library of Congress for most of the important words that are used in the text. The below table illustrates some of these terms.

Arabic Terms	Arabic Text Romanisation	Written in some foreign literature as
زمالك	Zamālik	Zamalek Zamalik
معادى	Ma‘ādī	Maadi or Meadi
قبه	Qubbah	Koubbeh or Qubba or Qubbah
دائره صناعيه	Dā’irah Sinā’īyah	Daira Snaiyeh
جزيره	Jazīrah	Gezira or Gezira or Gezireh
هليوبوليس	Heliopolis	Heliopolis or Héliopolis

CHAPTER 1: INTRODUCTION

1.1 Scope of the Study

Cairo is a large metropolis that has been shaped, through the course of history, by a succession of civilizations. It is not the product of a single historical period. Indeed, Cairo is an accumulative heritage. Through layers of additions and transformations, areas of the city have been marked by various historical eras and phases of development. This process has created for each of the districts of Cairo a distinctive character and sense of place. The beginning of the process of modernization of Cairo and its shift from the traditional Islamic city can be marked by two distinguishable phases. The first one was in the late 19th century during the Khedive Ismail (K.I.) reign (1863-1879), the titular of Egypt, while the second happened during the British occupation (1882-1922).¹

K.I. was fascinated by the European countries' urban developments, especially the Parisian model.² He wanted to transform Cairo into a modern European city. Several European-style palaces were constructed, wide boulevards were laid down, and residential quarters following European models appeared, forming the so-called Khedivial Cairo, Figure 1-1. In the process of achieving his dream, K.I. burdened

the state treasury with lots of debts, which led the Egyptian government to declare bankruptcy.³ In 1879, he was exiled and replaced by his son Tewfik. Later, in 1882, the British army occupied Egypt. The British rule, however, did not seem much involved in urban planning matters.⁴ In contrast to the urban development that occurred during K.I.'s era, the urban expansion of Cairo was no longer under the public authority's control. Almost all of Cairo's suburban developments under the British rule came through initiatives of privately-owned land development companies; as explained later in chapter 4.

By the 1920's, as shown in Figure 1-4, many new suburban developments were established on the periphery of Cairo, including Ma'ādī, Heliopolis, Zamālik, Qubbah Gardens, and Garden City, by different privately-owned land development companies. They shared some common features, such as garden-surrounded houses, sports clubs, and regular tree-aligned streets defined by footways. Initially, these areas mostly attracted the small British community. Later, they started attracting foreigners and Egyptians, mainly from the elite community. They became the fashionable residential settlements of Cairo during its years of glory, as described by Samir Raafat, the doyen of researchers in

¹ Dona J. Stewart, 'Changing Cairo: The political economy of urban form', *International Journal of Urban and Regional Research* 23, no. 1 (1999): pp. 128–147, <http://www.iupui.edu/~anthkb/a104/egypt/cairodevel.htm>.

² JANET L. ABU-LUGHOD, *Cairo: 1001 years of the city victorious*, Princeton Studies on the Near East (Princeton: Princeton University Press, 1971), pp. 104–117.

³ David B. Rosten, *The Last Cheetah of Egypt: A Narrative History of Egyptian Royalty from 1805 to 1953* (Bloomington: Iuniverse Inc, 2015).

⁴ Mercedes Volait, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism', edited by Joseph Nasr and Mercedes Volait, in *Urbanism: Imported or exported? Native Aspirations and Foreign Plans* (London: Academy Editions, 2003), pp. 17–50, p. 31.

the social history of Cairo.⁵ These developments triggered the emergence later on of similar suburban developments by urban land development companies with foreign capital around other Egyptian cities, such as Smouha by Joseph Smouha, in Alexandria⁶, and Toriel by Toriel Family, in Mansoura.

Some of the 20th century suburban developments around Cairo are labeled or described as “garden cities,” which was a thriving town planning movement in Britain in the beginning of that century. As such, the small land development of 108 acres (0.44 sq.km.) established by the Koubbeh Gardens Co. in 1908, near the Qubba Palace. It is labelled on Cairo’s 1920 maps as “Qubba Garden City”. Similarly, the 69 acres (0.28 sq.km.) developed by The Nile Land and Agricultural Co. in 1904, adjacent to the Khedivial Cairo, labeled as “garden city”. Despite being labeled as garden city, M. Volait implies that “‘Garden City’ suburb ... in its planning standards, function, social aims and aesthetics, this dense speculative development was thus very far from a replica of the British Garden City...The same could be said for Koubbeh Gardens...”.⁷ In this paper, Volait described both developments as only suburbs.

⁵ Samir W. Raafat, *Maadi 1904-1962: Society and history in a Cairo suburb*, [2nd ed.] (Cairo: Palm Press, 1995), p. 67; Annalise J.K. DeVries, ‘Utopia in the Suburbs: Cosmopolitan Society, Class Privilege, and the Making of Ma’adi Garden City in Twentieth-century Cairo’, *Journal of Social History* (2015): shv048, 1, doi:10.1093/jsh/shv048; Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a ‘European-Style’ Urbanism’ (above, n. 4), pp. 31–36; Samir W. Raafat, ‘AND THEN THERE WERE NONE’, 30 November 2000, <http://www.egy.com/zamalek/00-11-30.php>, accessed 06 February 2018; Samir W. Raafat, *Cairo, the glory years: who built what, when, why and for whom?* (Alexandria, Egypt: Harpocrates, 2003), p. 89.

Another suburban development described as a garden city, but larger in scale, is Heliopolis, despite being located only 5.5 miles (9 km) away from Cairo’s city center. It was developed by the Heliopolis Oasis Company in 1905. In 1981, French Historian Robert Illbert wrote a book titled “Heliopolis,” where he questioned whether Heliopolis was a town or a suburb. In a paper he published in 1985, he described Heliopolis as a garden city inspired by the British garden city movement: “*In form and structure, Heliopolis is more of a "garden city" than a "parallel" town. ... Its general plan has an obvious affinity with that of Letchworth, designed by Unwin and Parker in 1903 and implementing the theories of Howard.*”⁸ Since then, several researchers were quoting that Heliopolis is a garden city. What also supports his claim is that some of the original blueprints of the apartment buildings in Heliopolis, located in the company archives, hold the title of garden city. Illbert work and the labeling on the blueprints triggered to research the relation between the garden city movement and Cairo’s 20th century suburban development.

⁶ Richard Smouha, Cristina Pallini, and Marie-Cécile Bruwier, *The Smouha City Venture: Alexandria 1923-1958* ([place of publication not identified]: CreateSpace Independent Publishing Platform, 2014).

⁷ Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a ‘European-Style’ Urbanism’ (above, n. 4), pp. 33–34.

⁸ Robert Ilbert, ‘Heliopolis: Colonial Enterprise and Town Planning Success?’, edited by Ahmed Evin, in *In The Expanding Metropolis. Coping with the Urban Growth of Cairo* (Singapore: Concept Media/Aga Khan Award for Architecture, 1985), pp. 36–42, <https://archnet.org/publications/2640>, accessed 15 January 2018, p. 37.

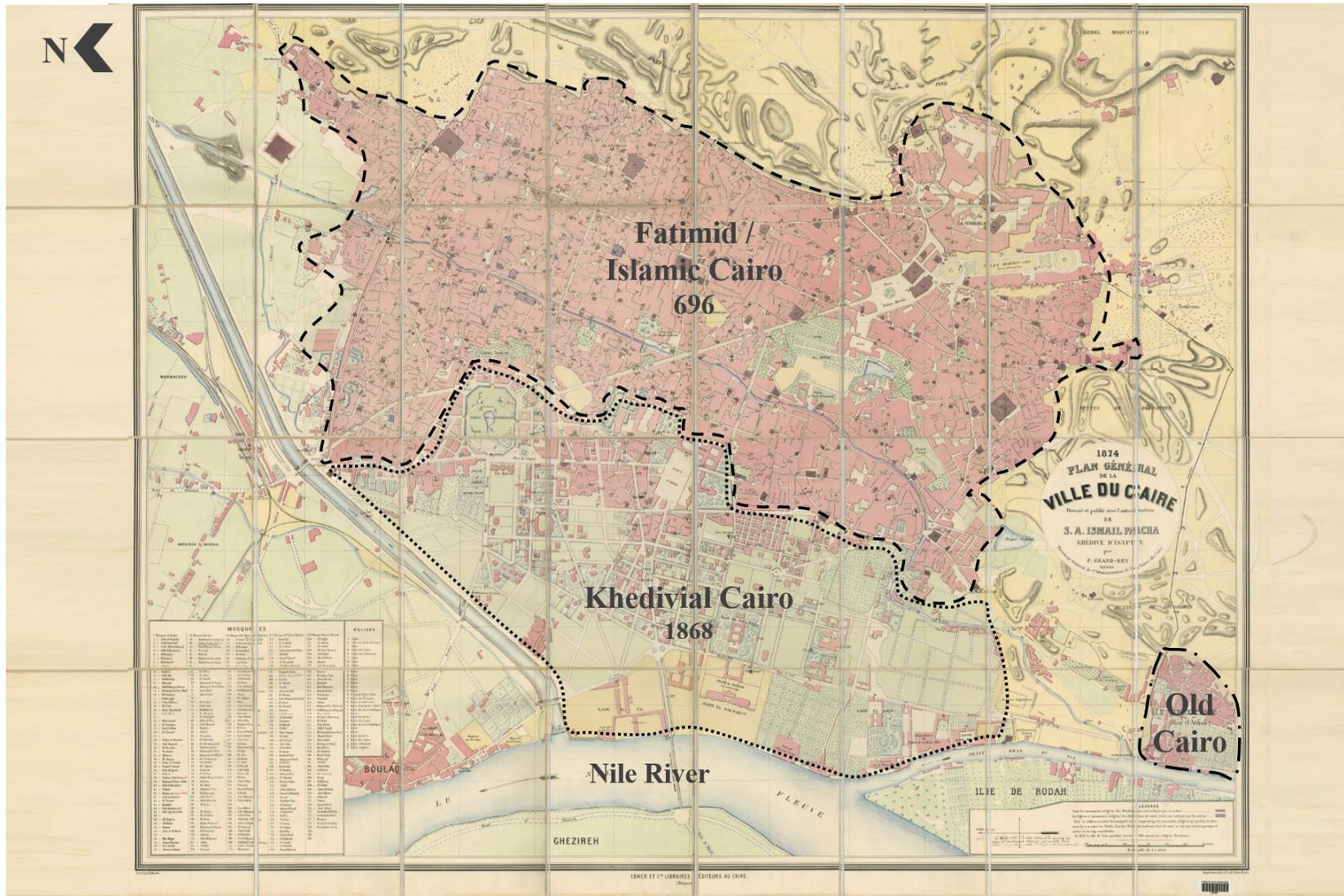


Figure 1-1: General Map of Cairo in 1874 by P. Grand Bey.

The map shows the new quarters established on the periphery of the Historic Fatimid Islamic Cairo forming the so-called Khedivial Cairo.
 Source: adapted from an 1874 map of Cairo: “1874 – Plan Général de la Ville du Caire; by P. Grand-Bey,” from the Library of Collège de France.

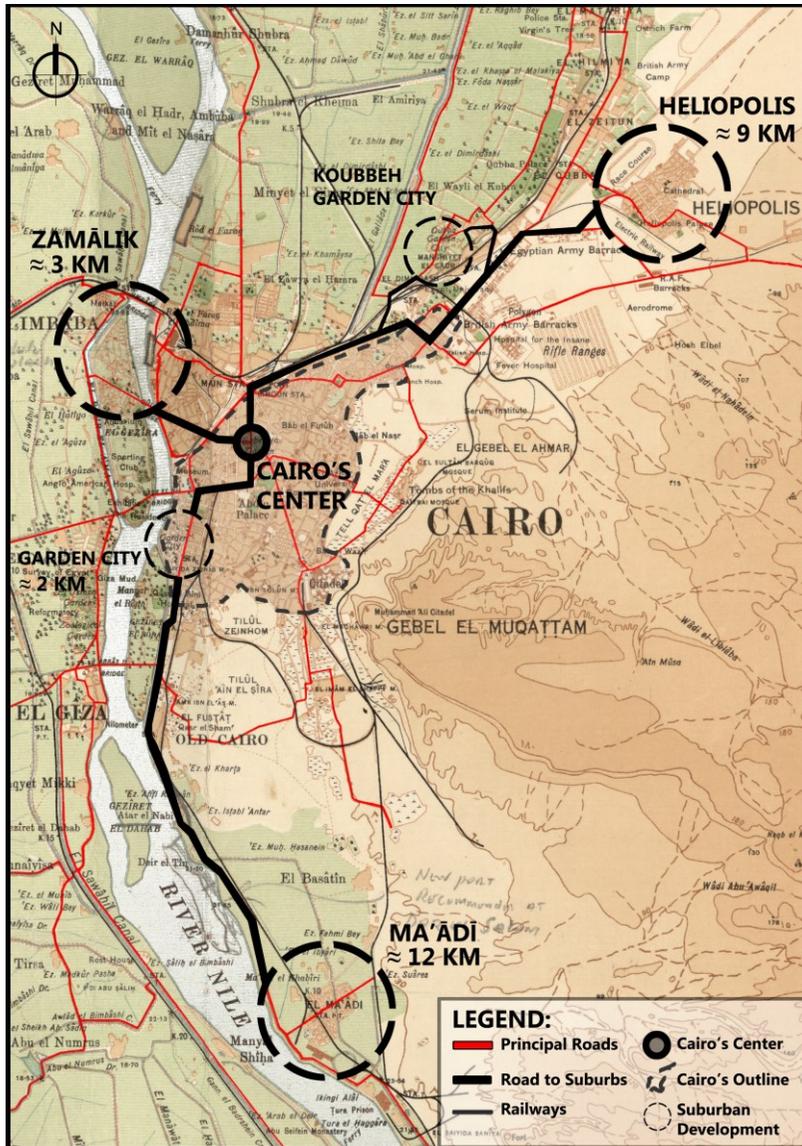


Figure 1-4: Urban land development projects around Cairo in 1920. Source: Adapted from a 1920 map of Cairo from (Library of Congress).

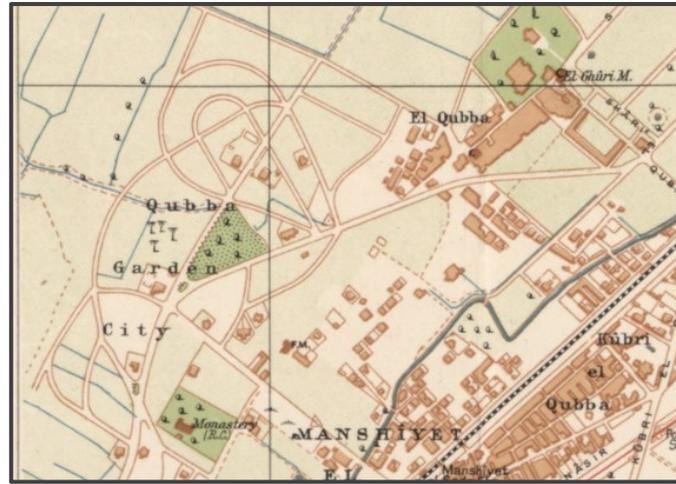


Figure 1-2: Qubba Garden on a partial map of Cairo in 1920. It shows the small land development indicated as “Qubba Garden City.” Source: (Library of Congress)

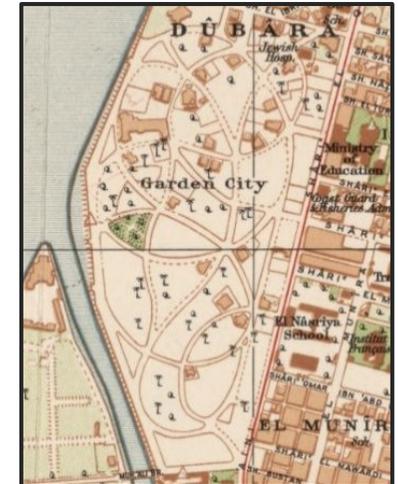


Figure 1-3: “Garden-City” on a partial map of Cairo in 1920. Source: (Library of Congress)

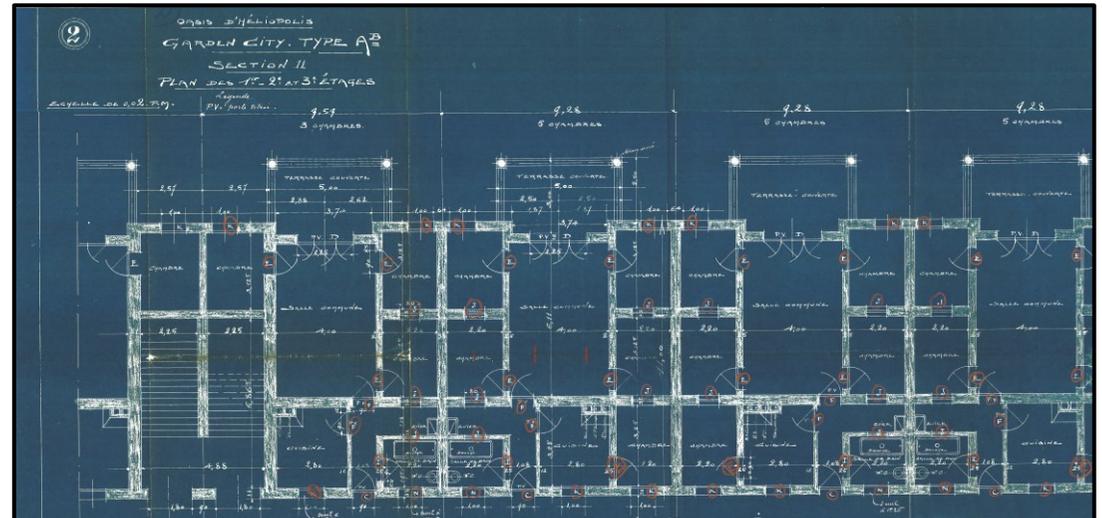


Figure 1-5: A blueprint of an apartment building plan in Heliopolis. The drawing is labeled as “Garden City Type AB”. Source: Heliopolis Company Archive.

In 2010, another book titled “Heliopolis” was released, celebrating 100 years on the establishment of Heliopolis. The Belgian researcher Anne Van Loo, who edited the book, wrote a chapter titled “The New Heliopolis”. with the following subtitle “The invention of a Garden City in the desert”.⁹ However, earlier in 1994, Anne Van Loo wrote a paper in French on the work of the Belgian architect Ernest Jasper who had several architecture contributions in Heliopolis, such as its main hotel the Heliopolis Palace. In this paper, she implies that although Heliopolis was influenced by the garden city movement, it is sort of a garden suburb, as many of its residents’ work in Cairo.¹⁰

H. G. Hunting also describes Heliopolis in the *Technical World Magazine* in 1909 as only a “suburb of Cairo,”¹¹ a term that the French historian Mercedes Volait uses to refer to Heliopolis in one of her papers written in French and titled “*Héliopolis: banlieu du Caire*.”¹² She also added the following in another paper:

“As a whole, Heliopolis (240 hectares had been built up by 1922) far from conformed to the Garden City ideals of Howard and Unwin. It was certainly self-

*contained, greenery played an essential role, and its layout has also been regarded as presenting some affinity with Letchworth’s plan. However, the arrangement of the buildings at block level used a rigid rather than picturesque layout, the densities were much higher than those advocated by the British movement...Though rather distinctive, the townscape of Heliopolis was certainly closer to the ‘grand designs’ in the Beaux-Arts”.*¹³

This shows that there has been some conflict in previous researches in identifying Heliopolis as a garden city or a garden suburb. The same conflict is also found when describing Ma‘ādī, another 20th century suburban development around Cairo developed by the Egyptian Delta Land and Investment Company, established in 1904. Some researchers describe Ma‘ādī as a suburb, or a garden city, or a garden suburb, and some would even use the three terms in the same publication.

For example, De Vries described Ma‘ādī using both terms: “By looking at the development of Maadi, a well-to-do garden city suburb of Cairo, this article examines the perimeters of cosmopolitanism in Egyptian society.”¹⁴ In 2003, M. Volait described it as: “The sole

⁹ Anne van Loo, ‘La Nouvelle Héliopolis: Invention d’une ville-jardin dans le désert’, edited by Fonds Mercator, in *Heliopolis* (Bruxelles: Fonds Mercator, 2010), p. 110.

¹⁰ Anne van Loo, ‘Retour d’Egypte: Ernest Jasper (1876-1940). D’Héliopolis à Hyderabad’, *remmm* 73, no. 1 (1994): pp. 343–362, p. 350, doi:10.3406/remmm.1994.1687.

¹¹ H. G. Hunting, ‘City Bulton Desert Sands’, *Technical World Magazine* (1909): pp. 371–373, p. 371.

¹² Mercedes Volait, ‘Un ensemble urbain Art Déo en Egypte: Héliopolis, banlieue du Caire’, edited by Antonio Bravo Nieto, in *I Congrès International Ville et patrimoine*,.

Art Déco, modèles de la modernité (Melilla, Spain: Edicions Bellaterra, 2006), pp. 221–254, <https://hal.archives-ouvertes.fr/hal-00446019>, accessed 10 January 2018.

¹³ Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a ‘European-Style’ Urbanism’ (above, n. 4), p. 34.

¹⁴ DeVries, ‘Utopia in the Suburbs: Cosmopolitan Society, Class Privilege, and the Making of Ma‘adi Garden City in Twentieth-century Cairo’ (above, n. 5), 35; Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a ‘European-Style’ Urbanism’ (above, n. 4), 35.

undertaking in which the imprint of the British concept is most obvious in Cairo, one that offers the appearance of a veritable Garden City is the Suburb of Ma'ādī."¹⁵ Then she adds that: "*The idea of creating a garden suburb at the Maadi site is attributed to Felix Suarés*"¹⁶ This reveals that beside that there is a conflict in identifying the type of urban development of Ma'ādī, there is as well, a conflict in the understanding of both terms. It shows that there is a misconception in the understanding the garden city and the garden suburb movement.

Later, in 2014, M. Volait wrote another paper on the architectural development of Cairo, describing the development around Cairo in the 20th century: "*A time of thriving expansion in the building sector, the turn of the century had seen the launching of large scale real estate developments: the garden suburbs of Garden-City, Giza, Maadī and Heliopolis, to name only Cairene schemes, all starting in 1903-06.*"¹⁷ Despite that she called these suburban developments as garden suburbs but the paper didn't explain the reason for describing them as garden suburbs.

Other researchers would also agree with Volait's latest description, such as Beattie, who described Ma'ādī and Heliopolis as garden suburbs.¹⁸ In

¹⁵ Volait, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism' (above, n. 4), p. 35.

¹⁶ Ibid., p. 36.

¹⁷ Mercedes Volait, 'Egypt (1914-2014): Global architecture before globalization' *Chapitre de l'ouvrage "Architecture from the Arab World (1914-2014): a selection"* (September 2014): pp. 1–7, p. 2, <https://halshs.archives-ouvertes.fr/halshs-01059419>.

2013, a book was released titled "Planned Paradise," edited by several distinguishable scholars, combining examples of garden cities and garden suburbs from around the world. In this book, they mentioned Heliopolis, Ma'ādī, and Garden City as examples of garden suburbs around Cairo.¹⁹ They described the historical background of each case, without getting into deep analysis of the reason behind describing them as garden suburbs. "*Maadi ... a third garden suburb inspired by English precedent that was intended primarily for wealthy expatriates.*"²⁰ The use of the word "third" infers that Heliopolis and Garden City were also garden suburbs. Zamālik, on the other hand, received less attention from previous scholars. Samir Raafat, who has done a lot of historical researches on Zamālik, says that it was initially known as Gezira Gardens residential district.²¹ However, despite its valuable urban and architectural features, its urban development was not studied before in-depth.

Most of the previous researchers who studied the 20th century suburban developments around Cairo focus more on their social history and distinguishable architecture, while, the terms "garden city" and "garden suburb" were mainly used to describe the context. Heliopolis has been the most studied development. However, its urban analysis was

¹⁸ Andrew Beattie, *Cairo: A cultural history*, Cityscapes (Oxford, New York: Oxford University Press, 2005), p. 182.

¹⁹ Robert A. M. Stern, David Fishman, and Jacob Tilove, *Paradise planned: The garden suburb and the modern city* (New York: The Monacelli Press, 2013), pp. 669–674.

²⁰ Ibid., pp. 673–674.

²¹ Samir W. Raafat, 'THE GEZIRA PALACE', 1999, <http://www.egy.com/zamalek/99-10-14.php>, accessed 30 November 2017.

mainly described as being alike the British garden city movement.²² Despite the description, previous researchers did not focus on the urban characteristics that make these 20th century suburban developments distinguishable as garden cities or garden suburbs. These urban characteristics are important to study as they want made them successful residential settlements targeted by the elite Egyptians at that time. Just by observing the size and activities of these suburban developments, beside their proximity to Cairo, this study believes that there might be a misperception in the use of the term “garden city.” The “garden city” and “garden suburb” were two paired movements that thrived in Britain during the early 20th century. Therefore, this study aims to support the description of some of the 20th century developments around Cairo as garden suburbs, as described mainly by M. Volait in 2014 and in the “Planned Paradise” book.

This study, thus, investigates the hypothesis that these suburban developments are alike the British garden suburb movement. To achieve the research aim, a series of research questions are formulated. First, what is the difference between the garden city and the garden suburb movements? Since some of the 20th century suburban development around Cairo are described or labeled as Garden City, or Garden Suburb,

²² van Loo, ‘La Nouvelle Héliopolis: Invention d'une ville-jardin dans le désert’ (above, n. 9); Robert Ilbert, *Héliopolis: Le Caire 1905-1922* (Paris: Éditions du Centre national de la recherche scientifique, 1981).

²³ Robert K. Home, ‘Town planning and garden cities in the British colonial empire 1910–1940’, *Planning Perspectives* 5, no. 1 (1990): pp. 23–37, p. 29, doi:10.1080/02665439008725693.

or both, it is important to first understand and distinguish between both British movements.

Second, how were these British town planning movements transferred to Egypt? It is critical to understand the socio-economic, and political background that accompanied the establishment of these suburban development in order to understand the association of Cairo’s 20th century suburban development to British town planning movements. Some researchers would agree that these suburban developments were a by-product of the colonial urbanism, since Egypt was occupied by the British army during that time, such Robert Home.²³ While other researchers disagree with this suggestions, such as Mercedes Volait, who suggests that Cairo was a case of European-style urbanism resulting from appropriation of European forms and technics rather than a by-product of the colonial dominance.²⁴ This conflict is intensively explored in Chapter 7: Finally, this thesis investigates: what are the urban design aspects that make these suburban developments distinguishable as garden suburbs? Analyzing Cairo’s 20th century suburban development and comparing them to the British town planning movements allows us to know whether these suburban developments can be distinguished as garden suburbs alike the British movement or not.

²⁴ Joseph Nasr and Mercedes Volait, eds., *Urbanism: Imported or exported? : native aspirations and foreign plans / Joseph Nasr and Mercedes Volait* (London: Academy Editions, 2003), p. 20.

1.2 Methodological Approach

To answer the research questions, the study conducts a historical morphological urban analysis through case studies. It first analyses the rise of the British garden city and garden suburbs movements and their implementation on selected case studies. The study then analyzes the process of transfer of these British movement to Egypt. This is followed by the morphological analysis of selected case studies around Cairo.

The conducted morphological urban analysis studies, investigates, first, the historical, socio-economic, and political aspects that accompanied and influenced the rise of both British movements and the establishment of each selected case study. It then analyzes the authority in power responsible for the development. It investigates whether these developments were controlled and developed whether by the public authorities or by the private sector. Thus, it highlights on the development model, decision making authorities, and ownership. The analysis of this aspect extends to include the contributing planners and architects who influenced the design decisions making process.

The morphological urban analysis then examines the main principles of both movements that guided the development of the selected case studies. It investigates whether the main principal idea of the development is for example related to social reform to enhance the quality of life, or is it mainly for profitable benefits? The analysis then explores the urban context in terms of location, area, accessibility, and surrounding incentives. It then analyzes the urban design concept of the development and how the designer transformed the movements' main principles into a

physical urban language in the general concept, land uses, and zoning. This physical urban language is further analyzed through the analysis of the street typology and residential block typology. The street typology first examines the design of the street network. It then analyzes the design of street in terms of its elements and dimensions from roads, footways, and tramways. The analysis extends to include the street naming and the shading typology used to provide shade over the footways and roads. The analysis of the residential block typology examines first the block pattern in terms of shape, area, and dimensions. It then highlights on the plots' subdivisions in terms of number of plots, shape, area, separation elements between the plots, and the density in terms of number of houses per acre. The residential block typology also analyzes the building typology in terms of building type, grouping of the buildings, area, and footprint ratio.

The architectural design of the building was not taking into consideration in the morphological study. Because most of the suburban development around Cairo were developed by land development companies which mostly parceled the land into buildable vacant plots and sell them. The owners of the land would later hire an architect individually to develop their homes following the companies' building regulations. This is unlike most of the British case studies where the company mainly built homes and rented them to tenants. The study analysis as well the social infrastructure in terms of recreational, religious, and educational activities. It also analyses the social target group aiming to highlight on the targeted residents' groups in relation to the main principles and the implemented urban design aspects.

Table 1-1: The studied morphological urban analysis aspects

Aspects	Description and Details
Background	- <i>Influential accompanying historical, socio-economic, and political circumstances</i>
Authority in power responsible for the development	- <i>Developers</i> - <i>Planners</i> - <i>Contributing architects</i>
Main principles	- <i>The general idea and purposes of the development</i>
Urban context	- <i>Location</i> - <i>Area</i> - <i>Surrounding incentives</i> - <i>Accessibility</i>
Urban design concept	- <i>General design concept</i> - <i>Land use/zoning</i>
Street typology	- <i>Street network</i> - <i>Street design (elements, dimensions)</i> - <i>Shading typology</i> - <i>Street naming</i>
Residential block typology	- <i>Block pattern (shape, area, and dimensions)</i> - <i>Plot subdivisions (number, shape, areas, dimensions, separation between plots, and density)</i> - <i>Building typology (building type, grouping, area, and footprint ratio)</i>
Social infrastructure	- <i>Recreational activities</i> - <i>Religious activities</i> - <i>Educational activities</i>
Social target group	- <i>The target group of the residents</i>

1.2.1 Analysis of the British Garden City and Garden Suburb Movements

The establishment of the garden city movement was initiated through Ebenezer Howard's book "Tomorrow: A Peaceful Path to Real Reform" published in 1898, published and renamed four years later as "Garden Cities of To-morrow." Even Letchworth, the first garden city to be established in 1903, is known as "the town built on a book".²⁵ Thus, this study analyses the concept of the garden city presented by Ebenezer Howard in his book, followed by the analysis of Letchworth, as a demonstration of Howard's ideas.

Raymond Unwin, along with his partner Barry Parker, after planning Letchworth Garden City, they left it and started promoting the garden suburb movement with the principles of a garden city. They designed several garden suburbs, and Unwin later wrote several publications on town planning and garden suburbs. In contrast to the garden city movement, the garden suburb was a movement that started in practice and was then published. The study, however, analyses Unwin's concepts of the garden suburb movement presented in his books: "Town Planning in Practice: an introduction to the art of designing cities and suburbs" published in 1909 and "Nothing Gained by Overcrowding" published in 1912.

Therefore, the morphological urban analysis is first applied on both movements as a general idea through the analysis of the publications

²⁵ Letchworth Local Committee, *Letchworth: A Town Built on a Book* (Great Britain: National Library Week Committee, 1968),

<https://archive.org/details/letchworthatown00britgoog?q=letchworth>, accessed 06 February 2018.

of E. Howard and R. Unwin. Then, it is applied over a selected case study from each movement. It analyzes Letchworth Garden City, established in 1903, and Brentham Garden Suburb, established in 1906. The rationale for choosing both case studies, is that both are considered the pioneer example of each movement. The most famous and most studied British garden suburb is Hampstead Garden Suburb, established in 1907.²⁶ However, this study analyses Brentham as it is recently considered by Prof. Sir Peter Hall and other researchers as the pioneer example of garden suburbs and the first designed suburb by Parker and Unwin preceding Hampstead.²⁷

The analyses of both case studies, Letchworth Garden City and Brentham Garden Suburb, is conducted over the initial plan by Parker and Unwin. The study does not focus on the transformation process that occurred later. In the case of Letchworth, the 1904 original plan, retrieved from Cornell University Library digital collections, was not detailed. Therefore, the analysis of the detailed urban aspects is based relies on a

²⁶ Ewart G. Culpin, *THE GARDEN CITY MOVEMENT UP-TO-DATE* (London: The Garden City and Town Planning Association, 1913); Stern, Fishman and Tilove, *Paradise planned* (above, n. 19); Town and Country Planning Association, 'creating garden cities and suburbs today: policies, practices, partnerships and model approaches – a report of the garden cities and suburbs expert group' (May 2012), https://www.crestnicholson.com/~media/about%20us/new%20about%20us/reports/creating_garden_cities_and_suburbs_today.pdf?la=en; Charles Benjamin Purdom, *The Garden City: a study in the development of a modern town* (London: J.M. DENT & SONS Ltd, 1913); M. BaillieH. Scott, S. D. Adshead, P. W. Wilson et al., *Garden Suburbs: Town Planning and Modern Architecture* (London: T. Fisher Unwin Adelphi Terrace, 1910).

²⁷ Aileen Reid, *Brentham: A history of the pioneer garden suburb 1901-2001 / Aileen Reid* (London: Brentham Heritage Society, 2000); Mervyn Miller, 'Garden Cities and

1921 Map of Letchworth, published in C. Purdom's book "Town Theory and Practice" in 1921.²⁸

As for Brentham, its 1907 plan by Unwin and Barker was published in Unwin's book "Town Planning in Practice".²⁹ However, the study depends on its analysis on the 1909 plan drawn by G.L. Sutcliffe as it was more detailed. This map was retrieved from A. Reid book titled "Brentham"; published by the Brentham Heritage Society in 2000.³⁰ Additional maps, photographs and data were collected from diverse primary and secondary historic accounts. The analysis of the British garden city and garden suburb concludes by distinguishing the contrast between both movements. It also highlights on the misconception between both movements.

1.2.2 Analysis of the Transfer Process

To analyze the transfer process and the mushrooming of both British movements around the world, this study adopts a theory of transporting planning of imported and exported urbanism, presented by

Suburbs: At Home and Abroad', *JOURNAL OF PLANNING HISTORY* 1, no. 1 (2002): pp. 6–28, doi:10.1177/153851320200100102; *The Pioneer co-partnership suburb: A record of progress issued as a souvenir of the visit of T.R.H. the Duke and Duchess of Connaught to declare open the Brentham Club and Institute of the Ealing Tenants Limited* (London: Brentham Society, 1990); Peter Hall and Colin Ward, *Sociable cities: The 21st century reinvention of the garden city*, 2nd edition, Planning, history and environment series (Abingdon, Oxfordshire, New York: Routledge, 2014), p. 37.

²⁸ Charles Benjamin Purdom, ed., *Town theory and practice* (London: Benn Brothers, Limited, 1921), p. 24.

²⁹ Raymond Unwin, *Town Planning in Practice: an introduction to the art of designing cities and Suburbs* (London: T. Fisher Unwin, 1909), p. 231.

³⁰ Reid, *Brentham* (above, n. 25), p. 159.

Joe Nasr and Mercedes Volait in the book they edited together titled “Urbanism: Imported or Exported?” The book examines how particular techniques and concepts of urban intervention developed in some western countries, such as the garden city, were introduced into other western and non-western countries through importation or exportation processes.³¹

Their approach focuses on the authority in power responsible for the development as well as the key planner(s) or designer(s) and architects responsible for the design. Imported urbanism depends on the appropriation of certain urban concepts and techniques by a local agent, in contrast to their exportation by a foreign agent mainly via colonial dominance. Therefore, the conducted historical morphological urban analysis focus on one of its mentioned aspects which is the authority in power responsible for the development. The study first explores the adopted theory on the transfer the process of both British movement in different countries around the world. It analyzes the authority in power responsible for urban developments that follow any of both British movements.

Then a more in-depth analysis is conducted on Egypt in order to have a general perspective on Cairo’s suburban development during the early 20th century. The analysis investigated the authority in power responsible for these suburban developments. Besides, the analysis

³¹ Joe Nasr and Mercedes Volait, ‘Introduction: Transporting Planning’, edited by Joseph Nasr and Mercedes Volait, in *Urbanism: Imported or exported? Native Aspirations and Foreign Plans* (London: Academy Editions, 2003), pp. xi–xxxviii.

³² DeVries, ‘Utopia in the Suburbs: Cosmopolitan Society, Class Privilege, and the Making of Ma’adi Garden City in Twentieth-century Cairo’ (above, n. 5); Raafat, ‘AND

focuses as well on the historical, socio-economic, and political circumstances which accompanied the rise of suburban development projects around Cairo during the 20th century. To complete the picture, the analysis also provides an overview for the social target group residing these suburban developments during the 20th century.

This task was quite challenging since finding detailed historic demographic data for the different residential areas of Cairo is very difficult. To overcome this constraint, the study analyzes “Le Mondain Egyptien” of the year 1939, which is the Egyptian who’s who, the annual publication of the Egyptian elite community in Egypt. This idea was inspired from the literature reviews which shows that these suburban developments mostly targeted the British community, foreigners, and elite Egyptians.³² The 1939 edition “Le Mondain Egyptien”, 5th edition, was particularly chosen for this study as it is the earliest available digital edition. The date of this edition also complies with the Egyptian surveyed maps between 1936 and 1940 used for the detailed urban analysis of the selected case studies.

“Le Mondain Egyptien”, was published once per year. It was like a guide for the Egyptian elite and their interests at that time. Its addresses section is the most interesting. The 1939 edition has 5,320 names listed in alphabetic order, of both Egyptians and foreigners, difficult to be

THEN THERE WERE NONE’ (above, n. 5) Samir W. Raafat, ‘Gezirah: Population 400’, 24 May 2001, <http://www.egy.com/zamalek/>, accessed 05 February 2018; Raafat, *Maadi 1904-1962* (above, n. 5); Beattie, *Cairo* (above, n. 18), pp. 141–164.

distinguished from one another. It shows the name of the person, title, honorary medals, occupation, university degrees, addresses, telephone number, hobbies, and club memberships. The study analyzes the addresses of the subscribers, thus, providing a distribution over the different areas in and around Cairo's city center. This analysis, thus, gives an impression of the social target group residing the different areas of Cairo at that time.

At the end, the analysis of the transfer process of the British town planning movements to Egypt, thus provides a general overview of Cairo's suburban development during the early 20th century in terms of historical, socio-economic, and political circumstances. It also concludes with the process of transfer of such British town planning movement to Cairo.

1.2.3 Analysis of the Garden Suburbs of Cairo

Based on the previous analysis and overview, a morphological urban analysis, following the same aspects, presented in Table 1-1, is conducted over three selected suburban land development established around Cairo in the beginning to the 20th century. The selected case studies are Zamālik, Ma'ādī, and Heliopolis, established in 1904, 1905, 1906 respectively.

There are several reasons for choosing these three case studies. First, according to the analysis of "Le Mondain Egyptien, 1939", as shown later in Table 7-2, Zamālik was the most attracting suburban development for the elite Egyptians. As for Ma'ādī and Heliopolis, as previously mentioned in p.2-5, the literature review shows that there is a

conflict in describing them as garden cities or garden suburbs, thus making them worth investigating. The initial development plans of these suburban developments, retrieved from the urban land development companies' archives or from secondary historic accounts, mainly shows vacant buildable plots. Therefore, the detailed urban morphological analysis relies on the maps surveyed by the Egyptian survey department, between 1936 and 1940, in diverse scales.

To analyze the social target group, a more in-depth analysis is conducted over the 1939 edition of "Le Mondain Egyptien" The analysis of the subscribers' details focuses this time on the work titles of the elite residents living in the selected case study areas: Zamālik, Ma'ādī, and Heliopolis. The titles are diverse, including princesses, nobles, ministers, property owners, industrials, engineers, bankers, university professors, and foreign and local companies' staff. The grouping and categorization of work titles was a very difficult task. The categorization scheme has two purposes. First, it highlights the diverse social groups. Second, it gives an overview of their dependence or independence on the city center regarding employment. Do their work titles show that they probably should commute daily to go to work in the city center, or are they more flexible and independent from the city center?

Work titles were grouped into six categories: (1) government, (2) profession, (3) private business, (4) don't work, (5) B.T.E./O.B.E., and (6) diplomats. The first category "government" represents the listed elite persons who worked as ministers, employees in the ministry, officers in the Egyptian army, senators, parliament members, and royal cabinet

members. The second category “profession” includes the listed elite persons who work as engineers, doctors, university professors, bankers, workers and directors in private limited companies, corporate directors, and so on. Work titles of these two groups show that they are more attached to the city center.

The third category “private business” includes merchants, industrials, and traders. The fourth category “don’t work” includes nobles, royal family members, retired persons, annuitant, and property owners. This category represents the elite who don’t necessarily work, as they gain income from other resources, and so they do not have to commute daily to the city center for work purposes. The fifth category “B.T.E.” stands for the British troops in Egypt, while “O.B.E.” stands for the officers of the British Empire. They were grouped into one category to represent the colonial presence. The last category “diplomats” includes ambassadors and members of diplomatic missions in Egypt. The last two categories were created for a rather different purpose; they were mainly

³³ Tamer Elserafi, Dalila Elkerdany, and A. Shalaby, ‘Challenges for sustainable urban mobility in Zamalek district’, *Open House International* 42 (2017); Mohamed Elazzazy, ‘Towards the Thematic Conservation of Historic Urban Landscapes: Identifying the Historic Urban Landscape Themes of El-Zamalek’ (Master of Science, ARAB ACADEMY FOR SCIENCE, TECHNOLOGY AND MARITIME TRANSPORT, December 2011); Sara Moustafa Gouda, *Towards a sustainable preservation approach to Egyptian heritage neighborhoods: The case of Heliopolis*; Raafat, *Maadi 1904-1962* (above, n. 5).

present in Zamālik more than in Ma‘ādī and Heliopolis, reflecting that Zamālik was more targeted by British officers and diplomatic attaché.

At the end of the analysis of each selected case study, the study provides a summary to highlight on the aspects that distinguish the studied suburban development as a garden suburb. A comparative analysis is, then, conducted between the British case studies and the Cairenes ones, in order to highlight the similarities and differences between the Egyptian and British examples.

1.3 The Significance of the Study:

There are three main reasons behind conducting this study. First, these suburban developments, which were once on the suburbs of Historic Cairo, are currently embedded into Greater Cairo. Like many other areas of the city, they are facing deterioration.³³ Second, Zamālik, Heliopolis, and Ma‘ādī specifically are nostalgically appropriated in the design of new suburban extensions around Cairo.³⁴ However, in most cases, they are misappropriated. Third, garden suburbs are recently being brought back into the picture as a solution to cities’ expansion.³⁵

³⁴ Khaled Adham, ‘Cairo's urban Deja Vu: Globalization and Urban Fantasies.’, edited by Yasser Elsheshtawy, in *Planning Middle Eastern Eastern cities. an urban kaleidoscope in a globalizing world* (London: Routledge, 2004), pp. 134–168.

³⁵ Miller, ‘Garden Cities and Suburbs: At Home and Abroad’ (above, n. 25), p. 6; Town and Country Planning Association, ‘creating garden cities and suburbs today: policies, practices, partnerships and model approaches – a report of the garden cities and suburbs expert group’ (above, n. 24); University of Westminster - Highbury Group on Housing Delivery, ‘GARDEN CITIES, GARDEN SUBURBS AND URBAN EXTENSIONS: Comments by the Highbury group on housing delivery on issues raised in the TCPA Report: Creating Garden Cities and Garden Suburbs Today’,

1.3.1 For Conservation Purposes

With the expansion of Cairo over the years, the distinguishable suburban developments established during the early 20th century on the periphery of the city became part of the center of Greater Cairo. They are no more considered as suburbs. Unfortunately, like many areas of Cairo, they are subject to deterioration and suffer from a lack of appropriate conservation and development, despite how valuable they are. For example, several villas and palaces were demolished and replaced by multistory apartment buildings in a rapid densification process.

The deterioration of the urban fabric in Egypt and in Cairo specifically rung the bell for the Egyptian authorities, and as a result, the National Organization for Urban Harmony (NOUH)³⁶ was established. The authorities aim at “*applying the values of beauty to the exterior image of buildings, urban and monumental spaces, the bases of visual texture of cities and villages and all the civilized areas of the country including the new urban societies*”.³⁷

NOUH has launched a value map project to document only the valuable architectural buildings in some areas of Cairo. Areas such as Zamālik and Heliopolis were of special interest to the authority. The value map of Zamālik, Figure 1-7, was published on their website in 2010.³⁸

https://www.crestnicholson.com/~media/about%20us/new%20about%20us/reports/creating_garden_cities_and_suburbs_today.pdf?la=en.

³⁶ It is affiliated to the Egyptian Ministry of Culture. It was established in 2001 while the inauguration took place at the Citadel-in August 2004.

³⁷ National Organization for urban Harmony (NOUH), ‘Aims’, http://www.urbanharmony.org/en/en_target.htm, accessed 28 December 2010.

However, the value map only focuses on documenting valuable architectural buildings, neglecting all other historic urban landscape themes of Zamālik.³⁹

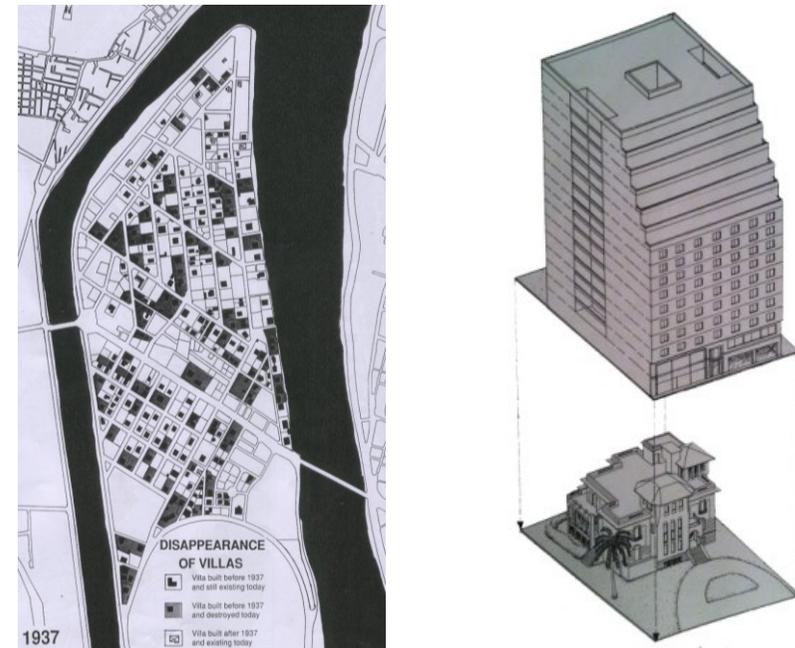


Figure 1-6: The densification process of Zamālik.

The map shows the replacement of Zamālik’s villa by multistory apartment buildings with commercial activities in the ground level. Source: Reorganization and de-concentration of existing agglomeration. Cairo Report. (The General Organization for physical planning with I.A.U.R.I.F 1991).

³⁸ National Organization for urban Harmony (NOUH), ‘Value Map’, http://www.urbanharmony.org/en/en_valuemap.htm, accessed 03 January 2011.

³⁹ Elazzazy, ‘Towards the Thematic Conservation of Historic Urban Landscapes: Identifying the Historic Urban Landscape Themes of El-Zamalek’ (above, n. 31).

In some areas, the speed of deterioration of their heritage and quality of life has led to the founding of several community initiatives aiming to safeguard their neighborhoods. Social media has helped in the development and spread of these initiatives, especially after the 2011 revolution in Egypt. In Zamālik, a neighborhood association was formed by the residents under the name of Zamālik Guardians. They are currently facing a battle with the Ministry of Transport to stop the construction of a new metro line that should pass through their neighborhood.⁴⁰

In Heliopolis, the Heliopolis Heritage Initiative was founded in 2011 in a mission to revive and protect the quality of life in the area. *“The initiative is concerned with the protection of the architectural and cultural heritage of Heliopolis, along with the enhancement of the neighborhood’s built environment”*.⁴¹ However, despite facing severe deterioration, Zamālik, Ma‘ādī, and Heliopolis are still considered among the most distinguishable residential areas in Cairo.

However, the conservation initiatives, if found, focus mainly on architectural buildings. There is a lack of understanding of the overall particularities and urban design aspects that make these areas distinguishable. By identifying them as a garden suburb and analyzing their urban design aspects, this study hopes to be a valuable initial step towards their conservation and future sustainable development, to sustain the quality of life that they offer.

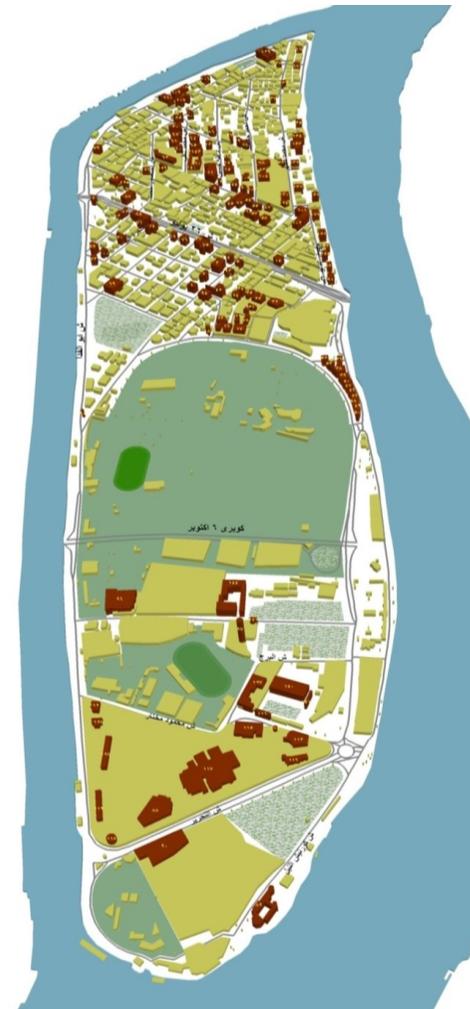


Figure 1-7: Value Map Project of Zamālik.

It shows the valuable architectural buildings identified by the authority. Source: (National Organization for urban Harmony (NOUH) 2010)

⁴⁰ Al-Masry Al-Youm, ‘Zamalek streets closed for third metro line construction’, 23 July 2017, <http://www.egyptindependent.com/zamalek-streets-closed-third-metro-line-construction/>, accessed 30 November 2017.

⁴¹ Nile Network, ‘Heliopolis Heritage Initiative’, <http://www.ardic-developments.com/english/voting/choice.aspx?cid=1&choiceid=2>, accessed 30 November 2017.



Figure 1-8: The removal of Heliopolis tramway tracks.

This so-called development, in order to widen the vehicular road, is deteriorating Heliopolis and affecting its quality of life. Photo Courtesy: Ahmed Rashid

1.3.2 To Support the Design of New Suburban Developments in Egypt

The second reason for conducting this study is to support the real estate industry and the design of the suburban extension around Greater Cairo. The deterioration and densification of the city are among the mediators of the boom in real estate industry on the periphery of Greater Cairo. By the 1990s, several real estate development companies with private capital were established, building new residential settlements on the eastern and western peripheries of Cairo. Since the beginning of the 21st century, the urban development movement, especially around Greater Cairo, is like an *urban déjàvu* of the 20th century development, especially, of Zamālik, Ma‘ādī, and Heliopolis.⁴²

These new developments are attracting residents from Cairo with the claim of providing a better quality of life and a dream home.⁴³ The resemblance with the past is not only that they were all developed by private enterprises, but also that some of these projects are trying to nostalgically appropriate the design, quality of life, and experience of the 20th century suburban developments. Some projects try referring to Zamālik, Ma‘ādī, and Heliopolis in comparison, to show how their establishments are as good or better than these examples. Therefore, several residents of Cairo are moving to the suburban developments on the periphery of Greater Cairo.

⁴² Adham, ‘Cairo’s urban Deja Vu: Globalization and Urban Fantasies.’ (above, n. 32).

⁴³ Karim Kesseiba, ‘Cairo’s Gated Communities: Dream Homes or Unified Houses’, *Procedia - Social and Behavioral Sciences* 170 (2015): pp. 728–738, doi:10.1016/j.sbspro.2015.01.075.

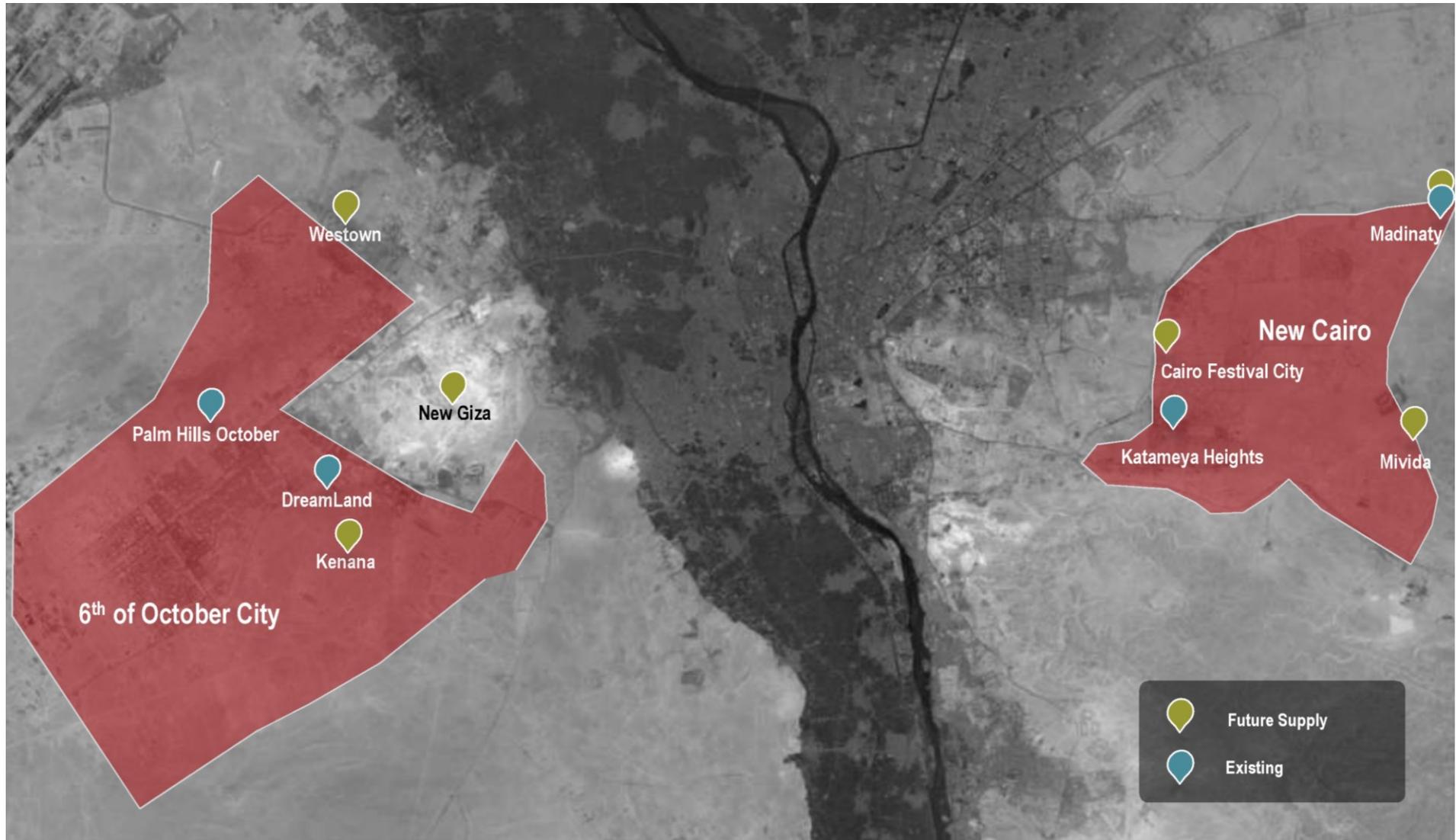


Figure 1-9: A Map showing some of the new developments around Greater Cairo.

The success of the 20th century suburban developments made them currently nostalgically appropriated for the design of some major residential developments around Greater Cairo and the surrounding cities. Source: Cairo Real Estate Market Overview (Jones Lang LaSalle - JLL 2013)

For example, SODIC West, one of the development projects carried out by SODIC Company, is advertised as “*the largest planned mixed-use development in Egypt's Sheikh Zayed area and is double the size of Zamalek*”.⁴⁴ The project is divided into several smaller residential compounds, one of them named “Allegría”. Most of its units surround a large golf course. The experience of living there is somehow comparable to Zamālik, which was a suburban development built next to a golf course and recreational fields. Recreational fields were one of the most distinguishable urban design aspects of the 20th century suburban developments. Zamālik is the only 20th century suburban development whose golf course is still preserved as part of the Gezira Sporting Club, despite being in the heart of the city, unlike golf courses in Ma‘ādī and Heliopolis that were taken over by the urban growth of the suburbs.



Figure 1-10: The golf course of Allegría in Sodic West.

Villas and town houses surround the golf course. Source: (SODIC WEST)



Figure 1-11: New Korba in New Heliopolis City.

Appropriation of the name and architectural feature to those of the 20th century garden suburbs, is evident in the new developments. Source: (Heliopolis Developers Group)

Another project in the west of Cairo is Dreamland, a private urban development located approximately 17 km west of Cairo, developed by Bahgat Group. Beside the residential compound, this project has a huge theme park, a golf course, a sport club, and hotels. Khaled Adham compares the urban development of Dreamland with Heliopolis, naming them both as an “urban fantasy,” for Heliopolis also had a Luna park, horse racetrack, golf course, club, and hotel.⁴⁵

Other projects were named after some of the 20th century suburban developments for marketing purposes, to give a certain image. Examples include the New Heliopolis City developed by Heliopolis Company for Housing and Development⁴⁶. The land area is 25 sq.km,

⁴⁴ Ashraf Fayad, ‘About: SODIC West’, <http://www.theallegriacairo.com/en/SODIC-West>, accessed 30 November 2017.

⁴⁵ Adham, ‘Cairo's urban Deja Vu: Globalization and Urban Fantasies.’ (above, n. 32).

⁴⁶ The former Heliopolis Oasis Company which was the developer of Heliopolis in the beginning of the 20th century. The Company was sequestered by President Nasser’s Regime circa 1956. In 2016, The Company has partnered with SODIC East to develop 25 sq.km. East of Cairo.

located 60 km to the east of Cairo. They appropriated not only the name, but also some of the neo-Islamic features of the façade, which is one of the distinguishable architectural features of Heliopolis as shown in Figure 1-11.

Diminishing the appropriation of Heliopolis in a golf course, some motifs on the façade, or a theme park reveals that there is a lack in understanding of the urban design aspects of these suburban developments. Thus, there is a need to understand the principles of a garden suburb and analyze the urban distinguishable characteristics that made these 20th century suburban developments successful.

1.3.3 A Solution to Urban Extension

Although the garden city and garden suburb movements were developed in the beginning of the 20th century, they have recently started coming back into the scene. *“Today, the principles of the garden city movement are once again in play, as retrofitting the suburbs has become a central issue in planning. Strategies are emerging that reflect the goals of garden suburbs in creating metropolitan communities that embrace both the intensity of the city and the tranquility of nature.”*⁴⁷ They are being studied as a way for new urban extension.

⁴⁷ The Monacelli Press, ‘Paradise Planned: The Garden Suburb and the Modern City’, 2013, <http://www.monacellipress.com/book/?isbn=9781580933261>, accessed 13 February 2018.

⁴⁸ Jon Neale, ‘Forget garden cities, we need a garden suburbs movement’, 2012, <https://www.theguardian.com/housing-network/2012/oct/30/garden-cities-movement-urban-planning>, accessed 01 December 2017.

Jon Neale, UK head of research at Jones Lang LaSalle, says: *“The solution is to build garden suburbs as extensions to our existing cities, providing much-needed family housing. This is far more sustainable than creating new settlements far away from existing employment.”*⁴⁸ Their success lies in the fact that they provide home for people, while assuring access to the city where work opportunities are. This was a key aspect for the success of garden suburbs.

Garden suburbs are not just a cluster of residential units, but they also create communities. *“That urban extensions and new settlements with proximate connections to existing towns and cities are more likely to achieve sustainable communities and housing growth than new standalone garden cities. They are more likely to have access to employment opportunities and to existing transport and social infrastructure”*⁴⁹. They are not just exclusive enclaves for the elite.⁵⁰ Due to the limitation of the size of the suburb in relation to the city, according to the Town and Country Planning Association (TCPA), communities in suburbs get more attached to their area and gain a sense of belonging. This makes them always cautious to the development and maintenance of their suburb. The limitation of social infrastructure, in terms of public

⁴⁹ University of Westminster - Highbury Group on Housing Delivery, ‘GARDEN CITIES, GARDEN SUBURBS AND URBAN EXTENSIONS: Comments by the Highbury group on housing delivery on issues raised in the TCPA Report: Creating Garden Cities and Garden Suburbs Today’ (above, n. 33), p. 1.

⁵⁰ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), pp. 11–15.

interaction space, makes community members interact more often with each other than people do in big cities.⁵¹

With the boom in real estate industry and public private partnership, garden suburbs are now considered an opportunity for private developers to support real estate. The private sector is encouraged to take a lead in such a development model. This reduces the load on public authorities. There are also current attempts by the Town and Country Planning Association (TCPA) in Britain to develop policies and partnerships for creating garden cities and suburbs.⁵²

Finally, to conclude the significance of this study, the following are three main reasons behind conducting it. First, it is intended to support the conservation of the deteriorating 20th century suburban developments in Cairo, especially Zamālik, Ma‘ādī, and Heliopolis. Second, it aims at supporting the design of new suburban developments around Greater Cairo, which are misappropriating the design of the 20th century suburban developments. And finally, due to reviving the garden suburb movement as a solution for urban extension, this study also hopes to support academia and researchers studying the history of urbanism and urban design, highlighting some urban characteristics that have influenced the urban development in Cairo.

⁵¹ Town and Country Planning Association, ‘creating garden cities and suburbs today: policies, practices, partnerships and model approaches – a report of the garden cities and suburbs expert group’ (above, n. 24).

1.4 Study Structure

The study is divided into two parts. The first part focuses on the British garden city and garden suburb movement during the early 20th century. It is divided into five chapters. Chapter two investigates the origin of the British garden city movement. It is followed by the morphological urban analysis of Letchworth Garden City in chapter three. Then, the fourth chapter examines the origin of the British garden suburb movement, followed by the morphological urban analysis of Brentham Garden Suburb in Chapter five. Chapter six highlights summaries the contrast between the British garden city and garden suburb movements. It also investigates explores the transfer and mushrooming process of the British movements. The second part of this book explores the development of the garden suburbs around Cairo during the early 20th Century. The transfer process of the garden suburb movement from Britain to Cairo is explore in Chapter seven. The following three chapters present morphological urban analysis of three case studies in Cairo: Zamālik, Ma‘ādī, and Heliopolis. Chapter eleven presents a comparative analysis of the case studies of Britain and Cairo, highlighting the similarities and differences between the garden suburbs of Cairo and the British garden suburb. The analysis also sheds light on the contrast between the selected case studies of Cairo. This chapter also summaries the main findings of the study and conclusion.

⁵² Ibid.

**PART ONE: THE BRITISH GARDEN CITY & GARDEN SUBURB
MOVEMENTS**

CHAPTER 2: THE BRITISH GARDEN CITY

This chapter highlights the origin, principles, and urban design aspects of the 20th century British garden city movement. It first examines the original idea behind the garden city movement that Ebenezer Howard presented in his book “Garden Cities of To-morrow.” The following are studied through the analysis of the following aspects: background, main principles, authorities in power responsible for the development, urban context, urban design concept, street typology, residential block typology, social infrastructure, and social target group. In the chapter’s summary, the study compares between Howard’s ideas and their implication in Letchworth.

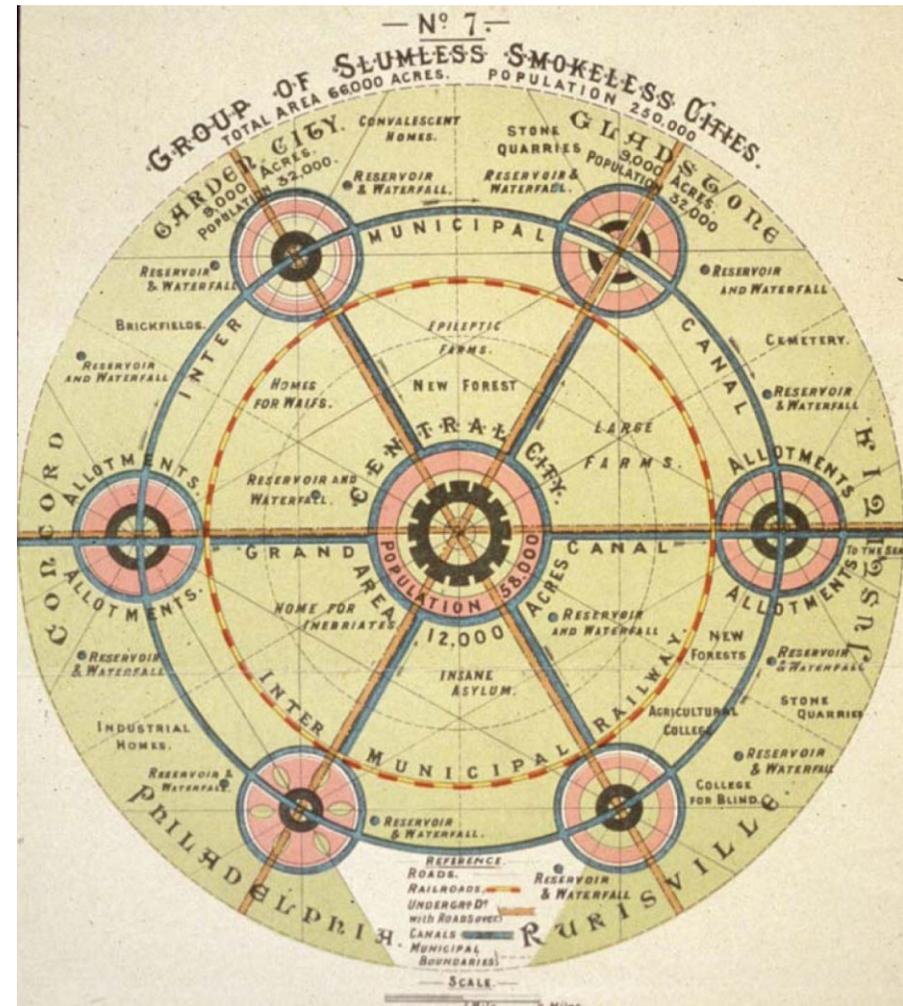


Figure 2-1: Howard's garden city diagram.

It shows a group of garden cities surrounding a central city.
Source: (Stern, Fishman and Tilove 2013)

2.1 Background

By the end of the 19th century and the beginning of the 20th century, the garden city movement started in Britain. It was based on Sir Ebenezer Howard's (1850-1928) planning ideas that he published in his book, in October 1898, "To-morrow: A peaceful Path to Real Reform." The book was republished in a revised edition in 1902 under the title "Garden Cities of To-morrow." In his book, Howard presented the principles, design ideas, and benefits of establishing garden cities. It was translated to several languages and reprinted several times, and so the movement started to spread in different countries around the world. Since Howard was not a designer, he showed only few simple diagrams. His ideas were translated into the architectural and town planning language by planners who later designed garden cities. The pioneers of this translation are Sir Raymond Unwin (1863-1940) and Barry Parker (Barry Parker (1867-1947) who planned the first garden city, Letchworth Garden City, in 1903 initiated and supervised by E. Howard.⁵³

The decline of the industrial city movement due to its negative social impact was one of the triggers of the evolution of the planning practice all over the world, especially in Britain. The evolution of cities became of great concern, leading reform movements to take social aspects more into consideration. The improvement of the human condition became a major concern in different fields.

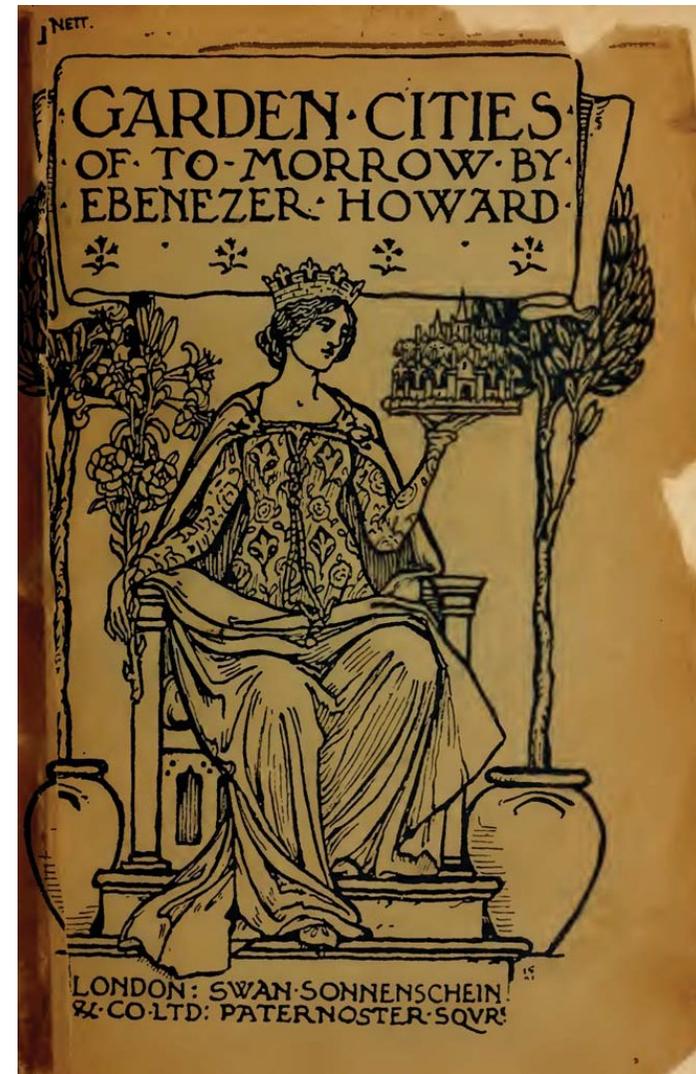


Figure 2-2: "Garden Cities of To-morrow" - Book Cover of 1902.

⁵³ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), pp. 213–214.

*“The outcry against the deteriorated and rotten environment of the industrial city was not limited to a few conscience-stricken businessmen. Literary men, writers like Charles Dickens and Thomas Carlyle, also spoke against the terrible conditions of the city in the nineteenth century. These writers gave birth to the social issue novel.”*⁵⁴

The garden city movement was one of the reform movements that greatly affected British town planning. The garden city was seen as a “master key” for solving the problems of the industrialized society.⁵⁵ *“Ebenezer Howard is famous because he invented a solution to urban problems which came to be called ‘garden cities’.... His book led to the creation of the profession of town and country planning in Britain and other countries.”*⁵⁶

Howard was inspired by other utopians, such as the Americans Henry George and Edward Bellamy. Sir E. Howard did not only publish a book with some principles and guidelines, but he also founded the Garden City Association in 1899, now the Town and Country Planning

⁵⁴ Eleanor Smith Morris, *British town planning and urban design: Principles & Policies* (Harlow: Longman, 1997), p. 44.

⁵⁵ Ebenezer Howard, ‘GARDEN CITIES of To-morrow’, edited by Attic Books, in *Garden Cities of To-morrow* (Great Britain: Antony Rowe Ltd, Chippenham, Wiltshire, 1997), pp. 3–122; Stephen V. Ward, ed., *The Garden city: Past, present and future / edited by Stephen V. Ward*, first (London: Spon, 1992); Lewis Mumford, ‘Introduction’, edited by Frederic James Osborn, in *Garden cities of to-morrow*. MIT 23, The MIT Paperback Series (Cambridge, Mass.: The M.I.T. Press, 1976), pp. 29–40; Peter Hall and Colin Ward, *Sociable cities: The legacy of Ebenezer Howard* (Chichester: J. Wiley,

Association (TCPA).⁵⁷ The association initially aimed at promoting garden city ideas; it later broadened its scope to town planning. Howard also turned his ideas to demonstrations with the establishment of two garden cities, Letchworth (1903) and Welwyn (1919).

2.2 Main Principles

Aiming to improve human conditions, Howard developed an idea that brings the benefits of the countryside and the town together in what he called town-country. In his famous three magnets diagram, Figure 2-3, his aim was evident to adopt the social and economic benefits that the town and country provide for people, while avoiding their disadvantages. This town-country model is the core of Howard’s garden city. This aspect is what really defines a garden city, in order to benefit from the advantages of both environments.

“There are in reality not only, as is so constantly assumed, two alternatives — town life and country life — but a third alternative, in which all the advantages of the most energetic and active town life, with all the beauty and delight of the country, may be secured in perfect combination; and the certainty of being able to

1998); Stern, Fishman and Tilove, *Paradise planned* (above, n. 19); Morris, *British town planning and urban design* (above, n. 52).

⁵⁶ Ray Thomas, ‘Introduction: Howard's Neglected Ideas’, edited by Attic Books, in *Garden Cities of To-morrow* (Great Britain: Antony Rowe Ltd, Chippenham, Wiltshire, 1997), pp. vii–xxix, vii.

⁵⁷ Dennis Hardy, ‘1899-1999 Tomorrow & Tomorrow: The TCPA's first hundred years and the next...’ (1999), p. 4, <https://www.tcpa.org.uk/Handlers/Download.ashx?IDMF=60068eb3-df05-4cd8-9072-f11f0018c770>.

live this life will be the magnet which will produce the effect for which we are all striving—the spontaneous movement of the people from our crowded cities to the bosom of our kindly mother earth at once the source of life, happiness, of wealth, and of power. - This may be illustrated by a diagram of ‘The Three Magnets’, in which the chief advantages of the Town and of the Country are set forth with their corresponding drawbacks, while the advantages of the Town-Country are seen to be free from the disadvantages of either.”⁵⁸

His idea was to overcome the problem of the industrialized society, as people move from the countryside to live in bad conditions in slums around the big cities, seeking a job. Despite finding a job in the city, they suffered from diverse negative aspects such as the polluted air, limited access to green open spaces, and high rents. It was, as well, a historical call for a resigned urban development to the higher-income earner “higher society”. The latter, also suffered from the harmed industrial city affected by the industrialization and the proletariat, and thus, moved to the cheaper land in the countryside to reside there.⁵⁹

⁵⁸ Ebenezer Howard, *GARDEN CITIES OF TO-MORROW: BEING THE SECOND EDITION OF "TO-MORROW: A PEACEFUL PATH TO REAL REFORM"* (London: SWAN SONNENSCHNEIN & CO., Ltd, 1902), pp. 15–16.

⁵⁹ Juan Rodriguez-Lores and Gerhard Fehl, *Die Kleinwohnungsfrage: Zu den Ursprüngen des sozialen Wohnungsbaus in Europa*, Bd. 8, Stadt, Planung, Geschichte (Hamburg: Christians, 1988), p. 75.

⁶⁰ Ewart G. Pulin was the secretary of the Garden City and Town Planning Association in 1913.

To clarify the concept of a garden city, E. G. Culpin⁶⁰, in 1913, in his book “The Garden City Movement Up-to-Date,” defined the garden city⁶¹ saying that:

“A ‘garden city’ is a self-contained town – industrial, agricultural, residential – planned as a whole, and occupying land sufficient to provide garden surrounded homes for at least 30,000 persons, as well as a wide green belt of open fields. It combines the advantage of town and country and prepares the way for a national movement stemming the tide of the population now leaving the countryside and sweeping into our overcrowded cities.”⁶²

This definition sets few main principles for the concept of the garden city. First, it should be self-contained, thus, having its own independent industrial, agricultural, and residential activities. E. Howard, thus, wanted to build a town that would be agriculturally independent and at the same time have an industrial zone, while creating a healthy residential environment. He also added that it should have enough commercial activities.⁶³

⁶¹ This definition is also quoted by Stern and Fishman in their book *Paradise Planned* after Ebenezer Howard himself when he, in 1910, wrote to the editor of the *builder* magazine in an attempt to clarify the difference between the three terminologies: Garden City, Garden Suburb, and Garden Villages.

⁶² Culpin, *THE GARDEN CITY MOVEMENT UP-TO-DATE* (above, n. 24), p. 2.

⁶³ *Ibid.*

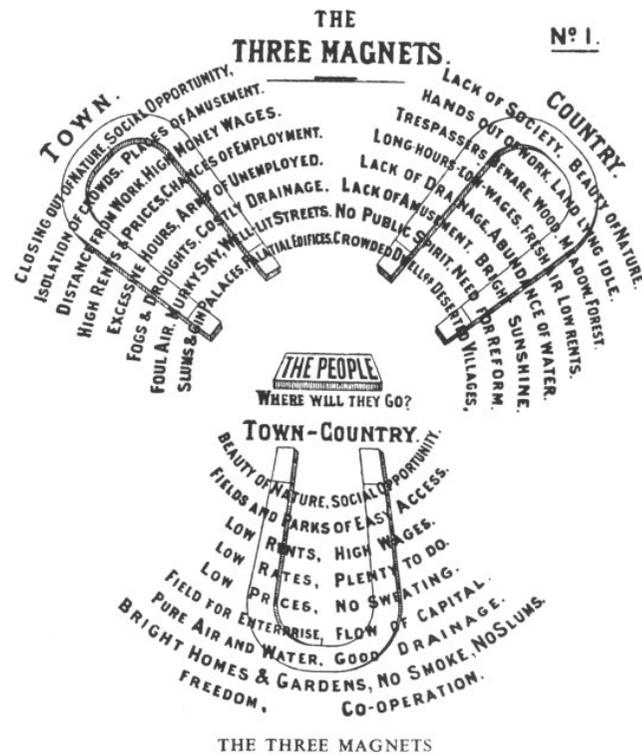


Figure 2-3: The Three Magnets Diagram by Ebenezer Howard.
 Source: (Howard 1902)

Culpin also emphasizes that a garden city should have enough ample garden to allow the construction of garden-surrounded homes. And these homes that are supposed to attract middle class should incorporate cottages for workers not far from their workplace. Third, a garden city needs to be planned before starting its construction. Fourth, it is designed for a limited-size population. Fifth, it is surrounded by a green belt, which acts as an agricultural estate and a barrier to limit the city growth.

The limitation in size of the garden city was a key factor in order to overcome the problems of the big overcrowded industrialized cities. Howard developed a concept that he called “Social City”. This concept is related to the future growth of a garden city. His idea was that a garden city should have a limited-size population. Once it grows to reach 30,000 inhabitants, a new one should be built. This would be necessary to avoid building expansion over agricultural land and ripping it. This also avoids the creation of slums around the city. His idea was that garden cities will grow in clusters around a central city maintaining appropriate distances to ensure their independency (Figure 2-1). The key of the garden city for rescuing the humans was the destruction of the big city.⁶⁴ Ray Thomas, in his introduction of the 1997 edition of the book, emphasizes on some of Howard’s neglected principles.⁶⁵ The concept of “Social City” is one of these principles.

⁶⁴ Nikolai Roskamm, *Dichte: EINE TRANSDISZIPLINÄRE DEKONSTRUKTION*, Diskurse zu Stadt und Raum (Bielefeld: Transcript Verlag, 2011), p. 250.

⁶⁵ Thomas, ‘Introduction: Howard's Neglected Ideas’ (above, n. 54).

Another key principle that is also neglected, according to Thomas, is the socio-economic model of Howard's Garden city. In his model, he aimed to abolish the private landlord authority and ownership of the land and achieve the idea of having a civic society.⁶⁶ His idea was that the whole settlement was to be collectively owned by the community, and to return the benefit of the increase of the land value, which resulted from the economic development, to the community as municipal income. The idea of the municipal control and the unearned increment means that the municipality would maintain control over the land ownership, leasing it to private landlords with a limited return on the capital. "*The return on capital should be limited to, say, 5 per cent., any profit above that amount being applied to the estate itself for the benefit of the community*"⁶⁷. This benefit would return to the community for the creation and maintenance of public facilities, such as schools, parks, roads, and so on.

Therefore, the idea of the garden city was described as a merge of bourgeois romantic and social thoughts, along with naïve and pragmatic liaison.⁶⁸ However, the concept of the garden city became the most popular design model of the modernism.⁶⁹ To conclude, this study summarizes the principles of Howard's garden city into the following points:

- 1) dependency/function: self-contained – town/country;
- 2) planned as a whole: zoned plan including diverse activities;
- 3) houses: low density garden-surrounded homes;
- 4) limited population number: approx. 30,000;
- 5) green belt: as agricultural estate and to limit town growth;
- 6) growth: in terms of cluster with limited population "social city" - connected to each other and to the central city
- 7) development model: municipal control with return of "unearned increment" to community benefit;

2.3 Authority in Power Responsible for the Development

According to Howard, a Garden City is organized by a Semi-Municipal Enterprise.⁷⁰ This enterprise will deposit the collected funds from debentures into the hand of a Board of Management in order to construct and manage the garden city.⁷¹ To establish the garden city, he needed to motivate the private enterprises by showing them the benefit of investing in building new towns. However, he was mainly cautious that the profit does not go solely to the private landlords while municipalities carry the financial burden of the construction and maintenance. The main idea was that the garden cities were to be constructed by private cooperation, while land ownership remains under municipal control, with limited return on capital for the private investors.⁷²

⁶⁶ Gerd de Bruyn, *Die Diktatur der Philanthropen: Entwicklung der Stadtplanung aus dem utopischen Denken*, first (Berlin, Deutschland: Braunschweig Wiesbaden Vieweg, 1996), p. 173.

⁶⁷ Culpin, *THE GARDEN CITY MOVEMENT UP-TO-DATE* (above, n. 24), p. 2.

⁶⁸ Bruyn, *Die Diktatur der Philanthropen* (above, n. 64), p. 171.

⁶⁹ Ibid., p. 173.

⁷⁰ Howard, *GARDEN CITIES OF TO-MORROW* (above, n. 56), pp. 76–85.

⁷¹ Ibid., pp. 68–75.

⁷² Purdom, *The Garden City* (above, n. 24), p. 47.

*“Municipal control of the land was the key to Howard’s scheme. Initially this was to be accomplished by means of private corporation acquiring an agricultural site and holding its trust for both the stock and debenture holders and the future residents, with trustees acting on their behalf. The town’s benefit was to be used for the benefit of the townspeople.... Once the interest rates and fees were paid, the accrued money was used for the creation and maintenance of all public works, such as school, parks, roads, etc.... The essence of the plan was that all profits through increase in the value of the land should be returned to the community.”*⁷³

In this case, the inhabitants will have the satisfaction of knowing that the increment of value of land the land created by themselves will be devoted to their own benefit.⁷⁴ Therefore, among the main differences between the Garden City and other municipalities is the method of raising its revenues.⁷⁵ Accordingly, he dedicated several chapters of his book to describe the organization and administration of the garden city.

2.4 The Urban Context

2.4.1 Location/Area

A garden city is supposed to be built at a far distance from a central city on agricultural land. On a site of around 6,000 acres (24 sq.km), the town would only occupy 1,000 acres (4 sq.km), while agricultural land would occupy the remaining 5,000 acres (20 sq.km).

⁷³ Morris, *British town planning and urban design* (above, n. 52), p. 49.

⁷⁴ Purdom, *The Garden City* (above, n. 24), p. 34.

⁷⁵ Howard, *GARDEN CITIES OF TO-MORROW* (above, n. 56), p. 28.

2.4.2 Accessibility

According to Howard, a garden city is surrounded by a circular railway to facilitate the movement of goods and reduce the heavy traffic in the town’s center. Besides that, each garden city is accessible and linked to its surrounding by three different means (Figure 2-1, Figure 2-4 & Figure 2-5). First, an inter-municipal railway connects the town directly to the adjacent central city. Second, another inter-municipal railway connects the outskirts of the town to its neighboring garden city’s town. This train goes directly from a town to the other without stopping in between. The third means is a tramway that passes through the high road connecting the town to its neighbors. This tram stops in between the towns to serve the agricultural estates of each garden city.⁷⁶

2.5 The Urban Design Concept

Howard was a stenographer, a man of words, concerned more with social matters than physical planning.⁷⁷ His book, thus, did not include drawings of realistic urban or architectural design ideas of his garden city, as he was not a designer. Therefore, he conceptually described the design of the garden city in his book, only in the first chapter titled “The Town-Country Magnet”. Only few diagrams are shown, giving a conceptual idea of the urban design aspects of his garden city.

⁷⁶ Howard, ‘GARDEN CITIES of To-morrow’ (above, n. 53).

⁷⁷ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 209.

2.5.1 Design Concept

The idea was to create an independent self-contained city. It functions as a town-country combining the benefits of both the country and the town, a city where people can work and live at the same time. This makes it agriculturally independent, while also providing industries in a healthier environment. His general idea was to create a centralized town on 1,000 acres surrounded by 5,000 acres of agricultural land. The latter was to also function as a green belt to limit the city growth.

The city can be circular in shape with a radius of 1,240 yards (1.1 km), but not necessarily, as this should be defined by the selected site. The town is then subdivided by six wide radiating boulevards from its center, forming six self-contained wards with its own center (Figure 2-4). The boulevards are cut by five main circular roads named “Fifth Avenue.” The city center includes a small garden surrounded by public buildings.

The center is surrounded by a central park hosting the recreational fields with easy access for all. The park is encircled by glazed arcades called “Crystal Palace,” which would be an attraction during wet weather. It works, also, as a market for goods, a place for exhibitions, and a winter garden. The third avenue is larger than the others, called the “Grand Avenue.” It splits the wards creating the center. It has an additional park with sites dedicated for religious buildings and schools. The outskirts of the town include the industrial zone. The town is finally surrounded by

a circular railway to facilitate the transfer of goods and to reduce traffic in the town⁷⁸ (Figure 2-5).

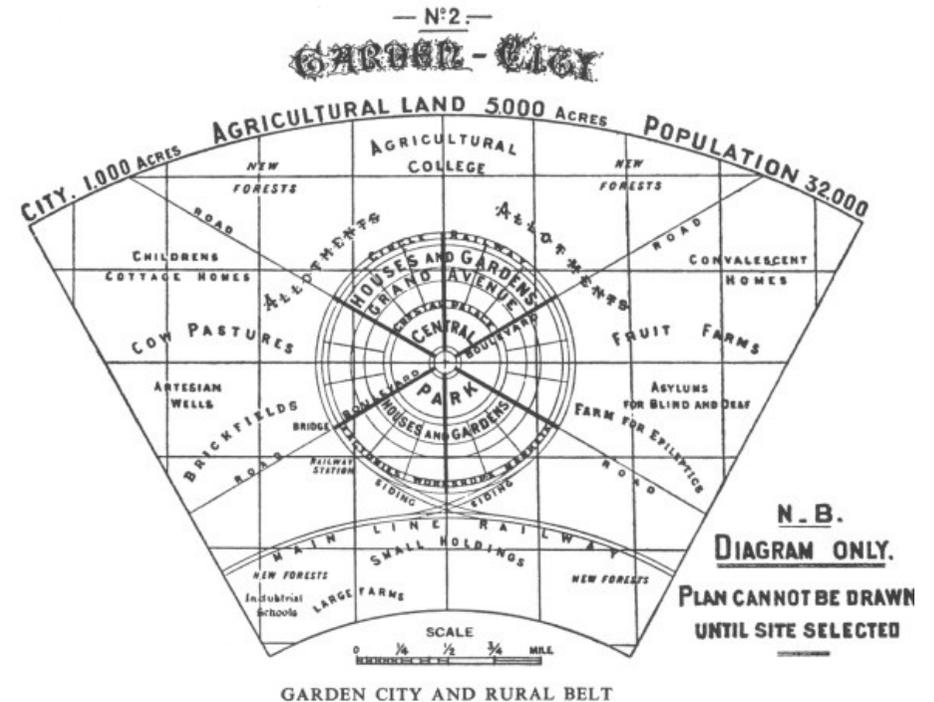


Figure 2-4: The garden city and rural belt diagram by E. Howard.

Source: (Howard 1976)

⁷⁸ Howard, 'GARDEN CITIES of To-morrow' (above, n. 53).

2.5.2 Land Use and Zoning

The **city center** is a circular place hosting a garden over an area of 5.5 acres (22,000 sq.m). The garden is to be surrounded by **public buildings**, such as the town hall, concert hall, theater, museum, galleries, and hospital. This is followed by a **central park** of 145 acres (0.6 sq.km), hosting the recreational grounds easily accessed by everyone. The central park is encircled by a wide glassed arcade called the **crystal palace**, which would be an attraction during wet weather. It works as a market for goods, a place for exhibitions, and a winter garden. It is designed in a circular shape surrounding the central park to be easily reached, at 600 yards (550 m) from the farthest inhabitant.

The six boulevards divide the city into six equal **wards** or neighborhoods. The third avenue would be larger than the rest of the avenues with a width of 420 feet (128 m), thus, to be called the **Grand Avenue**. This avenue works as a center for the ward. It hosts the ward's school, religious facilities, and shops. The avenue hosts an additional park of 115 acres (0.5 sq.km). It has six sites of 4 acres each (16,000 sq.m) dedicated for **public schools** with their playgrounds and **churches**. The Grand Avenue divides the ward into two parts, and the **residential** houses are located above and below it. Hence, it is at 240 yards (220 m) distance from the farthest inhabitant.

The **industrial area** is situated on the outer ring of the city, hosting factories, warehouses, markets, coal yards, and so on. They are concentrated on the outer premises to be linked to a **circular railway**, making transfer of goods easier and reducing traffic in the city center.

Another reason for that is to reduce the electricity infrastructure cost by gathering them in one place. The industrial zone is then followed by the **agricultural** land that consists of large farms, allotments, small holdings, cow pastures, and so on. The agricultural land will also act as a green belt to stop the city from expanding.



Figure 2-5: Ward and Center of Garden City diagram by E. Howard.
Source: (Howard 1976)

2.6 Street Typology

A radial network of six tree-lined boulevards emerges from the center of the city to its circumference. Each boulevard is 120 feet wide (36.5 m). The boulevards are cut by five rings of tree-aligned roads called the “Fifth Avenue.” Secondary streets radiate to the same vanishing center defining the city residential blocks (Figure 2-4 and Figure 2-5).

2.7 Residential Block Typology

The residential area is situated between the central park and the industrial zone. It is estimated to accommodate 30,000 inhabitants living in the town. It is divided by the Grand Avenue, which forms its center, thus forming a self-contained ward. “*The residential area has 5,500 detached and grouped houses..., some sharing common gardens and co-operative kitchens, were to be placed along concentric streets and radial avenues of varying width.*”⁷⁹ It thus has a density of 5.5 houses per acre. The building lots average size is 20*130 ft. (6*40 m) with a minimum of 20*100 ft. (6*30 m).⁸⁰ This was quite small, so Howard approved larger plot sizes and wider terraced houses in practical development.⁸¹

2.8 Social Infrastructure

A garden city has a large variety of social infrastructure, including recreational, educational, and religious activities. They should be

⁷⁹ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 212.

⁸⁰ Howard, ‘GARDEN CITIES of To-morrow’ (above, n. 53).

⁸¹ Ward (ed.), *The Garden city* (above, n. 53), p. 5.

introduced from the beginning in the zoning of the initial plan. Recreational activities are mainly represented in the central small garden, the central park hosting sports fields, the gardens on the central avenues, and the self-contained wards shared open spaces. “*Resettled workers would be intrinsically moved by the beauty of the town and nearby bucolic spaces and would thereby instinctively become more co-operative with their neighbors and engage in healthy (middle-class) social interactions and activities.*”⁸² Educational and religious facilities are spread centrally along the Grand Avenue to be easily accessible for the inhabitants.

2.9 Social Target Group

The garden city is designed for a limited population of 32,000, where 30,000 live in the city/town and 2,000 in the agricultural estate.⁸³ Although the number is not sacred, it is important to maintain a balance between the ability to support a diversity of opportunities yet remain in close harmony with the countryside.⁸⁴ Exactly like there are different social classes in the countryside and in the city, Howard’s model was

⁸² Sam Clevenger, ‘Working class bodies in English garden cities’, September 2017, <http://www.historyworkshop.org.uk/working-class-bodies-in-english-garden-cities/>, accessed 14 December 2017.

⁸³ Ward (ed.), *The Garden city* (above, n. 53), pp. 1–27.

⁸⁴ Morris, *British town planning and urban design* (above, n. 52).

targeting diverse social classes combined together in a unique mixture that offers better quality of life for all.⁸⁵

2.10 Summary on the British Garden City

The garden city movement was based on E. Howard's Book "Tomorrow: A peaceful Path to Real Reform.", published in October 1898. Howard's garden city's main idea was to end big cities and create self-contained clusters of garden cities, with limited size, directly connected to a central city. These garden cities should be independent, and self contained "Town-Country". The garden cities, thus, provided a town estate with an industrial area surrounded by an agricultural estate. His main goal was to provide an environment which combines the benefit of the city and the countryside while eliminating their disadvantages, in order to provide a better quality of life for diverse social classes. The garden city movement gained its success as well for its social reform model which aimed to end the private landlord ownership and providing a semi-municipal enterprise model. This model is based on having a civic society with municipal control over the land while leasing it to private landlords with a limited return on the capital. This, so called, unearned increment would return to the community for the creation and maintenance of public facilities.

⁸⁵ Roskamm, *Dichte* (above, n. 62), p. 250.

CHAPTER 3: LETCHWORTH GARDEN CITY

Since Howard was not a designer, it was necessary to study Letchworth's so-called First Garden city, to analyze the translation of Howards' principles and diagrams into planning ideas. The design aspects of Letchworth became the planning language of a garden city, which influenced the design of other garden cities around the world; therefore, Letchworth need to be studied.

Letchworth Garden City in Brief	
Date	1903
Location	34 miles (55 km) from London
Area	Around 3,818 acres (15.5 sq.km) 1,318: town (5.5 sq.km) 2,500: agricultural estate (10 sq.km)
Developer	First Garden City Ltd
Planner(s)	Barry Parker and Raymond Unwin
Contributing Architects	Barry Parker, Raymond Unwin, Geoffry Lucas, Harsley Ricardo, and M. H. Baillie Scott

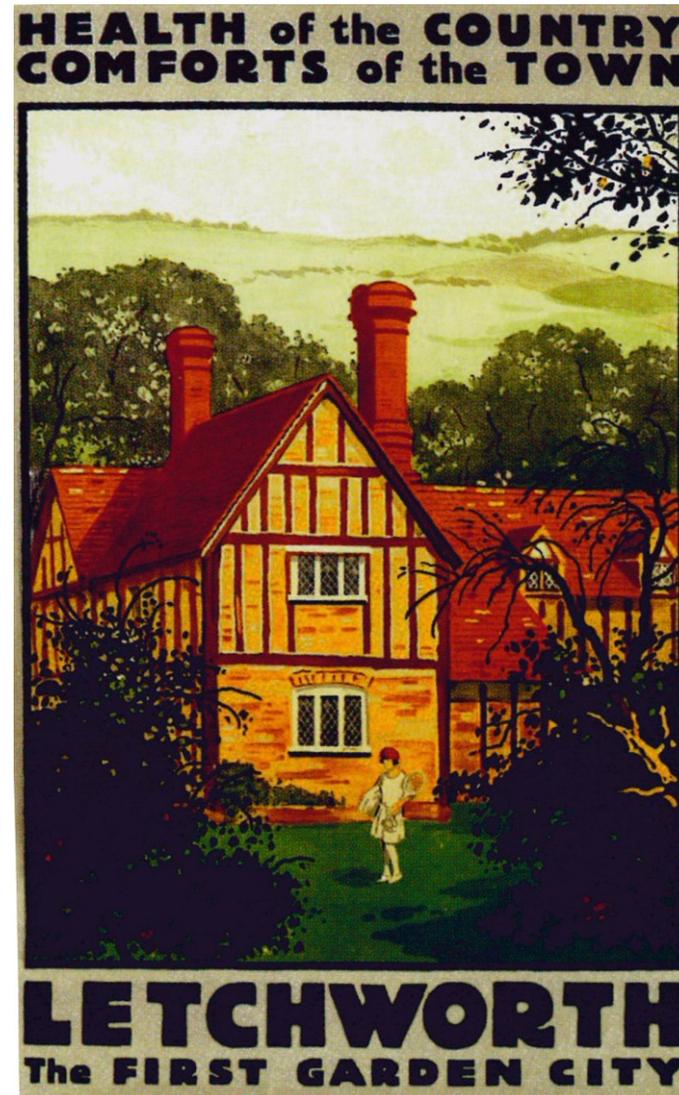


Figure 3-1: Advertisement for Letchworth Garden City.
Source: (Rutherford 2014)

3.1 Background

In 1903, Howard, the director of the Garden City Association, established the First Garden City Company Ltd. The Company acquired an agricultural land 34 miles (55 km) away from London to establish the Letchworth Estate, also known as the First Garden City. The company organized a competition and invited designers to submit proposals for the design of the new city. Several designers partnered up and submitted proposals, for example, Halsey Ricardo (1854-1928) with W. R. Lethaby (1857-1931), Geoffry Lucas (1872-1947) with Sidney Cranfield (1870-1961), and finally, B. Parker with R. Unwin.⁸⁶ The proposal of the latter was executed. Despite their worldwide reputation, the garden city in general and Letchworth specifically were highly criticized.⁸⁷

3.2 Main Principles

Letchworth is considered the first physical demonstration of Howard's idea of a garden city. It was designed as a town country. The city was laid down on 3,818 acres (15.5 sq.km) with a town area of 1,318 acres (5.5 sq.km) and a green belt of 2,500 (10 sq.km); it was intended for 30,000 inhabitants (Figure 3-3).⁸⁸ Parker and Unwin prepared a plan for the town in 1904, showing the zoning of the different activities,

⁸⁶ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 233.

⁸⁷ *Ibid.*, p. 230.

⁸⁸ First Garden City Limited - Estate Office, 'Letchworth Garden City: General Remarks' (June 1909), <https://archive.org/details/FirstGardenCityLtdCCA37511>.

⁸⁹ Purdom, *The Garden City* (above, n. 24), p. 31.

including sites dedicated for factories (Figure 3-5). The town included family houses and cottages for workers surrounded with gardens.

3.3 Authority in Power Responsible for the Development

3.3.1 Developer

Letchworth was established by the First Garden City Company Ltd, which was a stock-joint company.⁸⁹ The company was directed by Howard himself with Mr. H. B. Harris, a lawyer, and Mr. W. H. Lever. The latter was a politician and industrialist who built the industrial village of Port Sunlight in 1888.

The company was "*dedicated for community benefit.*"⁹⁰ Its role was to manage all aspects of life, leasing houses for the residents and leasing plots for farmers to grow crops. The rent rate provided income for the company, which was invested back into the community. Howard's intention was that the residents would purchase the company seven years later, but this was omitted when it was established.⁹¹ "*The Company keeps in its own hands, so far as possible, the freehold of the land in the interests of the future community; building leases are granted for 99 or 999 years.*"⁹²

⁹⁰ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 230.

⁹¹ Purdom, *The Garden City* (above, n. 24), pp. 1–62.

⁹² First Garden City limited, *Letchworth Garden City in fifty-five pictures* (London : Halton House: Letchworth [Hertfordshire] : First Garden City Ltd., 1911?), <https://archive.org/details/letchworthgarden00firsuoft/page/n3>, accessed 09 October 2018, p. 5.

3.3.2 Architects/Planners

The town was designed by B. Parker and R. Unwin: “*half cousins who became brothers in law in 1893 when Unwin married Parker’s sister, Ethel, ...were raised in middle-class households in England...They established their partnership in 1896....In practice, Parker focused on the houses and Unwin on the town’s plans... Beginning in 1905, firmly established their reputation as the referred architects-town planners of the Garden city movement.*”⁹³ Prior to Letchworth, they have designed New Earswick Garden Village in 1902. They have been concerned with site planning, criticized the back to back typical housing in Britain, and promoted houses grouping around shared open spaces. In 1901, they published a book called “The Art of Building a Home,” and in 1902 Unwin wrote “Cottage Plans and Common Sense.”

3.3.3 Famous Architects

The company assigned the design of the initial public buildings and residential wards to several recognized architecture societies. Beside laying out the city, Parker and Unwin designed several houses and cottages. In addition, several famous architects contributed in Letchworth, such as M. H. Baillie Scott (1865-1945), Geoffrey Lucas (1872-1947), H. Clapham Lander, and Halsey Ricardo (1854-1928). Robert Bennett (1878-1956) and Wilson Bidwell (1877-1944) built several houses in Rushdy Mead as well as the arcades connecting the two

shopping streets forming the glazed galleria.⁹⁴ The semi-detached houses in Elmwood cottages are one of the most distinguishable contributions of M. H. Baillie Scott. However, C. M. Crikmer (1879-1971) is considered the most important architect in Letchworth after Parker and Unwin.⁹⁵ His most distinguishable design is the ‘crossways’ houses on Hitchin Road.



Figure 3-2: Sir Ebenezer Howard, Barry Parker and Sir Raymond Unwin.

Source: RIBA ARCHITECTURE IMAGE LIBRARY

⁹³ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 214.

⁹⁴ Ibid.

⁹⁵ Sarah Rutherford, *Garden cities and suburbs*, vol. 782, Shire library (New York N.Y.: Shire Publications, 2014).

3.4 The Urban Context

3.4.1 Location

Letchworth was developed on an agricultural area situated 34 miles (55 km) by rail from King's Cross Station in London.

3.4.2 Areas

It was designed as a town country following Howard's ideas. The town area occupied 1,318 acres (5.5 sq.km) and the agricultural estate occupied 2,500 acres (10 sq.km). Its area was "seven times as large as the old walled-in City of London."⁹⁶ The town area was larger than of 1,000 acres as suggested by Howard in his book, , while the agricultural estate was less than Howard's suggested area of 5,000 acres (20 sq.km).

3.4.3 Surroundings Incentives

Next to the site existed two "charming old fashionable" towns: Hitchin, with a population of 12,000, and Baldock, easily accessible by train.⁹⁷ The analysis of Letchworth map in 1921, Figure 3-3, shows that the town area was surrounded by a green belt following Howard's ideas, while the railway passes through the city, differently from Howard's. The agricultural area had a site full of trees, which was preserved to become the distinguishable open space of Letchworth, known as Norton Common.

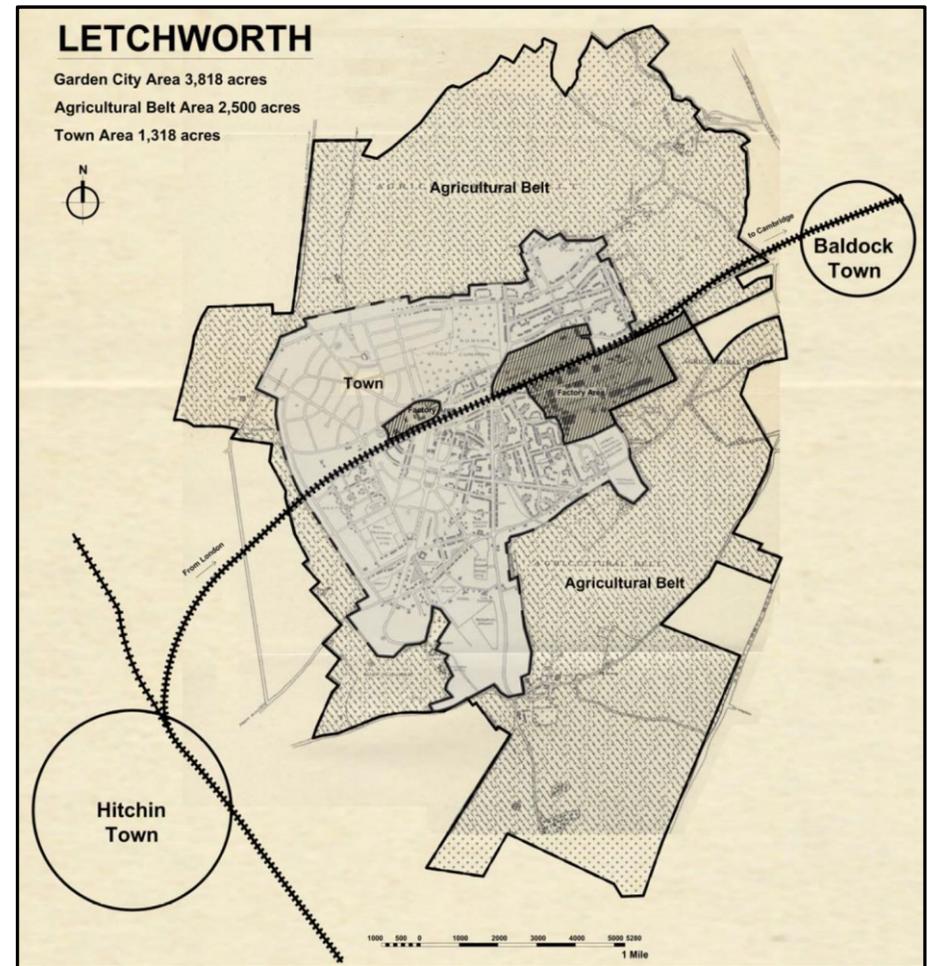


Figure 3-3: Letchworth Garden City and its surroundings based on a map of Letchworth in 1921.

Source: Adapted from (Purdom 1921).

⁹⁶ Purdom, *The Garden City* (above, n. 24), p. 290.

⁹⁷ First Garden City Limited - Estate Office, 'Letchworth Garden City: General Remarks' (above, n. 86).

“These seventy acres of woodland, so near to the centre of the town, are its most precious possession... A wild stretch of country divided by a little stream, rich in bird life and in wildflowers, with magnificent hawthorns and other trees, it is of inestimable value to the town. If this common were not exactly where it is, the Garden City would lack a great deal of the peculiar rural atmosphere, which no gardens, or open fields even, could bring to it. Being so close to its centre it is a part of the town, and its influence pervades it.”⁹⁸



Figure 3-4: First Letchworth Station, pre 1912.

Source: www.hertsmemories.org.uk

3.4.4 Accessibility

The Great Northern Railway from London to Cambridge passed through the town connecting it to King’s Cross Station in London. This newly established railway line was the catalyst for the development of Letchworth garden city. It made easily accessible and well connected to London as well as the surrounding City. Meanwhile it kept the city in appropriate distance from the major cities thus allowing its independency.

Unlike Howard’s diagram, the municipal railway did not pass on the outskirts of the city, but it was more near the city center. This somehow splits the city into a northern and a southern part. This affected the urban fabric as well as the residential typology classification as explained later. A non-realized tramway was supposed to go through the town to facilitate the movement within.

3.5 The Urban Design Concept

3.5.1 General Design Concept

The analysis of the 1904 city plan, Figure 3-5 & Figure 3-6, shows that the town has a center square surrounded by four rings of roads, similar to Howard’s circular avenues. From the center radiate main axial roads, like Howard’s radiating boulevards. They intersect forming the self-contained wards similar to Howard’s diagram, Figure 2-4. The street network is like what Unwin described in his book “Town Planning in Practice”: a spider’s web giving character for the town’s center, while the rest of the streets follow the site landscape.⁹⁹

⁹⁸ Purdom, *The Garden City* (above, n. 24), pp. 113–114.

⁹⁹ Unwin, *Town Planning in Practice* (above, n. 27), pp. 235–236.

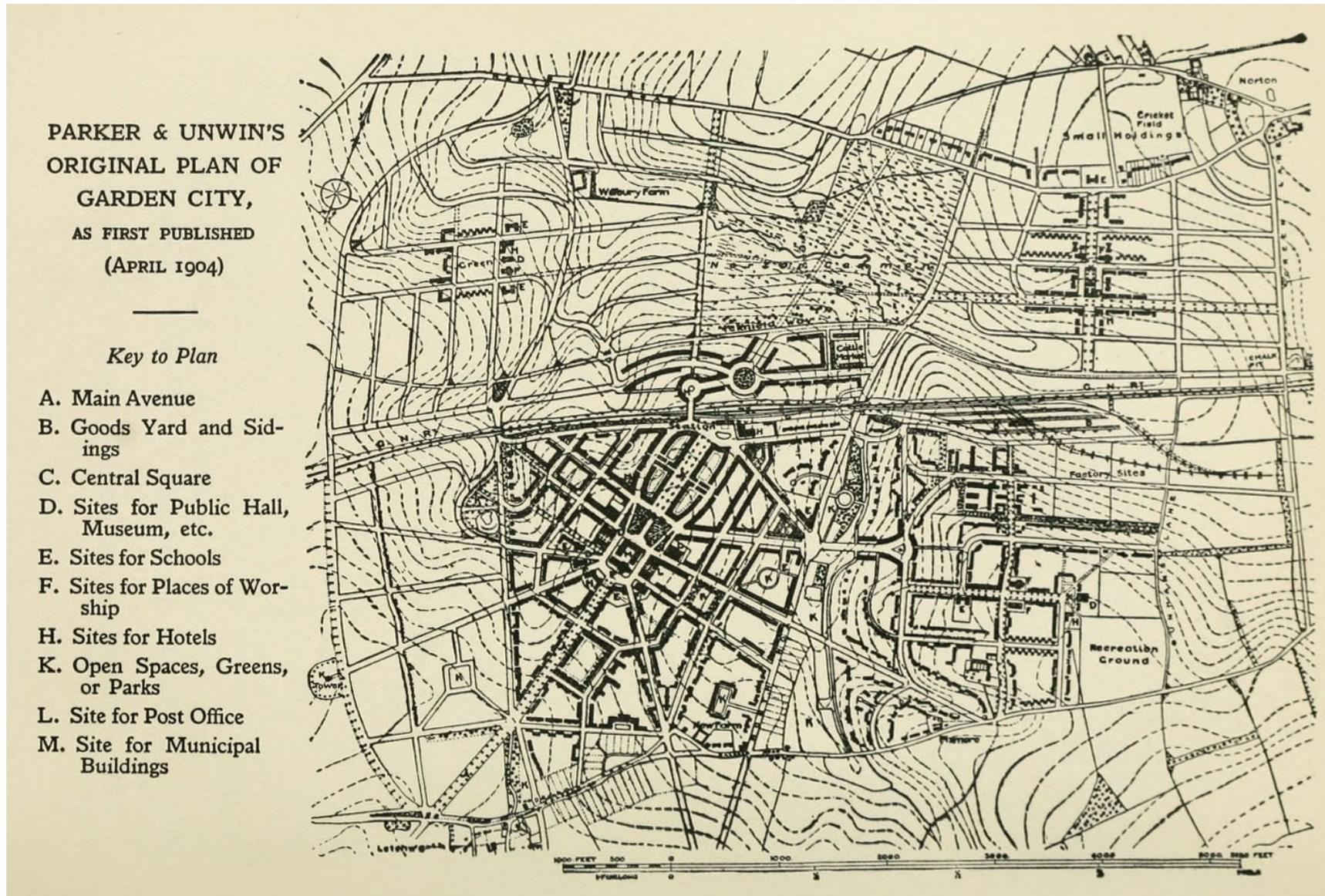


Figure 3-5: Parker and Unwin original plan of Letchworth published in 1904.
Source: (Purdum 1913)

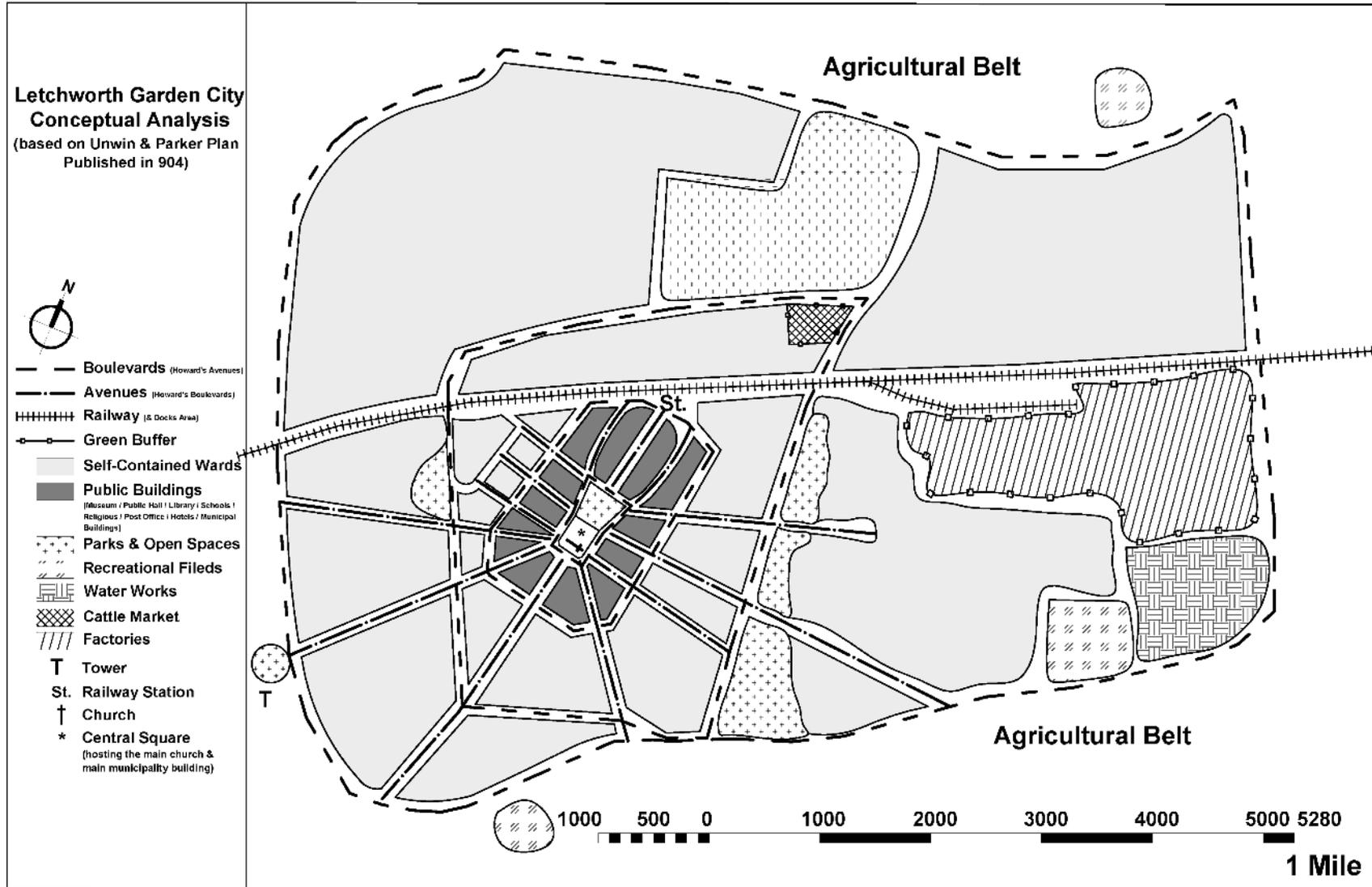


Figure 3-6: Conceptual analysis of the 1904 plan of Letchworth.

Source: Created by the author adapted from (Purdum 1913)

In contrast to Howard's diagrams, the railway is not on the circumference of the town separating the town estate and the agricultural estate; it is rather passing near the center of the town, dividing it into a northern part and a southern part. This separation seems to have also affected the housing type allocation, as most of the cheap cottages dedicated for workers were located around the railway area, mostly in the northern part, while most of the houses were in the southern part near the town's center.

The railway is connected to the factory sites, located on the eastern edge of the town, offering a docking area. On the north of the station lies a cattle market. In contrast to Howard's diagram of having a park near the center hosting recreational fields, the fields were spread along the town outskirts near the agricultural belt.

3.5.2 Land Use and Zoning

The 1904 city plan features a **central square** composed of two parts, a **small garden** and a plot hosting a municipal building and a church. The central square is mainly surrounded by other municipal and civic buildings, including a museum, a public hall, and a post office. The lack of funding has reduced the pace of development of the city, especially its center and public facilities, slightly affecting the suggested zoning. Several recreational grounds were specifically shown on the 1913 map of Letchworth as temporary fields.¹⁰⁰ The city development was

slowed down due to lack of funds, and the city center was not fully conceptualized until 1912.

The study further analyzes the 1921 map of Letchworth. The intersection between the rings and radiating roads defines the city's self-contained **ward** designed later, hosting common open spaces and public facilities (Figure 3-8). The main axial "boulevard" or what is labelled on the plan as "Main Avenue" connects the city center to the main **rail-way station**. The railway passes through the city, splitting it into north and south. Near the station from the southern side lies a main **shopping area** consisting of two- and three-story buildings, with ground-floor shops and apartment buildings above on Leys Avenue.¹⁰¹ The cattle market in Unwin's 1904 plan was not accomplished.

As mentioned before, **Cheap cottages** mainly occupied mostly the northern part of the city, above the railway line, to host workers working in the factories and agricultural land. Generally, in garden cities, cheap cottages used to be established next to the factories, to facilitate accommodation for the factories' workers and because the land there was cheap. "*The cheapness of land enabled factories to be built all on one floor, and with proper lighting; it enabled cottages to be built cheaply and reasonably near the factories; and it also provided that each house should have an ample amount of garden ground around it.*"¹⁰²

¹⁰⁰ Purdom, *The Garden City* (above, n. 24), pp. 56–57.

¹⁰¹ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), pp. 230–237.

¹⁰² Culpin, *THE GARDEN CITY MOVEMENT UP-TO-DATE* (above, n. 24), p. 5.



Figure 3-7: Aerial view of Letchworth Garden City in 1937.
 Source: Adapted from Britainfromabove.org.uk

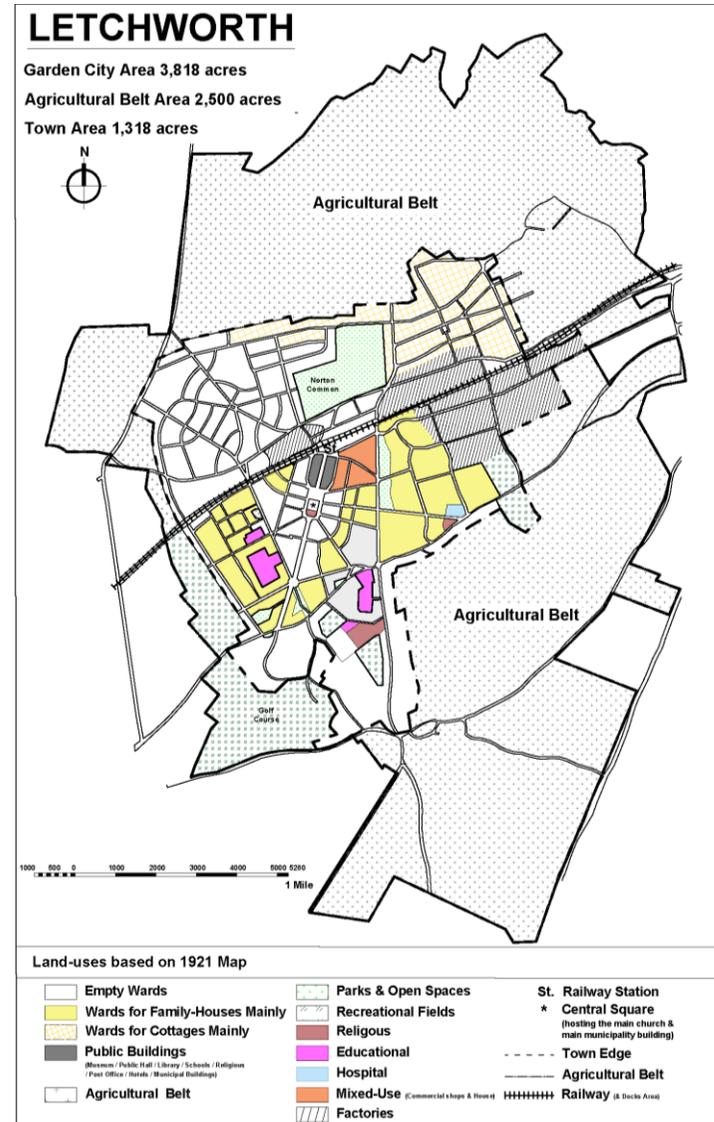


Figure 3-8: Land use zoning based on Letchworth map in 1921.
 Source: Created by the author.

The main **central park** is Norton Common, located in the north of the city near the railway station. Smaller gardens are spread along the third ring identified by the study and inside the wards. **Recreational fields** were located more towards the outskirts of the town adjacent to the agricultural estate. This is also unlike Howard's suggestion of having a central park in the center of the city hosting recreational, religious, and educational activities. **Schools** and **churches** are spread over the city but concentrated around the center. **Hotels** are spread around the city center and the railway station.

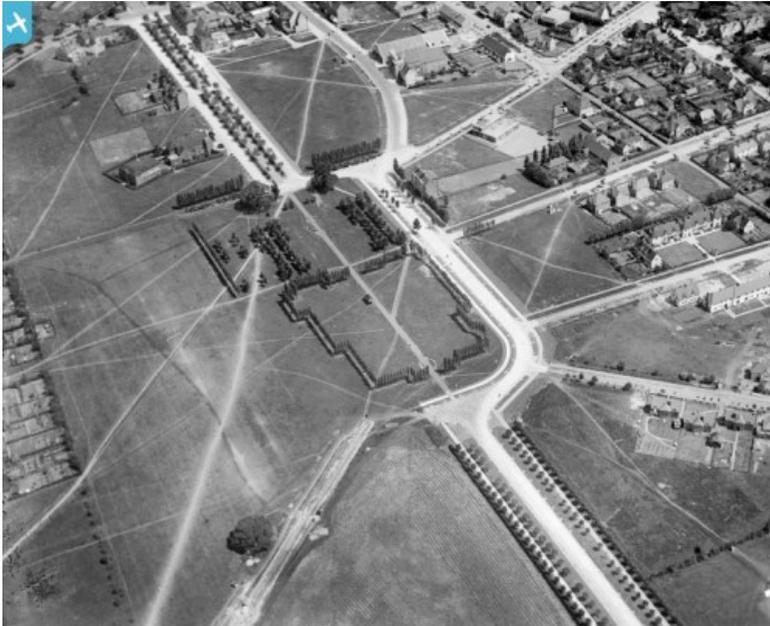


Figure 3-9: Broadway, Letchworth Garden City, June 1925.
It shows the center square empty due to the lack of the funds.
Source: Britain From Above



Figure 3-10: Leys Avenue near the junction with Eastcheap in the 1940's.
Source: <http://letchworthgardencity.com>



Figure 3-11: Postcard with title 'Letchworth, Garden City, Herts.'
It shows Nevells Road (originally called Exhibition Road) with 1905 Cheap Cottage Exhibition. Source: <http://www.gardencitycollection.com>

3.6 Street Typology

3.6.1 Street Network

The city has two patterns of street network. A spider's web shape characterizes the city center, while the rest of the city consists of gentle curvilinear streets adopting the site topography, see Figure 3-12. This pattern affected most of Unwin's future work, especially the design of garden suburbs.

Parker and Unwin tried to transfer Howard's concept of the radiating boulevards from the center, crossed by circular avenues, into his plan. Although it is not directly mentioned in previous literature, but by analyzing their original plan published in 1904, the influence of Howard's idea can be seen. The study identifies 12 radiating roads from the center, crossed with four rings of roads, like Howard's boulevards and avenues (Figure 3-6).

The central street is considered the city's "Main Avenue" as mentioned on the 1904 plan; it later became known as the "Broadway". The "Broadway" connects the city center with the train station. The eastern edge of the identified third ring is called "Norton Way." This street connects the northern and southern parts of the city, becoming a main "avenue" in Howard's terms. It acts as if it is the "Grand Avenue" of Howard, especially that most of the gardens and schools are located on both of its edges as shown in Figure 3-8. The main difference between it and Howard's diagram is that the gardens and schools are located on its sides, not in the center of the avenue, as shown in Figure 2-5.

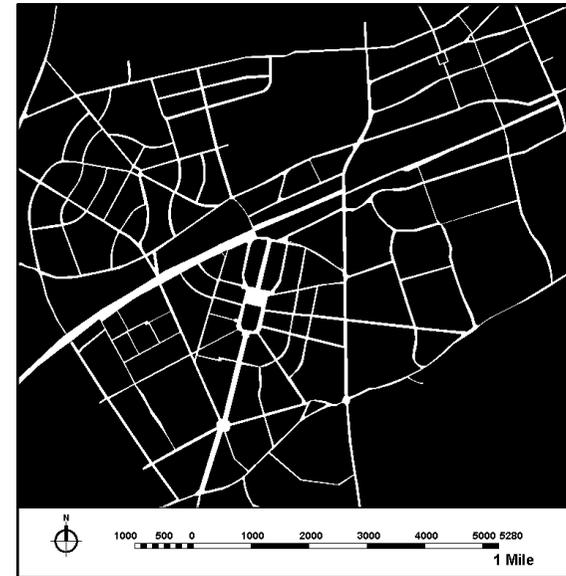


Figure 3-12: Letchworth street network.

The image shows only the main streets without the secondary streets inside the wards. Source: Created by the author.

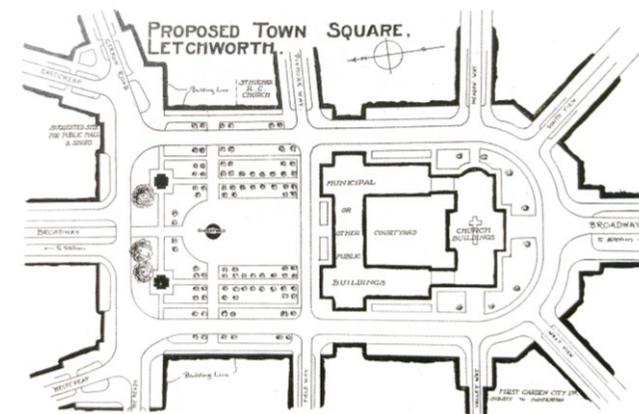


Figure 3-13: Proposed Town Square for Letchworth.

Source: (Stern, Fishman and Tilove 2013)

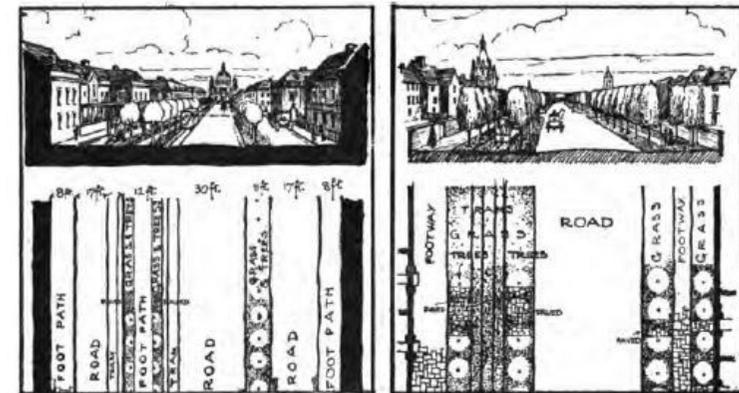
3.6.2 Streets Design

The Broadway was designed wide enough to host a non-realized tram. This main road was 100 feet wide (30 m). It had a vehicular road sided by two roads for horse carriages and footways, separated by a grass area aligned with trees. On one of its sides lie two tramway tracks separated by a footway. The other main roads were designed to host a road for vehicles and horse carriages, beside a footway aligned with trees from both sides (Figure 3-14 and Figure 3-16). Secondary roads dividing the wards were about 15 m wide, consisting of a tree-aligned road beside a narrow footway separated from the residential dwellings by a green buffer (Figure 3-17). Smaller streets, or what Unwin used to call residential streets, were introduced later to the self-contained wards when they were designed. The wards designed by Parker and Unwin featured the introduction of the design of Cul-de-sac, as shown in the design of Westholm Green in Table 3-1

3.6.3 Shading Typology

The tree-aligned streets, featuring the city's street network, mainly provided shadow for the pedestrians on the footway, while the streets were not shaded, as shown in the following pictures and diagrams. To avoid the monotonous repetition of a few varieties of trees and shrub,

a collection of about 250 varieties of ornamental tree and shrubs, suitable for small gardens were used.¹⁰³



Illus. 176.—Designs for Broadway, Garden City, Letchworth.

Figure 3-14: The street design of Broadway Avenue.

Source: (Unwin 1909)



Figure 3-15: Part of the Broadway from the South.

The image shows the separation between the roadway and the footway.

Source: adapted from lethworthgardencity.com

¹⁰³ First Garden City Limited - Estate Office, 'Letchworth Garden City: General Remarks' (above, n. 86), 11 & 25.

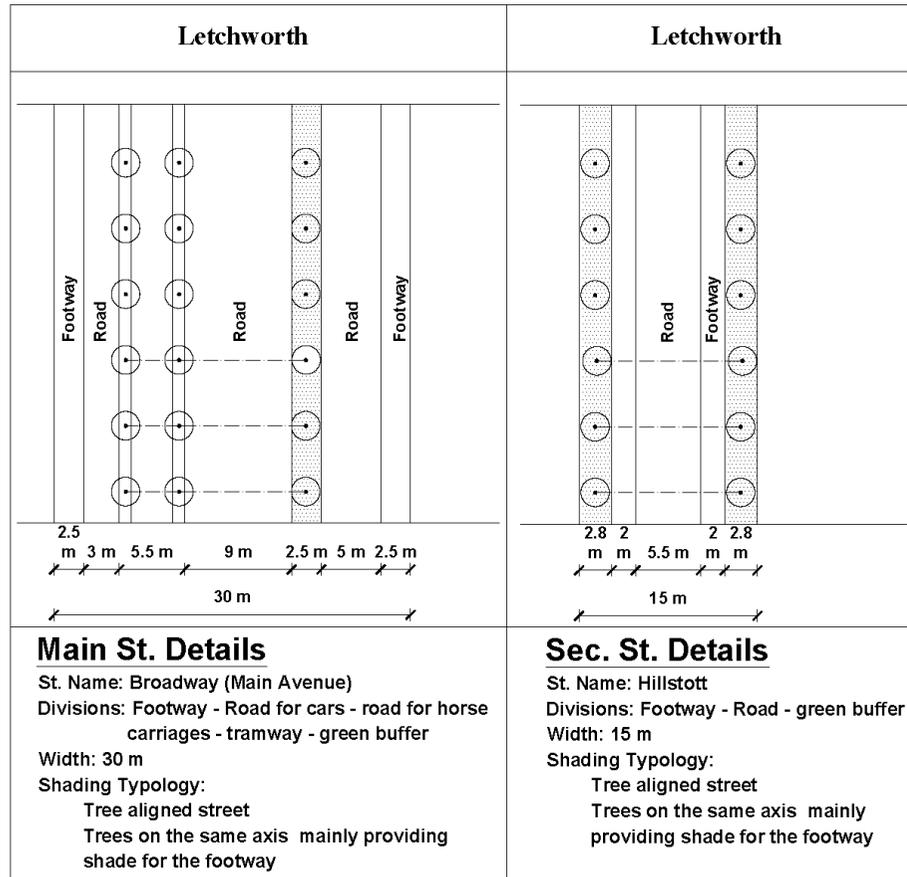


Figure 3-16: Street design analysis of the main Broadway.

Source: Created by the author.

Figure 3-17: Street design analysis of Hillshott Road.

Source: Created by the author.

3.6.4 Street Naming

The central axial road is considered by Unwin to be the “Main Avenue” as mentioned on the 1904 plan. It later became known as the “Broadway.” Calling it the “Main Avenue” creates some sort of conflict with Howard’s terms “boulevard” and “avenue.” Generally, both terms are used to identify wide streets. However, the term “avenue” refers to the wide street that leads to a landmark or a palace.¹⁰⁴ Therefore, this study implies that the term “avenue” used by Unwin is more accurate than its use by Howard, as he was not a planner nor a designer. So, calling the axial roads avenues and the circular rings boulevards makes more sense. Most of Letchworth streets were named after surrounding contextual landscape feature, such as Norton Way, Meadow Way, and West view.



Figure 3-18: Meadow Way, Letchworth.

Source: adapted from Culpin, the garden city movement up to date, 1913.

¹⁰⁴ Pierre Merlin and Françoise Choay, *Dictionnaire de l'urbanisme et de l'aménagement*, 3e éd. rev. et augmentée (Paris: Presses universitaires de France, 2000).

3.7 Residential Block Typology

The intersection between the streets radiating from the city center and the circular rings around the center define the town's wards. The self-contained wards provided garden-surrounded homes as well as shared common facilities following Howard's concept. They were designed progressively with the growth of the city by different architects with different design aspects. Some wards were even distinguished by a distinct name. The city was mainly targeting the middle class and workers. So, the city included cheap cottages generally targeting industrial and agricultural workers, as well as family houses, targeting mainly middle-class citizens.

The northern part of the city above the railway station hosted most of the cheap cottages dedicated for workers, with few dedicated to middle-class citizens. The Cheap cottages were fostered by the 1905 cheap cottage exhibition organized in Letchworth, where 125 houses were built, to promote their ability to build cheap cottages.¹⁰⁵ The 1921 map of Letchworth shows that most of the wards in the northern part dedicated for the cottages contained only shared green spaces. Some cheap cottages were also constructed in the southern part near the factories such as the cottages in Bird Hill.

On the other side of the railway station, most of the wards were dedicated for family houses. "...residential neighborhoods, south of the railroads tracks, where combination of straight and curvy streets lined with rich mix of detached and grouped houses and where cul-de-sac and closes added a density and variety."¹⁰⁶ Some of the wards' shared open spaces located in the southern part hosted schools, institute buildings, recreational fields, and allotment gardens. Parker and Unwin designed several wards in Letchworth. In the northern part of the city, they designed Westholm Green, hosting workers' cottages, and Eastholm Green, hosting middle class cottages. In the southern part, they designed several wards, such as Pixmore Hill, Norton Way South, Bird Hill, Rushdy Walk, and few houses on Rushdy Walk.¹⁰⁷

"Most of Letchworth is decidedly family-oriented. However, Howard, who strongly believed in cooperative housing for working professionals, especially unmarried men and women, promoted the construction of Homesgarth"¹⁰⁸ The latter was a cooperative housing designed by H. Clapham Lander in 1911 for working professionals, especially unmarried men and women. It included thirty two service flats on a two-story block, grouped around an implied quadrangle and a three-story community building with a club for the residents.¹⁰⁹ The result of such development was that the northern part of the city above the railway

¹⁰⁵ Purdom, *The Garden City* (above, n. 24), pp. 49–51.

¹⁰⁶ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 234.

¹⁰⁷ *Ibid.*, pp. 234–235.

¹⁰⁸ *Ibid.*, p. 234.

¹⁰⁹ Purdom, *The Garden City* (above, n. 24), pp. 98–103; Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 234.

was mainly designated for cottages, while the southern part was mainly designated for family houses.

3.7.1 Block Typology, Plot Subdivisions Typology, and Building Typology

Despite that wards and houses were designed by diverse designers and architects, the houses needed to follow the company's building regulations. Individuals who wanted to build their own homes were advised to contact some recommended architectural society and to follow the company building regulations.¹¹⁰ Low density housing was maintained in all wards. The wards consisted of diverse shared spaces. Internal streets, or what Unwin used to call residential roads,¹¹¹ were carved in the wards to assure vehicular and horse carriages accessibility to each unit. Besides, in some wards, narrow footways allowed direct access to the shared spaces from the surrounding main roads of the wards.

To examine the design aspects of the residential block typology in Letchworth, the study analyzes two different wards designed by Parker and Unwin: Westholm Green, located in the north and hosting workers cottages, and Pixmore Hill, located in the southeast and hosting family houses for middle-class citizens. Westholm Green is the first ward that is close to being realized; it is inspired by Unwin's diagram, published in "The Art of Building Home," of grouping houses around shared open

spaces.¹¹² The study analyzes the block pattern, plot subdivisions, and houses typology, varying between the wards as shown in Table 3-1..

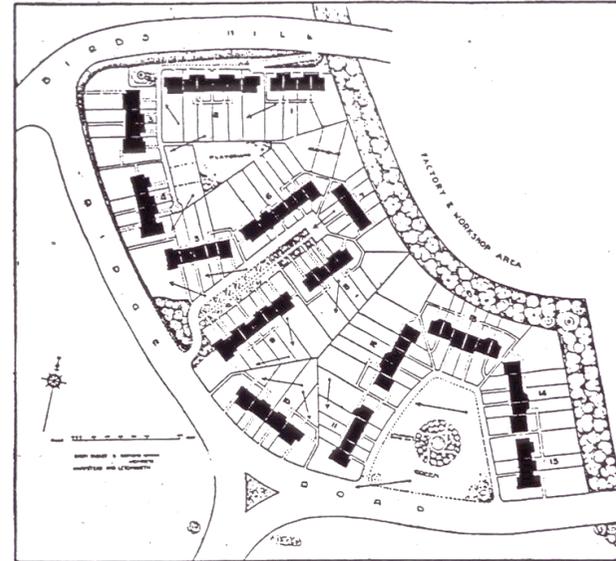


Figure 3-19: Bird-Hill ward designed by B. Parker and R. Unwin.

Source:(Unwin 1909)



Figure 3-20: a group of Cottages Birds Hill.

The cottages were designed by V Dunkerley for the 1905 Cheap Cottages Exhibition. Source: gardencitycollection.com

¹¹⁰ First Garden City Limited - Estate Office, 'Letchworth Garden City: General Remarks' (above, n. 86), pp. 6–7.

¹¹¹ Unwin, *Town Planning in Practice* (above, n. 27), pp. 289–318.

¹¹² Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 233.

Table 3-1: Residential block typology comparison between two wards in Letchworth Garden City: Westholm Green and Pixmore Hill.

Source: Created by the author.

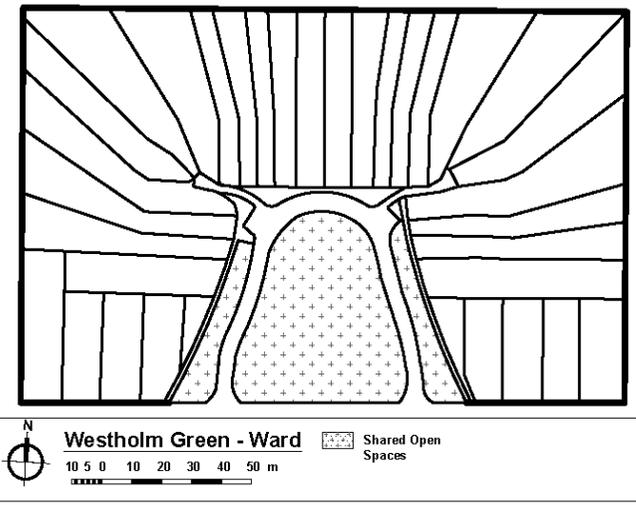
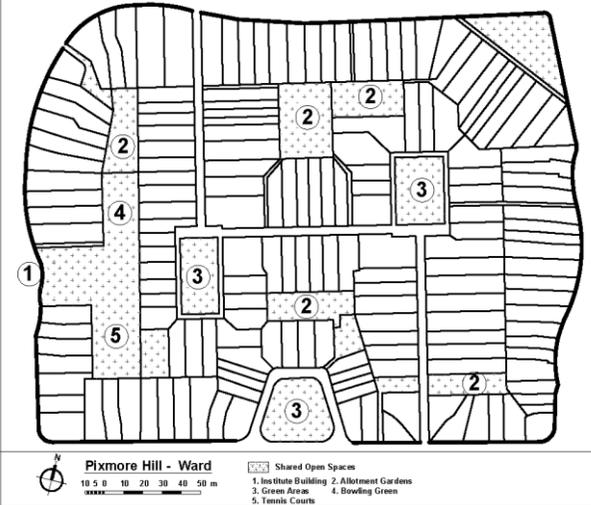
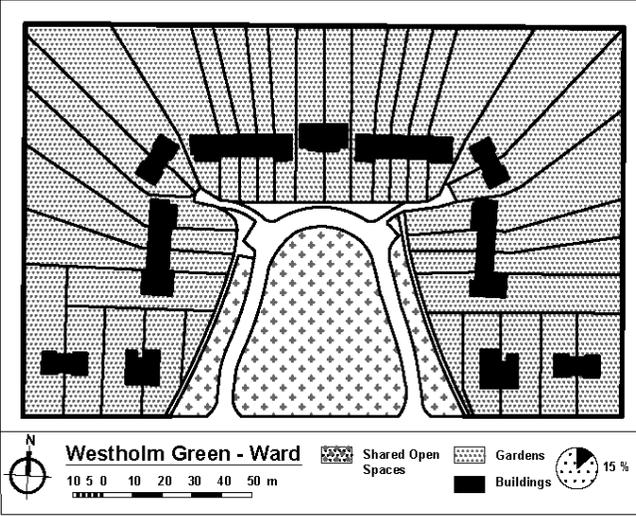
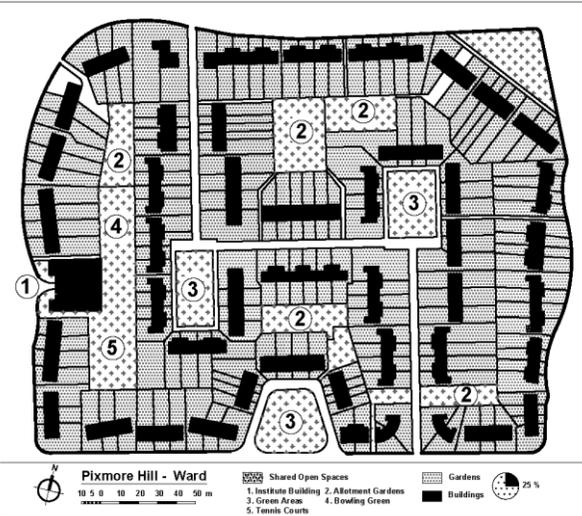
Aspects	Westholm Green	Pixmore Hill
Diagram		
Establishment Date	1906	1907-1911
Architect	Parker and Unwin	Parker and Unwin
Location	North of the railway station	Southeast of the railway station
Social Target Group	Working class	Middle class
Block/Ward Pattern		
Ward Shape	Rectangular	Rectangular with some curvilinear edges reflecting the curved streets
Ward Design	Cottages grouped around a shared green open space	L-Shaped streets penetrate the ward forming cluster of houses grouped around shared open spaces
Shared Open Space	Green open space	1. Institute Building 2. Allotment Gardens 3. Green Areas 4. Bowling Green 5. Tennis Courts
Plot Subdivisions		
Plots Shape	Mostly elongated, rectangular	Mostly rectangular
Avg. Plot Area	590 sq.m (6350 sq. ft)	270 sq.m (2906 sq. ft)
Avg. Plot Dimensions	10*59 m (8*33 ft)	8*33 m (26*108 ft)
Density (houses per acre)	14	16
Separation	Hedge fences of maximum 6 feet (1.8 m) height	Hedge fences of maximum 6 feet (1.8 m) height

Table 3-1: Residential block typology comparison between two wards in Letchworth Garden City: Westholm Green and Pixmore Hill.

Source: Created by the author.

Aspects	Westholm Green	Pixmore Hill
Diagram	 <p>Westholm Green - Ward</p> <p>Legend: Shared Open Spaces, Gardens (15%), Buildings</p>	 <p>Pixmore Hill - Ward</p> <p>Legend: Shared Open Spaces, Gardens (25%), Buildings</p> <p>1. Institute Building, 2. Allotment Gardens, 3. Green Areas, 4. Bowling Green, 5. Tennis Courts</p>
Houses Typology		
Housing Type	Cottages	164 family houses
Housing Grouping	Groups of 2 - 4 - 5 units	Groups of 3 - 4 - 6 units
Building Frontage	5-8 m (16-26 ft) – The corner buildings have larger frontage	8 m (26 ft)
Surrounding Garden	Front yard and large back yard	Small front yard and large back yard
Footprint	90 sq.m (970 sq.ft)	60 sq.m (710 sq.ft)
Built-up Area	15%	25%

3.8 Social Infrastructure

According to the General Remarks Publication, published in 1909 by the estate office, Letchworth had some elementary public and private schools. Several churches were already spread around the city center and in the wards. The garden city also had six hotels spread around the city center. It also included two banks situated in the Levy Avenue in the commercial hub of the city. As for recreational activities, it had two main parks: Norton Common in the north and Letchworth Park in the southwest. As for recreational fields, Letchworth had cricket, tennis, football, and Hockey fields, as well as a nine-hole golf club. They are mainly located in the south, near the green belt.¹¹³ *“All classes of the community are catered for, and it may be safely be said that no town in the country of its size has anything like the social activity which is found at Letchworth”*.¹¹⁴

3.9 Social Target Group

The city was intended for 30,000 inhabitants in the town, in addition to 5,000 in the agricultural estate.¹¹⁵ The intended population for the town was similar to the number suggested in Howard’s book, while the population number intended in the agricultural estate was higher. The city mainly targeted the workers and middle-class citizens. Although the

town was mainly family oriented, cooperative housing was established, targeting working professionals, especially unmarried men and women.



Figure 3-21: Golf at Letchworth in 1920
Source: hertsmemories.org.uk



Figure 3-22: The opening of the Letchworth Lido 1935.
Source: hertsmemories.org.uk

¹¹³ First Garden City Limited - Estate Office, ‘Letchworth Garden City: General Remarks’ (above, n. 86).

¹¹⁴ Ibid., p. 25.

¹¹⁵ First Garden City limited, *Letchworth Garden City in fifty-five pictures* (above, n. 90), p. 21.

3.10 Summary: Letchworth in relation to Howard's Garden City

In terms of principles, Letchworth fulfilled the identified principles of Howard's garden city. It was developed by a company aiming for community benefit. It was designed with an agricultural estate and a town estate intended for a limited population of 30,000. It was located far from London with different services to ensure its industrial, agricultural, and residential independency. It provided garden-surrounded houses and cottages for workers and middle-class citizens.

In terms of design, Parker and Unwin slightly deviated from Howard's diagram for functional planning purposes. First, the railway passed through the city dividing it into north and south, unlike Howard's diagram that showed a circular railway on the outskirts of the city. In Howard's diagram, the center is mainly a small garden surrounded with municipal and civic buildings. But in the case of Letchworth, the central square was designed to host a municipal building and a church surrounded by civic and other municipal buildings. The churches in Howard's plan are intended to be in the "Grand Avenue" and not as a landmark in the central square. Norton Way, which is identified by the study as the "Grand Avenue," was not designed with a garden in the middle hosting schools and churches, but they were mainly on its sides. Letchworth design did not include a central park hosting recreational activities. The main park was far from the center, and the recreational

activities were located mainly on the periphery of the town near the agricultural green belt.

CHAPTER 4: THE BRITISH GARDEN SUBURBS

This chapter highlights the origin, principles, and urban design aspects of the 20th century British garden suburb movement. Unlike the garden city movement that started with Howard's book and was followed by the realization of Letchworth Garden City, the garden suburb originated from practice and then its theories were presented in books. Raymond Unwin and Barry Parker were responsible, after their work in Letchworth, for planning several garden suburbs in the beginning of the 20th century, despite being referred to as the architects of garden cities. Later on, Unwin started to promote the garden suburb movement by publishing its principles and the principles of town planning as well in several books, such as "Town Planning in Practice" (1909) and "Nothing Gained from Overcrowding" (1912).

However, this chapter follows the same methodology adapted in the previous chapter. It first analyzes the theories of Unwin's garden suburb presented in his publications and then studies its physical demonstration through analyzing Brentham Garden Suburb, the so-called first established garden suburb. The study analyzes the following aspects: background, main principles, authority in power responsible for the development, urban context, urban design concept, street typology, residential block typology, social infrastructure, and social target group. This chapter's summary compares between Unwin's ideas presented in his books and their earlier implication in Brentham Garden Suburb.

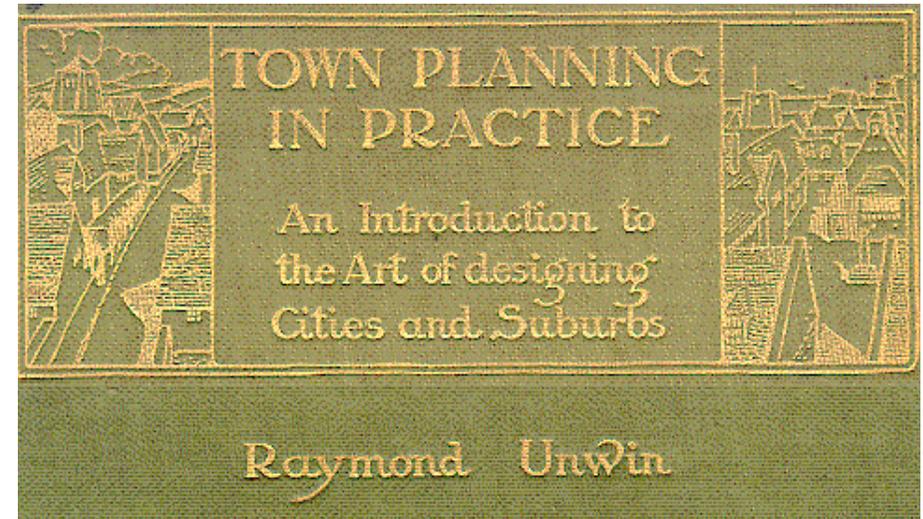


Figure 4-1: Town Planning in Practice by Raymond Unwin book Cover

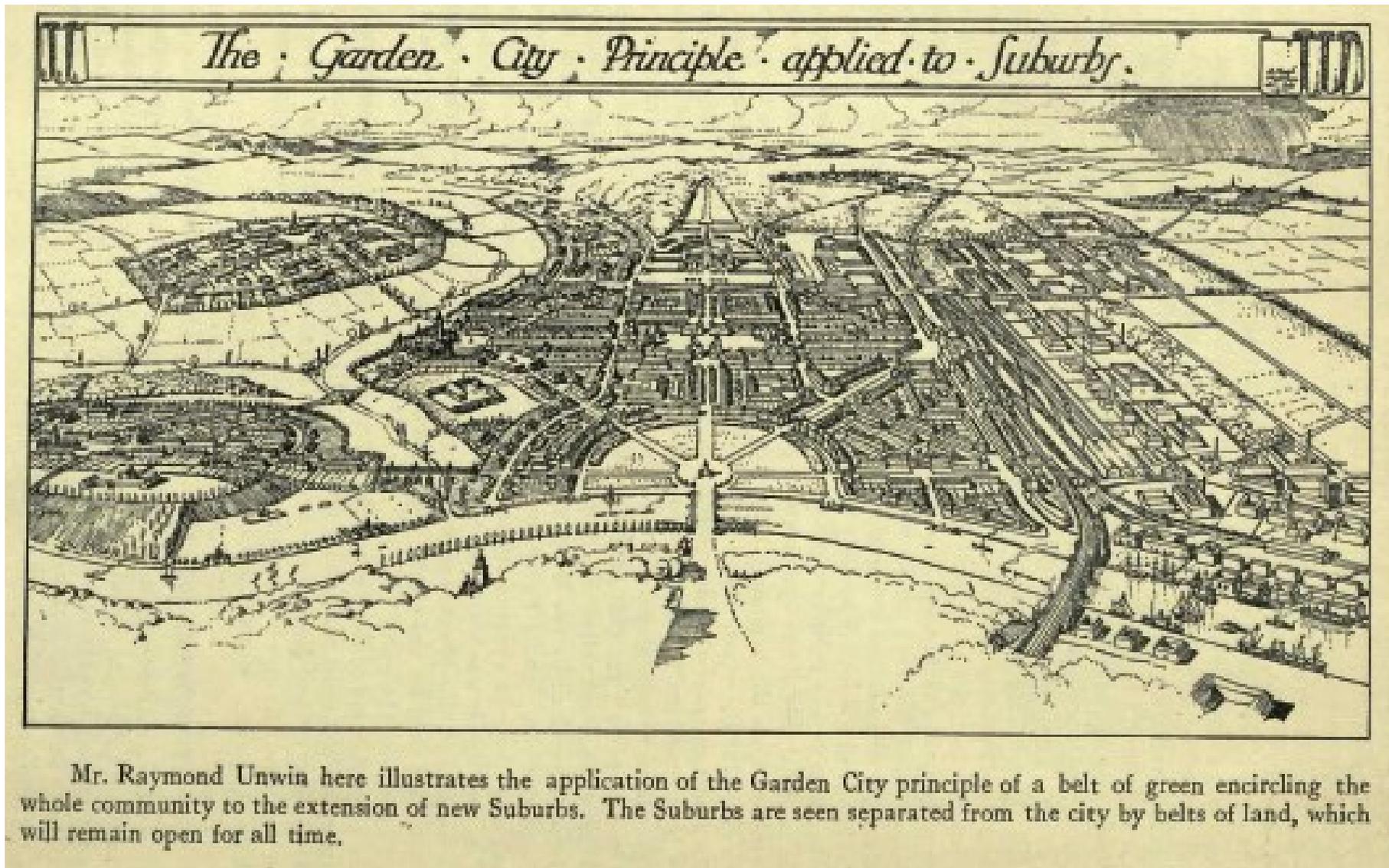


Figure 4-2: Raymond Unwin diagram showing the garden city principles applied to suburbs.

Source: (Purdom 1949)

4.1 Background

According to Stern, Fishman et al., the garden suburb might have originated earlier in Britain during the 18th century as remote villages outside the main cities, depending on horse-drawn stages supported by paved roads system. However, the garden suburb as we know it today is mainly the product of the early 20th century, depending on the boom in mechanical powered transportation, despite that it had prior interpretations.

“It was further defined with the booming expansion of London under George III, when horse-drawn stages for the newly prosperous merchant class, aided by the building of an extensive paved road system, fostered the development and rapid growth of small, once-remote villages, giving rise to enclaves such as the Paragon, Blackheath (1795) by Michael Searles (1750-1813) outside London, and Blaise Hamlet (1811) by John Nash (1752-1835) ... Nonetheless, the suburb as we know it is a quintessentially modern phenomenon—the dependent dormitory town that could not exist without convenient transportation to easily carry its residents into and out of the city, where, typically, jobs are to be had and cultural pleasures perused. The planned garden suburb, a village or enclave located within the catchments of a city, and sometimes directly embedded in the city itself, through a byproduct of early

nineteenth century industrialization, and especially efficient mechanically powered transportation.”¹¹⁶

In the early 20th century, the newly born garden city movement was criticized and faced economic problems and lack of funds. The last was a major factor that slowed the development of Letchworth as explained earlier. This drove Raymond Unwin to leave Letchworth and start planning and promoting garden suburbs.

“... Unwin had already changed track and offended the garden city purists. When he left Letchworth in 1907, it was to design Hampstead Garden Suburb for Dame Henrietta Barnett. And this effectively split the infant movement ideologically, for though Hampstead Garden Suburb had the appearance of a Garden City and some of its community spirit, it was in every respect pure commuter suburb; with no industry of its own, it was dependent on a newly opened underground station and was effectively separated from London by Hampstead Heath.”¹¹⁷

Based on their reputation and experience in planning Letchworth Garden City (1903) and their previous design of New Earswick (1902)¹¹⁸, Parker and Unwin were commissioned to design Brentham Garden Suburb (1906) and Hampstead Garden Suburb (1907).

¹¹⁶ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 17.

¹¹⁷ Hall and Ward, *Sociable cities* (above, n. 53), p. 41.

¹¹⁸ The city is located 3 miles from York, it was a link between the traditional industrial workers' villages and the principles of Howard's Garden City movement. Stern, Fishman and Tilove, *Paradise planned* (above, n. 19).

*“The firm establishment of Letchworth was proving difficult to achieve and the chances of creating more free-standing garden cities seemed bleak. Circumstances the garden suburb and village appeared more realistic objectives capable of widespread application.”*¹¹⁹

Later, Unwin promoted the establishment of garden suburbs, applying the garden city principles, through several books and publications. *“Recognizing the unlikelihood of realizing pure Garden cities, Raymond Unwin urged cities struggling with expansions to begin buying land on their outskirts for low density development, offering up a rendering in 1912 depicting “The garden city Principle applied to suburb.”*¹²⁰ Garden suburbs dominated over garden cities, as they were easier to establish and more economically beneficial for developers.¹²¹

In 1912, Unwin published “Nothing Gained by Overcrowding;” the book promoted the establishment of low-density communities following the principles of the garden city movement. It shows his concept of designing a residential block with houses grouped around shared open space. He has earlier published, in 1909, a book titled “Town Planning in Practice: an introduction to the art of designing cities and suburbs,” which shows some urban design elements implemented in the design of suburbs, such as roads, plots subdivisions, and housing

¹¹⁹ Ward (ed.), *The Garden city* (above, n. 53), p. 8.

¹²⁰ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 213.

¹²¹ Rutherford, *Garden cities and suburbs* (above, n. 93).

grouping’s arrangements. This book illustrates the design aspects of a garden suburb.

4.2 Main Principles

Although Parker and Unwin have established their reputation as the famous architects-town planners of the Garden city movement, Unwin is considered the promoter of the Garden Suburb. Raymond Unwin was a socialist planner and architect who admired old English villages in terms of architecture and social unity, which inspired his design of garden suburbs.¹²² He aimed to plan a happy and healthy environment for working and middle classes.¹²³ Unwin’s work on town planning and garden suburbs has also been inspired by the German towns’ planning in the late 19th century and the book of Dr. Joseph Stübben “Der Städtebau.”¹²⁴

Unwin, in his book “Nothing Gained by Overcrowding;” discusses some of the general principles and reasons for establishing garden suburbs with low density following the garden city lines. The main garden city lines that influenced the garden suburb are as follows: first, proper planning and limiting the size, to keep it with a reasonable touch of open country, and second, the proper arrangement of the individual

¹²² Standish Meacham, *Regaining paradise: Englishness and the early garden city movement* (New Haven, Conn., London: Yale University Press, 1998), pp. 1–10.

¹²³ *Ibid.*, pp. 70–94.

¹²⁴ Unwin, *Town Planning in Practice* (above, n. 27).

buildings and the limitation of the amount of buildings in relation to open space.¹²⁵

First, regarding the limitation of size, Unwin was convinced by Howards' garden city principles that towns and cities should have a limited population size, but since some cities already exceeded such a number, he suggested the establishment of a cluster of suburbs around the cities suffering from over population.

“If it is deemed desirable to limit the size of a new town like Letchworth to something like 35,000 people and to plan for an agricultural belt to intervene between this town and the federated townlets which may be permitted to spring up around it, surely it is still more desirable to make some effort to secure definite belts of open space around existing towns and to encourage their development by means of detached suburbs grouped around some centre and separated from the existing town by at least sufficient open ground to provide for fresh air, recreation and contact with growing nature.”¹²⁶

He believed that the size limitation, beside its benefits of creating a healthy environment and keeping the sense of country, supports social interaction and cooperative organization. *“People tend to flock together in villages or towns that they may enjoy the advantages of social intercourse with the wider opportunities for pleasure and culture that*

¹²⁵ Raymond Unwin, *Nothing gained by overcrowding: How the Garden City type of development may benefit both owner and occupier* (Westminster: P. S. KING & Son, 1912).

spring from it, and that they may enjoy the material advantages which arise from the co-operation of many individuals working for some common purpose.”¹²⁷ Such cooperation creates communities of friendly society and consequently affects their sense of belonging to the towns or villages.

The second adapted principle of the garden city is the garden-surrounded home. Unwin believed that houses should be built following the garden city principles of providing enough ample space and a garden for each home. In his book, he promotes a low-density community. He highlights that the economic benefit is not limited to overcrowding and that the establishment of fewer units with larger open spaces can be economically more beneficial. Residential blocks are thus organized through the array of garden-surrounded houses set around an open space with enough ample garden. This open space can be used for recreational activities, outdoor bowling green, and playgrounds for children. This is further discussed in the residential block analysis.

Accordingly, the garden suburb is mainly a commuter suburb built on the outskirts of a large city, with reliable means of transportation to facilitate the residents' movement to and from the city. It is also limited in size, with enough ample space to provide garden-surrounded homes and enough shared open spaces. To clarify the terminology E. G. Culpin quoted in his book, *“The Garden City Movement Up-to-Date,”* published

¹²⁶ Ibid., p. 2.

¹²⁷ Ibid.

in 1913, the following is a definition of a garden suburb: “A ‘garden suburb’ provides that the normal growth of existing cities shall be on healthy lines; and when such cities are not already too large such suburbs are useful.”¹²⁸ In contrast to the garden city movement, the garden suburb is not an independent unit, but it rather depends on large cities connected to it with reliable means of transportation.

The establishment of garden suburbs depended on a co-partnership management scheme where tenants made joint owners with developers.¹²⁹ This model encouraged developers and community organizations to establish garden suburbs, thus, this model made the realization of garden suburbs easier in comparison to the garden city. The garden suburb has grown very fast. By 1913; even before the establishment of the second garden city in Welwyn, about 40 garden suburb and village schemes were existing in Britain.¹³⁰

*“The Garden Suburb has not to create new conditions, but simply to direct an existing flow, and, therefore, since we as a people are inclined to take the line of least resistance, the Garden Suburb succeeds the more quickly. The child has outstripped the parent, and in some degree the great truth has been in danger of becoming overshadowed by the lesser truth.”*¹³¹

¹²⁸ Charles Benjamin Purdom, *The building of satellite towns: a contribution to the study of town development and regional planning*, New ed. (London: J.M. Dent & Sons, 1949), p. 2; this definition is also quoted by Stern and Fishman in their book *Paradise Planned* after Ebenezer Howard himself when he, in 1910, wrote to the editor of the

To conclude, this study summarizes the following principles of a garden suburb laid out on the garden city lines:

- (1) dependency/function: dependent on a nearby town or city—merely residential;
- (2) planned as a whole: zoned plan including diverse activities
- (3) houses: low density garden-surrounded homes;
- (4) limited population and number of houses;
- (5) green belt: to provide fresh air, recreation, and contact with growing nature as well as limiting the suburb size and growth
- (6) growth: in terms of cluster with a limited population around a main city directly connected to it.
- (7) development model: Co-partnership management scheme, where tenants were made joint owners with developers

4.3 The Authority in Power Responsible for the Development

The development of garden suburbs depended on a co-partnership management scheme. “Co-partnership management schemes were at the heart of many of these developments and gave residents greater equality and influence in their running. They were intended to ensure both

builder magazine in an attempt to clarify the difference between the three terminologies: Garden City, Garden Suburb, and Garden Villages.

¹²⁹ Rutherford, *Garden cities and suburbs* (above, n. 93), p. 22.

¹³⁰ *Ibid.*

¹³¹ Culpin, *THE GARDEN CITY MOVEMENT UP-TO-DATE* (above, n. 24), p. 7.

*commercial and social solidarity arising from the bonds of common interest. Tenants were made joint owners, with outside financiers or developers, of the houses they occupied, with the estate managed by an elected committee of shareholders.*¹³²This scheme encouraged several developers and community organizations to establish garden suburbs.

4.4 Urban Context

4.4.1 Location

Garden suburbs are generally located on the periphery of big cities suffering from overpopulation, as shown in Figure 4-2 and Figure 4-3. However, by time and with the growth of these cities, some of these garden suburbs became embedded within the city's lines.

4.4.2 Area

A garden suburb is smaller in scale compared to a garden city. However, garden suburbs vary from a small scale, such as Shirehampton Garden Suburb (1909) occupying 26.5 acres (0.1 sq.km), to a medium scale, such as Alkrington Estate built on a 700-acre (2.8 sq.km) site, and a large scale, such as Knebworth Estate occupying 500 acres (2.0 sq.km).¹³³

4.4.3 Surrounding Incentives

Garden suburbs depend on the big cities they are attached to. They are generally separated from them by an agricultural belt, as shown in Figure 4-2, to limit the city and suburb expansion and preserve the country experience.

¹³² Rutherford, *Garden cities and suburbs* (above, n. 93), p. 22.

4.4.4 Accessibility and Linkage

A garden suburb is a by-product of the development of the mechanically powered transportation, whether vehicular cars or railways. The development of the transportation industry opened the way for urban development to expand further from cities' centers. It was characterized by two main properties that allowed going further and staying connected through fast means. Therefore, the development of transportation facilitated the establishment of commuter suburbs located on the periphery of the cities, while depending on the provided fast linkage to its center. Unwin diagram, Figure 4-3, shows a city surrounded by a cluster of suburbs and satellite towns with defined limits. The diagram highlights the direct link between the city center and the suburbs, in addition to the indirect connection between the suburbs. Unwin's diagram showing the allocation of suburbs or satellite towns around a central city shows that they are dependent units connected to the city.

Therefore, garden suburbs are generally located on the periphery of large cities. They can be located at a distance from the dependent city, leaving enough open space in between to maintain the city's and the surrounding towns' defined boundaries. However, in practice and in some cases, this boundary was neglected, and they were directly located on the outskirts of the city.

¹³³ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), pp. 349–409.

4.5 Urban Design Concept

4.5.1 General Design Concept

A garden suburb provides an extension or a healthy growth of cities. They are merely residential, or commuter suburbs connected directly to the main city center. They generally have a center hosting religious, municipality buildings or an institute building and so on. They provide garden-surrounded homes in rural countryside clusters.

“These suburbs have a distinctive Arts and Crafts architectural style and loosely-organic layout. The developments sought to marry elements of the rural countryside with the requirements of suburban living to create healthy uncrowded places for the working and middle classes to live. The movement responded to the unchecked sprawling development of many of England’s cities, and has its origins in early movements and philosophies that rejected the regimental and industrialised character of housing.”¹³⁴

4.5.2 Land Use and Zoning

Generally, a garden suburb is merely a residential or dormitory suburb with no industrial sector. It can, however, have commercial, educational, and religious activities to ensure a holistic community. Recreational areas and open spaces are main urban design aspects of a garden suburb.

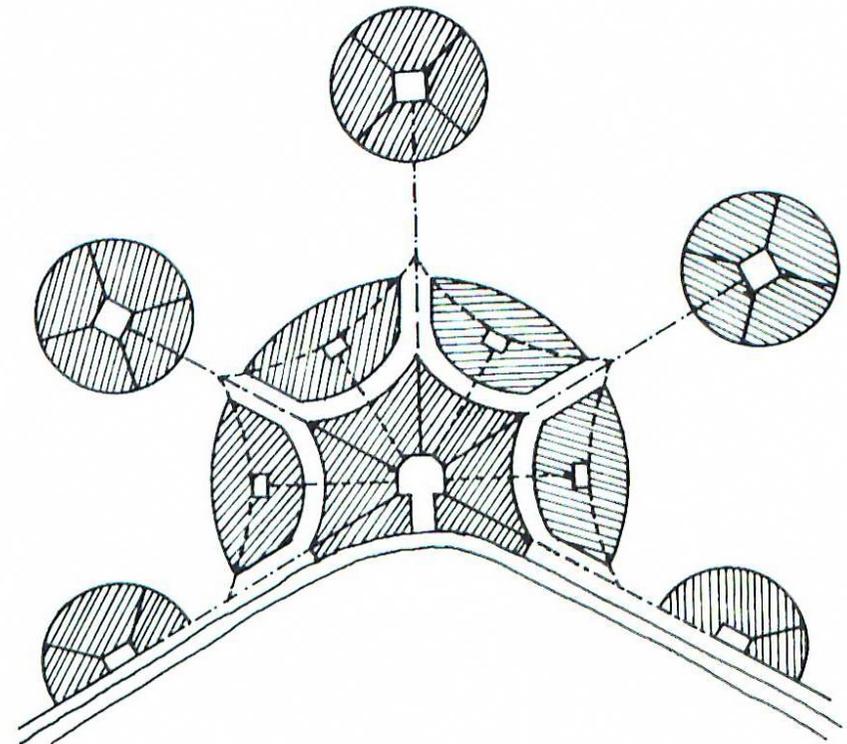


Figure 4-3: City with defined suburb and satellite towns (after Unwin).

Source: (RIBA Library)

¹³⁴ Jack Hanson and Adam Partington, ‘Aspects of Suburban Landscapes: Inherited Landscapes & Suburban Greens 1850-2015’ (2015), p. 25,

<https://content.historicengland.org.uk/images-books/publications/aspects-of-suburban-landscapes/aspects-suburban-landscapes.pdf/>.

4.6 Street Typology

4.6.1 Street Network

Unwin criticized the iron grid, or what he called the trellis arrangement of roads, since they create traffic jams and provide monotonous picturesque views. He was also not in favor of diagonal streets radiating from the center, since they create plots, spaces, and road junctions that do not produce satisfactory buildings and spaces. He was inspired by the irregular radiating street system of old towns.

*“they consist of main arteries branching out from the nucleus of the town in different directions – forming, in fact, an irregular radiating system; we find, further, that there has been a general tendency for cross roads to grown out from these main roads, approximately at right angles, and these have in many cases been diverted or curved round to meet other; and that in the end a very irregular network of streets has grown up, the outline of which would be nearly represented by a spider’s web”.*¹³⁵

He believed that when laying down new suburbs as an extension to existing cities, nature will introduce much irregularity of form to the streets. However, main roads and central places need to be designed, adapting this spider’s web system, to give the plan a character. He

¹³⁵ Unwin, *Town Planning in Practice* (above, n. 27), pp. 235–236.

¹³⁶ *Ibid.*, p. 260.

¹³⁷ *Ibid.*, p. 237.

implemented this network in Letchworth Garden City as well as in Brentham and Hampstead Garden Suburbs.

A garden suburb, therefore, tends to hold a combination of straight lines and curves. However, *“in the central portion of towns or districts, where a certain stateliness of effect is desirable, and where sites will be required for large buildings, probably straight streets, combined with some simple and regular curved lines, will be the most successful.”*¹³⁶

Unwin believed that gently curved streets, besides being more comfortable regarding traffic, enhance the “street pictures.” He believed that straight roads are monotonous, destroy the satisfaction seen in street pictures, and contribute in creating maximum dust.¹³⁷ He was pretty much interested in creating “street pictures” that look like village streets, as shown in Figure 4-4 and Figure 4-5.¹³⁸ These became the main characteristics of the British garden suburbs. He paid great attention to the design of the street junctions as terminals for “street pictures.” He also created a diverse arrangement of housing grouping with different setbacks, paying precise attention to corner houses, along with a continuous line of trees and greens to produce a variety of interesting “street pictures.”¹³⁹ Curved streets also tend to be more interesting than straight ones, as they lead to a non-directly viewed space or building.

¹³⁸ *Ibid.*, pp. 294–310.

¹³⁹ *Ibid.*, pp. 235–318.

4.6.2 Street Design

The development of vehicular cars and tramways influenced the design of the streets. A separation between the different vehicular modes and pedestrian activities was required. Street hierarchy and identification in design of main roads, secondary roads, and streets that and Unwin called residential streets. This hierarchy aimed to reduce through-traffic in the residential areas. Main streets were generally wider, hosting more defined spaces for different movement activities. They had spaces for footways, vehicular roads, tramway, and sometimes roads exclusive for horse carriages.

Unwin was inspired by the German multiple track roads, especially the idea of placing the tramway tracks on one of side of the street, instead of the common British system of placing them in the middle of the road; this was safer (Figure 4-6). Main straight streets tend to have little deviation, as straight prolonged streets create monotonous street pictures and maximum dust. Main streets had a width limited to 40 feet (12 m), and in case of greater width, the extra spaces are to be devoted to grass margins.¹⁴⁰ Secondary and residential roads would mostly have a smaller road for vehicles and horse carriages. In some cases, they are sided by footways and sometimes the pedestrian would walk in the same way of the vehicular road, as shown in Figure 4-7. Secondary roads width was limited to 20 feet (6 m), where 13 or 14 feet (4 m) were dedicated for carriages, with a maximum length of 500 feet (152.5 m).¹⁴¹ Unwin also

¹⁴⁰ Ibid.

introduced the design of cul-de-sac, which he used in Brentham and Hampstead Garden Suburbs to reduce through-traffic.



Figure 4-4: Polar Groove Street, Easwrick Estate.
The street design creates Unwin's required "street picture" similar to villages.
Source: (Unwin 1909)

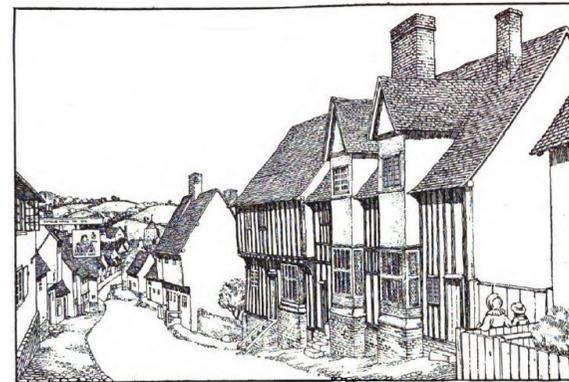


Figure 4-5: A Village Street, Kersey Suffolk.
A diagram by Unwin showing the "street picture" of a countryside. Source:
(Unwin 1909)

¹⁴¹ Ibid.

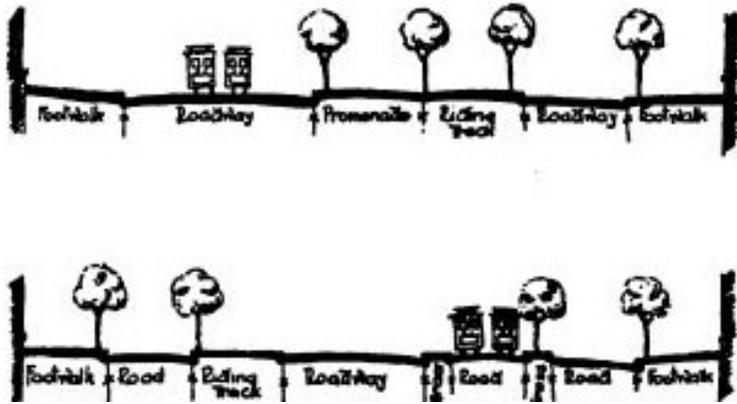


Figure 4-6: Main street design suggested by Unwin inspired by the German town planning.

The tramway is located on one of the sides of the street in contrast to the common case in Britain at that time, where the tramway is in the center of the street. Source: (Unwin 1909)

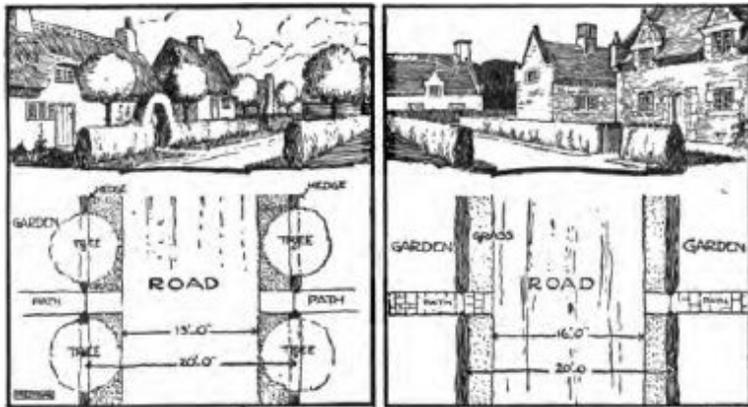


Figure 4-7: Secondary and residential roads prototype.

Source: (Unwin 1909)

4.6.3 Shading Typology

Streets are aligned with trees from both sides. The trees tend to decorate the vehicular road, while they only provide shade for the footways (Figure 4-7).

4.7 Residential Block Typology

Unwin generally criticized the typical by-law British residential block typology of the attached rows of houses overlooking a street. He promoted the design of residential blocks with an array of garden-surrounded houses around an open space. In his book “Nothing Gained from Overcrowding”, he proves that such a prototype is more economically beneficial and that building more units does not necessarily create more profit (Figure 4-8).

4.7.1 Block Typology

He designed a residential block with larger housing plots surrounding an open space (Figure 4-8 and Figure 4-9). A 300-foot (91.5 m) distance between streets was found convenient.¹⁴² The open space, “quadrangle,” is accessible from the backyards of the houses. It is directly accessible from the main road through passages between the houses’ groups. The central open space provides a recreational area with a sport field, an outdoor bowling green, and a playground.¹⁴³ *“Within these quadrangles, families would come to understand the virtue of cooperation through the shared use of common facilities.”*¹⁴⁴

¹⁴² Unwin, *Town Planning in Practice* (above, n. 27).

¹⁴³ Unwin, *Nothing gained by overcrowding* (above, n. 123).

¹⁴⁴ Meacham, *Regaining paradise* (above, n. 120), pp. 91–92.

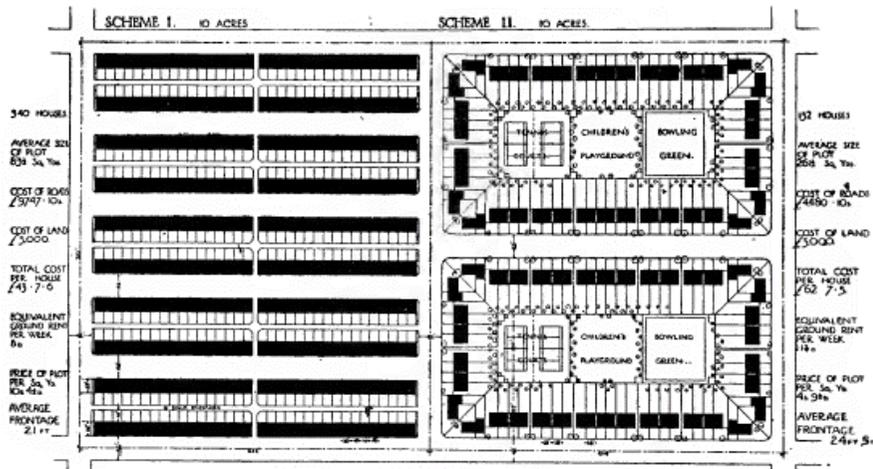


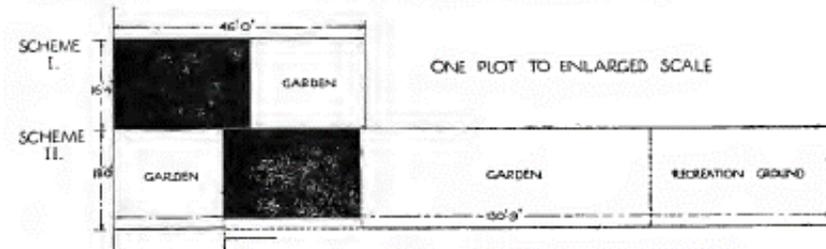
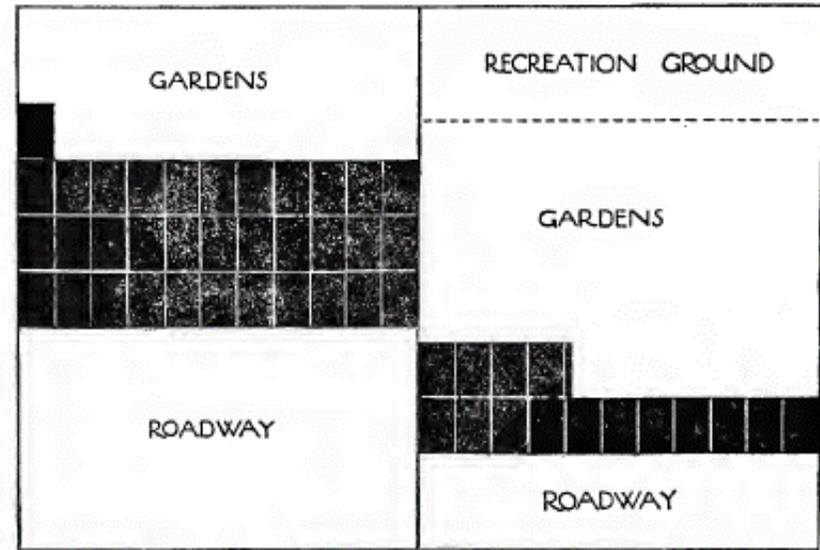
TABLE I.

	SCHEME I. With land at £500 per acre.	SCHEME II. With land at £500 per acre.
Number of houses	340	152
Average size of plot.	83 3/4 sq. yds.	261 1/2 sq. yds.
Cost of roads	£9,747 10 0	£4,480 10 0
Cost of land	£5,000 0 0	£5,000 0 0
Total cost of land and roads per house	£43 7 6	£62 7 5
Equivalent ground rent per week . .	8d.	11 1/2d.
Price of plot per sq. yard	10/4 1/2	4/9 1/2

Figure 4-8: Unwin's diagram comparing two contrasted organization systems for residential block design.

The suggested Scheme II by Unwin proves that there is no economic benefit from overcrowding. Source: (Unwin 1912)

SCHEME I. ONE ACRE. SCHEME II. ONE ACRE.



EFFECT OF TWO SYSTEMS OF DEVELOPMENT ON EACH ACRE AND EACH PLOT.

Figure 4-9: Unwin's diagram comparing Schemes I and II.

This diagram shows the benefit of Scheme II in enlarging the green areas over the roadway areas in Scheme I. Source: (Unwin 1912)

4.7.2 Plot Subdivisions

In his book “Town Planning in Practice” Unwin proposes a desirable number of houses per acre, which is between 10 and 20. He also adds that 12 houses per acre are proved by practice to be the optimum. “Twelve houses to the net acre of building land, excluding all roads, has been proved to be about the right number to give gardens of sufficient size to be of commercial value to the tenants - large enough, that is, to be worth cultivating seriously for the sake of the profits, and not too large to be worked by ordinary labourer and his family.”¹⁴⁵

The plot sizes based on Unwin’s diagram will change according to the density (Figure 4-10). The average plot size of the suggested density of 12 houses per acre would be 403 sq. yards (1.6 sq.km). Narrow plots with greater depth are apparently more economic. The dimension of the plot would thus differ according to its depth, which varies from 100 to 150 feet (30-45 m). A 15-foot (4.5 m) frontage is the minimum required for cottages, with an average frontage of 24 feet (7 m) for a density of 12 houses per acre, with plot depth of 150 feet (45 m).¹⁴⁶

Plots are generally surrounded by fences 6 to 8 feet (1.8- 2.4 m) high. Nothing less than 6 feet (1.8 m) can provide privacy from the next garden. The fences can be walls, hedges, or preferably trellis with climbing plants.¹⁴⁷

Frontages of rectangular Plots of different Depths.

Depth of Plot in feet.	100	120	125	130	135	140	145	150
Size of Plot in feet.								
1 Acre	435.6	363	348.4	335	322	311	300	290.4
1/2 "	217.8	181.5	174.16	167.5	161	155.5	150	145.2
1/3 "	145.2	121	116.16	111.6	107.3	103.6	100	98.8
1/4 "	108.9	90.75	87.12	83.75	80.5	77.75	75	72.6
1/5 "	87.12	72.6	69.7	67	64.4	62.2	60	58.08
1/6 "	72.6	60.5	58.08	55.83	53.3	51.83	50	48.4
1/7 "	62.23	51.86	49.78	45	46	44.428	42.8	41.49
1/8 "	54.43	45.37	43.56	41.875	40.25	38.875	37.5	36.3
1/10 "	43.56	36.3	34.84	33.5	32.2	31.1	30	29.04
1/12 "	36.3	30.25	29.04	27.91	26.83	25.91	25	24.2
1/15 "	29.04	24.2	23.23	22.3	21.46	20.73	20	19.36
1/20 "	21.78	18.15	17.42	16.65	16.1	15.55	15	14.52

Figure 4-10: Table showing the variation in plot size suggested by Unwin. Source: (Unwin 1912)

Schedule showing Area of Plots with Building Area for each.

Size of plot in fraction of acre	1	1/2	1/3	1/4	1/5	1/6	1/7	1/8	1/10	1/12	1/15	1/20
Area of plot in yards	4,840	2,420	1,613	1,210	968	807	691	605	484	403	323	242
Building area in yards at 1/2 of plot	807	403	269	202	161	134	115	101	81	67	54	40

Figure 4-11: A schedule showing the variation of plots and building areas. Source: (Unwin 1912)

¹⁴⁵ Unwin, *Town Planning in Practice* (above, n. 27), p. 320.

¹⁴⁶ Ibid., pp. 319–360.

¹⁴⁷ Ibid.

4.7.3 Building Typology

The main building typology is garden-surrounded houses. Houses can be detached or semi-detached, built in groups of two, four, or six. However, Unwin was not in favor of detached houses; they divide the garden into several pieces, at the front and sides, which is of little practical value. Houses generally have a front-yard and a backyard.

“What Unwin urged planners to avoid mindless repetition of housing patterns and street grids that resulted nothing than vast, monotonous tracts, lifeless.”¹⁴⁸

The building area varies in relation to the plot size, as show in Figure 4-11, maintaining a footprint ratio of 16% of the plot area. According to the law, the minimum distance that should be left in front of houses varies from 36 to 50 feet (11-15 m), generally consisting of roads and footways. The law requires a minimum of 150 square feet (14 sq.m) at the rear of the buildings, extending to their full width.

*“In designing houses, Parker and Unwin kept two principles before them: the first, that whether planned for rich or poor their houses would resemble each other in the quality of their designs; the second, that their houses would honestly respect the human needs of those who were to live within them.”*¹⁴⁹

¹⁴⁸ Meacham, *Regaining paradise* (above, n. 120), p. 89.

¹⁴⁹ *Ibid.*, p. 84.

4.8 Social Infrastructure

Recreational grounds and parks were among the most distinguishable characteristics of garden suburbs. They were some of the key advertising elements to attract tenants, and examples include golf courses, tennis courts, bowling greens, and so on. In some cases, churches occupied the center, such as in Hampstead. In other cases, churches were not included in the original plan, and they took place over sites dedicated for houses, such as in Brentham.¹⁵⁰ Similarly, schools were built on sites allocated for houses as a response to the suburb’s growth and need. The social infrastructure was limited in order to allow more interaction between the community and foster their social solidarity and sense of belonging. They were mainly located in adequate walking distance from the houses whether in the centre or on the periphery depending on the site topography and design. However, in most cases the religious facilities were mainly central while recreational fields were mainly on the periphery.

4.9 Social Target Group

Garden suburbs are generally designed to offer a variety of dwelling types to attracting diverse social classes. However, since the development of garden suburbs depended on a co-partnership management, the tenants were generally sharing bonds of common

¹⁵⁰ Brentham Society, ‘Social Life in Brentham 1901-1915’, 03 February 2014, http://www.brentham.org.uk/html/social_life_1901-1915.htm, accessed 04 January 2018.

interest which ensured commercial and social solidarity.¹⁵¹ Therefore, some garden suburbs were targeting a stratified social class while others had a mix of diverse social classes. For example, in Hampstead, the developer Henriette Barnett's aim was "to create on the remaining ²⁴³ acres of the Wyldes Farm "A Garden Suburb for the Working Classes"¹⁵², beside the already existing houses targeting the other social classes. Hampstead, thus, at the end, targeted a mixture of different social classes.¹⁵³ On the other hand, Alkrington, for example, built between 1902 and 1914, was planned exclusively for middle-class families.¹⁵⁴ Another example, Glasgow Garden Suburb, which is the first garden suburb in Scotland established in 1912, aimed at creating housing communities for the working classes.¹⁵⁵

4.10 Summary on the British Garden Suburb

R.Unwin, the planner of the first garden city "Letchworth Garden City", after realizing the unlikeliness of establishing garden cities, due to the lack of funds, he left Letchworth to design garden suburbs laid on the principles of the garden city. The garden suburbs are designed in form of clusters around not very big cities. They are, thus, considered providing the normal growth of not very big cities on healthy line. Similarly, like the garden city, they provide garden surrounded home, with ample gardens. They mainly differ from the garden cities as they are not

independent nor self-contained. On the contrary, they are commuter suburbs depending on nearby existing central cities, directly connected to it. Their establishment depended on a co-partnership management scheme thus the tenants shared common interest to ensure both commercial and social solidarity. Therefore, some garden suburbs were exclusively targeting a specific social class.

¹⁵¹ Rutherford, *Garden cities and suburbs* (above, n. 93), p. 22.

¹⁵² Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 351.

¹⁵³ Rutherford, *Garden cities and suburbs* (above, n. 93), p. 53.

¹⁵⁴ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 363.

¹⁵⁵ Rutherford, *Garden cities and suburbs* (above, n. 93), p. 59.

CHAPTER 5: BRENTHAM GARDEN SUBURB

Brentham is considered the pioneer British garden suburb.¹⁵⁶ It was established between 1901 and 1916, and it was generally neglected in the history of British town planning, until A. Reid published her book titled “Brentham: A history of the pioneer garden suburb 1901-2001.” This was supported by Prof. Sir P. Hall who wrote the introduction of Reid’s book and referred to her work in the modified second edition of his book “Sociable Cities”¹⁵⁷ The company had built few buildings before 1906, when it invited B. Parker and R. Unwin to develop a more ambitious plan, which is the main study focus. Although it is very small, only 60 acres (0.25 sq.km), its simplicity reflects the basic principles and urban design aspects of a garden suburb.

Brentham Garden Suburb in Brief	
Establishment	1901-1916
Location	Ealing district west of London 1 mile north of Ealing Broadway Station
Area	60 acres (0.25 sq.km)
Developer	Ealing Tenants Ltd
Planners	Barry Parker and Raymond Unwin
Contributing Architects	Barry Parker Raymond Unwin Federic Cavendish Pearson George Lister Sutcliffe

Houses Building and to Let
at Rentals from £25 to £40 per annum.
AT THE
BRENTHAM GARDEN SUBURB
OF THE EALING TENANTS, LTD.



Sketch in Lutlow Road on the Estate.

12 Acres Recreation Ground with Cricket Ground, Tennis Courts, Bowling and Croquet Greens. Institute with Club, Reading and Billiard Room, etc.

SOCIAL PLEASURES FOR TENANTS.

'PHONE, WRITE OR SECRETARY EALING TENANTS, 7, Winscombe Crescent, Brentham, Ealing.
CALL AND SEE FOR YOURSELVES. Telephone, Ealing 388

Figure 5-1: Advertisement of Brentham Garden Suburb.

Source: (Rutherford 2014)

¹⁵⁶ Reid, *Brentham* (above, n. 25).

¹⁵⁷ Hall and Ward, *Sociable cities* (above, n. 25), p. 37 The first edition published in 1998, refers that “*Hampstead was preceded by an earlier garden suburb at Ealing,*

which Unwin and Parker took over and turned it into a delightful mini-Hampstead.” Hall and Ward, Sociable cities (above, n. 53), p. 42.

5.1 Background

In 1901, under the guidance of Henry Vivian (1863-1930), a liberal member of the parliament, the General Builders Ltd founded the Ealing Tenants Ltd. The company acquired 32 acres in Ealing, west of London. The General Builders Ltd started the construction in the same year with only nine terrace houses that are now at 71-87 Woodfield Road. In 1906, Ealing Tenants Ltd acquired an additional 28 acres. Encouraged by Vivian, the company invited Parker and Unwin to develop a more ambitious plan.¹⁵⁸ By 1916, Brentham was almost complete with 650 houses. It is thus considered the first garden suburb founded on co-partnership principles.

5.2 Main Principles

It is mainly a dormitory suburb founded on co-partnership principles, a demonstration of Henry Vivian efforts in the co-partnership movement. It was almost a holistic community,¹⁵⁹ with its recreational fields and institute building that provided a wide range of social activities, including classes. It initially included allotment gardens, but they were taken over later by houses.¹⁶⁰ It also had some commercial shops, which closed, later on, due to the competition from outside the estate.¹⁶¹

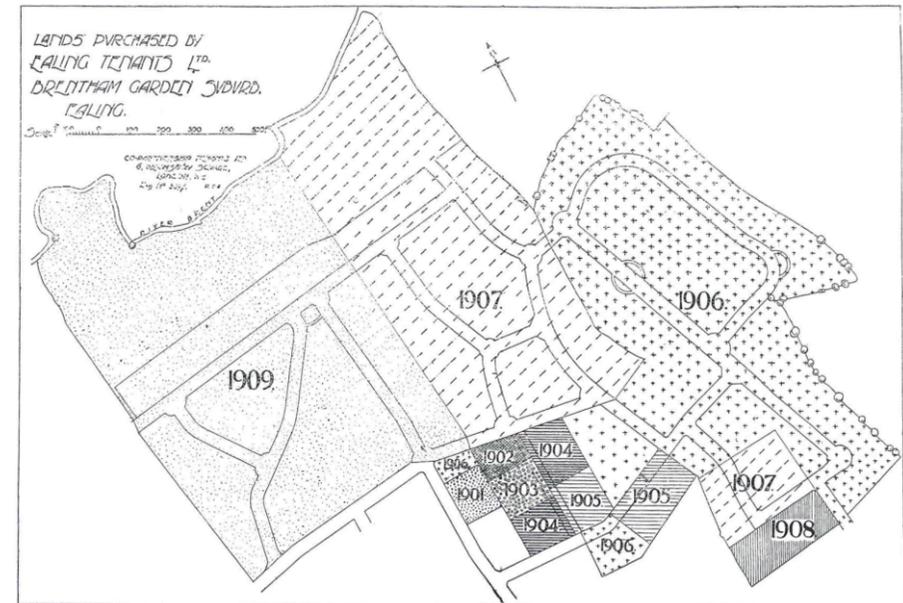


Figure 5-2: The development phases of Brentham Garden Suburb.

Source: (Reid 2000)

¹⁵⁸ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), pp. 349–350; Brentahm Society, ‘The Building of Brentahm 1901-1915’, 03 February 2014, http://www.brentham.org.uk/html/building_1901-1915.html, accessed 04 January 2018.

¹⁵⁹ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), pp. 349–350; Rutherford, *Garden cities and suburbs* (above, n. 93).

¹⁶⁰ Reid, *Brentham* (above, n. 25), p. 106.

¹⁶¹ Unwin, *Town Planning in Practice* (above, n. 27), p. 379.

5.3 Authority in Power Responsible for the Development

5.3.1 Developer

Henry Vivian, the owner of General Builders Ltd, founded the Ealing Tenants Ltd that established Brentham Garden Suburb. He was a carpenter, trade unionist, and a liberal member of parliament; he was also concerned with the improvement of housing conditions, especially for working people.¹⁶² Ealing Tenants Ltd followed a co-partnership management scheme, where tenants were made joint owners with developers. “*It was the first development financed in this way.*”¹⁶³ In 1901, the construction of the first nine houses began.¹⁶⁴ In 1905, the co-partnership Tenants Housing was formed to advise other societies under Vivian chairmanship.¹⁶⁵

Planners

The planning of Brentham was executed over the years from 1901 till 1909 as Ealing Tenants Ltd was consecutively acquiring more land. In 1901, General Builders Ltd had already built a few houses over the initial small acquired land from 1901 till 1905. In 1906, Ealing Tenants Ltd acquired an additional large piece of land and they invited Unwin and Parker, after their success in New Earswick Estate and Letchworth Garden City, to develop a more ambitious plan for Brentham. This plan

was modified in 1907 by Unwin and Parker after acquiring an additional land. In 1909, an additional land was acquired. The last development was planned F.C. Pearson’s.¹⁶⁶

Famous Architects

Parker and Unwin designed few houses located on Winscombe Crescent and Brentham Way. Most of the houses were designed by Federic Cavendish Pearson (1882-1963), who was the architect of Brentham from 1907 to 1911, followed by George Lister Sutcliffe (1864-1915). The latter also designed the Brentham Institute, hall, and hostel.¹⁶⁷ Both architects were in tune with Unwin planning strategy to create Unwin’s desired “street pictures.”



Figure 5-3: The Main Committee, Ealing Tenants Ltd, 1906.

Source: Brentham.com

¹⁶² Brentahm Garden Suburb, ‘History: Brentham Garden Suburb’, <https://brentham.com/brentham-garden-suburb/history/>, accessed 05 January 2018.

¹⁶³ Rutherford, *Garden cities and suburbs* (above, n. 93), p. 54.

¹⁶⁴ Mervyn Miller, *English Garden Cities: An introduction* (Swindon: English Heritage, 2010), accessed 05 January 2018, p. 12.

¹⁶⁵ Brentahm Garden Suburb, ‘History: Brentham Garden Suburb’ (above, n. 158), pp. 15–28.

¹⁶⁶ Reid, *Brentham* (above, n. 25), pp. 57–92.

¹⁶⁷ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), pp. 349–350.

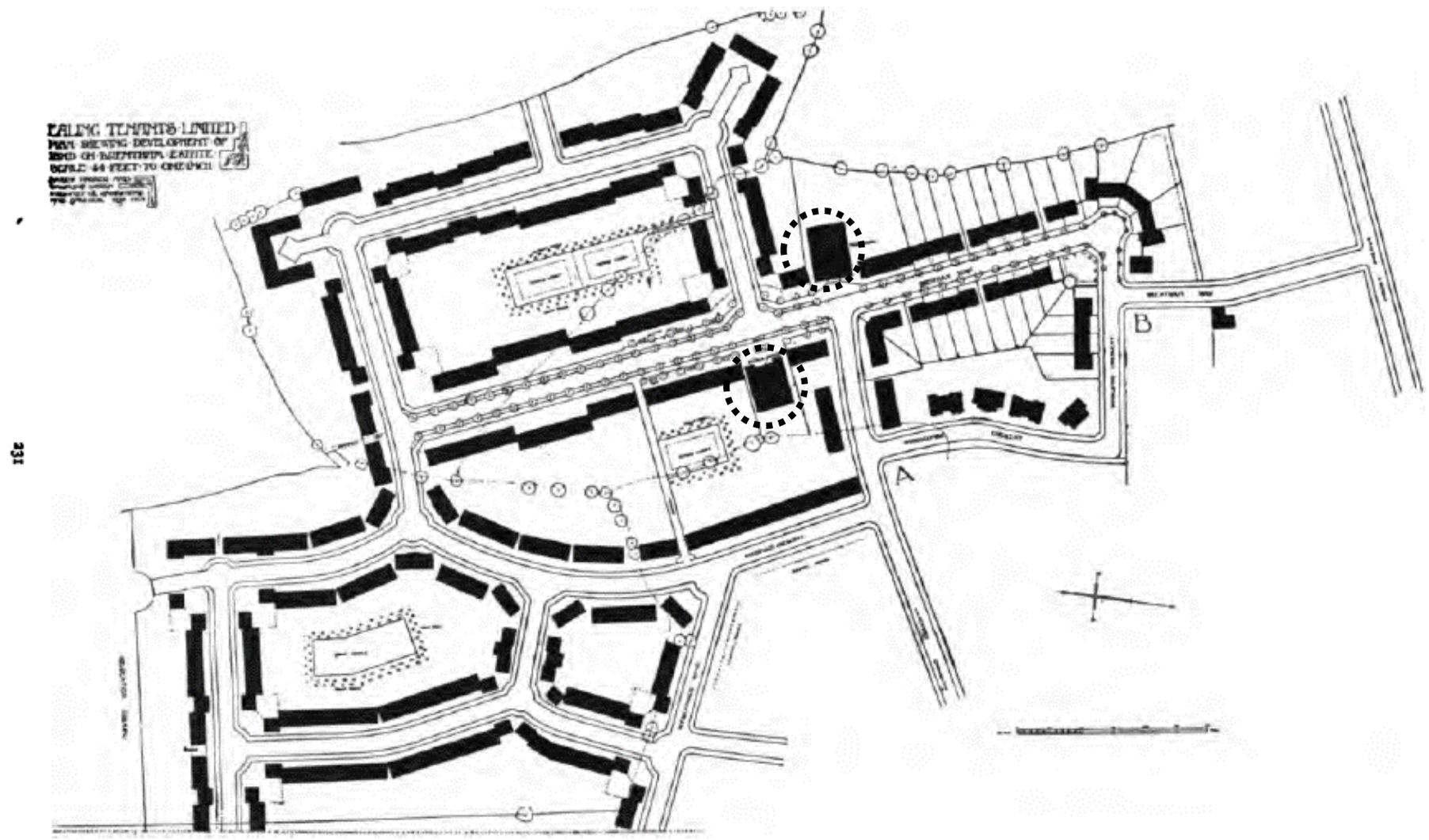


Figure 5-4: The 1907 modified plan of Brentham by Unwin and Parker. It shows the unrealized public buildings on Brentham Way. Source: Adapted from (Unwin 1909)



Figure 5-5: Aerial View of Brentham in 1924.

Source: Britainfromabove.org.uk



Figure 5-7: Conceptual analysis of Brentham.

Source: Created by the author over the plan prepared by Parker and Unwin adapted from (Reid 2000).

5.4 Urban Context

5.4.1 Location

Brentham Garden Suburb is located near Pitshanger in the north of Ealing District, west of London. It lies at about a mile north of Ealing Broadway Station. According to the 1900 map of London, Brentham was located on the periphery of the outer ring of London, about 10 miles (17 km) from King's Cross Station.

*“Towards the end of the nineteenth century most of what now forms the London Borough of Ealing was entirely rural. However, the opening of the Great Western Railway in 1838, with its first station out of Paddington at Ealing, produced a great surge of building activity in Ealing. By 1901 the area had acquired borough status, but one area remained undeveloped: the farmland between Castlebar Hill and Hanger Hill, dominated by Pitshanger Farm. This area was about to become Brentham Garden Suburb.”*¹⁶⁸

5.4.2 Area

Brentham started with only 32 acres in 1901, and then 28 more acres were added in 1906, forming the 60 acres of Brentham Garden Suburb.

5.4.3 Surrounding Incentives

Brentham is located on farmlands between two hills, Castlebar Hill and Hanger Hill. Its northern border is defined by the Brent River, whose floodplain provided the land occupied by the recreational fields.

Brentham was on the periphery of Ealing District, where shops, educational facilities, and working opportunities were found. It was surrounded by agricultural land. Ealing tenants, thus, had to acquired parceled of land for the agricultural land to include in its new development.

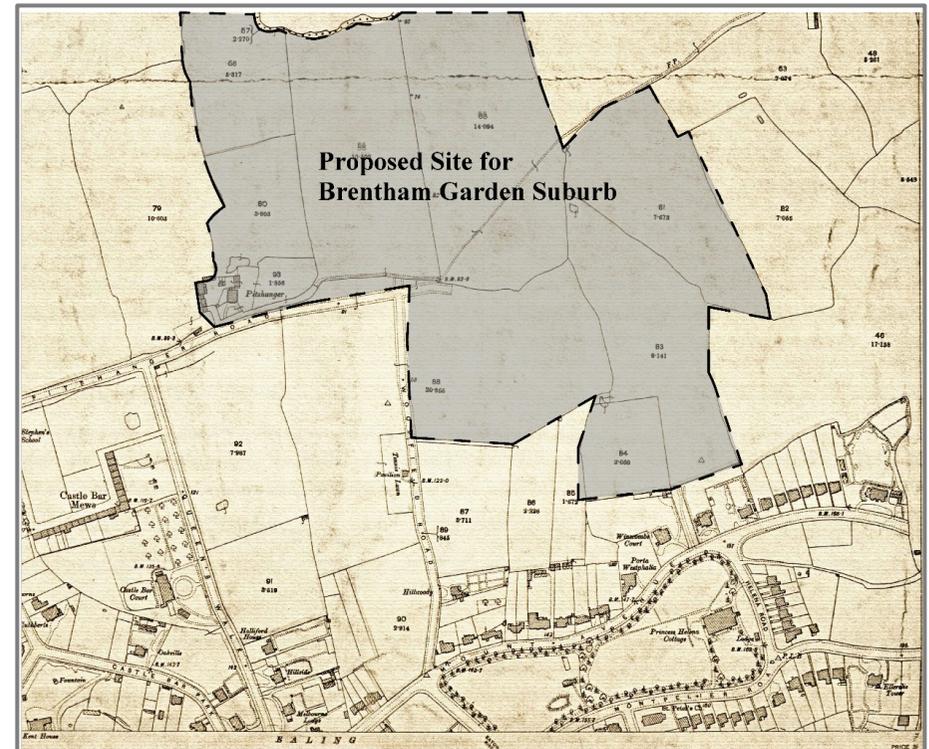


Figure 5-8: The proposed site for Brentham Garden Suburb on 1896 map of Ealing.

Source: adapted from Brentham.com

¹⁶⁸ Brentahm Garden Suburb, ‘History: Brentham Garden Suburb’ (above, n. 158).

5.4.4 Accessibility

It is located at a mile north of Ealing Broadway Station, which facilitated the commute to the other districts of London. Brentham had a limited number of access points, to maintain its distinct identity from the surrounding developed area in Ealing. It had five main access points.

5.5 Urban Design Concept

5.5.1 General Design Concept

Parker and Unwin created a simple plan for Brentham Garden Suburb. The suburb's buildings were constructed away from the Brent River's floodplain, which was dedicated for the recreational grounds. The plan consists of a central institute building, overlooking the recreational fields, from which a radial arrangement of streets formed large residential blocks with allotment gardens at their center. The street network system is like a spider's web, favored by Unwin as explained earlier in page 60. The main axis led to the institute building in the center and the recreational fields, Figure 5-7.

5.5.2 Land Use and Zoning

Brentham original plan mainly consisted of recreational grounds, institute buildings, and garden-surrounded houses arranged around shared open green spaces. Most of the buildings are residential except the central institute building offering diverse social and educational activities. Brentham Way was supposed to host shops and public buildings, but these were not realized (Figure 5-4).

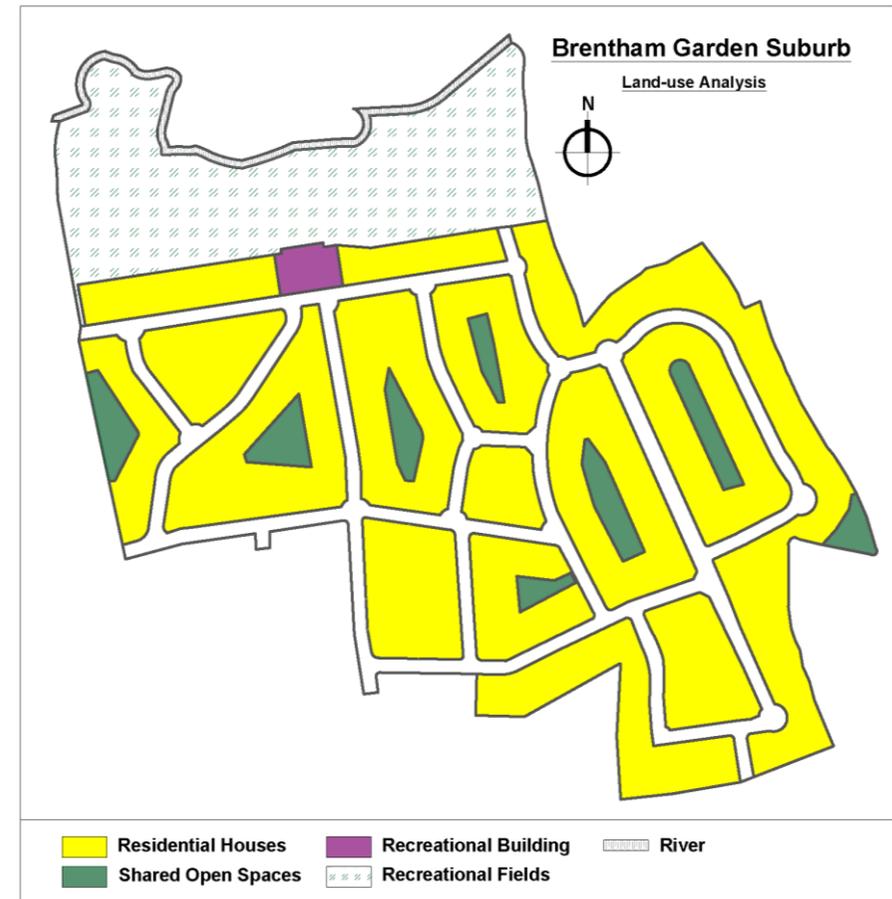


Figure 5-9: Brentham land use zoning analysis.

Source: Created by the author over the plan prepared by Parker and Unwin adapted from (Reid 2000).

According to Unwin, allocating sites for public buildings for cooperative societies is sometimes challenging for planners, who prefer to allocate the land for individual plots.¹⁶⁹ Sites for schools and religious buildings were not included in the initial design, they were built later over sites dedicated for houses.

*“Brentham Way, the main avenue running straight through the suburb, was originally planned by Unwin to include public buildings and shops at the T-shape intersections that fall near its midpoint. By 1908, however, with competition from commercial developments just outside the estate, shops were excluded from the plan, diminishing the street’s importance and compromising Brentham’s integrity as a holistic community.”*¹⁷⁰



Figure 5-10: Ludlow-road-looking-south.

Source: brentham.com

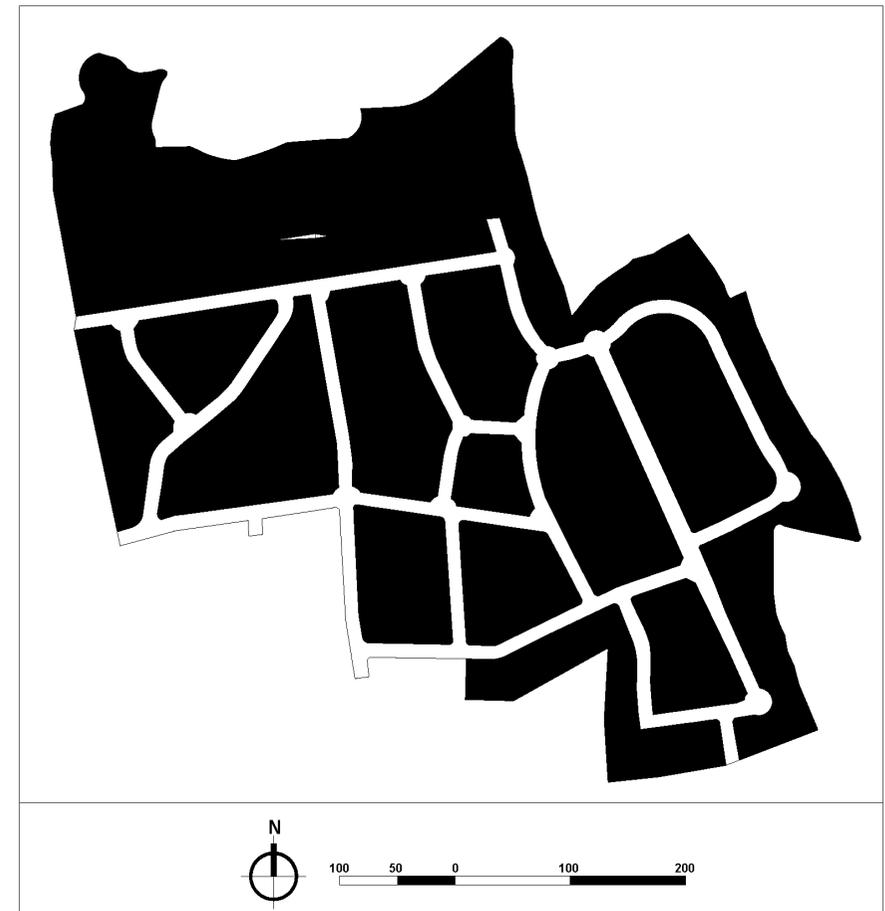


Figure 5-11: Brentham street network diagram.

Source: Created by the author over the plan prepared by Parker and Unwin adapted from (Reid 2000).

¹⁶⁹ Unwin, *Town Planning in Practice* (above, n. 27), p. 379.

¹⁷⁰ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 249.

5.6 Street Typology

5.6.1 Street Network

The street network radiates from the central institute building, crossed with a gentle curved street forming an irregular pattern like a spider’s web (Figure 5-11). The original plan by Unwin, had few cul-de-sacs, as shown in Figure 5-4 , which were not realized.

5.6.2 Street Design

The original plan included tree-aligned streets with a roadway for vehicles sided by footways from both sides. The roadway width for primary and secondary streets was kept the same, while the width of the footways was smaller for secondary streets (Figure 5-12 and Figure 5-13).

5.6.3 Shading typology

Streets were lined with grass verges and numerous trees, predominantly lime, silver birch, and plane.¹⁷¹ The trees were placed in lines opposite to each other, a line on each side, providing shadow for pedestrians using the footways.

5.6.4 Street Names

Main roads were labeled way, avenue, or lane, such as Brentham Way, Woodfield Avenue, and Pitshanger Lane. Secondary streets were labeled road, such as Neville Road and Ludlow Road. The curved streets were labeled crescent, such as Winscombe and Woodfield Crescent. They were mainly named after surrounding contextual landscape features.

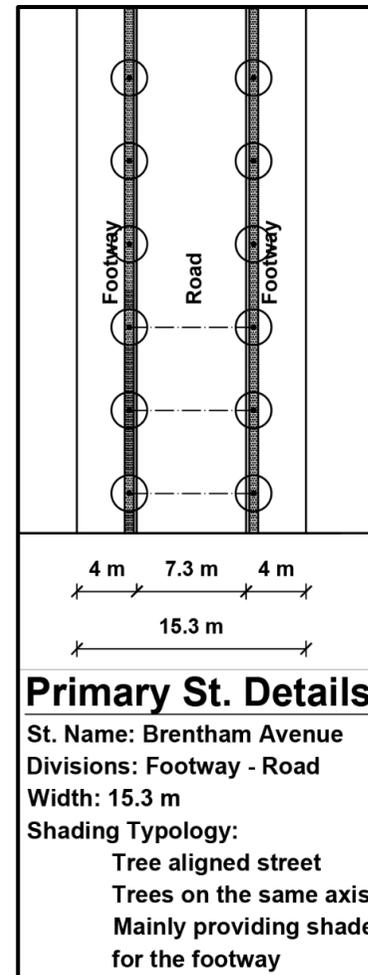


Figure 5-12: Brentham main street.
 Source: Created by the author.

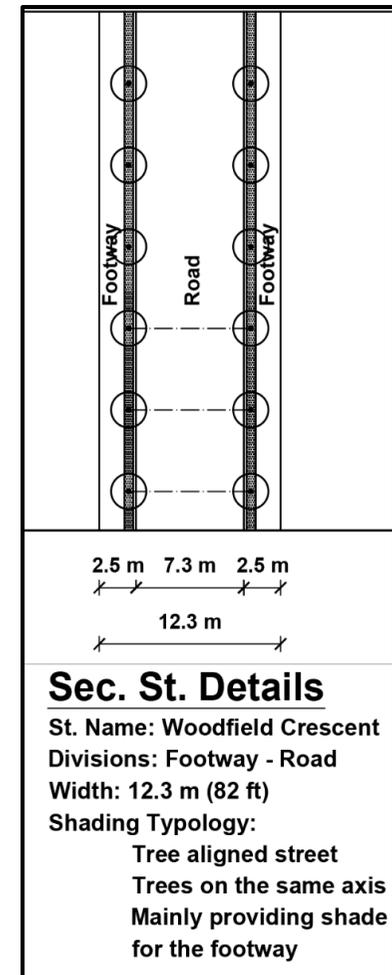


Figure 5-13: Brentham secondary street.
 Source: Created by the author.

¹⁷¹ Rutherford, *Garden cities and suburbs* (above, n. 93), p. 56.

5.7 Residential Block Typology

5.7.1 Block Typology

The original plan was subdivided into 17 blocks. It had 6 linear blocks on the periphery defining the suburb north, east, and south edges. The adopted irregular street network formed the remaining 11 inner blocks. They were irregular with varying sizes, shapes, and dimensions. Seven of these blocks had allotment gardens in the center, which were accessible by footways from the surrounding streets. The gardens were enclosed by hedges and contained small flowering trees. The blocks that did not include a shared open space in the center were mainly built before hiring Parker and Unwin.

5.7.2 Plot Typology

The analysis of the plan submitted by Parker and Unwin reveals several interesting urban design aspects. Although most of the blocks were irregular in shape, most plots were rectangular except the ones in the corners that were elongated in shape. Plots were surrounded by hedge fences. The density was generally limited to 8 houses per acre,¹⁷² but in some parts it reached 20 houses per acre.¹⁷³

5.7.3 Building Typology

Houses were mostly grouped in groups of two, four, or six, with smaller front yards and larger backyards, as shown in Figure 5-4: The 1907 modified plan of Brentham by Unwin and Parker.

It shows the unrealized public buildings on Brentham Way. Source: Adapted from (Unwin 1909). The footprint area ratio was generally kept to

¹⁷² Ibid., p. 54.

one sixth of the plot area. The plan consisted of a continuous row of houses without any grouping or setbacks, which contradicts Unwin principles of designing a variety of interesting “street pictures,” because these buildings were mainly built by the company before hiring Unwin. They are mainly located around Woodfield Avenue and Woodfield Crescent.



Figure 5-14: Aerial View of Brentham in 1924.

It shows the garden surrounded homes grouped around allotment gardens forming the residential blocks. It also shows the recreational field defined by the river. Source: Britainfromabove.org.uk

¹⁷³ Unwin, *Town Planning in Practice* (above, n. 27), p. 320.

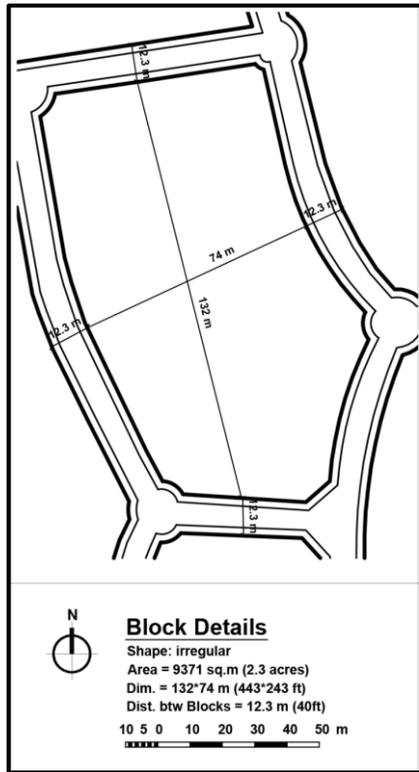


Figure 5-15: Brentham average block size.

Source: Created by the author over the plan prepared by Parker and Unwin adapted from (Reid 2000).

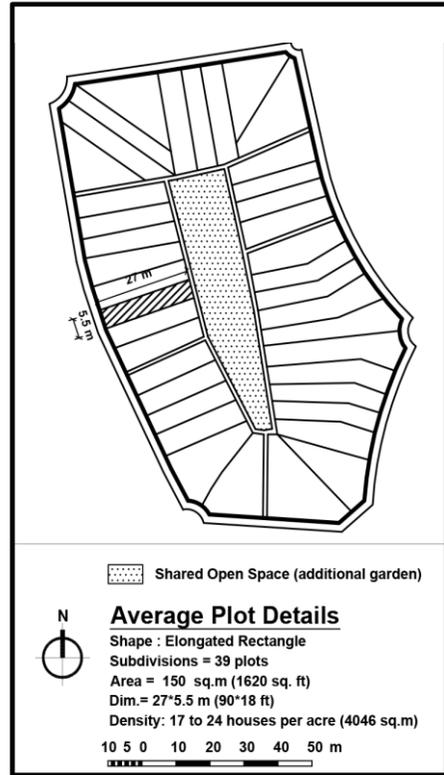


Figure 5-16: Brentham average plot subdivision.

Source: Created by the author over the plan prepared by Parker and Unwin adapted from (Reid 2000).

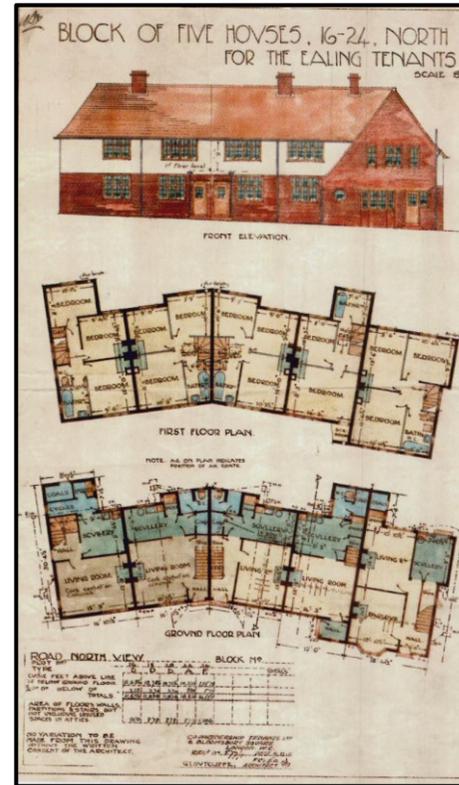


Figure 5-17: Group of houses at Brentham Garden Suburb.

Source: (Rutherford 2014)

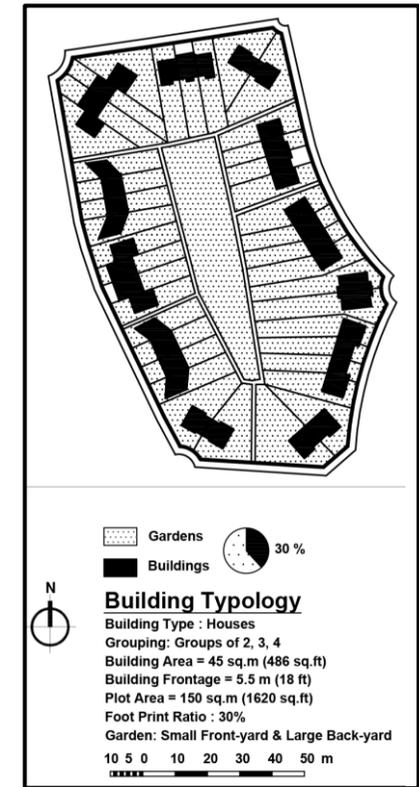


Figure 5-18: Brentham average building typology.

Source: Created by the author over the plan prepared by Parker and Unwin adapted from (Reid 2000).

5.8 Social Infrastructure

Brentham did not have a park. Instead, it had seven gardens enclosed within the super blocks, forming a total of 5 acres. They were accessible through narrow hedged paths. The church was not included in the original plan. A temporary small tin church was built in 1907 at the junction of Castlebar Park and Pitshanger Lane, which stayed there until the St. Barnabas church was built in 1916 over sites dedicated for houses in Pitshanger Lane.¹⁷⁴

Brentham also had a social and sports club. The club was temporarily located in Woodfield Road and then reallocated to Woodfield Crescent, until it finally settled in the garden suburb institute building, which was completed in 1911. *“The Brentham Club was a center of social life on the estate.”*¹⁷⁵ The club hosted lectures, concerts, dance parties, and so on. There were also indoor games, such as billiard rooms, and outdoor sports fields. North of the institute lied 12 acres of recreational ground, with cricket grounds, tennis courts, and bowling and croquet greens. Sports fields were previously located on Brunner Road and Woodfield Crescent near the temporary club. In the beginning, club membership was limited to residents with a yearly subscription.¹⁷⁶

¹⁷⁴ St Barnabas Church Ealing, ‘02 : The Brentham Estate’, <http://www.barnabites.org/history/brenthamestate/>, accessed 03 January 2018.

¹⁷⁵ Brentham Society, ‘Social Life in Brentham 1901-1915’ (above, n. 147).

¹⁷⁶ Ibid.

5.9 Social Target Group

Brentham mainly provided family houses; however, *“Holyoake Walk, contained twenty-four small flats for single and elderly people.”*¹⁷⁷

It initially attracted the lower to middle class, but later it started including a diverse community.¹⁷⁸



Figure 5-19: Tennis fields in Brentham next to the Institute Building

Source: brentham.com

¹⁷⁷ Rutherford, *Garden cities and suburbs* (above, n. 93); Stern, Fishman and Tilove, *Paradise planned* (above, n. 19).

¹⁷⁸ Reid, *Brentham* (above, n. 25), 61 & 103.

5.10 **Summary: Brentham in relation to Unwin's Garden Suburb**

Since Unwin planned Brentham Garden Suburb along with Parker, it followed the principles and design aspects that Unwin presented later in his books. However, there are a few aspects that might have slightly compromised Unwin's later published principles and design aspects. These included, first, excluding the public buildings and shops, which slightly affected its integrity as a holistic community, and second, the adoption of a density of 20 houses per acre. Unwin later believed that practice proved that 12 houses per acre was better. However, it was still possible to build a healthy community with 20 houses per acre alike Brentham.

Brentham Garden Suburb was a pioneer in the co-partnership movement which ensured a social solidarity. It had a very interesting social life, fostered by its recreational fields, the activities provided by its institute, and the shared open spaces within the residential blocks. Its limitation in size and population number created a sense of community that distinguish Brentham.

CHAPTER 6: CONTRAST, MUSHROOMING AND TRANSFER

With the simultaneous mushrooming of the garden city and garden suburb, some misconceptions occurred between both movements. This chapter first discusses the contrast and misconception between them. It then analyzes their mushrooming and transfer around the world, especially with the translation of Howard's book into several languages and the establishment of several garden cities associations around the world. This was also fostered by the British occupation of several countries.

6.1 Contrast between a Garden City and a Garden Suburb

Both movements shared the same goal to provide a solution for the overpopulated big cities, resulting from the industrialization period. However, the way each dealt with the big city, is entirely contradictory. The garden city movement aimed to create independent, self-contained "town-country" far from the big central city, while still maintaining direct connectivity. The residents of the garden cities, thus, enjoy garden surrounded homes in a healthy environment near their work. On the other hand, the garden suburb was mainly commuter suburb directly connected to the central city. Thus, the residents would commute, daily to work in the central city and return to live in the healthy suburb with its garden surrounded homes. The garden suburb is, thus, considered an urban element depending on already existing cities. Garden suburbs, thus,

provide the normal growth of existing cities, when such cities are not extremely big. Therefore, this contradicts with Howard's idea to stop the growth of the big cities and create new cities with limited population number. This is the core contrast between both movement in terms of their approach to solve the problem of big cities.

However, R. Unwin applied the garden city principles to the garden suburbs. Both were planned as a whole, were limited in size and population number, provided low density garden surrounded homes, aimed to potentially grow in terms of cluster around big cities, and were surrounded by a green belt to limit their growth. However, the green belt, beside such role, in a garden city, acted as the agricultural estate for the town-country. In a garden suburb, the green belt provided, as well, fresh and contact with the nature to provide a healthier environment.

Despite that both movements shared social reform ideas, their development model differed from one another. The garden city depended on a semi-municipal enterprise with municipal control over the land ownership with return of "unearned increment" to community benefit. In implementation, this model a lot of constraints to collect the necessary fund, thus, slowed its realisation. On the contrary, the garden suburb grew faster due to its development model. It was based on a co-partnership management scheme where where tenants were made joint owners with developers. This scheme encouraged developers and community organization to establish garden suburbs, thus, making their realization easier in comparison to the garden city. The following table illustrates more contrast.

Table 6-1: Comparison between the garden city and the garden suburb.

Source: Created by the author.

Aspects		Garden City	Garden Suburb
Main Principles	Definition	<i>“A ‘garden city’ is a self-contained town – industrial, agricultural, residential – planned as a whole, and occupying land sufficient to provide garden surrounded homes for at least 30,000 persons, as well as a wide green belt of open fields. It combines the advantage of town and country and prepares the way for a national movement stemming the tide of the population now leaving the countryside and sweeping into our overcrowded cities.”</i> ¹⁷⁹	<i>“A ‘garden suburb’ provides that the normal growth of existing cities shall be on healthy lines; and when such cities are not already too large such suburbs are useful.”</i> ¹⁸⁰
	1.Dependency / Function	Independent Unit self contained (Town-Country)	Depending on nearby existing city merely residential (commuter suburb)
	2.Planned as a whole	Planned as a whole - zoned plan including diverse activities	Planned as a whole - zoned plan including diverse activities Although in certain cases educational and religious facilities were developed in later phases taking over land dedicated for residential purposes.
	3.Houses	low density garden-surrounded homes	low density garden-surrounded homes
	4.Size Limitation	limited population number: approx. 30,000	Limited size, population number and number of houses
	5.Green Belt	as agricultural estate and to limit town growth;	to provide fresh air, recreation, and contact with growing nature as well as limiting the suburb size and growth
	6.growth	growth: in terms of cluster with limited population “social city” - connected to each other and to the central city	in terms of cluster with a limited population around a main city directly connected to it.
	7. development model	development model: municipal control with return of “unearned increment” to community benefit	Co-partnership management scheme, where tenants were made joint owners with developers
Authority in power	Developer	a semi-municipal enterprise which deposits the collected funds from debentures into the hand of a board of management in order to construct and manage the garden city	Co-partnership between tenants and developers. The estate is managed by an elected committee of shareholders

¹⁷⁹ Culpin, *THE GARDEN CITY MOVEMENT UP-TO-DATE* (above, n. 24), p. 2; this definition is also quoted by Stern and Fishman in their book *Paradise Planned* after Ebenezer Howard himself when he, in 1910, wrote to the editor of the *builder* magazine

in an attempt to clarify the difference between the three terminologies: Garden City, Garden Suburb, and Garden Villages.

¹⁸⁰ *Ibid.*

Table 6-1: Comparison between the garden city and the garden suburb.

Source: Created by the author.

Aspects		Garden City	Garden Suburb
Urban Context	Location	Far from central city to ensure their independency	On the periphery of a big city to facilitate commuting
	Growth	Growth in clusters around a central city	Growth in clusters on the periphery of a big city.
	Accessibility	Direct connection to central city& surrounding garden cities	Direct connection to the big city
Urban Design Concept	Concept	A central town surrounded with an agricultural estate. A railway should be connected to its factories to facilitate the transport of the goods beside connecting the city to the surrounding garden cities and central city.	A commuter suburb with low density garden surrounded homes with enough ample gardens, along with recreational facilities and public facilities.
	Land uses	A self-contained town with Industrial, agricultural, residential, commercial, recreational, religious, cultural, etc...	A holistic community with mainly residential, recreational, commercial and religious activities
	Expansion	Limited with a Green Belt for agricultural purposes	Limited with a Green Belt for access to nature
Street Typology	Network	spider web like street network. The center is distinguished with radiating axial boulevard intersected with circular avenues. The remaining streets would be gently curved streets to enhance the “street pictures” following the site topography	spider web like street network with gently curved streets to enhance the “street pictures” following the site topography
	Design	Street hierarchy to reduce through-traffic in the residential areas. The street was designed with defined spaces for different movement activities: footways, vehicular road, horse carriages, and tramways.	Street hierarchy to reduce through-traffic in the residential areas. The street was designed with defined spaces for different movement activities mainly footways and vehicular road.
	Shading	Tree-aligned streets to provide shade over the footways	Tree-aligned streets to provide shade over the footways
Resid. Block Typology	Block typ.	Residential wards with garden surrounded homes grouped around allotment gardens.	Garden surrounded homes grouped around allotment gardens
	Density	Low	Low (avg. 12 houses per acre)
Social Infrastructure	Activities	A large variety of recreational, religious, and educational	Limited social infrastructure mainly recreational fields
	Location	According to Howard, along the Grand Avenue. In Letchworth recreational fields were on the periphery.	Depending on the design and topography. Recreational fields were mainly on the periphery and religious central
Social target Group	Size	Limited preferably 30,000	Limited
	Target Group	Mixed diverse social classes	Stratified or mixed diverse, social classes,

6.2 The Misconception between a Garden City and a Garden Suburb

With the development of the garden city and garden suburb movements in Britain around the same period, a misconception occurred between both. The garden city movement was very influential as it raised housing quality. Such influence made the design of garden-surrounded homes with an ample garden recognized as following garden city lines. Such influence, according to C. B. Purdom, supported “the claim that a housing estate or a building development was laid out on garden city lines was considered sufficient to justify its description as a garden city,”¹⁸¹

This misconception might have also increased especially as R. Unwin was promoting the garden suburbs movement using an illustration stating the garden city principles applied to suburbs (Figure 4-2). This misconception increased with the worldwide promotion for the garden city movement and the translation of Howard’s book. Peter Batchelor highlights that:

“Garden Cities of Tomorrow developed into something of a best seller and was translated into French, Russian, Czech, and Italian. Before long, city planning circles were overwhelmed with talk of the Garden City, and yet it is a curious paradox that in the hands of both

disciples and imitators Howard's principles were to become distorted. In the popular view Garden City became equated with a garden suburb a low density grouping of dwellings functionally dependent on its central city. One of the earliest foreign interpretations of Howard's concept - La Cité Jardin by Georges Benoit-Levy-got off to a poor start by con-fusing Howard's principles with those of a garden suburb. Needless to say, the French never did seem to recover from the misconception of the Garden City.”¹⁸²

Peter Hall adds to P. Batchelor that such conflict between both movements is not only in France, but it is a “*problem that would prove endemic.*”¹⁸³ Most models adopted around the world, according to S. V. Ward, were garden suburbs and factory garden villages. However, they were freely labeled garden city, cité jardin, gartenstadt, or den-en toshi.¹⁸⁴

The work of Unwin in Hampstead Garden Suburb might have also contributed to such conflict. Due to the larger scale of Hampstead and since it was developed simultaneously with Letchworth garden city after Unwin left the latter, some researchers confused it to be a garden city. The French urban dictionary, *Dictionnaire de l'urbanisme et de l'aménagement*, for example, describes Letchworth and Welwyn Garden

¹⁸¹ Purdom, *The building of satellite towns* (above, n. 126), p. 23.

¹⁸² Peter Batchelor, ‘The Origin of the Garden City Concept of Urban Form’, *Journal of the Society of Architectural Historians* 28, no. 3 (October 1969): pp. 184–200, p. 199, <http://www.jstor.org/stable/988557>.

¹⁸³ Hall and Ward, *Sociable cities* (above, n. 53), p. 88.

¹⁸⁴ Stephen V. Ward, ‘The Garden City Introduced’, edited by Stephen V. Ward, in *The Garden city. Past, present and future / edited by Stephen V. Ward*. Studies in history, planning and the environment (London: Spon, 1992), pp. 1–27, pp. 8–9.

Cities as similar to Hampstead Garden Suburb.¹⁸⁵ The Japanese planner S. Osawa, one of the leading planners of the garden city movement in Japan, also described Hampstead in one of his papers as an example of *tei-en toshi* (garden city).¹⁸⁶ Therefore, several overseas models were labeled as garden cities, even though they were not.

6.3 The Transfer Process

The garden city and garden suburb movements then started to spread in Britain and around the world. Howard's book "Garden Cities of To-morrow" was translated to several languages, including French, Russian, Czech, and Italian. Several garden city associations, similar to the association in Britain, were established and became active in several countries around the world.¹⁸⁷ In 1913, the International Garden Cities and Town Planning Association was formed to strengthen the international movement for the extension of the principles laid by Ebenezer Howard; its committee consisted of representatives of affiliated societies from 18 countries.¹⁸⁸ Consequently, garden city and garden suburb models started to appear in France, Germany, Belgium, Russia, Japan, Brazil, and elsewhere.¹⁸⁹ Both movements also appeared in several countries that were occupied by Britain, such as India, Egypt, Palestine, Zambia, and South Africa.

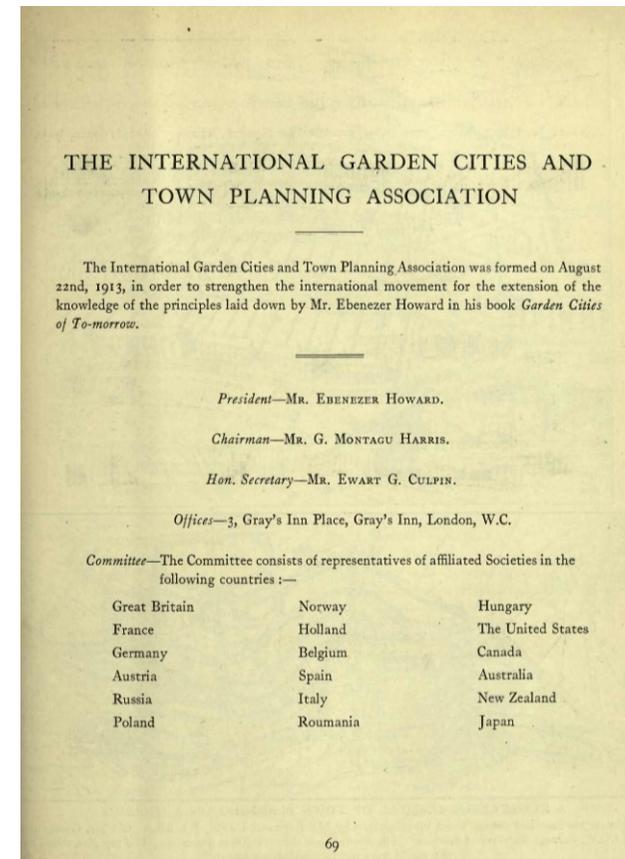


Figure 6-1: The International Garden City and Town Planning Association.
Source: (Culpin 1913)

¹⁸⁵ Merlin and Choay, *Dictionnaire de l'urbanisme et de l'aménagement* (above, n. 102), pp. 164–165.

¹⁸⁶ Shun-ichi Watanabe, 'The Japanese Garden City', edited by Stephen V. Ward, in *The Garden city. Past, present and future / edited by Stephen V. Ward*. Studies in history, planning and the environment (London: Spon, 1992), pp. 69–87, p. 74.

¹⁸⁷ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 203.

¹⁸⁸ Culpin, *THE GARDEN CITY MOVEMENT UP-TO-DATE* (above, n. 24), p. 69.

¹⁸⁹ Ward, 'The Garden City Introduced' (above, n. 180), pp. 8–9.

To analyse the transfer process of both models from Britain to the world, this study adopts a theory of transporting planning of imported and exported urbanism, presented by Joe Nasr and Mercedes Volait in the book they edited together titled “Urbanism Imported or Exported?” The book examines how particular techniques and concepts of urban intervention developed in some western countries, such as the garden city, were introduced into other western and non-western countries through the process of importation or exportation.¹⁹⁰

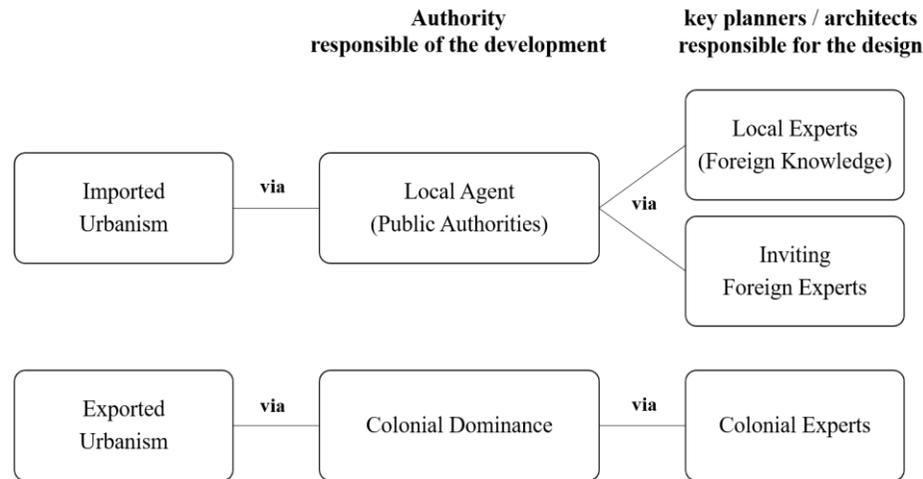


Figure 6-2: Imported and exported urbanism diagram.

Source: Created by the author based on J. Nasr and M. Volait theory of transporting planning (Nasr and Volait 2003).

This approach focuses on the authority in power responsible for the development, as well as the key planner(s) or designer(s) and architects responsible for the planning. Imported urbanism depends on the appropriation of certain urban concepts and techniques by local agents, in contrast to their exportation by foreign agents mainly via colonial dominance.

6.3.1 Imported Garden City and Garden Suburb Movements

The imported urbanism approach depends on the transfer of urban concepts and technics established by local agents or local public authorities via local or foreign expertise. In this case, local experts learn these concepts and technics mainly abroad and then return to implement them in their home countries. This was the case in most European countries in which Ebenezer Howard’s book was translated, such as France and Germany. Importation via foreign expertise depends on the local agent, generally the public authority, inviting or approaching foreign experts to transfer their knowledge and experience. Following are examples of incidents where the garden city and garden suburb movements were imported by local experts in France, in contrast to those imported by foreign experts in Brazil.

¹⁹⁰ Nasr and Volait, ‘Introduction: Transporting Planning’ (above, n. 29).

Imported via Local Expertise

In 1903, the Association Française de Cité Jardin (Garden City Association) was established in France, headed by Georges Benoit-Levy, a reformer who wrote in 1904 his famous book “Le Cité Jardin” (The Garden City). Along with the association’s members, he is, thus, considered the importer of the garden city movement in France.¹⁹¹ He was attracted to the British garden city idea after visiting Letchworth.¹⁹² The British planning historian, Peter Hall, confirms that Benoit-Levy’s interpretation of Howard’s ideas confused the garden city with the garden suburb.¹⁹³ The construction of garden cities in France did not begin, however, before twelve years from publishing Benoit-Levy’s book; it was led by the French architect Henri Sellier.

“in 1916, an important experiment in garden city construction began around Paris, in the Office Public des Habitations à Bon Marché du Département de la Seine; between 1916 and 1939, its director, Henri Sellier, planned and built 16 cités jardin around Paris. Sellier knew exactly what he was doing, for he took his architects to visit Unwin in 1911 and used Unwin’s text as a bible. But everywhere, the result was Hampstead rather than Letchworth: pure garden suburbs, just beyond the city limits, connected to commuter train lines.”¹⁹⁴

¹⁹¹ Gaudin. Jean Pierre, ‘The French Garden City’, edited by Stephen V. Ward, in *The Garden city. Past, present and future / edited by Stephen V. Ward*. Studies in history, planning and the environment (London: Spon, 1992), pp. 52–68.

¹⁹² Culpin, *THE GARDEN CITY MOVEMENT UP-TO-DATE* (above, n. 24), p. 65.

In this case, the garden city movement was imported by the local authority of the established French Garden City Association via local French experts who travelled to Britain.

Imported via Foreign Expertise

The case of Jardim America in Brazil is a good example of transfer through importation via foreign expertise. In the 1910s, the garden city and garden suburb movements started to head toward Brazil. In 1912, The City of Sao Paulo Improvements and the Freehold Land Company Limited invited Raymond Unwin and Barry Parker to design Jardim America, a garden suburb in Sao Paulo. In this case the local authority invited foreign designers to benefit from their expertise in town planning.

The local authority has partnered as well with a foreign enterprise. The Freehold Land Company Limited which was led by French architect Joseph Bouvard (1840-1920) and French banker Edouard Fontaine de Laveleye, who invested several times in tram lines and banks.¹⁹⁵ In this case, the garden suburb movement was imported via foreign expertise, since the local authority in power invited foreign expertise to transfer their knowledge for the design of the new garden suburb.

¹⁹³ Hall and Ward, *Sociable cities* (above, n. 53), p. 88.

¹⁹⁴ Ibid.

¹⁹⁵ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 635.

6.3.2 Exported Garden City and Garden Suburb Movements

Nasr’s and Volait’s exported urbanism approach, depends on the transfer of the urban concept and technics via colonial dominance. The urban development in such case is controlled by the colonial power and transferred via colonial designers or engineers. The garden city and garden suburb movements were widespread in British colonies, such as in New Dehli in India, and Lusaka in Zambia. Following is an example of the exportation of the garden city movement via colonial dominance in Zambia.

Exported via Colonial Dominance

Northern Rhodesia, currently Zambia, was under the British protectorate when “in 1930, British town planner and Garden City advocate Stanley Devenport Adshead was commissioned to select a site and prepare the plan for Lusaka, the new capital city of the British colonial government.”¹⁹⁶ Adshead was invited by colonial planner Charles Reade, the director of planning and development in Northern Rhodesia. Reade, in London, was the assistant Secretary to the Garden City and Town as well as a founder associate of the Town Planning Institute. He was latter responsible of the design of new towns in Australia, Malaya, and Northern Rhodesia.¹⁹⁷ In this case, the garden city movement was exported via colonial dominance, as it was under the colonial government control and was designed by a British planner.

¹⁹⁶ Ibid., p. 665.

Table 6-2: Summary of the Transfer Process. Source Created by the Author.

Model Imported / Exported Urbanism	Authority responsible of the development	Key planners / architects responsible for the design
<i>Imported via Local Experts</i> <i>France</i>	Association Française de Cité Jardin headed by Georges Benoit-Levy	Henri Sellier, director of the association planned and built 16 cités jardin. Henri Sellier took his architects to visit Unwin in 1911 & used Unwin’s text as a bible.
<i>Imported via Foreign Experts</i> <i>Brazil</i>	The City of Sao Paulo Improvements & the Freehold Land Company Limited	They invited Raymond Unwin and Barry Parker to design Jardin America, a garden Suburb in Sao Paulo.
<i>Exported via Colonial Dominance</i> <i>Zambia (Northern Rhodesia)</i>	Under the British protectorate	British town planner and Garden City advocate Stanley Devenport Adshead was commissioned to select a site and prepare the plan for Lusaka, the new capital city of the British colonial government

¹⁹⁷ Home, ‘Town planning and garden cities in the British colonial empire 1910–1940’ (above, n. 23)

6.4 Summary of the Mushrooming and Transfer Process

In the beginning of the 20th century, the garden city movement started to gain worldwide reputation. By 1913, garden city associations like the British association were formed in 18 countries, such as France, Germany, Belgium, Russia, Japan, and Brazil. The garden city and garden suburb models, thus, started to mushroom around the world. The mushrooming of both movements together, especially that the garden suburb was laid out on garden cities principles, created a major conflict between them. This conflict, fostered with the international success of the garden city movement, made several housing estates or urban land developments claim to be laid out on garden city lines and thus be described as garden cities. They were transferred in some countries through an importation process being abided by the local authorities or transferred by foreign agents in an exportation process.

PART TWO: GARDEN SUBURBS AROUND CAIRO

CHAPTER 7: THE TRANSFER TO EGYPT

By the end of the 19th century and the beginning of the 20th century, urban development shifted from public authorities to private companies.¹⁹⁸ This chapter first, investigates the rise of land development companies, during this period, responsible for the establishment of the suburban development around Cairo, which this thesis hypothesis that they are alike the garden suburb. It then analyses their transfer process to investigate whether they exported via colonial dominance or not.

7.1 The Rise of Land Development Companies during the 20th Century

The main factors that influenced the rise of land development companies responsible for the 20th century suburban development around Cairo are (1) sale of the land to private landlords, managed by the Dā'irah Sinā'iyah and Domains Administration, along with the establishment of mortgage banks; (2) the flow of European capital into the Egyptian market during the British occupation through privatization of several public domains, especially transport and tourism, as well as many other fields¹⁹⁹; and (3) the urban population growth and social changes resulting from the flow of Europeans.

¹⁹⁸ Jean-Luc Arnaud, *Le Caire: Mise en place d'une ville moderne, 1867-1907 des intérêts du prince aux sociétés privées*, La bibliothèque arabe (Arles: Sindbad; Actes Sud, 1998).

¹⁹⁹ Saul, 'European Capital and its Impact on Land Distribution in Egypt: A Quantitative Analysis (1900-1914)' (above, n. 195), pp. 120–143; Vitalis, *When capitalists collide* (above, n. 195), pp. 29–62; Gudrun Krämer, *The Jews in modern Egypt, 1914-1952* (London: I.B. Tauris, 1989), pp. 36–44.

7.1.1 Due to the sale of the land managed by the Dā'irah Sinā'iyah and Domains Administration

In the 19th century, Egypt was partially an autonomous province of the Ottoman Empire, with ultimate control in the hands of the Ottoman Sultan in Constantinople. This started in 1805, when Mohamed Ali Pasha (ruler of Egypt from 1805 to 1849), aligned with local merchants and Islamic sheikhs, somehow forced Sultan Selim III to name him *wali* or Viceroy of Egypt.²⁰⁰ He ensured keeping the independent governing of Egypt to himself and his family members after him. He is considered the founder of Modern Egypt. He established several reform systems in administration and industrialization. Mohamed Ali started a system of state monopolies as well to control land ownership, restricting private land ownership.²⁰¹

His grandson Khedive Ismail (ruling from 1863 to 1879) pursued his grandfather's dream to modernize Egypt to become like European countries. To do so, he borrowed a lot of money from European countries, mainly to open the new Suez Canal and establish the Khedivial Cairo. The shift from the Islamic traditional lifestyle is best represented by the transfer of political power from the Islamic Citadel to Abdeen Palace, the

²⁰⁰ Encyclopedia of World Biography, 'Muhammad Ali Pasha Biography', <http://www.notablebiographies.com/supp/Supplement-Mi-So/Pasha-Muhammad-Ali.html>, accessed 22 January 2018.

²⁰¹ ABU-LUGHOD, *Cairo* (above, n. 2), p. 152; Mohammad A. Chaichian, 'The Effects of World Capitalist Economy on Urbanization in Egypt, 1800-1970', *International Journal of Middle East Studies* 20, no. 1 (February 1988): pp. 23–43, p. 28, <http://www.jstor.org/stable/163584>.

design of which is entirely European.²⁰² Within less than a decade, new gardens were laid out and quarters were created, such as Azbakiya, Ismailiya, Bab El-Luq, and Nasseriya, as shown in Figure 7-1. For these purposes, K.I. assigned Cairo's urban planning to experts from different European countries under the supervision of local authorities, thus importing "European style" urbanism models.²⁰³ In the process of achieving his dream of modernizing Egypt, Khedive Ismail overloaded the state treasury with lots of debts to European countries, which lead the government to declare bankruptcy. In 1879, he received a letter from the Ottoman Sultan addressing him as ex-Khedive of Egypt and informing him that his son Tewfik has become his successor in ruling Egypt.²⁰⁴

Foreign loans given to Egypt were guaranteed by two administrations, the Dā'irah Sinā'īyah, the authority that managed K.I.'s personal estates, and Domains Administration. K.I. had as well mortgaged about ten percent of the arable land as a guarantee of the payment of the interest on the coupons and redemption of the loan. In 1878, the government of the lender countries set a commission that ordered the transfer of all the estates owned by K.I. and his family to the Egyptian state and their placement under a joint British, French, and Egyptian management commission.²⁰⁵ The Dā'irah Sinā'īyah and

Domains Administrations were not capable of generating revenues to pay the loans and their interests. In order to settle the loan, the Egyptian government started to sell the land managed by the Dā'irah Sinā'īyah.

*"By 1897, about 40 percent of this land has been sold to private owners. In 1898, the council decided to sell the remaining 300,000 faddan (1 faddan = 1,038 acres) to a private Company. The Daira Snaiyeh Company limited, headquartered in London, with Cassel, Soares, and E. Cattaoui as principal shareholders, was able to secure an option on the sale for some £6 million, although their value then estimated at £10 million. The da'ira estates were then divided up and sold to individual landowners, both Egyptian and foreigners."*²⁰⁶

The new Dā'irah Sinā'īyah Company was founded by Sir Ernest Cassel, a British industrial, Raphael Soares, a local Jew of Spanish origins, and E. Cattaoui, a local Jew. The company later sold its assets to the Credit Foncier Egyptien, the leading mortgage bank in the country at that time, founded in 1880 by Raphael Soares and some French bankers. The bank worked as an intermediary to sell the land to private landlords. Sale of the land managed by the Domains Administration was done piece by piece by the joint commission until the loan was completely redeemed in 1913.²⁰⁷

²⁰² Stewart, 'Changing Cairo: The political economy of urban form' (above, n. 1).

²⁰³ Volait, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism' (above, n. 4).

²⁰⁴ Rosten, *The Last Cheetah of Egypt* (above, n. 3).

²⁰⁵ Saul, 'European Capital and its Impact on Land Distribution in Egypt: A Quantitative Analysis (1900-1914)' (above, n. 195), pp. 126-127.

²⁰⁶ Krämer, *The Jews in modern Egypt, 1914-1952* (above, n. 199), p. 40.

²⁰⁷ Saul, 'European Capital and its Impact on Land Distribution in Egypt: A Quantitative Analysis (1900-1914)' (above, n. 195), p. 127.

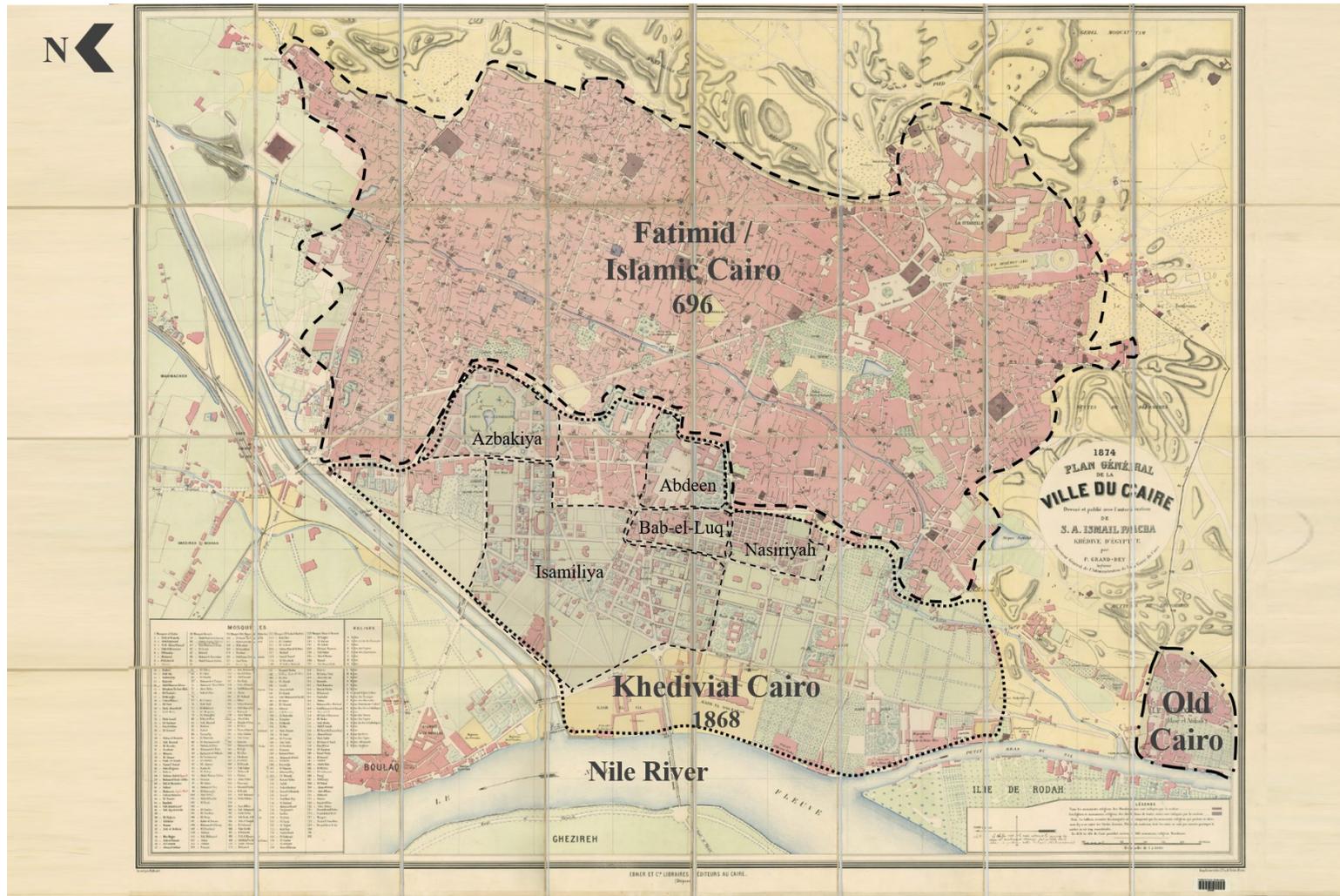


Figure 7-1: the quarters of Ismailiya, Bab-el-Luq, and Nasiriyah on a partial map of Cairo in 1874.

It shows the newly established quarters next to Abdeen Palace, and the other palaces of the Khedivial families overlooking the Nile River which later became Garden-City area. Bab-el-Luq quarter was not yet established as it was built later over the buildings shown in the map.

Source: Adapted from an 1874 map of Cairo: “1874 – Plan Général de la Ville du Caire; by P. Grand-Bey,” from the Library of Collège de France.

Restriction over private land ownership, forced by Mohamed Ali Pasha, was then removed, authorizing foreigners to acquire land.²⁰⁸ Sale of the land was backed with the mortgage banks, which provided the necessary money to inaugurate land development companies. These projects became a source of rapid wealthy income, especially that selling and buying happened simultaneously, and therefore, European capital started to increase in Egypt in firms associated with land development and mortgage banks.²⁰⁹ Land development companies were divided into two categories: rural land development companies, which acquired uncultivated potentially arable soil, and urban land development companies, which acquired land and parceled it into buildable plots for resale or constructing buildings and acting as landlords by renting them, or a mix of both. Most of these urban land development companies' projects were on the periphery of existing big cities as a suburban development extension.

*“The inflow of French, British, and Belgian capital in Egypt accelerated noticeably at the end of the nineteenth century and nearly in the twentieth. Numerous mortgage banks and land companies were created in Egypt, lending considerable sums to borrowers and purchasing large areas of land for improvement and future rental or resale.”*²¹⁰

²⁰⁸ Chaichian, ‘The Effects of World Capitalist Economy on Urbanization in Egypt, 1800-1970’ (above, n. 201), p. 28.

²⁰⁹ Saul, ‘European Capital and its Impact on Land Distribution in Egypt: A Quantitative Analysis (1900-1914)’ (above, n. 195).

²¹⁰ Ibid., p. 121.

7.1.2 Due to the flow of European capital and the privatization of public domains

Later, the British occupation in Egypt in 1882, prompted by Ahmed Orabi revolution, also ensured an extended flow of European capital into the Egyptian market through the privatization of several public domains, especially in the transport, power, and tourism sectors, which affected the urbanization of Egypt and the establishment of suburban developments. The British occupation indorsed the flow of European capital into the Egyptian market through the privatization of several public domains. Lord Cromer,²¹¹ the agent and consul-general in Egypt from 1883-1907, transferred assets and authority in many public domains to private hands. *“The business group - individuals and families organized as coherent coalitions of investors - emerged as an important form of autonomous capitalist organization during the period 1880–1900.”*²¹²

These business groups included local Jewish families, Soares, Cattaoui, Menasce, Mosseris, and Rolo, closely linked by marriage and investment. These Jewish families established several mortgage banks houses.²¹³ The identities of these local investors were undoubtedly complex as most of them came to Egypt in different periods of time from

²¹¹ Evelyn Baring, 1st Earl of Cromer was a diplomat and colonial administrator. He came to Egypt as the British controller-general in Egypt during 1879 as part of the international commission to oversee the Egyptian finance.

²¹² Vitalis, *When capitalists collide* (above, n. 195), pp. 39–41.

²¹³ Krämer, *The Jews in modern Egypt, 1914-1952* (above, n. 199), 66-41.

different European countries. The Mosseris family, for example, were legally foreigners rather than Egyptian; although they were born and raised in Egypt, they possessed Italian passports.²¹⁴

The Suares family was composed of three brothers, Joseph (1837-1900), Felix (1844-1906), and Raphael (1846-1902), the sons of Issac Suares who originally came to Egypt from Spain along with his brother Menahem Suares della Pegna. These Jewish families established several banks that served as mediators for European capital seeking local investments.²¹⁵

*“Raphael Suares directed French capital into the credit Foncier Egyptien, which was founded in 1880 and, as the main source of credit for large landowners, developed into one of the largest institutions of its kind. Through his association with the British industrial magnate Sir Ernest Cassel, Suares collaborated in channeling British Capital into three major enterprises: the construction of the first Aswan Dam, which was completed in 1902; the foundation, in 1898, of the National Bank of Egypt, of whose share 100,000 shares issued in 1898 Cassel acquired 50,000 and Suares 25,000, and, finally, the sale of the khedivial etsates (al-da’ira al-saniyya).”*²¹⁶

²¹⁴ Vitalis, *When capitalists collide* (above, n. 195).

²¹⁵ Krämer, *The Jews in modern Egypt, 1914-1952* (above, n. 199), pp. 39–40.

²¹⁶ *Ibid.*, p. 40.

²¹⁷ Alexia Orfanou, ‘The Upper Bourgeoisie Education of the Greek Diaspora in Egypt in the Late 19th Century Through Penelope Delta’s (1874-1941) Literature’, *AJIS* 4, No

Another business group included leading members of Alexandria’s large Greek community, the Salvagos, Sinadino, Zervoudakis, Rallis, Choermis, and Benakis families, who mainly invested in the cotton market and some of which were in the board of directors of the National Bank of Egypt, the largest stock exchange agency in Egypt.²¹⁷ Another business group was a Belgian holding company known as the Empain Group, directed by Baron Edward Empain (1825-1929), which operated light railways and a power station in Egypt.²¹⁸

In the late 1890s, investors were competing to obtain the rights to run light railway lines in the Delta and Cairo. The Suares Group joined a British financial syndicate forming London-based Egyptian Delta Light Railways Ltd. They were running several lines in most of the Delta as well as the Cairo-Helwan line. Their Belgian competitor, the Empain Group, who lost the Cairo-Helwan line contract to Suares Group, managed to operate a few light railway lines in the Eastern Delta and east of Alexandria.²¹⁹

The light railway industry affected the urbanization of Cairo, facilitating the establishment of suburban developments on the periphery of large cities, especially around Cairo, serving the commuting residents.

1 S1 (2015): pp. 13–26, doi:10.5901/mjss.2015.v4n1s1p13; Angelos Dalachanēs, *The Greek exodus from Egypt: Diaspora politics and emigration, 1937-1962* / Angelos Dalachanis, 1st (New York: Berghahn Books, 2017).

²¹⁸ Vitalis, *When capitalists collide* (above, n. 195), p. 35.

²¹⁹ *Ibid.*, pp. 35–37.

In 1904, the Soares Group and their British partners established the Egyptian Delta Land and Investment Company, which developed the Ma'ādī garden suburb on the Cairo-Helwan line.²²⁰ Their competitor, the Empain Group, managed to obtain 6000 feddans (25 sq.km., 6177 acres) in the desert northeast of Cairo, and in 1905, they established a group holding company, the Cairo Electric Railways and Heliopolis Oasis Company. The company then started the new suburban development, which they named Heliopolis, and built a new tramline to connect it to Cairo. The Soares Group and the Belgian Group administrations tried hard not to break their monopoly on Cairo's transportation, power, and urban land development markets, leaving small room for local capital.²²¹

The development of the railway industry has as well played a great role in the development of the tourism industry, especially that tourists were able to visit the pyramids by tram starting 1905. Egypt become in the beginning of the 20th century a major touristic destination, especially for Europeans who arrived by sea to Alexandria. From Alexandria, they travelled by train to Cairo, and then from Cairo railway station they could use the tramway to go to downtown Cairo or the newly established suburban development of Heliopolis.

The railway industry thus fostered the flow of more European capital into the tourism industry, which also impacted the developments

on the suburbs. The Baron Empain established the Heliopolis Palace Hotel as an icon of Heliopolis, which he endorsed with several recreational activities, such as the golf course and the Luna Park, to attract tourists.²²² The hotel acted as a catalyst for the development of Heliopolis.

Other European capital was invested in the tourism industry. Examples include the works of the Swiss Czar Charles Baehler and the Greek George Nungovich, who took over few existing hotels and built several more, creating an empire, including the Egyptian Hotels Company and its sister firm the Upper Egyptian Hotels Co. Ltd.²²³ The two companies owned or operated most of the country's hospitality palaces, such as the Gezira Palace Hotel.

The Gezira Palace Hotel acted as a catalyst for the suburban development of Zamālik. The Egyptian Hotels Company merged with the Société du Domaine de Gezireh (Gezira Land Company), owned by the Greek Paul "Pavlos" Draneht Pasha and Commander Ernesto Emanuele Oblieght, who bought the palace and its annexes from the Khedive Ismail in 1889. The company transformed the palace into a hotel and parceled a big part of its gardens, forming the Gezira Garden residential district around 1903 (currently known as Zamālik).²²⁴

²²⁰ Raafat, *Maadi 1904-1962* (above, n. 5), pp. 11–45.

²²¹ Vitalis, *When capitalists collide* (above, n. 195), p. 36.

²²² van Loo, 'La Nouvelle Héliopolis: Invention d'une ville-jardin dans le désert' (above, n. 9), pp. 117–119.

²²³ Andrew Humphreys, *Grand hotels of Egypt: In the golden age of travel*, Paperback edition (Cairo: The American University in Cairo Press, 2011).

²²⁴ Raafat, 'THE GEZIRA PALACE' (above, n. 21).

*“The Egyptian economy became increasingly integrated with and subordinated to the expanding transnational European capitalist system. To Egyptians, the economic integration with Europe meant that in addition to the export-oriented economy and foreign capital flow in the country, there was an influx of foreign people and, goods, ideas, and technologies.”*²²⁵

7.1.3 Due to the urban population growth and social changes

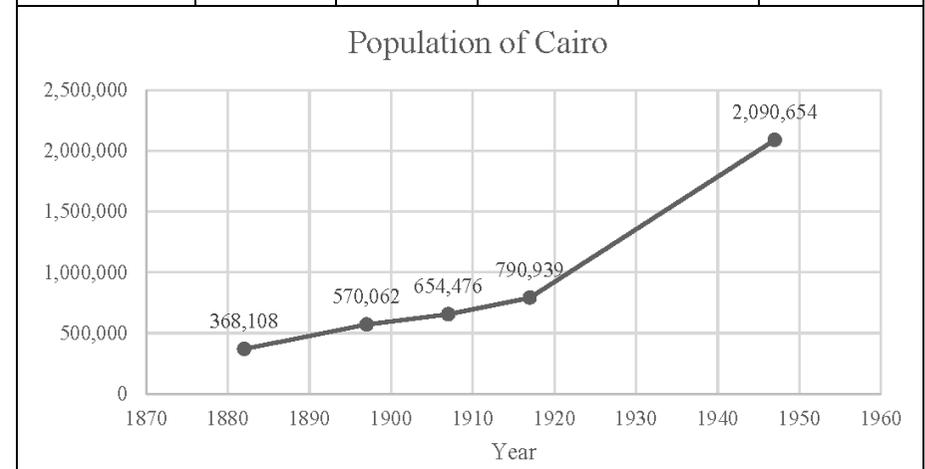
The British occupation and the flow of European capital accompanied by the economic changes boosted a social change in the Egyptian community. The flow of European capital along with the establishment of banks, the growth of urban land development companies, and the development of the railway, tourism, and cotton industries, caused the emergence of the European urban and industrial bourgeoisie.²²⁶ The small minority of Egyptian landlords formed the Egyptian agrarian bourgeoisie.²²⁷ More white collars from locals and foreigners were working in the governmental institutions and foreign enterprises. All of these social changes affected the growth of the urban population, requesting new housing.²²⁸ The population of Cairo increased from 368,108 in 1882 to 570,062 in 1897.²²⁹ In 1896, the surface area of

Cairo was only 1773.8 hectares (17.7 sq.km).²³⁰ Thus, there was a need for urban expansion of Cairo. This is also another major factor for the rise of the urban land development companies and the establishment of these suburban developments.

Table 7-1: Cairo’s population growth in the 19th and 20th centuries.

Source: Created by the author, adapted from (Arnaud 1998) and (Besançon 1958).

Year	1882	1897	1907	1917	1947
Population #	368,108	570,062	654,476	790,939	2,090,654
Increase %	-	54.8%	14.8%	20.8%	164%



²²⁵ Adham, ‘Cairo’s urban Deja Vu: Globalization and Urban Fantasies.’ (above, n. 32), p. 140.

²²⁶ Vitalis, *When capitalists collide* (above, n. 195), pp. 29–62; Chaichian, ‘The Effects of World Capitalist Economy on Urbanization in Egypt, 1800-1970’ (above, n. 201); Marius Deeb, ‘Bank Misr and the Emergence of the Local Bourgeoisie in Egypt’, *Middle Eastern Studies, Special Issue on the Middle Eastern Economy* 12, no. 3 (October 1976): pp. 69–86, <http://www.jstor.org/stable/4282607>.

²²⁷ Adham, ‘Cairo’s urban Deja Vu: Globalization and Urban Fantasies.’ (above, n. 32), p. 134.

²²⁸ Saul, ‘European Capital and its Impact on Land Distribution in Egypt: A Quantitative Analysis (1900-1914)’ (above, n. 195), p. 135, ABU-LUGHOD, *Cairo* (above, n. 2), pp. 118–131.

²²⁹ Arnaud, *Le Caire* (above, n. 198), pp. 18–30.

²³⁰ *Ibid.*, p. 20.

DAB ADRESSES MONDAINES DAO

D

DABBAH, MAURICE, expert-comptable, administrateur de Sociétés, & Mme, 118, avenue Fouad Ier, Zamalek, ☑ 43853, Caire.

DABBOUS, RAPHAEL, courtier en coton, & Mme, rue Salvago, imm. Zogheb, ☑ 29973, Alexandrie. Club: A.S.C. ☑

DABELL, HAROLD, chef inspecteur au Dépt. Mines et Carrières, 8, rue Ahmed Heshmat Pacha, Gezira, ☑ 58594, Caire. Club: G.S.C.

DADONE, Capt. UGO, Com. Cour. d'Italie, publiciste, ☑ 29, rue Madrasset-el-Sayed. Mariam, Zamalek, ☑ 58535, Caire. Clubs: C.R., R.A.C.E. ☑

DAEHL, SVETKE, juge au Tribunal Mixte, 32, rue Lavison, Bulkeley, ☑ R. 2287, Alexandrie.

DAFTSIU, SOFOCLIS E., Off. O. Nil, industriel, & Mme, ☑ 14, rue Victoria, Hatté Victoria, ☑ R. 1658, Alexandrie. ☑

DAHL, NIELS A.S., juge au Tribunal mixte de 1ère inst., & Mme, 1, rue Prince Djemil Zinina, ☑ R. 522, Alexandrie. Club: A.S.C.

DAHROUFE, FOUAD, directeur de la maison Assaad Bassili Pacha, & Mme, 10, rue des Abbassides, ☑ 21119, Alexandrie. ☑

DALE, SHERLEY, T.C.T., expert-comptable, ☑ 52, rue No. 15, ☑ M. 124, Meadi, Caire. Clubs: T.C., G.S.C., M.S.C., E.T.A. ☑

DALE, TOM J., ingénieur, directeur de l'Egyptian Delta Land & Investment Co. Ltd., & Mme, ☑ 46, rue Colvin, ☑ M. 12, Meadi, Caire. Clubs: T.C., A.F.C., M.S.C. ☑

DALIL, Mme Vve. ABDELSALAM, rentière, 119, rue Sidky Pacha, Gianacis, ☑ R. 131, Alexandrie. ☑

DALL, SAYED, rentier, & Mme, ☑ 15, rue Comanos Pacha, Saroit Pacha, ☑ R. 1028, Alexandrie. Club: A.S.C., (Ecurie de Courses). ☑

DALL'ASTE, BONAVENTURA, juge au Tribunal Mixte, Mansourah.

D'AMBROSI, F.A.R., agent de la National Bank of Egypt, Benha.

DANA, EMILE, commerçant, & Mme, 16, rue Tigrane Pacha, Sporting, ☑ R. 1612, Alexandrie. Club: A.S.C. ☑

D'ANGELIS, F., consul de France, 5, rue el-Fadl, ☑ 54060, Caire. Club: C.F. ☑

DANIEL, ALBERT, exportateur de coton, & Mme, 77, avenue Prince Ibrahim, Sporting, ☑ 22445, Alexandrie. Clubs: M.A. (Alex.), A.S.C. ☑

DANIEL, E., attaché à la Shell Co. of Egypt Ltd., ☑ aParc Mignom, avenue de Koubbeh, Héliopolis, Caire. ☑



S.E. M. C. Ivan Danielsson

DANIELSSON, CARL IVAN, G. C. O. Nil, envoyé extraordinaire et ministre plénipotentiaire de Suède en Egypte, & Mme, ☑ 118, avenue Fouad Ier, Zamalek, ☑ 53515, Caire. ☑

DAOPOULO, DIMITRI, commerçant, 17, rue Stamboul, ☑ 23631, Alexandrie. ☑

DAOPOULO, NICOLAS G., commerçant, 4, rue Camp des Romains, Rushdy Pacha, ☑ R. 1340, Alexandrie. ☑

DAOUD FATHY Bey, inspecteur en chef du service agricole provincial au Ministère de l'Agriculture, & Mme, 35, rue Khosrou Pacha, Heluan, ☑ H. 134, Caire.

DAOUD, GEORGES, rentier, & Mme, 6, rue Khalil Agha, Garden-City, ☑ 55962, Caire. ☑

LA CARAVANE REVUE SATIRIQUE, POLITIQUE ET D'ACTUALITÉ
 Directeur-Propriétaire : A. SAROUKHAN
 19, RUE MAGHRABY — TÉL. 56820 — LE CAIRE

Figure 7-2: Sample of the Le Mondain Egyptian analysis of the addresses of the subscribers.

Source: adapted from “Le Mondain Egyptien, 1939,”

According to social historian Samir Raafat, Zamālik and Ma’ādī were initially targeting foreigners, especially the small British community.²³¹ Consequently, several researches claimed that these suburban developments were enclaves for the British and foreign community. However, beside the small British community, these suburban developments soon targeted European urban and industrial bourgeoisie, Egyptian agrarian bourgeoisie, white collars, and foreigner doctors, engineers, professors, and so on.²³²

The analysis of subscribers’ details of “Le Mondain Egyptien, 1939,” the annual publication of the Egyptian elite of Egypt, reveals that these suburbs, by that time, were not enclaves exclusive for British, foreigners, and Egyptian bourgeoisie. They were also home for Egyptians and foreigners, white collars working in governmental institutions or private companies, doctors, engineers, professors, military personnel, and so on. The work titles of the subscribers are furtherly analyzed later in each case study.

In this part, the study focuses on the analysis of the addresses of the subscribers in relation to their names, whether foreigner or local. It also highlights their ownership of a car, and whether they lived in a palace/villa or not, see Figure 7-2. Beside each subscriber details, two symbols were sometimes added. The first is a symbol of a house indicating whether this person lives in a villa or a palace, while the second

²³¹ Raafat, ‘Gezirah: Population 400’ (above, n. 30); Raafat, *Maadi 1904-1962* (above, n. 5), pp. 11–32.

²³² Adham, ‘Cairo’s urban Deja Vu: Globalization and Urban Fantasies.’ (above, n. 32), p. 142; DeVries, ‘Utopia in the Suburbs: Cosmopolitan Society, Class Privilege, and the Making of Ma’adi Garden City in Twentieth-century Cairo’ (above, n. 5).

symbol is that of a car indicating ownership of an automobile. This analysis, thus, provided an overview of the distribution of the subscribers from the Elite Egyptians as is illustrated in Figure 7-3

Although the periodical has only the names of the subscribers, such analysis gives an overview of the social target group residing in these suburban developments around Cairo's city center. The analyses defined 3,093 names living in Cairo and its surroundings. It disregarded 221 names whose exact address in Cairo was not specified. The term city center used in the analysis refers to the elite whose addresses showed that they were living in Khedivial Cairo or the few ones who were living in the historic Islamic Cairo. The study did not differentiate between them as its focus, mainly, was the residents of the suburbs.

The analysis reveals several distinguishable aspects. It shows that the suburban development started to attract several residents, and their move to the suburbs was probably motivated by the aspiration to live in a stand-alone villa. Table 7-2 shows their distribution around Cairo, distinguishing the elite with foreign names, along with the percentage of residents living in a villa or a palace and the percentage of car ownership.

Besides the newly established railway lines facilitating the accessibility to the suburbs, the analysis also shows the dependency on car ownership to move to the suburbs, as shown in Figure 7-4. However, it shows that the suburban developments on the adjacent periphery of Cairo, such as Zamālik and Garden City, still attracted more people than further ones, such as Ma'ādī and Heliopolis.

Table 7-2: The numbers of "Le Mondain Egyptien, 1939" subscribers living in Cairo. It is organized based on their addresses, foreign names, residence type, and car ownership. Source: Created by the author.

Historic Cairo & Suburbs	Elite Names	Foreign Names	Villa/ Palace	Cars	Elite Names %	Foreign Names %	Villa/ Palace %	Cars %
City Center	710	421	45	369	25%	59%	6%	52%
Zamālik	671	484	134	525	23%	72%	20%	78%
Giza/Dokki	327	80	122	206	11%	24%	37%	63%
Heliopolis	294	81	82	155	10%	28%	28%	53%
Garden City	274	112	41	198	10%	41%	15%	72%
Ma'ādī	125	79	76	99	4%	63%	61%	79%
Qubbah	123	19	46	66	4%	15%	37%	54%
Abbasiya	87	4	14	41	3%	5%	16%	47%
Zeitoun / Helmia/ Mataria	74	16	35	46	3%	22%	47%	62%
Roda	61	1	9	22	2%	2%	15%	36%
Shubra	46	3	4	12	2%	7%	9%	26%
Manchiet el Bakri	42	2	14	22	1%	5%	33%	52%
Helwan	38	6	13	19	1%	16%	34%	50%
Total No.	3093	1308	635	1780				
%		42%	21%	58%				

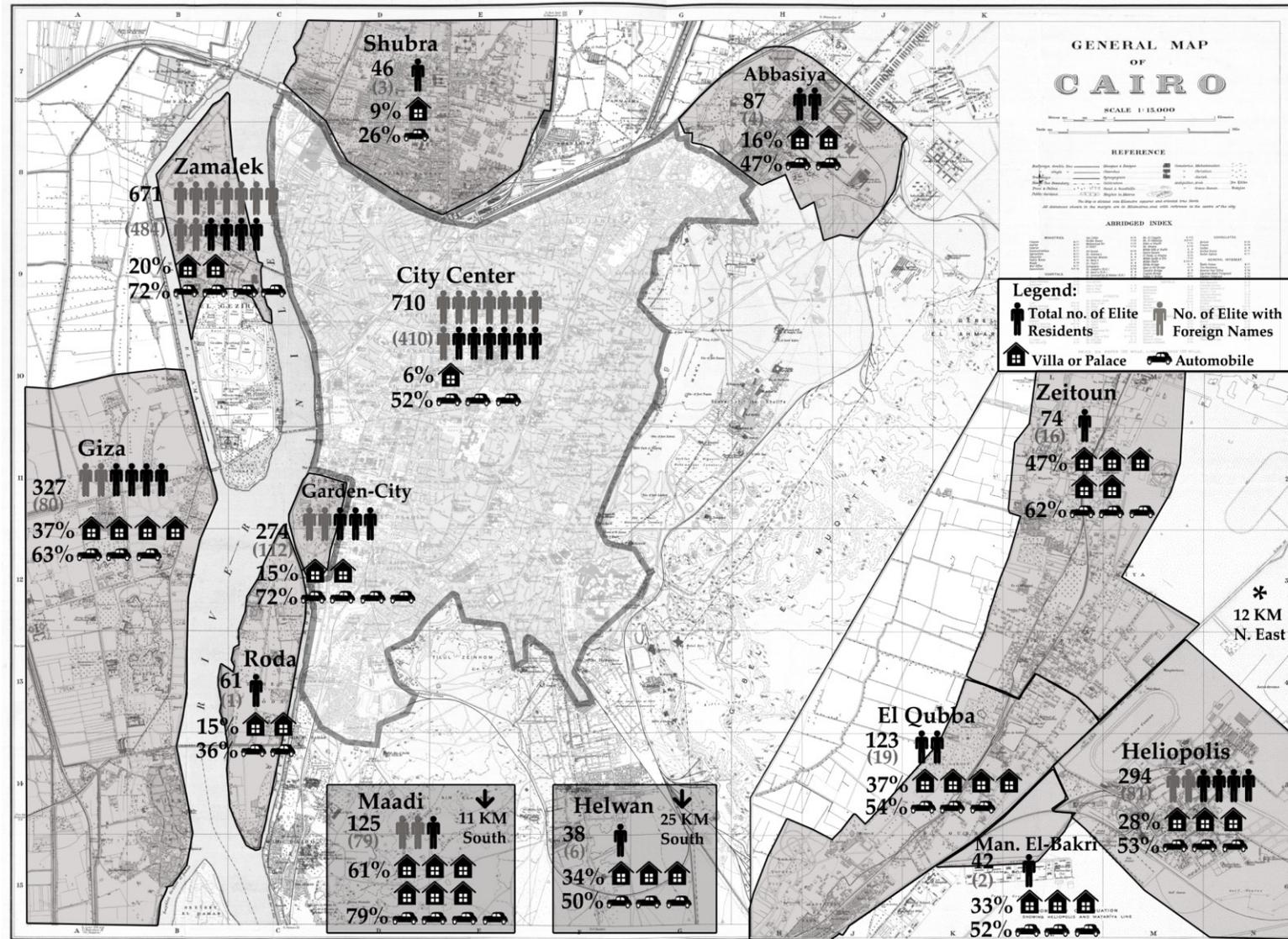


Figure 7-3: The distribution of the 1939 “Le Mondain Egyptien” subscribers around Cairo.
Source: Created by the author on a 1920 map of Cairo from (Library of Congress).

In addition, the analysis shows that Zamālik, Ma‘ādī, and the city center of Cairo were home to more foreigners than Heliopolis. It also shows that Ma‘ādī included the largest percentage of residents living in a villa or a palace. Further analysis of the occupation of the subscribers living in Zamālik, Ma‘ādī, and Heliopolis shows that the residents were not only Egyptian and foreign bourgeoisies, but there were also Egyptian and foreign employees, doctors, engineers, and professors.

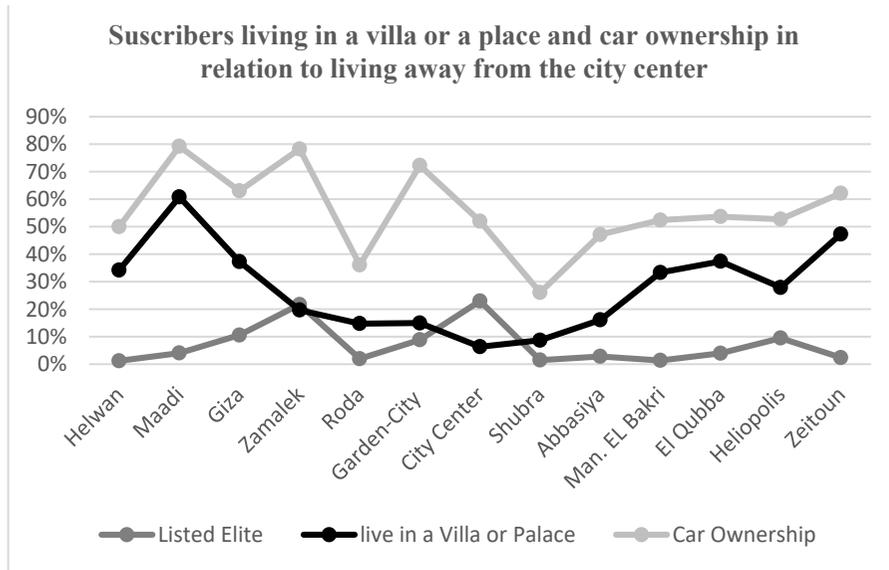


Figure 7-4: Chart showing the percentage of car ownership and those living in a villa or palace in relation to their address.

The city center is located in the center and the suburbs are organized on its sides in relation to their distance from the center. Source: Created by the author.

Table 7-3: The authority in power responsible for the development of the suburban land development in Cairo.

Source: Created by the author.

Garden Suburb	Date	Developer	Partners	Planner	Contributing Architects
Zamālik	Circa 1903	Gezira Land Company and Egyptian Hotels Company	Greek Paul "Pavlos" Draneht Pasha & Commander Ernesto Emanuele Oblieght & Swiss Charles Baehler	-	British architect Ernest Tatham Richmond doubtfully built several villas
Ma‘ādī	1904	Delta Land and Investment Co.	The Suares Family Group (Spanish origins) and British partners	Canadian civil engineer Alexander James Adams	The first buildings were designed by the British-educated Greek Ariston St. John Diamant
Heliopolis	1905	Heliopolis Oasis Company	Belgian industrialist Edouard Empain partnered with Boghos Nubar Pasha	British Belgian-educated Reginald Oakes	French architect Alexandre Marcel and Ernest Jasper
Garden City	1906	Nile Land and Agricultural Co.	Charles Bacos of Syrian origins	Syrian land surveyor Joseph Lamba	French architect Walter Andre Destailleur designed a few apartment buildings
Qubbah Gardens	1907	The Koubbeh Gardens Building Land Company	Belgian contractor Léon Rolin and two Syrian business families, the Eids, who were Belgian protégés, and the Shakours	-	-

7.2 The Analysis of the Transfer Process

Since this thesis hypothesizes that these suburban developments are alike the British garden suburbs, the study further analyses their transfer process. The analysis of the transfer process adopts J. Nasr and M. Volait's theory of transporting planning of imported and exported urbanism, presented in the previous chapter. Therefore, the study analyzes the authority responsible for the establishment of some of the 20th century suburban developments around Cairo. The analysis, thus, identifies whether these garden suburbs were imported or exported due to the British colonial dominance, to Egypt.

7.2.1 The authority in power responsible for the development

With the sale of land managed by the Dā'irah Sinā'īyah and Domains Administration, accompanied with the flow of foreign capital during the British occupation, several urban land development companies with foreign European capital started to establish modern suburban developments around Cairo. They relied as well on foreign expertise for the development, as shown in Table 7-3. Thus, urban land development projects started to spread around Cairo, in response also to the urban population growth and the need for housing. To demonstrate the authority in power responsible for the development, the study analyzes the following earliest suburban developments.

²³³ Raafat, 'THE GEZIRA PALACE' (above, n. 21).

²³⁴ G. A. Bremner, *Architecture and urbanism in the British Empire*, The Oxford history of the British Empire. Companion series (Oxford: Oxford University Press, 2016), p. 425; Raafat, *Cairo, the glory years* (above, n. 5), pp. 163–165.

Zamālik

Located on an island in the Nile overlooking the Khedivial Cairo from the western side, Zamālik was developed by several private investors who bought the land on the island previously part of the annexes of the Khedive Ismail Gezira palace. The initial development started by Gezira Land Company, owned by the Greek P. Draneht Pasha and Commander E. Oblieght, who purchased the Gezira Palace in 1889 and transformed it into a hotel and parceled a big part of its gardens forming the Gezira Garden residential district.²³³ However, Zamālik's land parceling started around 1903. British architect Ernest Tatham Richmond (1874-1955) is doubtfully believed to have constructed few villas.²³⁴

Ma'ādī

Ma'ādī was developed by the Egyptian Delta Land and Investment Company, mainly owned by the Suares Group and British partners. It was directed by Felix Suares (of Spanish origins).²³⁵ It is located about 12 km south of historic Cairo on the east bank of the Nile. The idea of Ma'ādī was initiated in 1904, but the establishment started in 1906. The Canadian military officer and managing director of the development company, civil engineer Alexander James Adams, was responsible for laying out the suburb²³⁶, while the first buildings were designed by the British-educated Greek Ariston St. John Diamant.²³⁷

²³⁵ Raafat, *Maadi 1904-1962* (above, n. 5), pp. 11–32.

²³⁶ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 674.

²³⁷ Volait, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism' (above, n. 4).

Heliopolis

Located 9 km northeast of Cairo's city center, Heliopolis was developed in 1905. It was established by Heliopolis Oasis Company owned mainly by a Belgian consortium, Empain Group, led by the Belgian industrial Edouard Empain.²³⁸ The British Belgian-educated Sir Reginald Louis Oakes (1847-1927) is believed to be responsible for laying down the initial plan of Heliopolis.²³⁹

Several European architects participated in the design of the distinguishable architecture of Heliopolis, among them the French architects Ernest Jasper (1876-1940), Alexandre Marcel (1860-1928), and Camille Robida (1880-1938), as well as the Belgian Léon Rolin (1871-1950).²⁴⁰ The latter had a contracting company that was responsible for constructing most of the buildings in Heliopolis.

Garden City

In 1906, Garden City was developed by Nile Land and Agricultural Co. owned by Charles Bacos of Syrian origins; French Architect Walter Andre Destailleur designed a few apartment buildings.²⁴¹ It is located adjacent to the western edge of the Khedivial Cairo.

²³⁸ van Loo, 'La Nouvelle Héliopolis: Invention d'une ville-jardin dans le désert' (above, n. 9), p. 222.

²³⁹ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), pp. 669–672; Ilbert, *Héliopolis* (above, n. 22), pp. 49–79.

Qubbah Gardens

The establishment of Heliopolis triggered other developments to be established in adjacent grounds. In 1907, Heliopolis' main contractor, the Belgian Léon Rolin, established the Koubbeh Gardens Building Land Company, along with two Syrian business families, the Eids, who were Belgian protégés, and the Shakours.²⁴²

This study hypothesizes that although some of these suburban developments were labeled or described as garden cities, in the end they were alike garden suburbs. Like most garden suburbs in Britain, the suburban development around Cairo, in the 20th century, were also developed by estate companies. However, there is a major difference between both. The estate companies in Britain were mainly based on co-partnership model where the tenants were made joint owners with developers. The estate companies were mainly managed by a board of elected trustees. They mainly constructed houses for the tenants beside renting. Therefore, the initial plan of almost all projects included wholistic land-use zoning and the outline of the houses to be constructed. In Egypt, this was not the case. The estate companies were mainly privately-owned. The land companies mainly bought the land from the state and then parceled it into buildable plots, after laying down the

²⁴⁰ van Loo, 'La Nouvelle Héliopolis: Invention d'une ville-jardin dans le désert' (above, n. 9), p. 115.

²⁴¹ Volait, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism' (above, n. 4).

²⁴² Vitalis, *When capitalists collide* (above, n. 195), p. 36.

infrastructure, to be sold to individuals to construct their own houses. Therefore, the initial plan of most suburban developments included only land subdivision of vacant plots.

This was the case in most suburban developments around Cairo, such as in Zamālik, Ma‘ādī and Qubbah Gardens. However, few companies built few villas and apartment buildings to promote their project and acted as landlords by renting them, such as in Heliopolis. These modern suburban developments mainly offered large vacant plots to host garden-surrounded homes next to recreational fields to attract residents. They were well connected to Cairo’s city center with tramway lines aided by the building of an extensive vehicular road system.

*“There are sufficient reasons for building suburbs for Cairo. The city has grown tremendously during the past fifteen years and must needs spread. There is demand for out-of-town homes and out-of-town comfort and the effort to supply these lead the investors to this seemingly strange enterprise.”*²⁴³

The success of Heliopolis as an investment project attracted several worldwide magazines to publish such success. Hunting in one of

²⁴³ Hunting, H.G. "City Built on Desert Sands." *Technical World Magazine*, December 1909: 371-373.

²⁴⁴ Technical World Magazine was a popular magazine which illustrated record of progress in science, invention and industry from 1904 till 1915.

²⁴⁵ Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a ‘European-Style’ Urbanism’ (above, n. 4).

his articles in the American “Technical World Magazine” admires the building of such investment projects in the dessert of Egypt.²⁴⁴ He also assures that the need of new suburbs in Cairo is due to its growth after the development undertook by K.I. and the British occupation in Egypt. To study the relation of these suburban development with the British garden suburb movement, in order to investigate the thesis hypothesis, the following chapters present a morphological urban analysis of three suburban developments: Zamālik, Ma‘ādī, and Heliopolis.

7.2.2 A Process of Exported Urbanism

As explained earlier, in Egypt, most of the suburban development that occurred during the British occupation was executed by privately owned land development companies with foreign European capital or mixed capital.²⁴⁵ Most of the companies were directed by European bankers and industrialists who came to Egypt to invest initially in the railway industry and banks; then, they shifted their investment towards the urban land development.²⁴⁶ The colonial authority had little control on such developments. According to R. Illbert, author of Heliopolis book: “*After all, Egypt was not a colony, and more importantly, Heliopolis was not a colonial town.*”²⁴⁷

²⁴⁶ Samir Saul, ‘European Capital and its Impact on Land Distribution in Egypt: A Quantitative Analysis (1900-1914)’, edited by Gregory Blue, Martin P. Bunton, and Ralph C. Croizier, in *Colonialism and the Modern World. Selected Studies* (Armonk, N.Y., London: M.E. Sharpe, 2002); Robert Vitalis, *When capitalists collide: Business conflict and the end of empire in Egypt / Robert Vitalis* (Berkeley, Calif., London: University of California Press, 1995).

²⁴⁷ Ilbert, ‘Heliopolis: Colonial Enterprise and Town Planning Success?’ (above, n. 8), p. 37.

Although the study adopts J. Nasr and M. Volait’s theory of transporting planning, it contradicts M. Volait’s conclusion regarding Cairo. Volait suggests that modern urbanism of Cairo, including the suburban developments, during the British occupation is a case of imported urbanism. She wrote: “*Cairo is an interesting case of “European style” urbanism, an urbanism resulting from importation and appropriation of European forms and technics rather than from and exportation of these via colonial dominance.*”²⁴⁸

Volait’s suggestion that the 20th century suburban developments around Cairo were not the product of the British colonial dominance is right. As they were mainly developed by urban land development companies. However, it cannot be claimed that they were imported, since they were not imported by Egyptian public authorities or any local agents. This is unlike the previous modernization of Cairo during K.I.’s reign, which M. Volait also discusses, when the public authorities imported western European urbanism by inviting foreign expertise to establish the Khedivial Cairo.²⁴⁹

Robert Home suggests, based on Anthony King’s researches on colonial urbanism, another transfer process. He suggests that the British transferred their town planning to Egypt mainly by establishing garden suburbs, doing conservation projects, and laying down parks (Figure

7-5).²⁵⁰ Home’s suggestion that the British town planning to Egypt was transferred by the establishment of garden suburbs supports this study hypothesis that the suburban development of Cairo was similar to the British garden suburb movement.

A MODEL OF COLONIAL TOWN PLANNING ACTIVITY

Colonial Status	Town planning activity	Usual mechanism	Examples
Direct rule (usually ports)	Road improvements Slum clearance Housing	Improvement board of trust	Bombay, Calcutta, Madras, Lagos, Singapore
Protectorates under indirect rule	Layouts, administrative headquarters, railway/mining town	Consultants, Branch of Lands and Survey	Port Harcourt, Enugu Jos, Kaduna, Lusaka, New Delhi
Precolonial urban societies	Conservation, Garden suburbs Parks	Local/Native Authority, Consultants	Parts of India, Egypt, Palestine
White settler	Company towns, Garden cities	Private sector	Vanderbijl town, Pinelands

Figure 7-5: A colonial town planning model suggested by Robert Home.

Source: (Home 1990)

R. Home claims that British town planning was transferred by the local native authority along with British consultants (Figure 7-5). Thus, in terms of J. Nasr and M. Volait’s theory of transporting planning, this was a case of a mix between imported and exported processes. Home’s theory is partially right in terms of general town planning, conservation

²⁴⁸ Joseph Nasr and Mercedes Volait, eds., *Urbanism: Imported or exported? : native aspirations and foreign plans / Joseph Nasr and Mercedes Volait* (London: Academy Editions, 2003), p. 20.

²⁴⁹ Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a ‘European-Style’ Urbanism’ (above, n. 4).

²⁵⁰ Home, ‘Town planning and garden cities in the British colonial empire 1910–1940’ (above, n. 23).

projects, and laying down parks, but not in terms of the transfer of the garden suburbs.

In his paper, Home, suggested that general British town planning concepts were transferred by the British colonial engineers and surveyors, such as Sir William Mclean, the engineer-in-chief at the Egyptian Ministry of Interior who worked in Egypt and Soudan from 1906 till 1926. This is in fact true, as Mclean's work in Egypt involved several town planning schemes, especially to develop rural areas there.²⁵¹ Mclean also prepared a general, unrealized development plan for the city of Alexandria. His main accomplishment was his contribution to the establishment of the city of Khartoum, the capital of the Anglo-Egyptian Soudan.²⁵² However, he was not involved in the establishment of the garden suburbs around Cairo.

In terms of laying out parks, R. Home is also right, as in 1901, the Grotto Garden, which was part of the K.I. Gezira Palace Gardens, was "re-landscaped" by the British Captain Stanley Flower. He introduced a small artificial hill with caves containing fish cages.²⁵³ R. Home is also right regarding conservation projects, such as the work of British architect

Ernest T. Richmond (1874-1955). He came to Egypt in 1895, at the age of 21, and aided Somers Clarke in documenting the drawings on the walls of the temple of Amemhetep III; a year later, he was appointed Assistant Architect to the Comité pour la Conservation des Monuments de l'Art Arabe.²⁵⁴ During his work in the Comité, he was interested in Islamic architecture, and he wrote a book titled "Moslem Architecture" as well as a publication on "The Significance of Cairo."²⁵⁵ He also worked on the conservation of the Dome of the Rock in Palestine.²⁵⁶

However, regarding the establishment of garden suburbs, R. Home was wrong, because as presented before, the local native authority was not involved in the suburban developments. Also, his suggestion that the garden suburbs were transferred via British colonial consultants, whether surveyors or engineers, was not true. As shown in Table 7-3, most of the engineers and planners of the garden suburbs of Cairo were non-British, except the British Belgian-educated engineer Reginald Oakes, who planned Heliopolis and directed the company, and the British architect Ernest Richmond, who doubtfully designed a few villas in Zamālik.

²⁵¹ William Mclean, 'Local Government and Town Development in Egypt', *The Town Planning Review VII*, no. 2 (April 1917): pp. 83–97.

²⁵² William H. Mclean, *Regional and Town Planning: In Principle and Practice* (London: Crosby Lockwood and Son, 1930).

²⁵³ Raafat, 'THE GEZIRA PALACE' (above, n. 21).

²⁵⁴ Bremner, *Architecture and urbanism in the British Empire* (above, n. 234), p. 425.

²⁵⁵ Ernest Tathan Richmond, 'The Significance of Cairo', *The Journal of the Royal Asiatic Society of Great Britain and Ireland* (January 1913): pp. 23–40,

<http://www.jstor.org/stable/25188915>; Ernest Tathan Richmond, *Moslem Architecture: 623 to 1516 Some Causes and Consequences* (London: The Royal Asiatic Society, 1926), accessed 14 February 2018.

²⁵⁶ Elie Kedourie, 'Sir Herbert Samuel and the Government of Palestine', *Middle Eastern Studies* 5, no. 1 (January 1969): pp. 44–68, <http://www.jstor.org/stable/4282274>.

These suburban developments were developed by foreign enterprise controlled by foreign capital aiming for financial benefit. They were also designed by foreign expertises and initially, targeting non-Egyptians. Hence, this study suggests that the suburban developments around Cairo, alike the British garden suburb, were exported to Egypt via land development companies with foreign European capital depending on foreign expertise. The study thus adds to J.Nasr and M.Volait theory of transporting planning a different approach of exported urbanism via foreign enterprises beside the exportation via colonial dominance.

7.3 Summary on the Transfer to Egypt

The 20th century garden suburb of Cairo, during the British occupation, was the product of suburban development around the historic center of Cairo, by land development companies with foreign European capital. Thus, the garden suburb movement was exported via foreign enterprises depending on foreign expertise rather than via colonial dominance. The investment in land development was conveyed by the foreign investment in the tramway industry and tourism industry, which were mostly the main initial investments of the developers of these companies.

The rise of land development companies was due to several factors, including the sale of land managed by the Dā'irah Sinā'īyah and Domains Administration, the establishment of several mortgage bank houses, the privatization of several public domains, the booming of the railway industry and tourism industry, and the urban population growth

accompanied with the social changes resulting from the flow of Europeans.

CHAPTER 8: ZAMĀLIK

This chapter presents the morphological urban analysis of Zamālik. The study analyzes the following aspects: background, main principles, authority in power responsible for the development, urban context, urban design concept, street typology, residential block typology, social infrastructure, and social target group. In its summary, this chapter highlights the main principles and urban design aspects that makes Zamālik eligible to be identified as a garden suburb of Cairo alike the British garden suburbs.

Zamālik in Brief	
Establishment	Circa 1903
Location	On the Gezira island on the Nile River overlooking the Khedivial Cairo, 2 km from Cairo's city center
Area	Zamālik is 1.31 sq.km (324 acres) The study area is 0.25 sq.km (62 acres)
Developer	Initially Gezira Land Company and Egyptian Hotels Company, and later several other developers
Planner	Unknown
Contributing Architects	British architect Ernest Tatham Richmond doubtfully built 19 villas

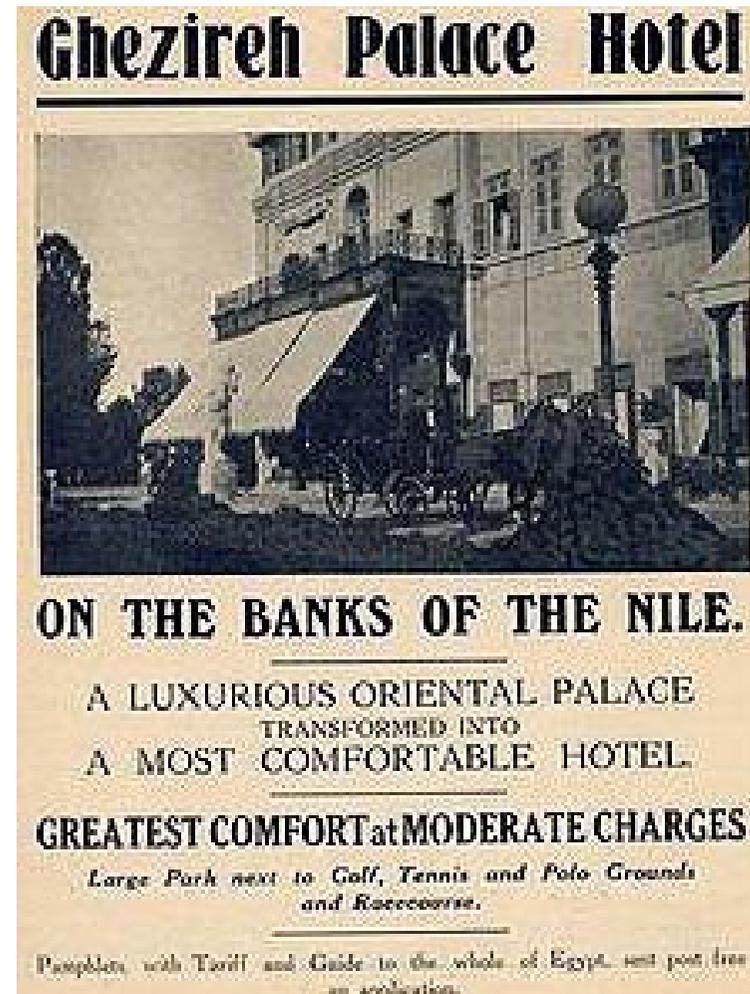


Figure 8-1: Gezira Palace Hotel advertisement.

Source: (Raafat 1999)

8.1 Background

Zamālik was established on Gezira island, over K.I.'s horticulture gardens designed in 1866 by Gustave Delchevalerie as part of Cairo's development plan. In 1868, the island mainly hosted the "Gezira Saray" (palace) and its gardens, as shown in Figure 8-3. After the declaration of the Egyptian government bankruptcy and the transfer of the Khedive Ismail estate under a joint British, French, and Egyptian management commission, Khedive Ismail was forced to leave his place to his son Tewfik in 1879.²⁵⁷

In 1889, Ismail Pasha, the former Khedive of Egypt, sold the Gezira Palace and its annexes to the Greek Paul "Pavlos" Draneht Pasha and Hungarian-born Commander Ernesto Emanuele Oblieght. In 1892, the new owners of the palace established the Gezira Land Company and transformed the palace into a hotel. In 1897, the company merged with the Egyptian Hotels Company that started to increase their land property on the island.²⁵⁸

The Egyptian Hotels Company was mainly directed by the Swiss Czar Charles Baehler who built and directed several hotels around Egypt along with the Greek George Nungovich.²⁵⁹ The company later started to parcel the land west of the hotel into buildable plots, forming the Gezira Gardens residential district.²⁶⁰

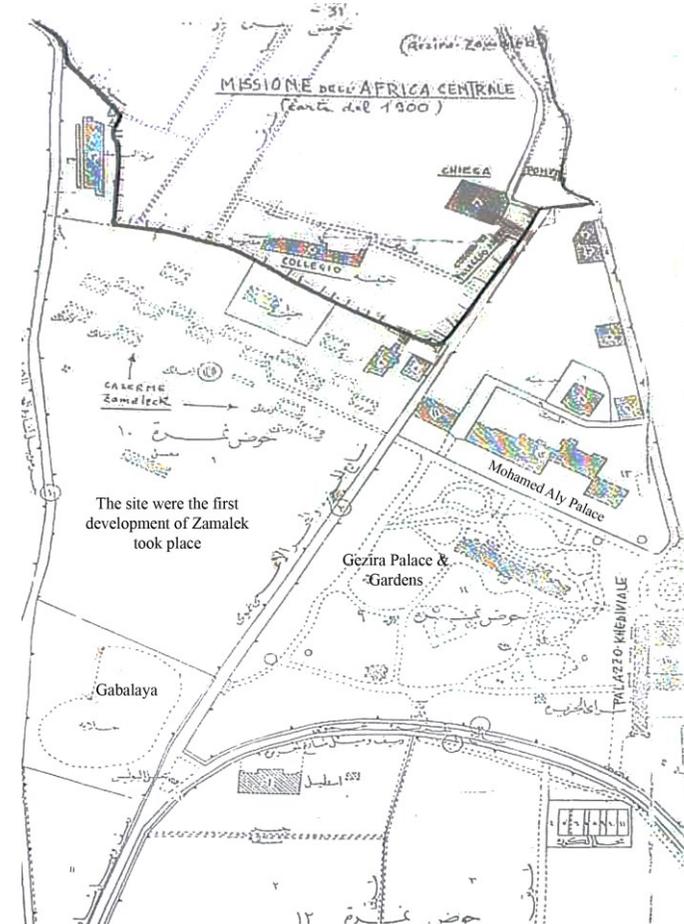


Figure 8-2: A map of Zamālik circa 1900.
Source: adapted from Samir Raafat, egy.com

²⁵⁷ Saul, 'European Capital and its Impact on Land Distribution in Egypt: A Quantitative Analysis (1900-1914)' (above, n. 195), pp. 126–127.

²⁵⁸ Raafat, 'THE GEZIRA PALACE' (above, n. 21).

²⁵⁹ Humphreys, *Grand hotels of Egypt* (above, n. 223).

²⁶⁰ Raafat, 'THE GEZIRA PALACE' (above, n. 21).

The beginning of the land parceling is undefined; however, it seems to have started in 1903. A 1900 map of the island, Figure 8-2, shows that the island's land was still not parceled; the New York Times magazine published an article on the third of January, 1904, stating the following: "*The Gezireh, one of the most beautiful and healthy Suburb of Cairo, has during the passing year, been undergoing a land boom.*"²⁶¹

At that time, the island was mainly divided into three parts. The central part hosted a British military training camp established in 1882. Few years later, the British military camp was transformed into the Khedivial Sporting Club (KSG), currently known as the Gezira Sporting Club (GSC). The northern part of the island was given by Khedive Tewfik to the Comboni Fathers, an Austrian-African missionary that fled from Sudan to Egypt in 1888; they ran an agricultural and antislavery colony.²⁶² Between the missionary land and the KSG was the Gezira Hotel and the land purchased by the Egyptian Hotels Company (Figure 8-2).

However, the urban development did not hit the island except after the inauguration of the Boulaq bridge and tramway in 1912. The bridge passed through the Gezira Hotel garden, splitting it. With the rumors of the establishment of the bridge, another land development company was established in 1907 and bought 10,000 sq.m from the Comboni Fathers on the island's northern part. The company had on its directory board the Dutch consul Dr. Brayer, Mr. Beitel, Mr. Savoiwayen, and the Egyptian

lawyer Mohamed Beih Mahmoud Khali. With the decline of tourism for several seasons due to the WW1, EHC sold the Gezira Palace, in 1919, to the Syrian Habib Lotfallah Pasha and parceled most of its remaining gardens into buildable plots, starting a new phase of development on the island. Later, the missionary left Egypt and most of its land was sold to other developers.²⁶³

With the inauguration of the Boulaq bridge and the return of the missionary, a land development booming created the suburb previously known as Gezira but currently known as Zamālik. The suburban development of Zamālik thus occurred through different phases and by different land development companies. However, this study mainly focuses on the initial land development initiated by GLC and EHC (Figure 8-11).

8.2 Main Principles

The main principle that guided the development of Zamālik suburb was investment, similar to most of the suburban developments around Cairo at the time. The urban land company purchased the land and then subdivided it into buildable plots and sold it to tenants. The investment in this case was led by the initial investment in the tourism industry with the transformation of the Gezira Palace into a hotel. Thus, Zamālik started mainly as a land development project aiming for investments.

²⁶¹ Ibid.

²⁶² Raafat, *Cairo, the glory years* (above, n. 5), pp. 121–220.

²⁶³ Raafat, 'THE GEZIRA PALACE' (above, n. 21).

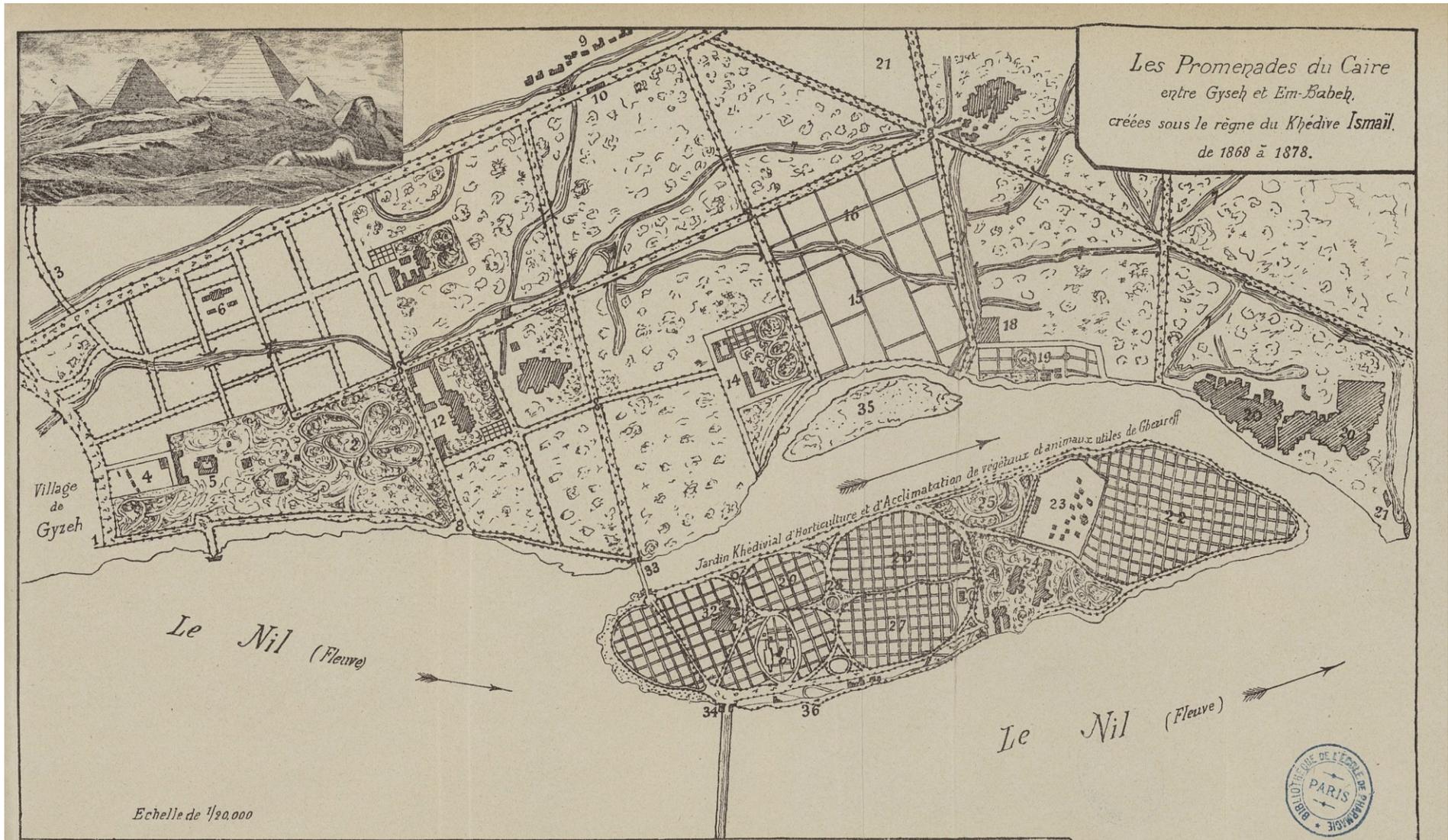


Figure 8-3: Delchevalerie's plan of Gezira island in 1878.

Source: (Delchevalerie 1899)

8.3 Authority in Power Responsible for the Development Developer

As explained before, this study only focuses on the initial land development by the merged companies GLC and EHC. GLC was owned by the Greek Paul "Pavlos" Draneht Pasha and Hungarian-born Commander Ernesto Emanuele Oblieght. The Greek P. Draneht Pasha was

*"...a chemist during the reign of Viceroy Said Pasha. The pasha later appointed him director of traffic and railways ... It was during the reign of Ismail Pasha however that Draneht became superintendent of state theatres ... It was in this capacity that he dealt directly with Italian composer Giuseppe Verdi during the making of Aida. ... Draneht's claim to fame would be as the first director of the new Khedivial Theatre (Opera House) a post he kept until 1879."*²⁶⁴

Commander E. Oblieght was also involved in the railway industry as he introduced the funicular that climbed Italy's Mount Vesuvius in 1880.²⁶⁵ The relation between P. Draneht Pasha and K.I. facilitated the acquisition of the palace and its gardens when the Khedive who was in exile needed to sell it.

²⁶⁴ Ibid.

²⁶⁵ Ibid.

²⁶⁶ Humphreys, *Grand hotels of Egypt* (above, n. 223).

EHC was mainly directed at that time by the Swiss Czar Charles Baehler. He excelled in the tourism industry in Egypt until he started managing an empire along with the Greek George Nungovich, including both the Egyptian Hotels Company and the Upper Egyptian Hotels Co. Ltd.²⁶⁶ The two companies owned and operated several hotels around Egypt. C. Baehler, recognizing the value of the palace and its location, saw it an opportunity to invest with GLC to transform the palace into a hotel. Benefitting from the island's proximity to Khedivial Cairo and the KSC, the investment in the hotel industry, thus, lead later to investing in land developments by parceling the remaining land and selling it as vacant land plots.

Planner/Contributing Architect(s)

The planner responsible for the land parceling is unknown. The villas and palaces in Zamālik were designed by several architects. However, the Domain Administration was responsible for building several villas for the British employees working in the Egyptian government (Figure 8-16).²⁶⁷ The villas are considered among the first constructions in the suburb. The architect of these villas is believed to be Ernest Tatham Richmond (1874-1955). *"From 1900 to 1911 he was Director of the Department of Towns and State Buildings, and, in 1904, was also appointed architect in the Ministry of Public Works in Cairo."*²⁶⁸

²⁶⁷ Raafat, 'AND THEN THERE WERE NONE' (above, n. 5).

²⁶⁸ Bremner, *Architecture and urbanism in the British Empire* (above, n. 234), p. 425.

8.4 Urban Context

8.4.1 Location

Zamālik is located on the Gezira Island, on the Nile River, giving it its initial name. It overlooks Khedivial Cairo, only two km away from the city center of Cairo at Attaba Square.

8.4.2 Area

The study only focuses on the initial 0.25 sq.km (62 acres) developed by GLC and EHC.

8.4.3 Surrounding Incentives

Besides its unique location on an island on the Nile River, its proximity to the city center of Cairo catalyzed its urban development. The British army barracks occupied the Kasr El Nil Palace overlooking the island. Thus, they transformed the central part of the island into a training camp, which was later transformed into the Gezira Sporting Club. Figure 8-6 shows that the camp was directly accessible from the barracks (the red buildings on the bottom of the map) through the Khedive Ismail bridge. This club was another major catalyst for the development of the new suburb. Before the architectural development reached the north part of the island, it was mainly agricultural fields.

8.4.4 Accessibility

Zamālik (Gezira) island was connected to the mainland, during the K.I. reign, by constructing the Khedive Ismail bridge (currently known as Kasr El-Nile bridge) connecting it to the Khedivial Cairo from the east and the Bahr-El-Amaa bridge (later known as Pont- des-Anglais and currently El-Galaa bridge), connecting it from the west to Giza.

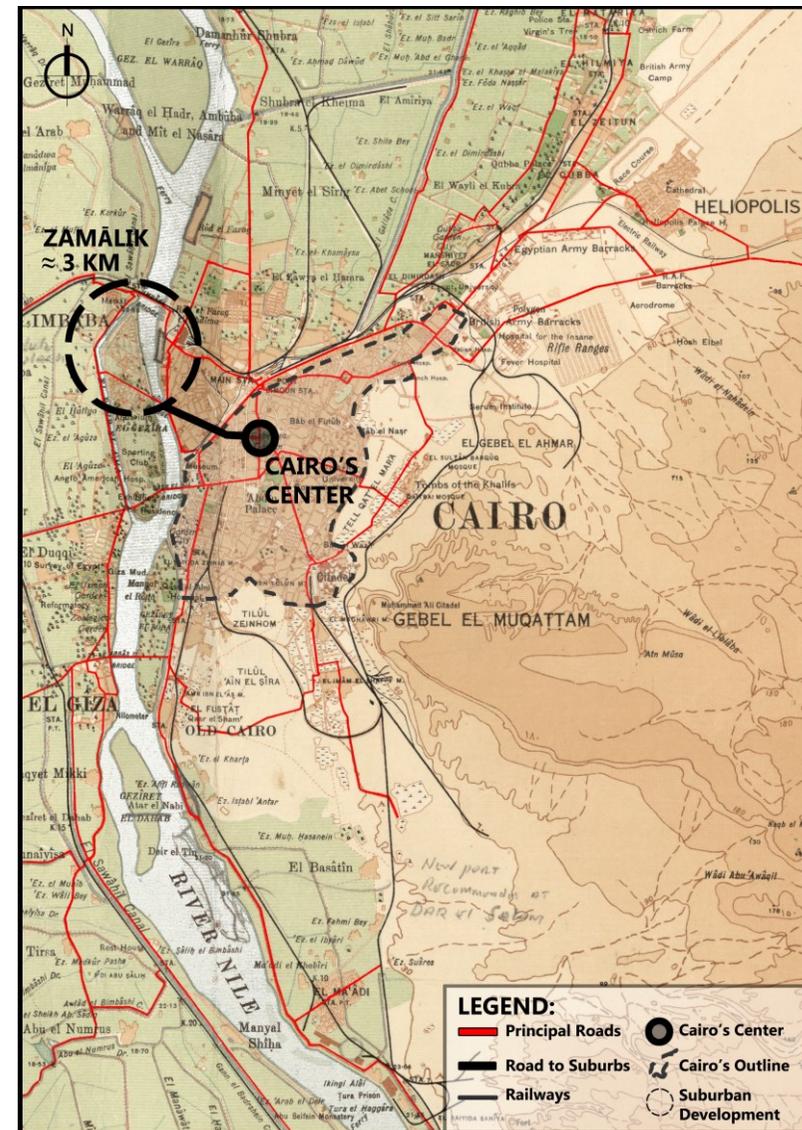


Figure 8-4: Location of Zamālik from Cairo's center.

Source: Adapted on a 1920 map of Cairo from (Library of Congress).

The construction of the Boulaq bridge and tramway, in 1912, facilitated the commuting to Cairo's city center, encouraging tenants to move to the new suburb. The bridge was attached to the Boulaq Avenue, which connected it to the Zamālik bridge on the other side, splitting the island and the Gezira Palace gardens. This tramway line continued till the pyramids in Giza, connecting them to Cairo's city center passing through the new suburb. Since then, the island has been suffering from heavy traffic, as the bridges connect the mainland of Cairo, on the eastern side, with the mainland of Giza, on the western side, a problem that is still ongoing.



Figure 8-5: Boulaq Avenue & Tramway
Source: egypt.com

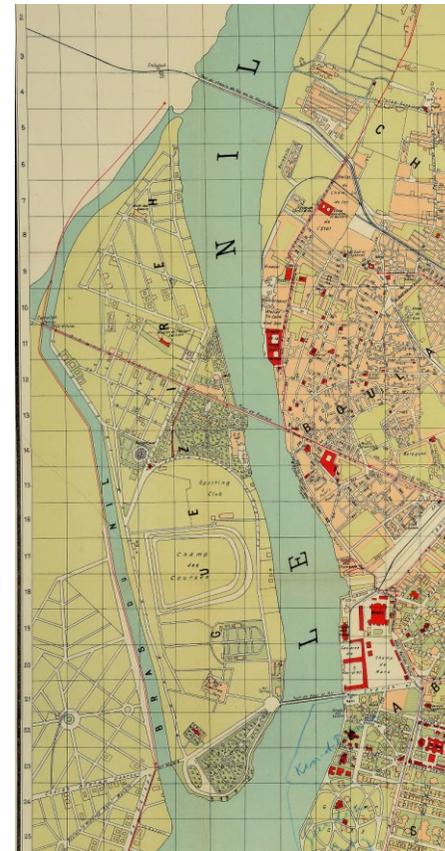


Figure 8-6: Zamālik on a partial map of Cairo in 1914.

It shows the initial developments on Gezira island. It shows the initial land parceling of the island and the inauguration of the Boulaq bridge and tramline. Source: Adapted from a map of Cairo in 1914 "Egypt: Cairo. 'Nouveau Plan du Caire dressé par R. Huber Major du génie e.r. ...'" from The National Archives' Catalogue



Figure 8-7: Zamālik on a partial map of Cairo in 1920.

It shows the transformation in development of the island and the construction of several buildings. Source: Adopted from a general map of Cairo published by the survey of Egypt 1920-391 from the Library of Congress;

8.5 Urban Design Concept

8.5.1 General Design Concept

The main design idea was to surround the Gezira Palace and part of its gardens by a fence to be transformed into a hotel, while the remaining land was parceled into buildable plots using an orthogonal street network (Figure 8-8). It was strictly a residential suburb, even without shops. The initial developments were in the center of the island, rather than on its edges overlooking the Nile, due to Nile flooding that caused its edges to change over the course of time (Figure 8-6 and Figure 8-7). Its edge started to stabilize gradually after the establishment of the first Aswan Dam in 1902.

8.5.2 Land Use and Zoning

No holistic zoning plan was prepared like most of the British garden suburbs as the parceled land was sold as empty buildable plots to be used for residential purposes. However, with the development of the suburb, few schools and religious buildings occupied some of these plots. The adjacent recreational fields of the Gezira Sporting Club were the main recreational attraction of the suburb. There was as well the Grotto Garden, which was the part remaining from the Gezira Palace gardens. The Gezira Place Hotel attracted tourists due to its unique location and distinguishable history. It also provided several recreational and social activities.



Figure 8-8: Urban design conceptual analysis of Zamālik.

It focuses only on the study area. Source: Created by the author over a 1913 map of Cairo from (The National Archives).



Figure 8-9: Aerial view of Zamālik in 1932.

It shows Boulaq Avenue cutting through the island dividing it into two parts. The Boulaq and Zamālik Bridges at the end of the Avenue connects the island with the mainland. On the right-hand side appears the early villas constructed by the Domains Administrations for the British high officials, labeled as the first land development. Source: adapted from the Library of Congress.

8.6 Street Typology

8.6.1 Street Network

The development of Zamālik by different land development companies over different phases is reflected in its street network, as shown in Figure 8-11. Each land development company has applied a different street network based on the surrounding constraints. However, the result seems homogenous with a regular iron grid streets network. This study mainly focuses on the streets network implemented for the initial development by the GLC and EHC, which was a uniform orthogonal grid.

8.6.2 Street Design

Zamālik streets were mostly designed to have the same width of 15 m. The trees-aligned streets offered a footway of around 3 m on each side. This wide footway characterized Zamālik, providing pleasant pedestrian activity. The main artery of Zamālik, Boulaq Avenue, which hosted the Boulaq tramline, was 25 m wide (Figure 8-12). The tramway was passing through the center of the street. The avenue has a larger footway 4 m wide.

8.6.3 Shading Typology

Tree-aligned streets are a distinguishable feature of Zamālik, as well as the garden city and garden suburb movements. All the streets in the study area are aligned with trees on both sides of the footway. By

checking the 1936 maps of Zamālik in scale 1/500, it is remarkable to see that the trees on both sides are not directly opposing each other; they are shifted, so their canopies were overlapping, providing more shadow not only to the pedestrians using the footway, but also covering a large part of the road, which was mainly used by horse carriages at the time, as shown in Figure 8-13. Most of the trees used were of the type having large canopies, as show in Table 8-1. Some of them currently have large trunks blocking the footway.²⁶⁹ This is probably inspired from the work of Delchevalerie on the New Promenade of the Gezira island during the reign of K.I. (Figure 8-14).

8.6.4 Street Names

Until the 1920s, Zamālik streets did not have names. They were recognized by distinguishable buildings or residents. They were later named after the rulers of the Ayyubid family who ruled Egypt from 1174 to 1250. The main artery was labeled Boulaq Avenue, which was then changed to Fouad El-Awal Avenue to honor the Egyptian King (ruling from 1917 to 1936). The street is currently known as 26th of July Street.

8.7 Residential Block Typology

The study has examined two different blocks to highlight the difference between the part developed by the Domains Administration and the other plots that were built by anonymous owners, as shown in Figure 8-16.

²⁶⁹ Osama Salah-Eddin Tolba and Alaa El-Habashi, 'Restoring the Streets of Egyptian Cities', edited by Cairo University, in *ARCHCAIRO* (Cairo: Cairo University, 2006), pp. 201–215.

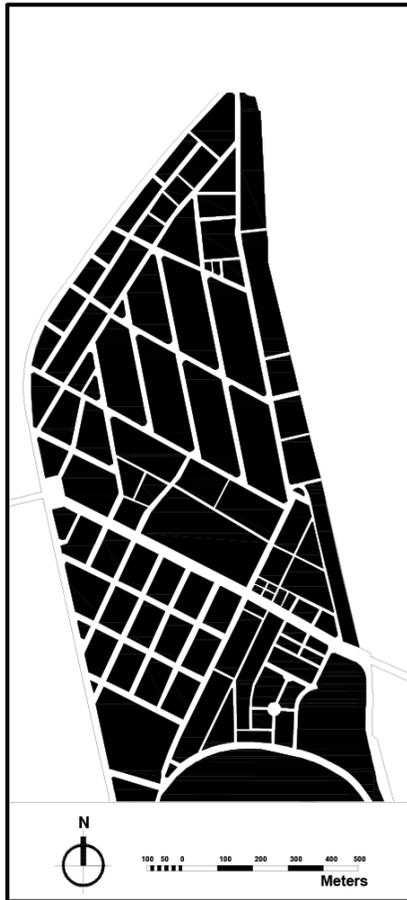


Figure 8-10: Zamālik street network.
Source: Created by the author.

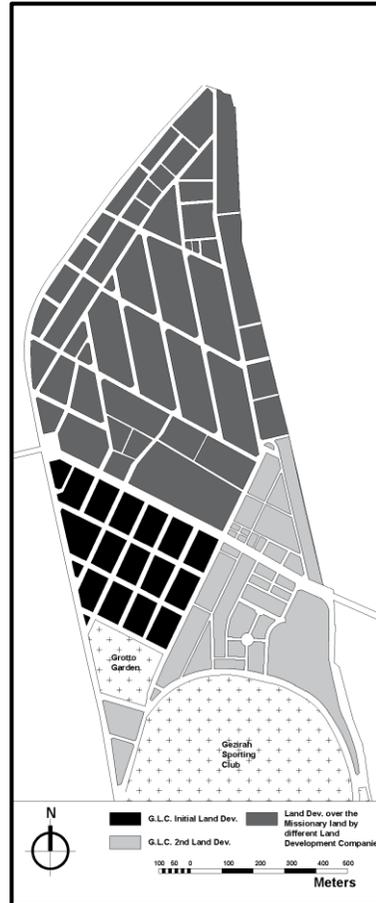


Figure 8-11: Zamālik development phases.
Source: Created by the author.

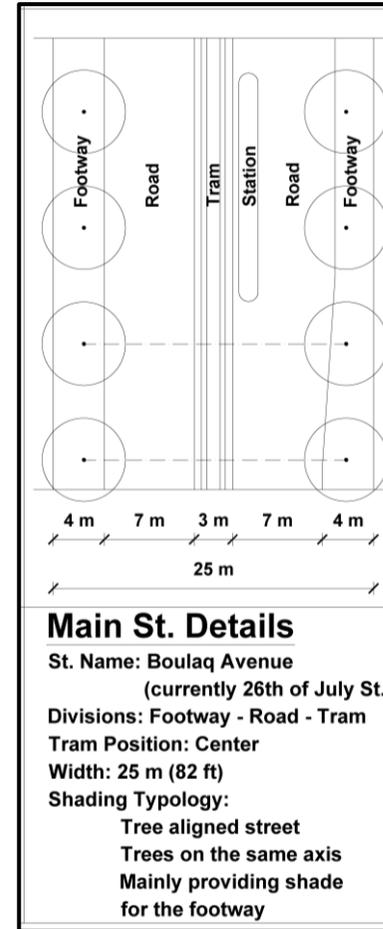


Figure 8-12: Layout of the primary streets of Zamālik.
Source: Created by the author.

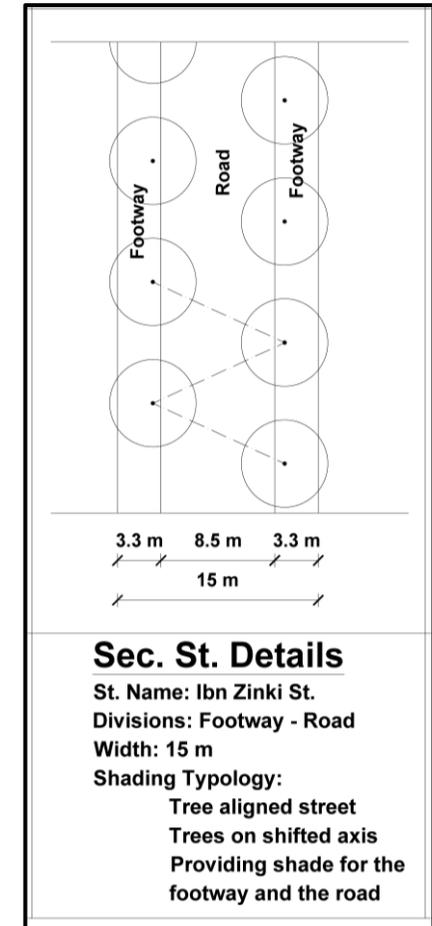


Figure 8-13: Layout of the secondary streets in Zamālik.
Source: Created by the author.

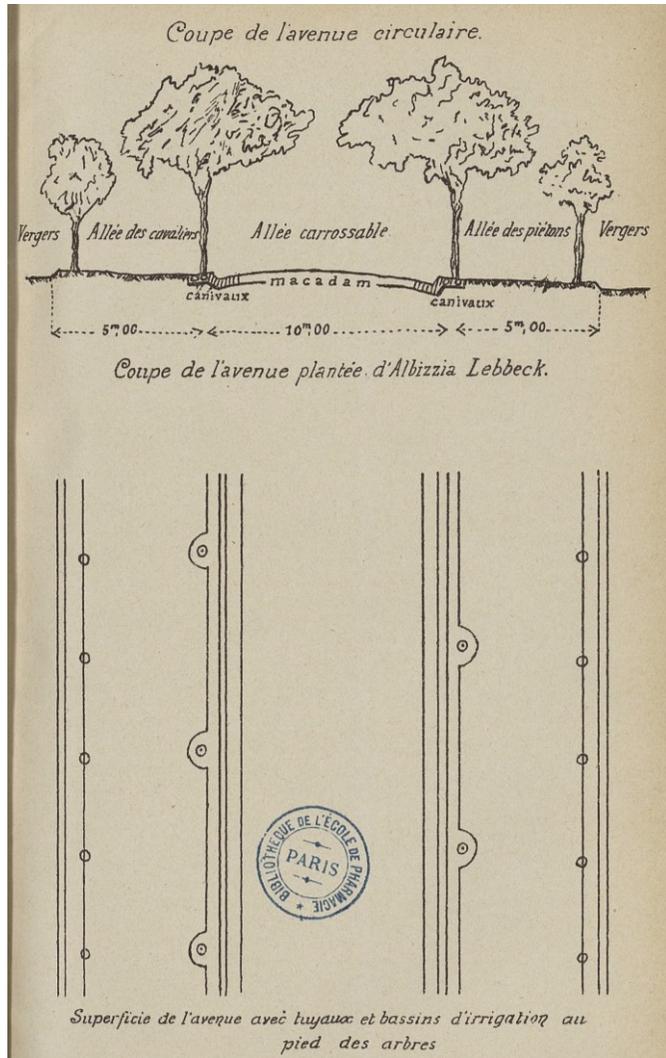


Figure 8-14: The street layout and section of the Gezira Circular Promenade, created by G. Delchevalerie.
Source: (Delchevalerie 1899)

Table 8-1: List of trees planted in some important streets of Zamālik.
Source: Adapted from (Abdel Ghani Ghanam 1928).

Suburb	Important streets and squares names	Planting year	Number of trees	Tree type
Zamālik	The Western blind Sea (currently Um Kalthoum Street)	1912	600	<i>Eucalyptus</i>
	El Gezira	1917	150	<i>Terminalia arjuna</i>
	Blind Bridge	1917	97	<i>Ficus religiosa</i>
	Gezira Palace Square	1917	3	<i>Terminalia</i>
			3	<i>Schinus molle</i>
	Exhibition	1923	125	<i>Poinciana regia</i>
			490	<i>Poinciana regia</i>
	El Gabalaya (currently Hassan Sabry)	1915-1927	36	<i>Ficus platyphylla</i>
			47	<i>Sterculia</i>
			20	<i>Terminalia</i>
			23	<i>Schinus molle</i>
			41	<i>Techoma</i>
2			<i>Ficus sycamorus</i>	
Bahaa El-Din	1917-1923	44	<i>Tetraclinis articulata</i>	
Salah El-Din	1918	74	<i>Techoma</i>	



Figure 8-15: Zamālik in 1932.
Source: Cairo Governorate planning department

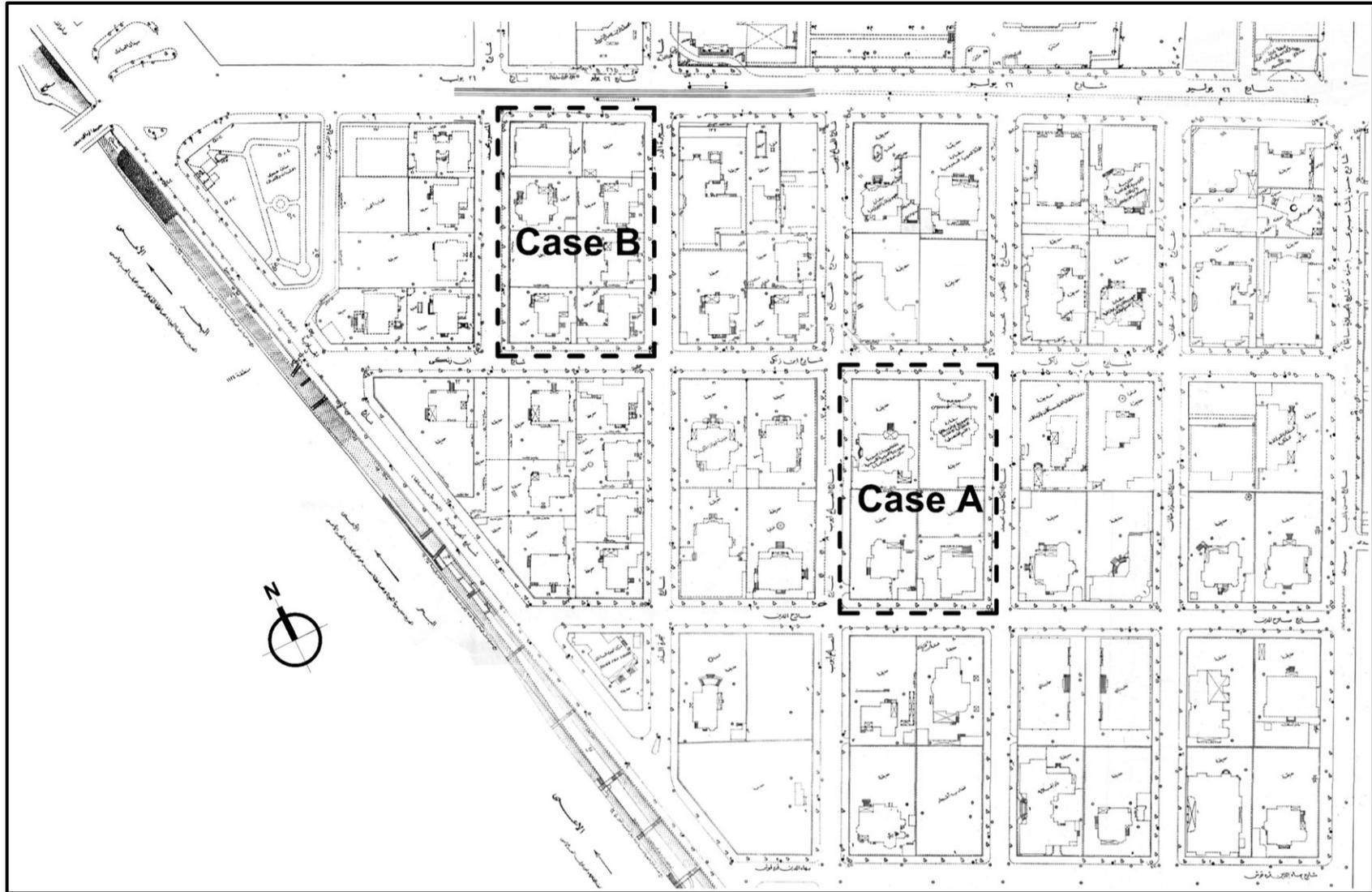


Figure 8-16: The selected residential block typology in Zamālik on a collage of 1936 maps, drawn in scale 1:500.

The buildings on the left of the map, the blocks divided into 8 plots, are the ones built for the British employees. These are the buildings that were probably designed by Ernest T. Richmond. Therefore, they have a relatively similar outline. Source: (Egyptian Survey Department)

8.7.1 Block Pattern

The company mainly parceled the land using an orthogonal grid, which formed blocks of 100*60 m separated by a 15 m wide street from all sides, as shown in Figure 8-17. The rectangular residential block defined the urban grid of Zamālik. Unlike, Unwin’s ideas the residential block did not include any shared allotment gardens.

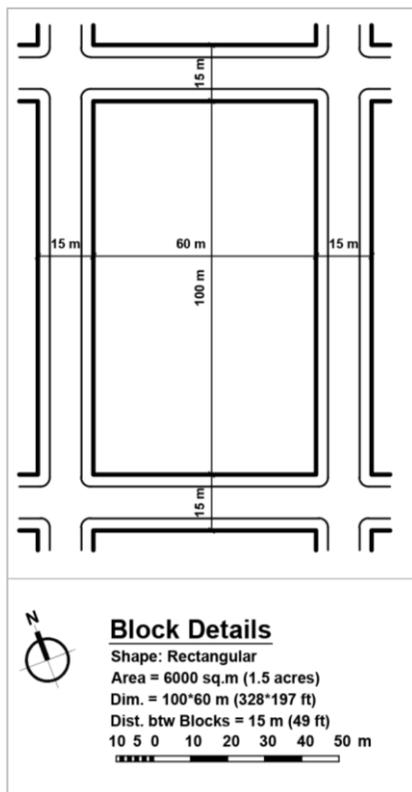


Figure 8-17: Zamālik block pattern.
 Source: Created by the author.

8.7.2 Plot Subdivisions

The blocks were generally subdivided into 4 large plots of 1050 sq.m each (Figure 8-18). However, the Domains Administration has divided the blocks dedicated for the establishment of the British employees’ houses into eight plots of 750 sq.m each (Figure 8-19). The plots were separated by a masonry or steel permeable fences.

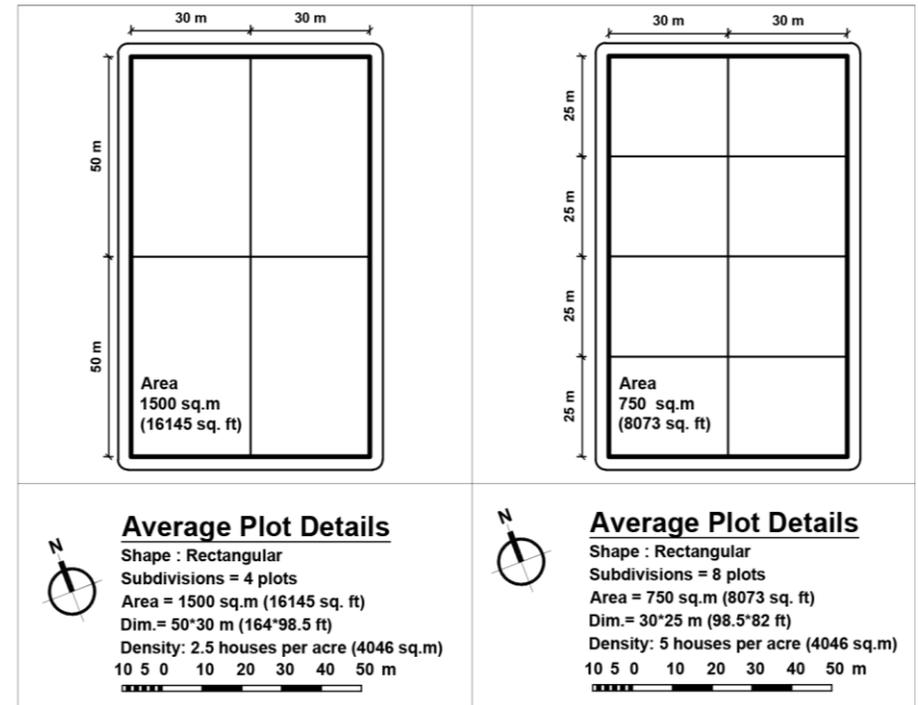


Figure 8-18: Zamālik general plot subdivision implemented by the company.
 Source: Created by the author.

Figure 8-19: Zamālik plot subdivision implemented by the Domains Administration.
 Source: Created by the author.

8.7.3 Building Typology

Stand-alone villas surrounded with gardens were the main building typology characterizing the suburb. New landowners appointed different architects to build their villas or palaces. They were mainly of two-story height. Figure 8-20 shows that the buildings outlines were different; they were placed differently on the land plot, and they were aligned towards one of the sides in order to obtain larger garden area. They had a similar building frontage of 8-10 m. They kept a similar footprint ratio as well of 30% of the land area.

Figure 8-21 shows four of these villas constructed by the Domains Administration for the British employees. The buildings have a similar outline and they were as well of two-story height. They maintained a similar footprint ratio of 30%. The buildings were placed adjacent to the street, with a small front yard and a larger backyard. Around the 1930s, mid-size apartment buildings started to dig their way to the suburb, such as the building in the top right of Figure 8-21. It occupied around 55% of the land.

8.8 Social Infrastructure

The suburb was not designed with a complete holistic zoning plan. A major recreational club (KSC) and Saint Joseph church were already existing on its periphery. This club, although access to it was exclusive, was a major catalyst for the development of the suburb. Later on, educational and more religious facilities overtook some of the plots and buildings designated for residential purposes, as explained in page 126.

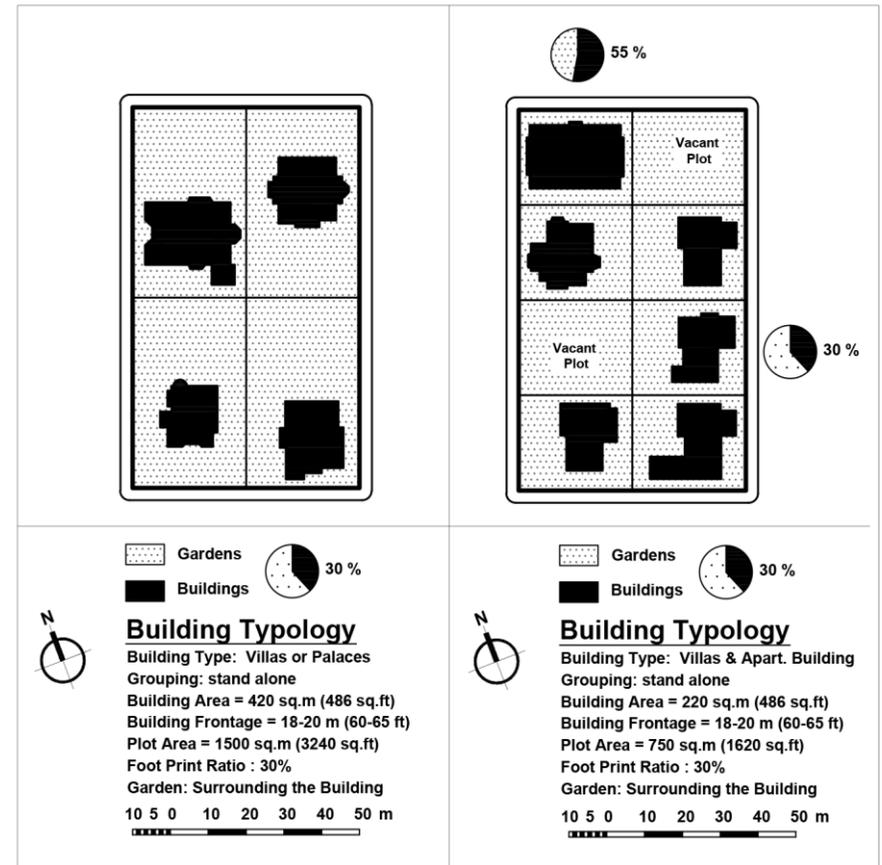


Figure 8-20: Zamālik buildings typology diagram on the blocks that were parceled into 4 plots. Source: Created by the author.

Figure 8-21: Zamālik buildings typology diagram on the blocks that were parceled into 8 plots. Source: Created by the author.

8.8.1 Recreational

Before the First World War started, casinos, gardens, sport clubs and many other recreational facilities were distinguishable features of Zamālik Island. They attracted the new suburb residents as well as residents from all over Cairo. Several gardens and parks were laid down on the southern part of the island, such as Bridge and River Gardens. This study, however, mainly focuses on the sport club and the Grotto Garden, which were on the periphery of the suburb.

The Khedivial Sporting Club (currently known as GSC) occupied a large area of the island with its golf course, racecourse, and polo grounds. It also included several tennis courts and a swimming pool. The club offered diverse sports and social facilities, introducing a new model of socio-recreational activities. Initially, club access was limited to the members of the British army, and then foreigner civilians were permitted to enter. Later, some members of the royal family and the elite community were offered membership. It was not until 1951 that the Egyptians who could afford the membership were given access to the club.²⁷⁰

The Grotto Garden was part of the Gezira Palace Gardens. In 1901, the garden was “re-landscaped” by Captain Stanley Flower, and it was opened for the public in 1902. He introduced a small artificial hill with caves containing fish cages. At that time, the aquarium consisted of 24 big reservoirs, containing a collection of the Nile fishes, as well as its vast and magnificent garden; the aquarium was a favorite place for

picnics.²⁷¹ The garden was surrounded by a fence with controlled access. The Gezira Palace Hotel mediated and sped up the development of the new suburb. It attracted several tourists with its unique location and distinguishable history. The hotel has as well provided social interaction with its casino and restaurants for the residents of the new suburb



Figure 8-22: Grotto Garden on 1936 map of Cairo.

Source: (Egyptian Survey Department)

²⁷⁰ Samir W. Raafat, ‘GEZIRA SPORTING CLUB MILESTONES’, 1996, <http://www.egy.com/zamalek/96-02-10.php>, accessed 07 February 2018.

²⁷¹ Raafat, ‘THE GEZIRA PALACE’ (above, n. 21).



Figure 8-23: Tennis matches at the Gezira Sporting Club between 1934-39
Source: (Library of Congress)



Figure 8-24: A foreign family playing golf.
Source: (Ministry of Culture 1969).

8.8.2 Religious

According to the historic maps, the Comboni Fathers of the Austrian-African missionary left on the northern part of the Island two main religious and educational establishments: the Saint-Joseph Catholic Church and School and Pensionnat de la Mère Dieux, a boarding school for girls (currently a public secondary school for girls). The first mosque to appear in the suburb was Mohammed Pasha Mosque built in 1942 over the garden of his villa. This also supports the fact that the suburb was originally targeting foreigners. Later another mosque was built on the entrance of Zamālik bridge known as Zamālik Mosque. This mosque is believed to be designed by the famous Italian architect Mario Rossi.

8.8.3 Educational

Beside the two previously mentioned schools in the northern part of the island, the suburb's first school was "Ecole de Zamalik" (Zamālik School). It was founded in 1930 by Madame Valentine Morin as a primary and secondary school offering the official program of France.²⁷²

8.8.4 Embassies

Due to its unique location near the Khedivial Cairo, several embassies were established on plots or in buildings dedicated for residential purposes. According to the analysis of "Le Mondain Egyptien, 1939," the suburb hosted nine embassies and several diplomatic attaché residences. The embassies became a distinguishable aspect of the suburb.

²⁷² Samir W. Raafat, 'The Zamalek Legend 1860-1940', 15 December 2000, <http://www.egy.com/zamalek/00-12-15.php>, accessed 05 February 2018.

8.9 Social Target Group

According to Samir Raafat, the first cluster of villas was dedicated for the British employees, along with the club giving exclusive access to the British, “formed the fenced suburban refuge of higher Anglo-Saxon community.”²⁷³ In the beginning, the suburb was mainly occupied by foreigners from different countries, including Britain, Germany, Belgium, Swiss, Australia, Greece, and Denmark, and only three Egyptian residents. It was mainly a British settlement as the 1913 Egyptian Commercial Directory lists 53 British senior civil servants in the Egyptian administration, few Europeans, and three Egyptians.²⁷⁴

Later, the island attracted the European industrial bourgeoisie, Egyptian agrarian bourgeoisie, royal family members, and more white-collar foreigners and Egyptians. The analysis of the 1939 *Le Mondain Egyptien* lists 671 names with addresses in Zamālik or Gezira, not only the study area. These addresses represented the whole Island. 421 of these names were foreign, representing 72% as shown in Figure 8-25. This number shows that Zamālik suburb was mainly a residence for foreigners. The study further analyzes their corresponding work titles (Figure 8-26). The classification categories are elaborately explained in the research methodology in Chapter 1. The analysis shows that 50% of the residents subscribed had certain professions, including engineers, doctors, university professors, and employees in public or private companies.

Zamalek - Listed Elite Residents with Foreign Names in "Le Mondain Egyptien" - 1939

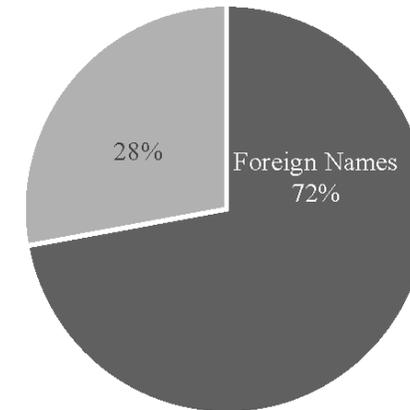


Figure 8-25: Chart showing the percentage of residents with foreign names living in Zamālik.

Based on the list of subscribers in “Le Mondain Egyptian, 1939.”
Source: Created by the author.

The other five categories, B.T.E/O.B.E., private business owners, those who do not work, diplomats, and governmental officers, each occupy an almost equal portion of 10%. The high percentage of B.T.E/O.B.E. in the suburb is probably related to the construction of houses by the Domains Administration for British employees, the existence of British-exclusive club, and the nearby British barracks on the opposite side of the Island. The percentage of diplomats is also related to the establishment of several embassies in the suburb.

²⁷³ Raafat, ‘AND THEN THERE WERE NONE’ (above, n. 5).

²⁷⁴ Ibid.

Zamalek - Listed Elite Residents Work Titles'
Classification from "Le Mondain Egyptien" - 1939

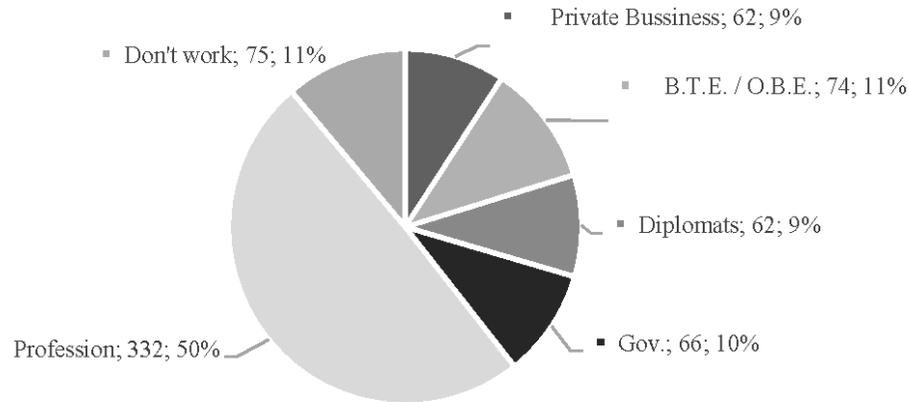


Figure 8-26: Chart showing the work title classification percentage of the residents living in Zamālik.

Based on the list of subscribers in "Le Mondain Egyptian, 1939."
Source: Created by the author.

The overall classification percentage shows that Zamālik suburb included a diversity of social classes; it was not, at that time, 1939, an enclave for the bourgeoisie as generally described. It also shows that its proximity to the city center encouraged some residents with different professions to move to new suburbs. However, it still included more foreigners than Egyptians. This was mainly fostered by the establishment of residencies for the British high officials and embassies in the suburb.

8.10 Summary on Zamālik

Zamālik was developed by Gezira Land Development Company, which transformed the K.I. Gezira Palace into a hotel and parceled part of its garden into buildable plots, around the year 1903. Zamālik soon became a healthy suburb on the periphery of Cairo. The architectural development boomed with the inauguration of the Boulaq bridge and tramline constructed in 1912. This made it easily accessible and directly connected to the city center. Among the initial buildings were few villas constructed by the Domains Administration for the British governmental employees. These villas, along with the sporting club established earlier exclusively accessible for the British, made the new suburb an attraction spot for the British community. Later, the suburb started attracting some foreigners and Egyptians.

Zamālik tree-aligned paths offered a pleasant pedestrian experience, and its large residential plots offered space for garden-surrounded homes with low density. The GSC with its recreational sports fields acted as a catalyst for the suburban development, offering a social life for the suburb. Although Zamālik started as a land development project, its home-surrounded gardens and the previously existing recreational sports field of the GSC, along with its proximity and direct connectivity to Cairo's city center, transformed it from a simple land development or estate project to a distinguishable suburb similar to the British garden suburbs.

CHAPTER 9: MA'ĀDĪ

This chapter presents the morphological urban analysis of Ma'ādī. The study analyzes the following aspects: background, main principles, authority in power responsible for the development, urban context, urban design concept, street typology, residential block typology, social infrastructure, and social target group. In its summary, this chapter highlights the main principles and urban design aspects that makes Ma'ādī eligible to be identified as a garden suburb of Cairo alike the British garden suburbs.

Ma'ādī in Brief	
Establishment	1904
Location	12 km south of Cairo city center
Area	0.6 sq.km (146 acres)
Developer	Delta Land Company and Investment Company
Planner	Canadian Civil Engineer Alexander James Adams
Contributing Architects	The first buildings were designed by the British-educated Greek Ariston St. John Diamant

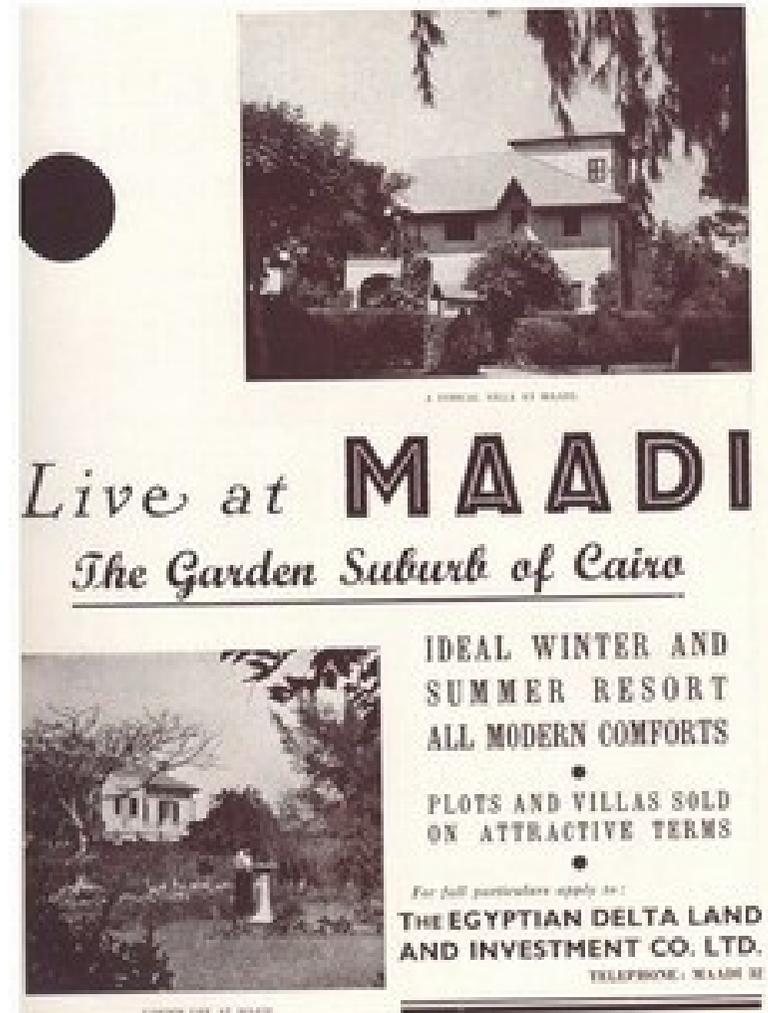


Figure 9-1: Advertisement for Ma'ādī promoting it as the garden suburb of Cairo.

Source: (egyptedantan.com)

9.1 Background

Ma'ādī is one of the pioneer garden suburbs to be established around Cairo in 1906, although the idea started in 1904. It was privately developed by a land development company with foreign European capital: The Delta Land and Investment Company, part of Suares Group Investment Empire in Egypt. After the Suares Group won the contract for the construction of Cairo-Helwan line in 1888, they joined a British financial syndicate forming London-based Egyptian Delta Light Railways Ltd., which run light railway lines in the Delta and Cairo.²⁷⁵ Helwan, located 19 km from Cairo, was Egypt's winter resort at that time, with its Sulphur springs and pure air. It attracted several princes and pashas to build their palaces and villas there, surrounded with gardens. It hosted several hotels and public parks.²⁷⁶

In 1904, the Suares Group and their British partners established the Egyptian Delta Land and Investment Company.²⁷⁷ In 1905, Suares Group bought 138 feddans of agricultural land (0.6 sq.km, 1430 acres) in Ma'ādī, where the new railway line was passing. One year later, land parceling started. The company implemented a plan to subdivide most of the land into lots of around 1000 meters square each, reaching a density of four houses per acre as shown in Figure 9-8. The land was sold as

unbuilt plots with defined building regulations to build stand-alone villas with a maximum height of 15 m.²⁷⁸

A golf course and cricket's field were later laid down on its north-eastern edge. These fields were part of a sporting and social club hosting several sports activities, including a swimming pool and tennis courts. The recreational activities, along with its garden-surrounded houses, initially attracted the British, few foreigners, and later Egyptians. In the case of Ma'ādī, it was the railway industry development that boosted the development of this suburb. It was mainly an investment project owned by a European industry.

Its main aim was to gain more profit by investing in the real-estate development, benefiting from the new railway road construction by its sister company Egyptian Delta Light Railways Ltd. The garden suburb was mainly a bedroom community connected to Cairo's city center by a railway and a paved vehicular road, allowing its residents to commute daily to work in the city center and return to their homes in Ma'ādī.

9.2 Main Principles

The main principle that guided the development of Ma'ādī garden suburb was investment, like most suburban developments around Cairo at the time. The Egyptian Delta Land and Investment Company purchased the land, and then they subdivided it into buildable plots and sold it to

²⁷⁵ Vitalis, *When capitalists collide* (above, n. 195), pp. 35–37.

²⁷⁶ Raafat, *Maadi 1904-1962* (above, n. 5), pp. 11–45.

²⁷⁷ *Ibid.*

²⁷⁸ Volait, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism' (above, n. 4), pp. 35–36.

tenants for attractive prices to build stand-alone villas. To attract the residents, they established a railway station over the Cairo-Helwan line. They later designated a large part of the land to recreational fields, consequently creating a healthy garden suburb. Thus, Ma'ādī from day one was designed and promoted as a garden suburb.

9.3 Authority in Power Responsible for the Development

Developer

The developer was the Egyptian Delta Land and Investment Company established by Soares Group and a British financial syndicate. The Soares Group, headed by Felix Soares (1844-1906), was a Jewish consortium made up of the leading banking firms of Jacobs Moise Cattaoui Fils & Cie., Menashe Fils & Cie, and Soares Frères & Cie.²⁷⁹ The Soares, Cattaoui, Menasce, Mosseris, and Rolo were closely linked by marriage and investment activities.²⁸⁰ The company parcelled the land and sold it as vacant land plots. It has also built several villas and sold them to tenants. The company was also responsible for the management of the utilities from water, road, and power.

Planner

Delta Land's landscaping engineer was responsible for the land parceling. It is believed to be the civil engineer Alexander James Adams: "... a retired Canadian military officer and managing director of the

development company, was responsible for the plan of tree-lined streets, divided quarter-acre lots accommodating detached villas with gardens."²⁸¹

Contributing Architect(s)

The first buildings were designed by the British-educated Greek Ariston St. John Diamant.²⁸²

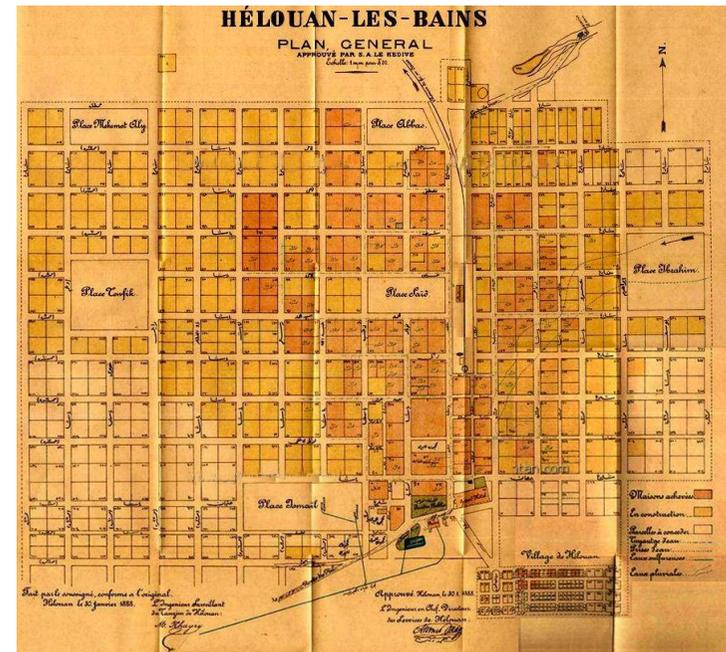


Figure 9-2: General Plan of Helwan.

Source: adapted from (egyptedantan.com)

²⁷⁹ Raafat, *Maadi 1904-1962* (above, n. 5), p. 13.

²⁸⁰ Krämer, *The Jews in modern Egypt, 1914-1952* (above, n. 199), 66-41.

²⁸¹ Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), p. 674.

²⁸² Volait, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism' (above, n. 4).

9.4 Urban Context

9.4.1 Location

Ma'ādī is located on an agricultural area, about 12 km south of Cairo on the east bank of the Nile. It is also situated 7 km north of Helwan. Around the site was spread several small farmers' villages.

9.4.2 Area

The company obtained 138 feddans (0.6 sq.km, 146 acres) of agricultural land in Ma'ādī to establish this suburban land development.

9.4.3 Surrounding Incentives

The main incentive for choosing this site was that the new Cairo-Helwan line was passing through it. Besides, the suburb was established on agricultural land overlooking the Nile. Thus, Ma'ādī was surrounded by agricultural land and few farmers' villages who worked in land cultivation. This has provided the new suburb with its agricultural needs and service personnel. The existence of the Egyptian army barracks on its south-western edge overlooking the Nile has also boosted its development as it initially attracted the British and later Egyptian officers. This has also fostered the British community existence in the suburb.

9.4.4 Accessibility and Linkage

Ma'ādī was mainly accessible by the railway or by vehicular cars. The canal separated the railway station and the main road leading to Ma'ādī from the main land development in the northern side. Thus, most of the suburb was only accessible through one main central bridge and few smaller bridges on the sides. Nowadays, although the canal was dried, accessing and exiting Ma'ādī by car is still a problem that faces the

residents. This problem has increased especially with the establishment of several multi-national firms inside the suburb, so some employees were commuting daily inside the suburb, which has limited car access points.

9.5 Urban Design Concept

9.5.1 General Design Concept

The main design concept was to provide an iron grid street network to parcel the land in an efficient way to maximize the sellable residential plot. However, from the main railway station square, where no building was constructed, radiate several main axial streets. From the west, one axial road leads to the Ma'ādī Casino and another axial road leads to the Egyptian army barracks. From the east, 3 axial roads lead to 3 circular squares, crossing the canal. From these circular squares radiate few other axial roads. Another vertical main axial grid subdivides the suburb into five chunks, between which an orthogonal grid of 132*82 m defines the secondary street grid and the residential blocks. Each chunk is thus composed of rows of residential blocks (Figure 9-4).

A canal passed through the suburb in its southern part, dividing the suburb's land into two parts, where most of the site was located on the northern side of this canal. The railway track lines defined the development Southwestern edge. However, few land plots were developed behind the track lines along with a casino overlooking the Nile. The Nile flooding reduced development near its shorelines.

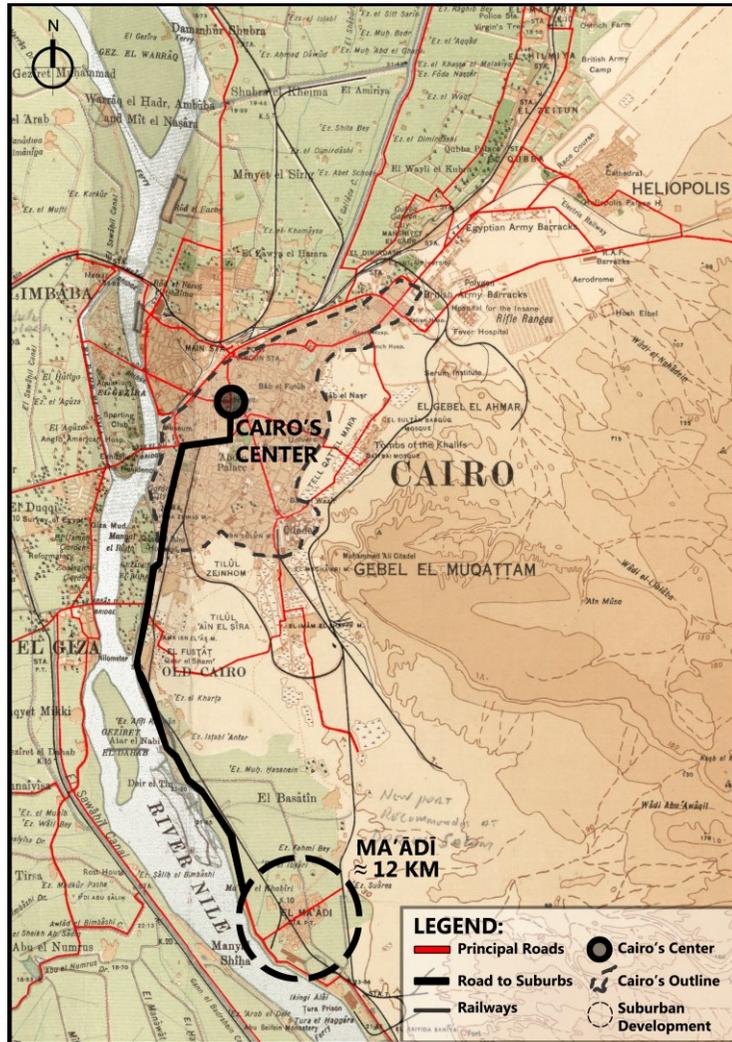


Figure 9-3: Location of Ma'ādī from Cairo's center.

Source: Adapted from a 1920 map of Cairo from (Library of Congress).

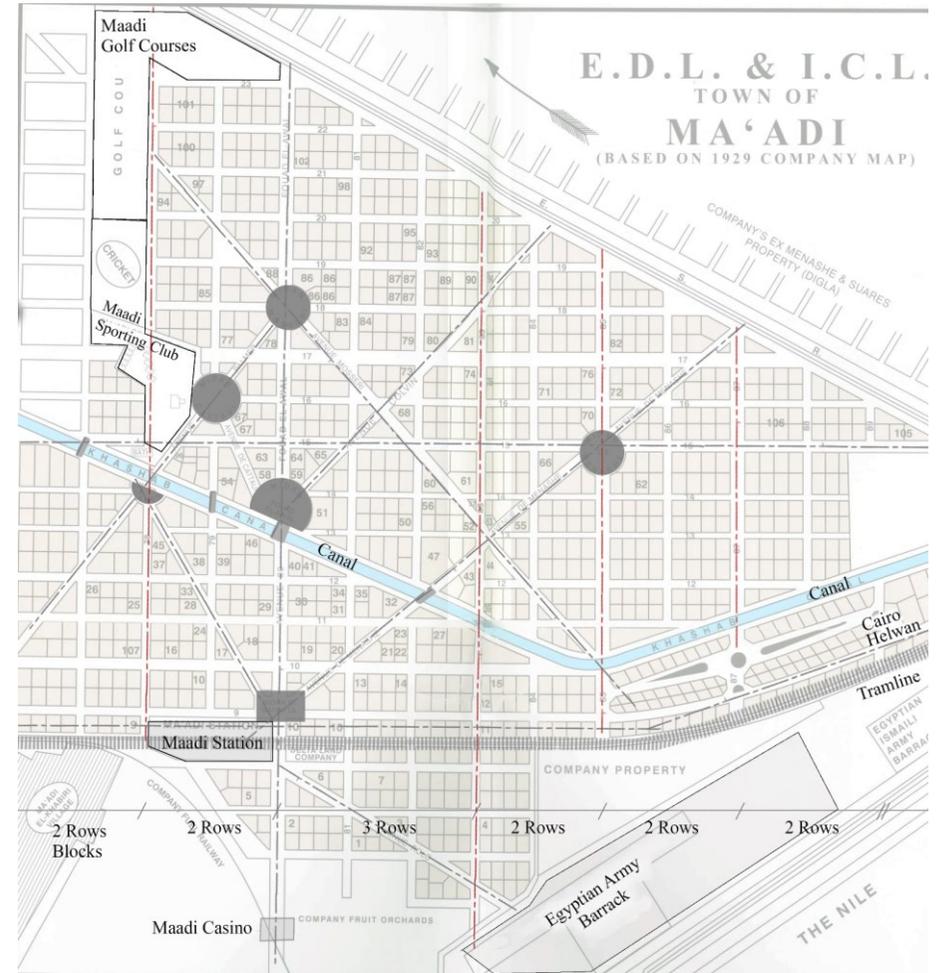


Figure 9-4: Ma'ādī urban conceptual design.

Source: Created by the author on a 1929 map of Ma'ādī from (Raafat 1995).

9.5.2 Land Uses and Zoning

Similar to Zamālik, no holistic zoning plan was prepared for Ma'ādī. The 1929 plan of Ma'ādī, the earliest available plan, mainly shows the street grid network, which formed the buildable plots. The area dedicated for the Ma'ādī Sporting Club and golf courses was introduced in 1921 over residential plots upon the residents' demand.²⁸³ It shows the railway station square as well and the Delta Land Company office building next to it. The other recreational facility that appears on the plan was the Ma'ādī Casino, overlooking the Nile. Later, with the growth of the suburb, schools and religious buildings were established over the residential plots.

9.6 Street Typology

9.6.1 Street Network

The company had an interesting combination of two street network grid systems. From the railway square radiate axial roads connecting circular squares overlapped by a secondary orthogonal iron grid (Figure 9-5).

9.6.2 Street Design

The axial radial network forming the main street has a street width of 20 m. The tree-aligned street has 8 m dedicated for the road sided by a wide footway of 6 m on both sides. The iron orthogonal grid forming the secondary streets network is composed of a 12 m wide tree-aligned street,

6 m for the road and 3 m for the footway on each side. The roads were used mainly by vehicular automobiles and horse carriages.

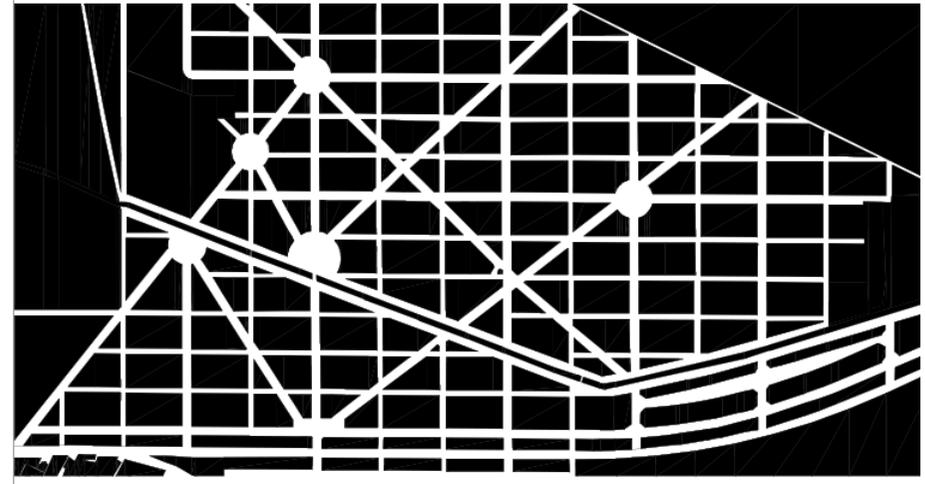


Figure 9-5: Ma'ādī street network.

Source: Created by the author.

9.6.3 Shading Typology

Tree-aligned streets were one of the significant urban design features of the garden suburbs. This is one of the characterizing features of Ma'ādī. The Ma'ādī garden suburb streets were planned to be wide, allowing movement of horse carriages, which formed the main means of transportation at that time, and automobiles. The streets were defined with wide footways shaded with trees on both sides to facilitate pedestrian movement.

²⁸³ Raafat, *Maadi 1904-1962* (above, n. 5), p. 21.

By checking the 1936 maps of Ma'ādī in scale 1/2500, an interesting feature regarding the design of the footways and the trees distribution is revealed. Alike Zamālik, the trees were aligned in front of each other on both streets' footways on both sides. The trees are distributed as well in a zig-zag pattern, where the trees' wide canopies overlap, providing shadow for the roadway as well as the footway.

Table 9-1 shows that the trees used in Ma'ādī had wide canopies. This system might have been used to widen the shadow range over the road as the main transportation system at this time was horse carriages. The shadow was thus needed to cover the street to reduce the heat above the travelers' heads using horse carriages. The tree-aligned streets with wide shaded footways provided a pleasant experience for the pedestrians, which added to the quality of life in Ma'ādī.

Table 9-1: List of trees planted in Ma'ādī and Helwan.
Source: Adapted from (Abdel Ghani Ghanam 1928).

Suburb	Important streets and squares names	Planting Year	Number of Trees	Tree Type
Ma'ādī and Helwan		1917	43	<i>Poinciana regia</i>
			934	<i>Albizia lebegh</i>
			87	<i>Dalbergia sissou</i>

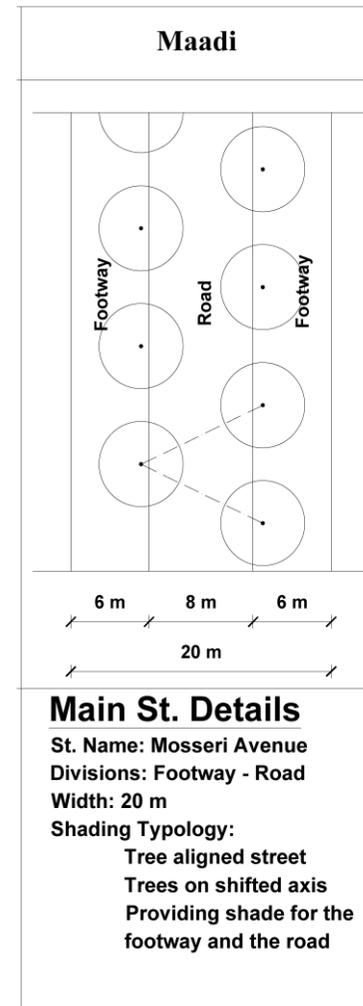


Figure 9-6: Ma'ādī main street.
Source: Created by the author.

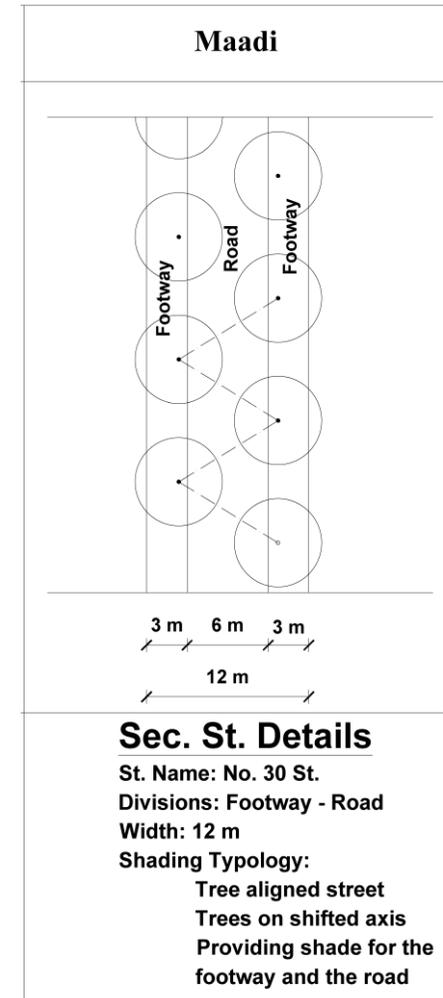


Figure 9-7: Ma'ādī secondary street.
Source: Created by the author.

9.6.4 Street Names

Based on the 1929 map of Ma'ādī, regardless the main railway square, the circular squares of the suburb were mainly named after the Jewish families of the shareholders of the Delta Land Company: Soares, Cattaoui, Menasce, and Mosseris. One square was named after King Fouad El-Awal to honor him. The main axial streets connecting the squares together were labeled as avenues and named after the square that they were leading to. One of the axial avenues was named after Rolo family, one of the shareholders' families. Another avenue commemorated the name of Sir Elwin Palmer (1852-1906), who chaired the Delta Light Railways in 1904.²⁸⁴ In the secondary orthogonal street network, streets were identified only by numbers.

9.7 Residential Block Typology

S. Raafat, in his book "Maadi," explains how the company subdivided the land into sellable plots, creating the residential blocks:

"Delta's Land Original plan of Lotissements of 1906 reveals that there were together 143 rectangular lots of two feddans each, which were in turn subdivided into eight lots of 1,050 sq.m. each. There were also 137 smaller lots of 500 sq.m. each located in the southwestern corner of Maadi. This meant that an aggregate of 302 feddans of Delta Land property was

*allocated to private residential ownership, with the rest of the Company's property was allocated to streets, squares, stables, orchards and other communal or Company property. During the first 20 years of Maadi's existence, most buyers opted for four plots (one acre), other opting for only two (half acre). These large surfaces ensured a large garden and complete privacy from the next-door neighbours."*²⁸⁵

9.7.1 Block Pattern

The orthogonal street network defined the residential block with a regular block of 120*70 m, creating an area of 2 acres (Figure 9-9).

9.7.2 Plot Subdivisions

The block was subdivided into 8 plots of 30*35 m, of 1,050 sq.m. The plots were marked with hedges rather than masonry or iron fencing.²⁸⁶

9.7.3 Building Typology

The buildings were mainly of the type of stand-alone villas surrounded by a garden from the four sides. According to Unwin, doing so minimized the value of the plot, as the garden area is thus divided into four small parts.²⁸⁷ This is probably why several owners bought several adjacent plots to enlarge their garden area. The footprint ratio was kept to 30%. The company insisted that dwelling does not exceed 15 m in height.²⁸⁸ The study thus analyzes only the following residential block.

²⁸⁴ Ibid., p. 15.

²⁸⁵ Ibid., p. 23.

²⁸⁶ Volait, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism' (above, n. 4), p. 35.

²⁸⁷ Unwin, *Town Planning in Practice* (above, n. 27), pp. 319–331.

²⁸⁸ Volait, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism' (above, n. 4), p. 35.

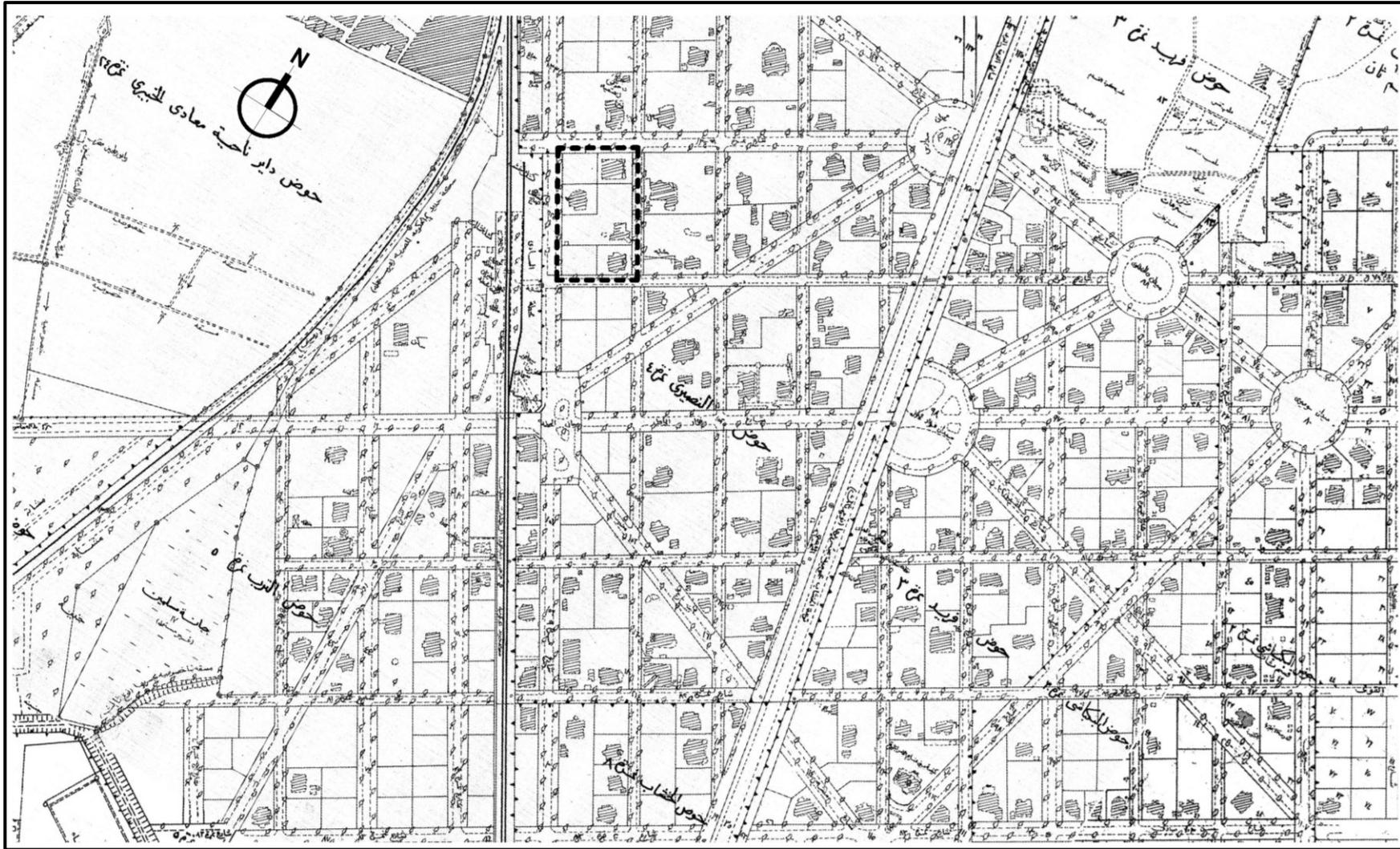


Figure 9-8: The selected residential block typology of Ma'ādī on a collage of 1940 maps drawn in scale 1:2500.

The image also shows that several owners bought more than one plot to enlarge their garden area. Source: (The Egyptian Survey Department)

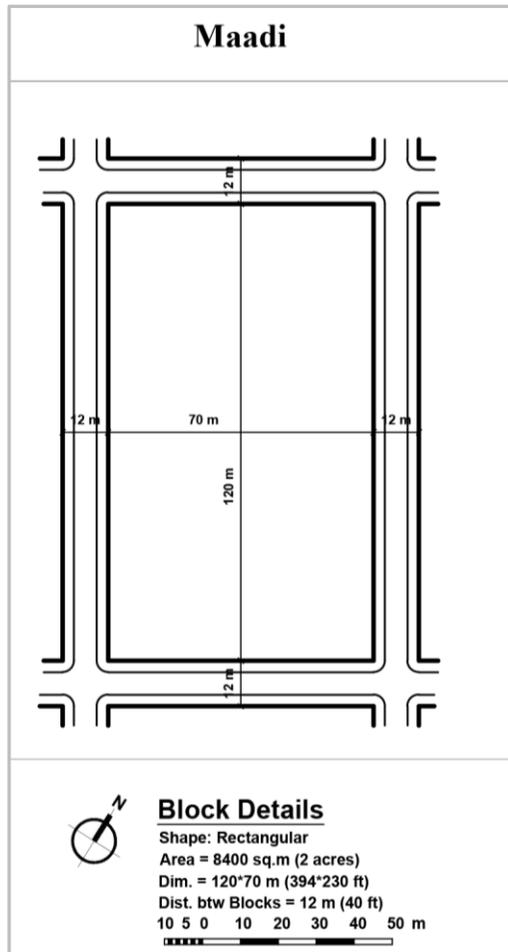


Figure 9-9: Ma'ādī block pattern.
 Source: Created by the author.

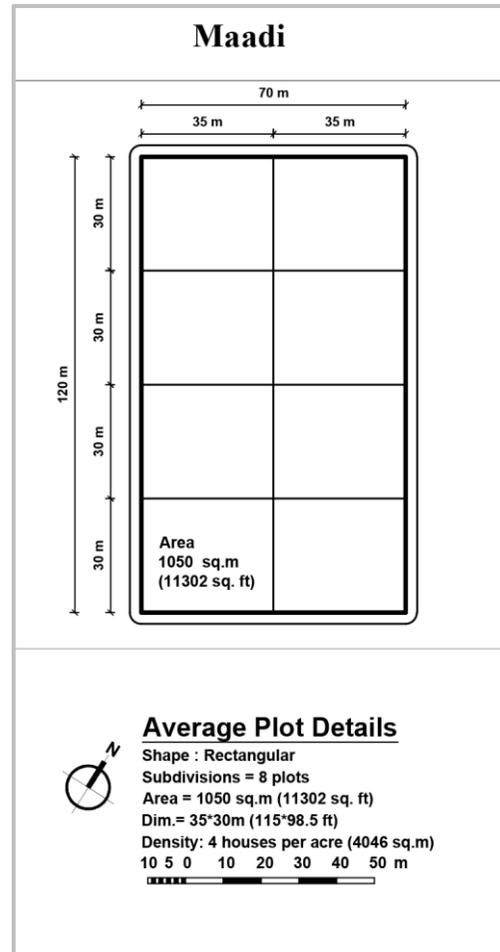


Figure 9-10: Ma'ādī plot subdivisions.
 Source: Created by the author.

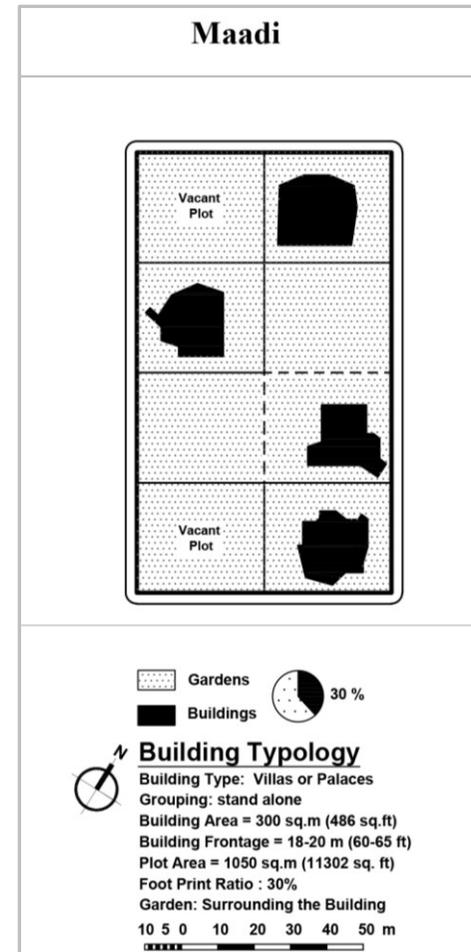


Figure 9-11: Ma'ādī building typology.
 Source: Created by the author.

9.8 Social Infrastructure

9.8.1 Recreational

Ma'ādī garden suburb had limited places for recreational activities, which fostered the social interaction between its residents. The main two recreational institutes were the Ma'ādī Casino overlooking the Nile and the Ma'ādī Sports Club. Ma'ādī garden suburb did not include a club until sixteen years after its establishment, after complaints from the residents.²⁸⁹ In 1921, Ma'ādī Golf Club, later renamed Ma'ādī Sports Club, was established. It had an 18-hole golf course, a swimming pool, cricket ground, tennis courts, and a bowling green. Unlike, Gezira Sporting Club in Zamālik, whose membership was exclusive, the Ma'ādī Club's membership was offered to whoever can afford its fees.

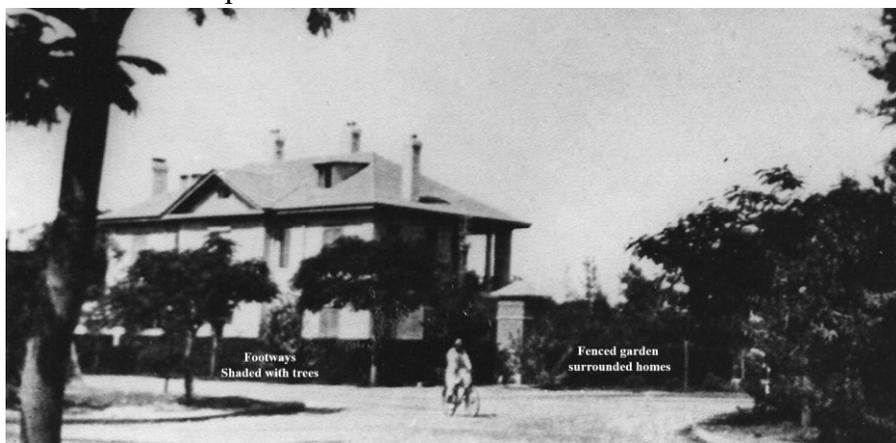


Figure 9-12: Mosseri Square.

Villa Baron Von Richter situated as a triangle on Mosseri Street, road 17, & Palmer Street. Source:(Samir Raafat-egy.com)

²⁸⁹ Raafat, *Maadi 1904-1962* (above, n. 5), p. 67.

9.8.2 Religious Buildings

The initial plan did not incorporate any religious buildings; however, with the population growth, several ones were established over vacant plots designated for residential purposes. The 1939 maps of Ma'ādī show a church, St. John Church (Church of England), a synagogue, and a mosque. The church and synagogue were established in an earlier period, while the mosque was only established in 1939.²⁹⁰ The initially established church was a catholic English church, while most of the Christian Egyptians were Coptic Orthodox. This, thus, supports the idea that the garden suburb was initially mainly aimed at foreigners, especially the British community. However, the diversity of religious institutions reflects the social diversity of the community in the suburb.



Figure 9-13: Ma'ādī Swimming Pool.

Source: (Samir Raafat-egy.com)

²⁹⁰ *Ibid.*, pp. 111–123.

9.8.3 Educational Buildings

Like the religious activities, no land was dedicated to educational activities in the initial plan. The establishment of schools in Ma'ādī started around 1937.²⁹¹ The 1939 map shows a variety of public and private schools, “El-Maadi Governmental Primary School”, School Pensionat “Maadi, English School”, and Boys’ Infant school. This means that the suburb was without schools for around 20 years. This probably reflects the fact that maybe most of the initial residents of the suburb were either single, newly married couples, or elderly people. Otherwise, the children had to commute 12 km daily to the city center to go to school.

9.9 Social Target Group

The newly established suburb initially attracted the British community in Egypt.²⁹² It attracted foreigners as well.

*“As a fashionable residential community, Maadi became home to Egypt’s diverse bourgeoisie. Jewish railroad developers, English engineers, German doctors, and French archeologists all made homes for themselves in the suburb.”*²⁹³

The analysis of the 1939 “Le Mondain Egyptien” points out 125 names with listed address in Ma'ādī. 79 of these names were foreign, representing 63%, as shown in Figure 9-14. This number shows that Ma'ādī garden suburb was mainly a residence for foreigners.

The study further analyzes their corresponding work title (Figure 9-15). The classification categories are elaborately explained in the methodology part in Chapter 1. The analysis shows that 54% had certain professions, including engineers, doctors, bankers, university professors, and employees in public or private companies. 22% worked in the government, whether as ministers, employees in the ministry or the Egyptian army, or senators. The presence of the Egyptian army barracks on its periphery may have encouraged several Egyptian officers to come and live in the new suburb. The appendices of S. Raafat book, “Ma'ādī,” shows a lot of pictures of Egyptian officers as members of the Ma'ādī Club.²⁹⁴

The analysis also shows that there was a relatively very small percentage of B.T.E and O.B.E members, despite that Ma'ādī was known to be attracting the British community. Based on this classification, it seems that the residents’ jobs depended on the city center; they were probably commuting daily to work in the city center. This was facilitated by the tramline and the rise of automobiles. This analysis shows that Ma'ādī garden suburb included a diversity of social classes, and it was not at that time an enclave for extremely rich people. However, it still had more foreigners than Egyptians.

²⁹¹ Ibid., p. 115.

²⁹² Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism’ (above, n. 4), p. 35.

²⁹³ DeVries, ‘Utopia in the Suburbs: Cosmopolitan Society, Class Privilege, and the Making of Ma'adi Garden City in Twentieth-century Cairo’ (above, n. 5), 351.

²⁹⁴ Raafat, *Maadi 1904-1962* (above, n. 5).

Maadi - Listed Elite Residents with Foreign Names in "Le Mondain Egyptien" - 1939



Figure 9-14: Chart showing the percentage of residents with foreign names living in Ma‘ādī.

Based on the list of subscribers in “Le Mondain Egyptian, 1939.”
Source: Created by the author.

Maadi - Listed Elite Residents Work Titles' Classification from "Le Mondain Egyptien" - 1939

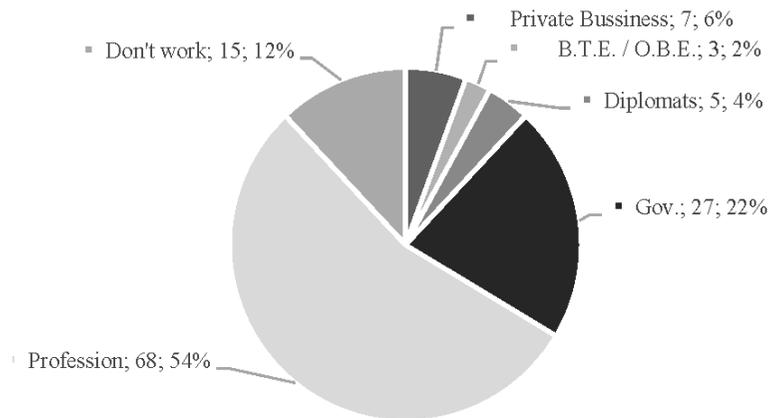


Figure 9-15: Chart showing the job title classification percentage of residents living in Ma‘ādī.

Based on the list of subscribers in “Le Mondain Egyptian, 1939.”
Source: Created by the author.

9.10 Summary on Ma‘ādī

Ma‘ādī was promoted as a garden suburb of Cairo. It was developed by Delta Land and Investment Company with foreign European capital. The company acquired a large agricultural land in Ma‘ādī along the new Cairo-Helwan railway line established by a sister company. The Delta Company parceled the land into buildable plots and sold it to tenants for attractive prices, to build garden-surrounded homes. Sports club and religious and educational activities established later over plots parceled for residential purposes fostered the suburb integrity as a holistic community. Its limited social infrastructure also raised social interaction between the residents.

Ma‘ādī’s interesting dual overlapping street network of radiating axis connecting circular squares and orthogonal grid characterized its urban fabric. Its tree-aligned streets and wide footways provided a pleasant pedestrian experience. Its relatively large plots offered large gardens surrounding homes; however, some tenants obtained more than one plot to increase their garden area. Ma‘ādī initially attracted the British community and latter attracted many other foreigners, thus, it was home to more foreigners than Egyptians. It was home for a diverse social community.

Ma‘ādī was mainly a residential commuter suburb, directly linked to and depending on Cairo’s city center, with exotic recreational activities. Ma‘ādī was thus a garden suburb alike the British garden suburbs.

CHAPTER 10: HELIOPOLIS

This chapter presents the morphological urban analysis of Heliopolis. The study analyzes the following aspects: background, main principles, authority in power responsible for the development, urban context, urban design concept, street typology, residential block typology, social infrastructure, and social target group. In its summary, it highlights the main principles and urban design aspects that makes Heliopolis eligible to be identified as a garden suburb of Cairo alike the British garden suburbs.

Heliopolis in Brief	
Establishment	1905
Location	9 km north east of Cairo's city center
Area	25 sq.km (6177 acres)
Developer	Heliopolis Oasis Company
Planner	British Belgium-educated Engineer Sir Reginald Oakes
Contributing Architects	French architects Ernest Jasper, Alexandre Marcel, and Camille Robida Belgian contractor Léon Rolin

HELIOPOLIS
D'EGYPTE
Oasis Moderne de Salubrité et d'Agrément

A 13 minutes du Caire par le chemin de fer
métropolitain électrique

LA PLUS BELLE SITUATION CLIMATÉRIQUE
DE TOUT L'ORIENT

SÉJOUR D'ÉTÉ ET D'HIVER • CURE DE GRAND AIR

NOMBREUSES DISTRACTIONS
HIPPODROME — Courses de chevaux et dromadaires
SPORTING CLUB — Golf, tennis et polo
AERODROME — LUNA-PARK
STADIUM — JARDINS
ET PARCS,
EXCURSIONS.

HELIOPOLIS PALACE HOTEL
UN DES PLUS VASTES HOTELS DU MONDE

HELIOPOLIS HOUSE
Family Hotel — Pensions privées — Vie familiale

Eclairage à l'électricité

Villas et appartements à louer - Terrains à vendre

Figure 10-1: 1913 advertisement for Heliopolis. It says that the company was renting villas and apartments and selling land plots. Source: (Raafat)

10.1 Background

In the late 1890s, investors were competing to obtain the rights to run light railway lines in the Delta and Cairo. Edouard Empain (1852-1929), a Belgian investor, came to Egypt by the end of the 19th century leading a consortium of Belgian companies known as the Empain Group, to invest mainly in the railway industry. The consortium had previously constructed urban tram lines in Europe, Russia, China, and the Belgian Congo. Empain Group lost the bid for constructing the Cairo-Helwan line to Suares Group, but they managed to obtain other contracts to construct and operate a few light railway lines in the Eastern Delta and east of Alexandria in addition to few power stations.²⁹⁵

Empain was later introduced to Boghos Nubar Pasha, the son of Nubar Nubarian, the previous prime minister for several of the previous khedives. Boghos introduced Empain to the court of Khedive Abbas Hilmi II (r. 1892-1914) and served as a link between the Khedive and Sir Reginald Oakes, a civil engineer and partner of Empain who had good relations with British colonial officials due to his British title. When Empain proposed that his consortium build a new suburb around Cairo, connected with a railway to Cairo city center, Boghos and Sir Oakes,

²⁹⁵ Vitalis, *When capitalists collide* (above, n. 195), pp. 35–37.

²⁹⁶

²⁹⁷ Samir Saul, ‘Chapitre V. Un contrôle jalousement gardé : entreprises belges et capitaux français’, 01 January 1997, <http://books.openedition.org/igpde/767>, accessed 08 January 2018.

²⁹⁸ Adham, ‘Cairo's urban Deja Vu: Globalization and Urban Fantasies.’ (above, n. 32), p. 145.

facilitated his acquisition of 6,000 feddans (25 sq.km, 6,177 acres) from the colonial government, in the desert, 8 km north east of Cairo. The land was sold for one Egyptian pound per feddan (4200 sq.m).²⁹⁶ A consortium was thus made between the Belgian Empain Group and the Egyptian-Armenian Boghos Nubar Pasha in 1905. They established two companies, Cairo Electric Railway and Heliopolis Oasis Company, in 1906, to construct the new suburb and the tramway lines.²⁹⁷ In return, Boghos Nubar Pasha became partner and director of the new Cairo Electric Railway²⁹⁸, while Sir Oakes became the president and director general of Heliopolis Oasis Company.²⁹⁹

10.2 Principles

In 1981, R. Illbert published a book titled “Heliopolis: Le Caire 1905-1922”³⁰⁰, and he followed it with a paper in 1985, suggesting that Heliopolis was similar to the British garden city movement of E. Howard.³⁰¹ Since then, some researchers have been referring to Heliopolis as a garden city based on R. Illbert’s suggestion. He based his claim on several aspects.

First, the size of the land purchased by the company. H.O.C bought 25 sq.km. (6177 acres) of land in the desert. This size is

²⁹⁹ GARY LEISER, ‘The First Flight Above Egypt: The Great Week of Aviation at Heliopolis, 1910’, *JRAS* 20, no. 03 (2010): pp. 267–294, doi:10.1017/S1356186310000039.

³⁰⁰ Ilbert, *Héliopolis* (above, n. 22).

³⁰¹ Ibid; Ilbert, ‘Heliopolis: Colonial Enterprise and Town Planning Success?’ (above, n. 8), p. 37.

comparable to the 6,000 acres suggested by E. Howard to build a garden city. At that time, this area was as big as historic Islamic Cairo and Khedivial Cairo combined, as shown in Figure 10-5. Second, the company also established two factories, making it, according to Illbert, “self-contained” with an industrial sector alike the garden city movement. Third, the company also constructed few houses for workers, beside the villas and apartment buildings, to facilitate workers accommodations, similar to the concept of a garden city. Fourth, Heliopolis included a variety of recreational activities and recreational fields. Fifth, the center of Heliopolis was designed pretty much like Letchworth’s town center designed by Unwin. He implies that Empain might have had access to such plan, which was prepared in 1903.³⁰²

What also supports R. Illbert’s idea is that until 1922, the initial main developed area of Heliopolis whose center is alike Letchworth was around 5,179 sq.km (1279 acres), comparable to the town-estate area of 1500 acres suggested by Howard and Letchworth’s town area. In addition, some of the plans of the apartment buildings prepared by the company were titled “Garden City Type A.”³⁰³ Another aspect that support his theory, is that in 1905, simultaneously when H.O.C started the construction of Heliopolis., a tramline was laid down by its sister company, New Cairo Electric Railway, to connect the new development

with Cairo’s city center. This is an important aspect of the garden city movement to connect the garden city with the surrounding central city.

The Heliopolis Oasis Company, also, did not only parcel the land and sell it as buildable land plots, like the Gezira Land Company in Zamālik and Delta Land Company in Ma‘ādī, but it also built several villas and apartment buildings. The company, thus, acted as a landlord, renting and selling these built units. It built a big hotel as well and established several recreational activities, such as the Luna Park, a horse racetrack, a golf course, and several recreational sports fields, to attract both residents and tourists.

“...it was not the result of a rapidly developing private enterprise like Zamalik ...nor again a large residential project like Ma‘ādī. By its size (2,500 and later 7,000 hectares), and in its ambition (the creation of a real city with its own multiple services ... the manifestation of a concept very much in vogue at the time, that of the "Garden City".”³⁰⁴

Since then several researchers have quoted Illbert work, thus, identifying Heliopolis as a garden city. However, other researchers have criticized R. Illbert’s suggestion, stating that Heliopolis was far from E. Howard’s garden city principles.

“As a whole, Heliopolis... far from conformed to the Garden City ideals of Howard and Unwin... the

³⁰² Illbert, *Héliopolis* (above, n. 22), pp. 49–79.

³⁰³ Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism’ (above, n. 4), p. 34.

³⁰⁴ Illbert, ‘Heliopolis: Colonial Enterprise and Town Planning Success?’ (above, n. 8), p. 36.

arrangement of the building at block level used a rigid rather than a picturesque layout, the densities were much higher than those advocated by the British movement, and along the wide Boulevards were numerous monumental apartment blocks with arcades ..., bearing little reference to the cottage architecture of the British Garden City” ³⁰⁵

Regardless the architectural design, K. Adham highlights every important difference between Heliopolis and E. Howard’s garden city in terms of a major principle. E. Howard’s forgotten principle of the return of “unearned increment” to community benefit contradicts with Heliopolis. *“For Empain, Heliopolis was no more than a capitalist venture, a real estate development in a foreign land.”* ³⁰⁶

In addition, in terms of principles, the principal idea of a garden city was to design a “town-country” with the benefits of both. Well, Heliopolis was built in the desert, so it did not provide any benefits of the countryside. The company also did not run any agricultural estate to support Heliopolis’ need for agricultural products to make it self-sufficient like a garden city, nor to limit its expansion, although the agricultural lands that surrounded the Qubbah Palace were not far from its site.

³⁰⁵ Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a ‘European-Style’ Urbanism’ (above, n. 4), p. 34.

³⁰⁶ Adham, ‘Cairo’s urban Deja Vu: Globalization and Urban Fantasies.’ (above, n. 32), p. 147.

In addition, the two factories that were built by the company were bricks factories, as shown in Figure 10-11. Thus, they were mainly built to provide the required building materials to build the villas and apartment buildings. They were not built with the intension to make the city self-contained. Previously, in order to secure his investments in the railway industry, Empain has established a bank to secure his financial dependency, beside establishing gas and electricity companies, to secure the energy needed for his electricity-powered urban transport system. ³⁰⁷ Thus, by observing Empain’s background and investment strategies, this study suggests that the establishment of these factories was mainly to secure his dependency of the building material needed for the construction.

The houses built by the company for the workers were also necessary. They were among the first establishments in Heliopolis. The main reason for establishing houses for workers was that Heliopolis was built in the desert far from any villages or settlements to bring workers from, unlike Ma’ādī, which was surrounded by villages and farmers, or Zamālik, which was located directly on the periphery of the city center. Thus, the company had to build houses for the workers who came from different cities in Egypt. The street names around the workers houses were even initially named after the cities or villages from which they

³⁰⁷ Agnieszka Dobrowolska and Jarosław Dobrowolski, *Heliopolis: Rebirth of the City of the Sun / Agnieszka Dobrowolska, Jarosław Dobrowolski* (Cairo: American University in Cairo Press, 2006), pp. 11–33.

came from, such as Qena and Edfu streets, which are two cities in Upper Egypt.

Therefore, the purpose of building workers houses was not similar to the principles of Howard's garden city to provide them residential houses near work, where they can also enjoy an interactive healthy environment between the working and middle classes, as mentioned by Clevenger³⁰⁸ In Heliopolis, workers did not even have access to the provided recreational facilities for economic and socio-cultural reasons. The design of Heliopolis also did not include a large open public park where workers could engage with their neighbors in any social interaction.

Furthermore, Heliopolis was supposed to be planned as two oases, the second oasis labeled as the city of workers. This plan was soon abolished due to the economic crisis in 1907, and a new plan, set in 1908, was implemented, combining the two oases together. The company started to target mainly middle-class employees working in governmental institutions with facilitation in payment.³⁰⁹ The aim was to attract the group that can commute daily to work in the city center and return to Heliopolis, making Heliopolis a commuter suburb depending on the city center of Cairo. According to A. van Loo, Heliopolis was thus a sort of a garden suburb, because a lot of its residents worked in Cairo.³¹⁰

³⁰⁸ Clevenger, 'Working class bodies in English garden cities' (above, n. 80).

³⁰⁹ van Loo, 'La Nouvelle Héliopolis: Invention d'une ville-jardin dans le désert' (above, n. 9).

Heliopolis was also mainly connected by only a tram to Cairo city centre due to their proximity. A garden city is generally connected by train to the surrounding central city as they are supposed to be far from one another to ensure the dependency of one another. Therefore, its proximity to Cairo's city center, being only 9 km away, does not make Heliopolis an independent city. So, with the growth of Cairo over time and the establishment of several suburbs around its city center, Heliopolis is currently considered a neighborhood of Cairo. Despite that the company bought 25 sq.km (6,177 acres), the developed area until 1922 was only around 5,179 sq.km (1,279 acres). Further development of the remaining land occurred with the expansion of Cairo. Beside the functional purpose of the tram to facilitate the commuter residents to access the city center, the tram had a great economic benefit in terms of investment. "*Baron Empain recognized the power of his tram system, particularly the correlation between laying of the tramlines and the increase in price of land around them.*"³¹¹

Despite being inspired by Letchworth Garden City, describing Heliopolis and advertising for it as a garden city because it was laid down on garden city lines was a false claim. This was worldwide at that time,

³¹⁰ van Loo, 'Retour d'Egypte: Ernest Jaspar (1876-1940). D'Héliopolis à Hyderabad' (above, n. 10), p. 350.

³¹¹ Adham, 'Cairo's urban Deja Vu: Globalization and Urban Fantasies.' (above, n. 32), p. 145.

as mentioned by C. B. Purdom in 1923.³¹² All this proves that Heliopolis is not a garden city in accordance with Howard’s principles. Heliopolis was rather a healthy expansion of Cairo providing diverse services and recreational activities, becoming more of a garden suburb of Cairo. Heliopolis was, thus, alike the British garden suburb movement in terms of healthy expansion around crowded central cities, but not in terms of architectural buildings. HOC might have had the intension to build a garden city, but the result was a garden suburb. At the end, it is important to highlight that Baron Empain was strictly a businessman who saw an investment opportunity in suburban land development in Cairo beside his other investment in power, railway, and tourism.

10.3 Authority in Power Responsible for the Development Developer

The Belgian industrialist Baron Edward Empain (1852-1929) along with his Egyptian-Armenian partner Boghos Nubar Pasha were granted on May 23rd, 1905, a concession that authorizes the construction of an electric railway and two electric tramlines from Cairo to the Abbasiya desert in the northeast of the capital. In this region of ancient Heliopolis, they pledged to develop the lands that were sold to them in full ownership by the government. On the 23rd of January 1906, the Cairo Electric Railways and Heliopolis Oases Company were incorporated to operate the concession.

<i>Groupe Empain</i>	
Édouard Empain	10 120
François Empain, frère du précédent.....	4 000
Société parisienne pour l'industrie des chemins de fer et des tramways électriques (Métro de Paris)	10 000
Raymond Legouez, directeur du Métro de Paris	2 000
André Berthelot, administrateur du Métro de Paris	200
Compagnie générale de railways et d'électricité, Bruxelles.....	6 000
Société générale des chemins de fer économiques, Bruxelles.....	1 040
Société des tramways du Caire.....	2 000
Maurice Dutilleux, ingénieur.....	6 120
	41 480
<i>Autres intérêts bruxellois</i>	
Banque de Bruxelles.....	2 160
Paribas, succursale de Bruxelles	640
Le baron Léon Lambert, banquier	800
Le chevalier de Bauer, banquier	360
Le comte John d'Oultremont	200
Auguste de la Hault, banquier	160
	4 320
<i>Intérêts anglais</i>	
George Todd Symons.....	6 580
Sir Augustus Fitzgeorge.....	100
Arthur Capel.....	300
Le baron William H. F. Armstrong.....	300
	7 280
<i>Actionnaires en Égypte</i>	
Boghos pacha Nubar.....	2 600
Léon Carton de Wiart, pour lui-même et pour d'autres	4 200
Sir John Rogers pacha	120
	6 920

Figure 10-2: List of shareholders of the Heliopolis Oasis Company. It shows the distribution of the 60,000 shares. Source: (Saul 1997)

³¹² Purdom, *The building of satellite towns* (above, n. 126), p. 23.

The consortium was to build the new suburb and make it accessible through the newly established tramlines. Beside its headquarters in Cairo, the consortium also had administrative headquarters in Brussels, Paris, and London. Its capital of 15,000,000 Francs was represented in 60,000 shares without designation of value.³¹³ The shares were distributed between diverse international shareholders, as shown in Figure 10-2. The company build villas and apartment buildings to be rented beside selling vacant land plots. The company also managed all utilities from water, power, and roads.

The Belgian industrialist Édouard Louis Joseph Empain, was an engineer who started his career as a draftsman in the Metallurgic Society in Brussels. Rapidly, he started to build his empire by developing the underdeveloped transport system in Belgium. To secure his financial dependency for his investments, he established his own bank, Banque Empain. He later became involved in the railway business in France. Later to secure his investment in the railway industry which depended on power, he started to create companies to generate and produce electricity. *“By grafting his transport and electricity business together, he built and operated electricity-powered urban transport system in Naples, Turin., Madrid, Warsaw, China, and Egypt.”*³¹⁴

³¹³ Saul, ‘Chapitre V. Un contrôle jalousement gardé : entreprises belges et capitaux français’ (above, n. 294).

In 1894, Empain started his investments in Egypt. He established first, the Société Anonyme Tramways du Caire, and then established several other companies, which constructed and operated electricity-powered urban transport system in diverse cities around Egypt. His success in the transport business in Egypt, encouraged Baron Empain to start his first real-estate development project by establishing Heliopolis.³¹⁵

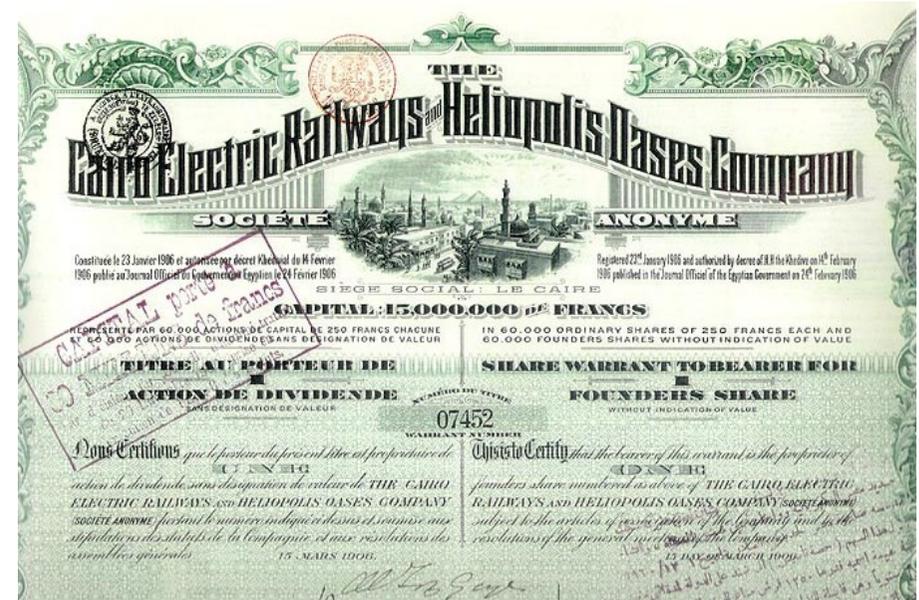


Figure 10-3: Egypt: Cairo Electric Railways and Heliopolis Oases Co., 1 founders share, 1906.

Source: Samir Raafat (egy.com)

³¹⁴ Agnieszka Dobrowolska and Jarosław Dobrowolski, *Heliopolis: Rebirth of the City of the Sun* / Agnieszka Dobrowolska, Jarosław Dobrowolski (Cairo: American University in Cairo Press, 2006), pp. 11–33.

³¹⁵ Ibid.

The Egyptian-Armenian partner Boghos Nubar Pasha (Alexandria 1851 to Paris 1930) was assigned as the director of the new sister company Cairo Electric Railway.³¹⁶ B. Nubar was the son of Nubar Pasha. The latter was of Armenian origins, whose parent came to Egypt when he was seventeen to train as a secretary for Boghos Bey, an influential minister of Mohamed Aly Pasha and a relative of Nubar's wife.³¹⁷ He later progressed to higher positions until he became prime minister of Egypt three times for three Khedives, Ismail, Tewfik, and Abbas Helmi II. B. Nubar was educated in Egypt and France. He was previously an engineer and public works' civil servant in Egypt, where he worked on Cairo's water supply and irrigation in Sudan. *"In 1906 founded with others the Armenian General Benevolent Union, of which he remained president until 1928. Appointed by the Catholicos in 1912 to be head of an Armenian delegation in Paris to co-ordinate pro-Armenian activities and publicize the Armenian case."*³¹⁸ His background and

³¹⁶ Adham, 'Cairo's urban Deja Vu: Globalization and Urban Fantasies.' (above, n. 32), p. 145.

³¹⁷ Editors of The Encyclopaedia Britannica, 'Nubar Pasha', 1911, <https://archive.org/details/in.ernet.dli.2015.73294/page/n895>.

³¹⁸ 'Bogos Nubar Pasha', 08 September 2017, http://www.armenian-history.com/Nyuter/BIOGRAPHY/bogos_nubar_pasha.htm, accessed 15 October 2018.

³¹⁹ Ayman Zohry, *Armenjans in Egypt*, https://www.academia.edu/1300264/Armenians_in_Egypt.

³²⁰ Baronet was a dignity title bestowed on knights and esquire. It was introduced in 1611 as a mean of supplying the financial requirements of the crown. It was given to men of quality, state of living, and good reputation,....(who) had also a certain yearly revenue in lands of inheritance of possession one thousands per annum de claro. Joseph

activities are probably what attracted several Armenians to live in Heliopolis, especially after they fled to Egypt, after the Armenian Genocide in 1915.³¹⁹

Planner

The British Belgium-educated Sir Reginald Louis Oakes, 4th Baronet³²⁰ (1847–1927), was the president and director general of Heliopolis Oasis Company³²¹, which is believed to have been responsible for the initial plan of Heliopolis.³²² His signature is also found on the blue prints of the architectural drawings of the buildings constructed by the company. Reginald Oakes was born in 1847 to Henry Frederik Oakes, Esquire of Louvain (Belgium), and Mary Donety, the daughter of the late John Ward, Esquire of Huntingdon. He was titled 4th Baronet after his grandfather Sir Henry Thomas Oakes, the 3rd Baronet. He received his education in Louvain and Ghent.³²³ His name was listed since 1885 as a

Foster, 'Baronetage and Knightage of the British Empire: Forming the Second Part of "The Peerage, Baronetage, and Knightage of the British Empire"', 1882, <https://archive.org/stream/peeragebaronetag02fost#page/n5/mode/2up>, accessed 28 February 2017.

³²¹ LEISER, 'The First Flight Above Egypt: The Great Week of Aviation at Heliopolis, 1910' (above, n. 296).

³²² Stern, Fishman and Tilove, *Paradise planned* (above, n. 19), pp. 669–672; Ilbert, *Héliopolis* (above, n. 22), pp. 49–79.

³²³ Edward Walford, 'The County Families of the United Kingdom, Aristocracy of England, Wales, Scotland, and Ireland: varies: 1860-68, R. Hardwicke; 1882-1904, Chatto Windus; 1908- Spottiswoode', 1919, <https://www.myheritage.de/research/collection-90100/zusammenstellung-von->

member of the institution of mechanical engineers. He was affiliated to several railway companies in Britain and Belgium.³²⁴

His British title, Belgium education, and work experience in the railway industry in both Britain and Belgium qualified Sir Reginald Oakes to become Baron Empain partner and the Managing Director of the Cairo Electric Railways and Heliopolis Oasis Company. His British title facilitated his relationship with the British colonial officials. His Belgium naissance, education, and working experience in the Belgium railway industry are what might have put him in contact with the Belgian industrialist Baron Empain. All these factors made Sir Reginald Oakes a successful and reliable president and director of H.O.C.

OAKES, Sir REGINALD LOUIS, Bart.—Cr. 1815.
 Only son of Henry Frederick Oakes, Esq., of Louvain, who *d.* 1849, by Mary Donety, who *d.* 1875, dau. of John Ward, Esq., of Huntingdon; *b.* 1847; *s.* his grandfather Sir Henry Thomas Oakes, 3rd Bart., 1850; *m.* 1882 Florence, eldest dau. of Charles De Bels Brounlie, Esq., formerly Vice-Consul at Turin. Educated at Louvain and at Ghent.

Figure 10-4: Reginald Oakes family and education.

As mentioned in the “Country Families of the United Kingdom” annular of 1908. Source: (Genealogy Collection 1908)

veroeffentlichen-quellen?itemId=478353034&action=showRecord, accessed 27 February 2017.

³²⁴ The Institution of Mechanical Engineers, ‘Proceedings’, 1891, <http://scans.library.utoronto.ca/pdf/9/15/proceedings1891inst/proceedings1891inst.pdf>, accessed 28 February 2017; The Institution of Mechanical Engineers, ‘List of Members: Articles and By-Laws’, February 1901,

Contributing Architects

Several architects have participated in the distinguishable architectural development of Heliopolis, such as the French architects Ernest Jasper (1876-1940), Alexandre Marcel (1860-1928), and Camille Robida (1880-1938) and the Belgian Léon Rolin (1871-1950). A. Marcel was responsible for the design of the Baron Empain “Hindou” Palace, Prince Hussein Kamel Palace, the Basilique Church, several villas, and the gate of the Luna Park. E. Jasper designed the Heliopolis Palace Hotel, the headquarter office building of the two companies, and several villas and apartment buildings. C. Robida designed several villas as well as the iconic racecourse pavilion building. L. Rolin et Cie were responsible for the construction of the two brick factories and the railways workshops.³²⁵ The French architects had designed several monumental buildings mixing Parisian massing with Moorish architecture, making Heliopolis closer to the ‘grand designs’ in Beaux-Arts, rather than the picturesque cottages of the garden city movement.³²⁶

<https://ia802700.us.archive.org/14/items/listofmembers1901instuoft/listofmembers1901instuoft.pdf>, accessed 28 February 2017.

³²⁵ van Loo, ‘La Nouvelle Héliopolis: Invention d’une ville-jardin dans le désert’ (above, n. 9), p. 115.

³²⁶ Volait, ‘Making Cairo Modern (1870-1950): Multiple Models for a ‘European-Style’ Urbanism’ (above, n. 4), p. 34.

10.4 Urban Context

10.4.1 Location

Heliopolis is located 9 km away from the city center of Cairo, as shown in Figure 10-5 and Figure 10-6. It was developed over a desert area at that time.

10.4.2 Area

The company bought 25 sq.km (6,177 acres), but the developed area until 1922 was only around 5,179 sq.km (1,279 acres). This developed area is the study area that this study is analyzing. As highlighted in Figure 10-5, the purchased land was almost as big as the whole developed areas of Cairo, at that time.

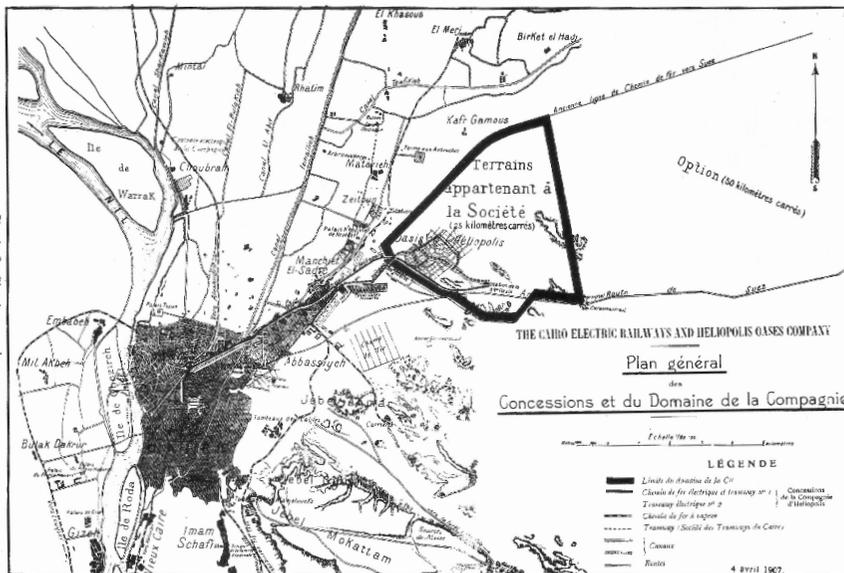


Figure 10-5: The site of Heliopolis.

Source: (Ilbert 1981)

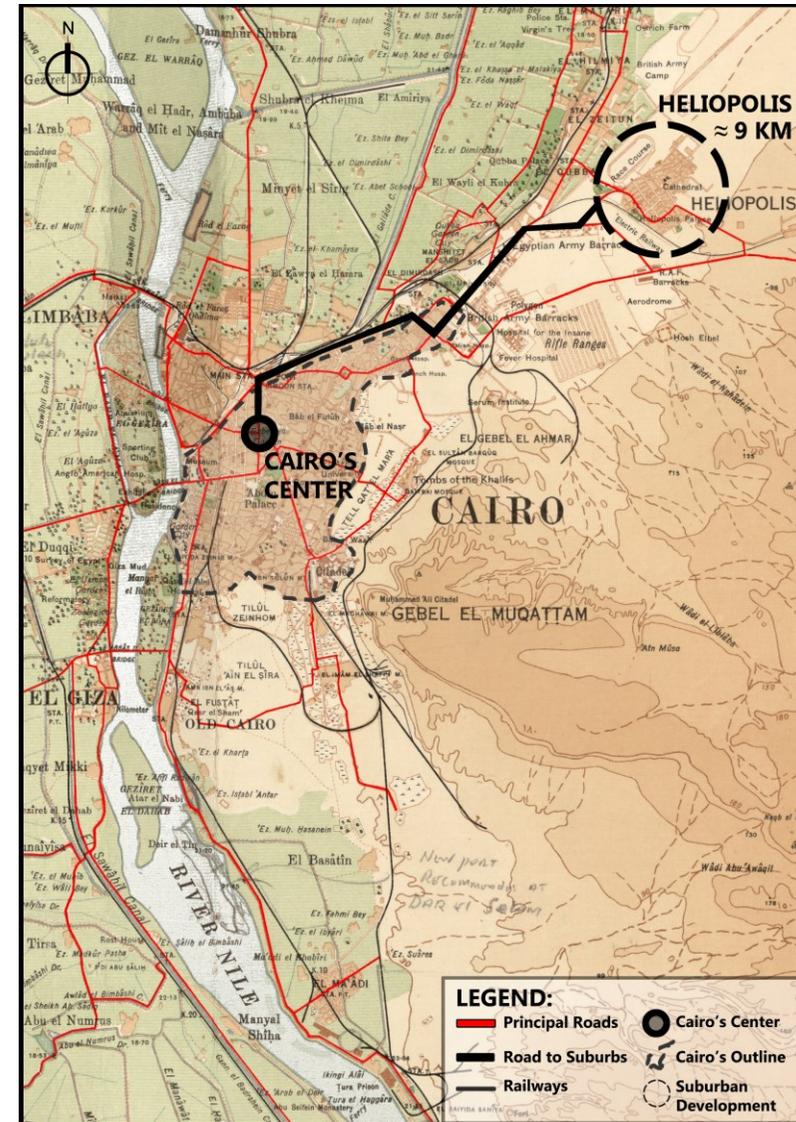


Figure 10-6: Location of Heliopolis from Cairo's center.

Source: Adapted on a 1920 map of Cairo from (Library of Congress).

10.4.3 Surrounding Incentives

Heliopolis was established in the desert, on a site near the ruins of the old Heliopolis city, “the sun city” of ancient Egyptians, and thus came the name Heliopolis.³²⁷ The company benefited from such site by promoting and describing the project as an oasis in the desert, in order to attract tourists to their hotel that organized Bedouin nights for them in the dessert.³²⁸ The company also benefited from the existence of the sacred site of “Meryem Tree,” a commemorate of the Christ journey through Egypt, as a touristic attraction.

On its Eastern boarder laid the Khedive Ismail Qubba Palace and its gardens. This place became the official residence of Sultan Fouad El-Awal who ascended Egypt's throne in 1917.³²⁹ An extension line from the Heliopolis tramline was later constructed to connect the palace to the main railway station of Cairo in Bab El-Hadid square. This aimed to facilitate the journey of the Sultan’s foreign visitors and diplomats who came to Egypt via the Mediterranean Sea to Alexandria and then took the train to Cairo. The palace was overlooking large agricultural fields.

Near Southern borders of Heliopolis, existed the Egyptian army barracks and Abbasiya district. According to historian K. Fahmy, this area was developed during the Khedive Abbas reign (1848-54) after the advice

³²⁷ Dobrowolska and Dobrowolski, *Heliopolis* (above, n. 310), pp. 11–33.

³²⁸ van Loo, ‘La Nouvelle Héliopolis: Invention d'une ville-jardin dans le désert’ (above, n. 9), pp. 117–121.

³²⁹ His title was changed to King in 1922 after signing the independence declaration with Britain.

of the director of the school of medicine, French doctor Antoine Clot, to build an extension of Cairo towards its northern side as Cairo air was polluted at that time because of its congestion.³³⁰

10.4.4 Accessibility

“The first building began to rise in 1908, at the time as the first tram route to Cairo was being opened.”³³¹ This tramline facilitated the daily journey of Heliopolis’ residents who worked in central Cairo, especially the governmental employees. It also facilitated the tourists stay in Heliopolis. European tourists mainly came to Egypt via the Mediterranean Sea. They landed in Alexandria and sometimes stayed for a few days and then took a train to Cairo’s main railway station. From there, they took the new tramway line to Heliopolis.

The tramway line also facilitated the tourists’ access to the pyramids and other touristic attractions. Besides connecting it to Cairo, the tramway facilitated the mobility of Heliopolis’ residents inside the newly established suburb, as the tramline circulated the city, as shown in Figure 10-11. The tramway catalyzed the development of Heliopolis and became a significant aspect that affects the quality of life of the residents. It facilitated the daily journeys of the residents from the different age groups.

³³⁰ Khaled Fahmy, *Cairo*, Urban Conservation, 18 December 2013 (Cairo University, 18 December 2013).

³³¹ Ilbert, ‘Heliopolis: Colonial Enterprise and Town Planning Success?’ (above, n. 8), pp. 36–37.



Figure 10-7: Aerial view of Heliopolis in 1932.

It shows that Heliopolis was developed in the middle of the desert. It also shows towards the bottom of the picture the Egyptian army barracks. Source: Library of Congress.

10.5 Urban Design Concept

10.5.1 General Design Concept

According to R. Illbert, Heliopolis was initially planned as two separate circular oases, as shown in Figure 10-9. Each oasis had a tramway station on its outer periphery that connected both oases to the Cairo tramline. The plan of the first oasis shows a circular outer ring and an inner ring, with a tramline, divided by two perpendicular axes. One connects to Heliopolis Palace Hotel located on the outer ring form inside, near the main station outside the outer ring, with the Basilique Church located on the edge of the outer ring from outside. The perpendicular axis connects to the racecourse pavilion, located on the edge of the outer circle, with the Baron Empain Hindou Palace located on the intersection of both axes. A secondary tramline encircled an inner ring. The inner tramway connected the center of the first oasis with the edge of the second oasis.



Figure 10-8: Heliopolis tramway in Tanta street around 1945.

Source: Mémoires Héliopolitaines (Louche 2005)

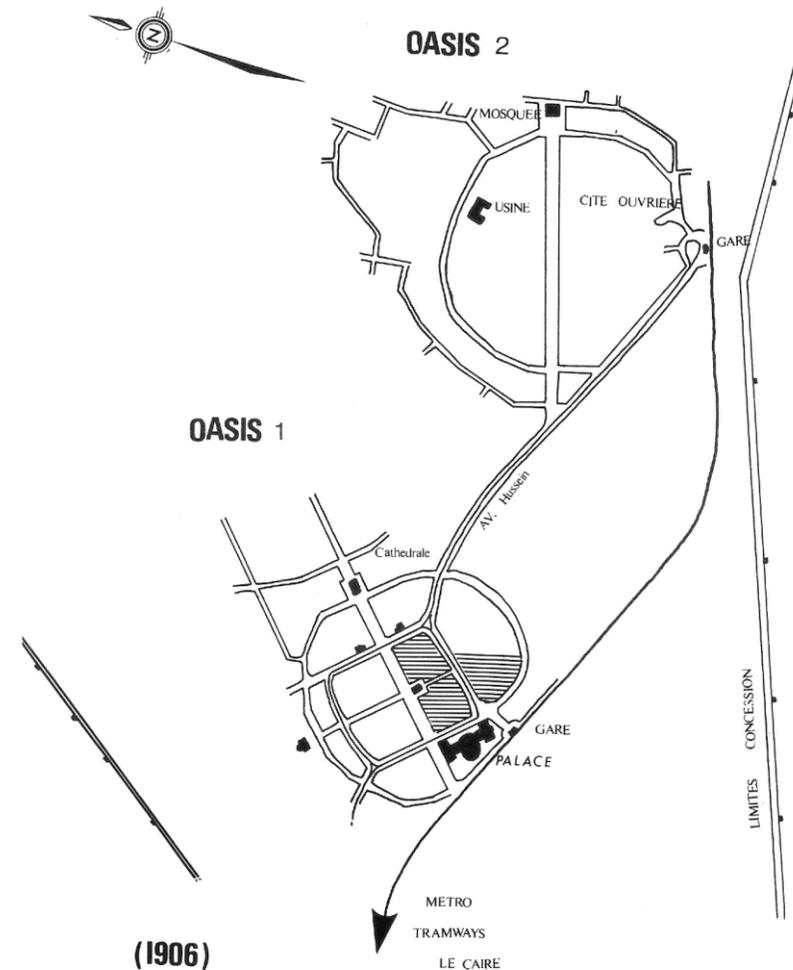


Planche 8 – Le projet des deux oasis

Figure 10-9: Heliopolis 2 oases scheme.

Source: (Ilbert 1981)

The second oasis was labeled the city of the workers. It was also encircled by one main ring road cut by one axis leading to a mosque located on the edge of the ring from the outside. The plan also shows a factory on the periphery of the circle from inside. The two circular oases schemes with their outer and inner railways bring to the mind E. Howard's conceptual scheme of the growth of garden cities (Figure 10-12). However, the factory in the first scheme in Figure 10-9 and the 2 factories in the modified implemented design in Figure 10-11 were not connected to the tramline to transport goods to or from the city. This is unlike Howard's garden city principles, where the railway was supposed to be connected to the factories to import and export goods. This reflects that from the beginning the purpose of the factory was specific: to provide the necessary bricks for the construction of Heliopolis. This plan was soon abolished due to a worldwide economic crisis in 1907, and it was modified in 1908.³³² The plan of the first oasis was kept, while the so-called "workers city" was introduced to the plan on the northeast border of the first oasis behind the Basilique Church (Figure 10-11). The new addition included houses for workers, a mosque, and the factories as intended in the initial plan.

A spider web-like street network was implemented similar to Letchworth. Streets were radiating from the central square, which contained a church and two small gardens. This square design was similar to Unwin's first plan. Axial avenues radiating from the center were

introduced in the new plan, some of them leading to iconic buildings. These new modifications made the center of Heliopolis similar to Letchworth's Garden City. Probably at that time, with the reputation of Letchworth and the garden city movement, the new designed might have been inspired from Letchworth plan. However, the original plan of 1905, illustrated by R. Illbert, was not similar to Letchworth. The original plan shows only two crossed axes within a circular ring, but the modification introduced in 1908 is what made Heliopolis's center similar to Letchworth's center.

From the center radiated circular boulevards, which overlaps due to the integration of the two oases together. The analysis of the 1913 map of Heliopolis, in Figure 10-12, shows that the Basilique, which was designed to be on the edge of the outer ring of Oasis 1, with the integration of the two oases became central. It also shows that the original inner and outer rings were extended, and thus the route of the tramline was shifted to the extended inner ring. A new outer ring was introduced, and on its periphery laid the recreational activities as well as the factories and railway workshops. The three rings overlapped on the northern edge near the Luna Park and the Pavilion.

Comparing the initial scheme of the two oases in Figure 10-9 with the implemented design, the analysis of the 1913 map of Heliopolis in Figure 10-12 shows the allocation of the main buildings presented in the initial scheme. The location of Baron Empain Palace was changed from

³³² van Loo, 'La Nouvelle Héliopolis: Invention d'une ville-jardin dans le désert' (above, n. 9).

the intersection of Ramses and Pyramids Avenues to the periphery of the new outer ring perpendicular to the axis of the Basilique Avenue. Adjacent to the Empain Palace, B. Nubar Pasha and Pr. Hussein Pasha palaces were constructed, thus the third ring was called the Avenue of the Palaces. The intersection between the avenues and boulevard formed large portions like the self-contained garden city wards, which were then divided by secondary streets forming the residential blocks.

10.5.2 Land Uses and Zoning

The 1913 plan (Figure 10-11) of Heliopolis shows a variety of residential buildings, from stand-alone villas and semi-attached villas, to apartment buildings and workers houses. It shows a variety of recreational activities as well, from the horse racetrack to the Luna Park, the hotel, and recreational fields of cricket, and polo and golf course. The recreational activities occupied a large area of Heliopolis. Religious buildings were also constructed by the company. The plan included a central Basilique Church and a mosque near the so-called “workers city.” Opposite to the hotel lays the headquarter of the company which is one of the landmark buildings of Heliopolis.

The plan also included two brick factories. No educational facilities were included in the plan; however, with the growth of the suburb, schools were erected over vacant plots as well as other religious buildings. The map also shows that several plots were already sold as buildable plots. With the development and growth of Heliopolis diverse buildings and activities started to emerge.

HELIOPOLIS PALACE

OUVERT DE DECEMBRE A AVRIL

L'Hôtel idéal pour séjours de repos et week-ends.
Admirablement situé aux Confins du Désert et à proximité du Champs de Courses.
GRAND PARC — SOLEIL — TRANQUILLITÉ.

350 chambres avec bains
50 salons privés

●

2 Orchestres :: Thés et Diners
Dansants

A côté du Palace :

Héliopolis Sporting Club
Golf (18 trous) Tennis (18 courts)
Polo - Cricket - Piscine - Hockey
Squash Rackets

Conditions spéciales pour les clients
résidant à l'Hôtel

●

Tous les jours de Courses :

Racing Lunch spécial avec concert
Entrée gratuite aux Champs de
Courses pour les clients de l'Hôtel
Thé dansant de gala avec
attractions après les courses

●

Transfert gratuit par Autobus de Luxe
ou métro à la Ville et à la gare et
vice-versa

●

Arrêt à l'Hôtel de l'Autobus Misr
à l'arrivée et au départ des Avions
d'Almaza - distance 8 minutes



HELIOPOLIS HOUSE

OUVERT TOUTE L'ANNÉE

Même Direction - Hôtel de Famille de 1^{er} ordre - Entièrement remis à neuf
Ascenseurs : Nouveaux salons publics : Salles de bains privées.
Mêmes avantages pour Sporting Club - Champs de Courses et
transfert gratuit

Arrangements spéciaux pour familles et séjours
Libre accès aux Parcs et aux Salons du Palace

Figure 10-10: Advertisement for Heliopolis Palace Hotel.

The advertisement emphasizes as well on the surrounding recreational field/
Source: Le Mondain Egyptien 1939

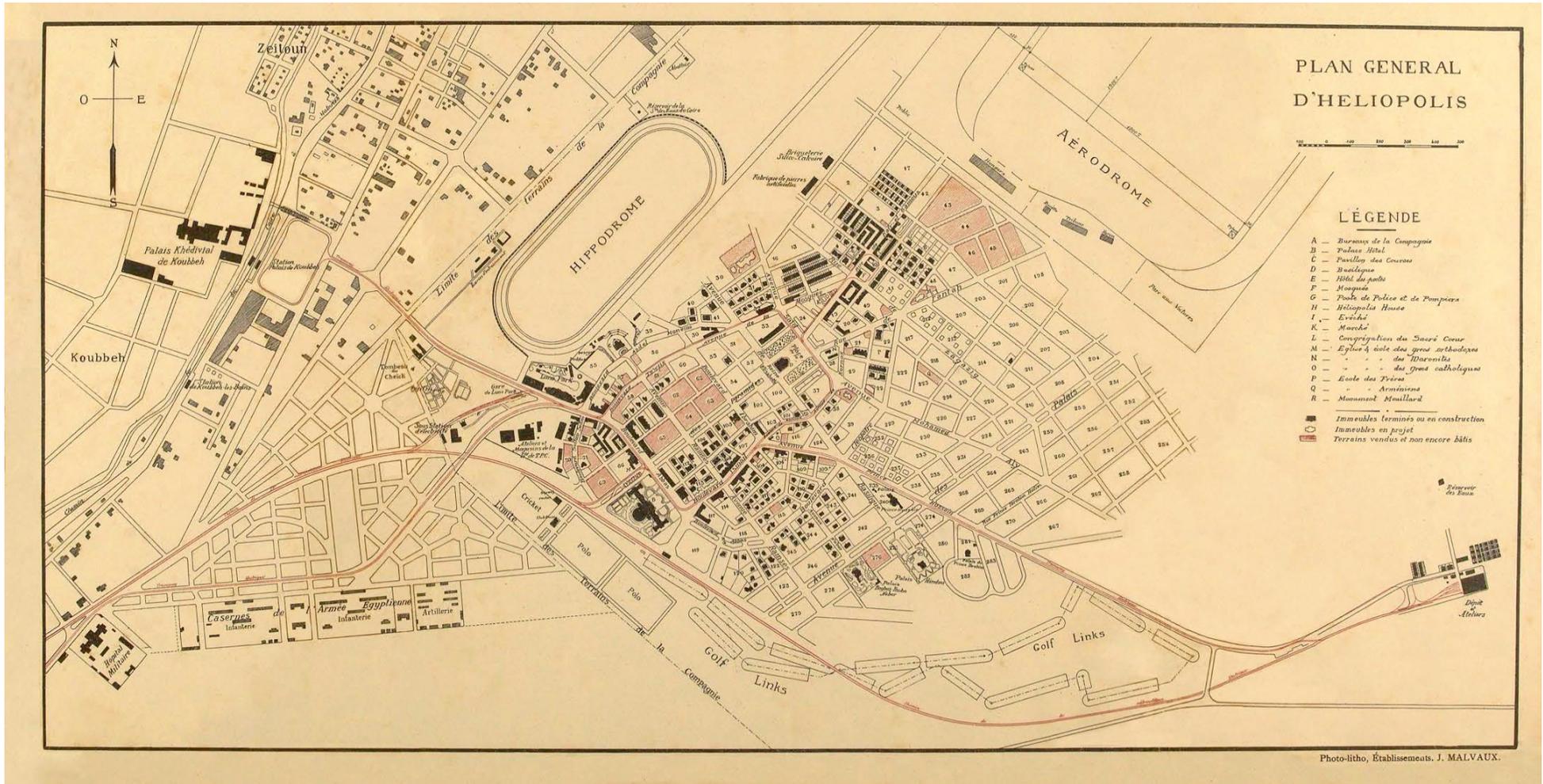


Figure 10-11: Heliopolis map in 1913.

Source: (CE Alex)

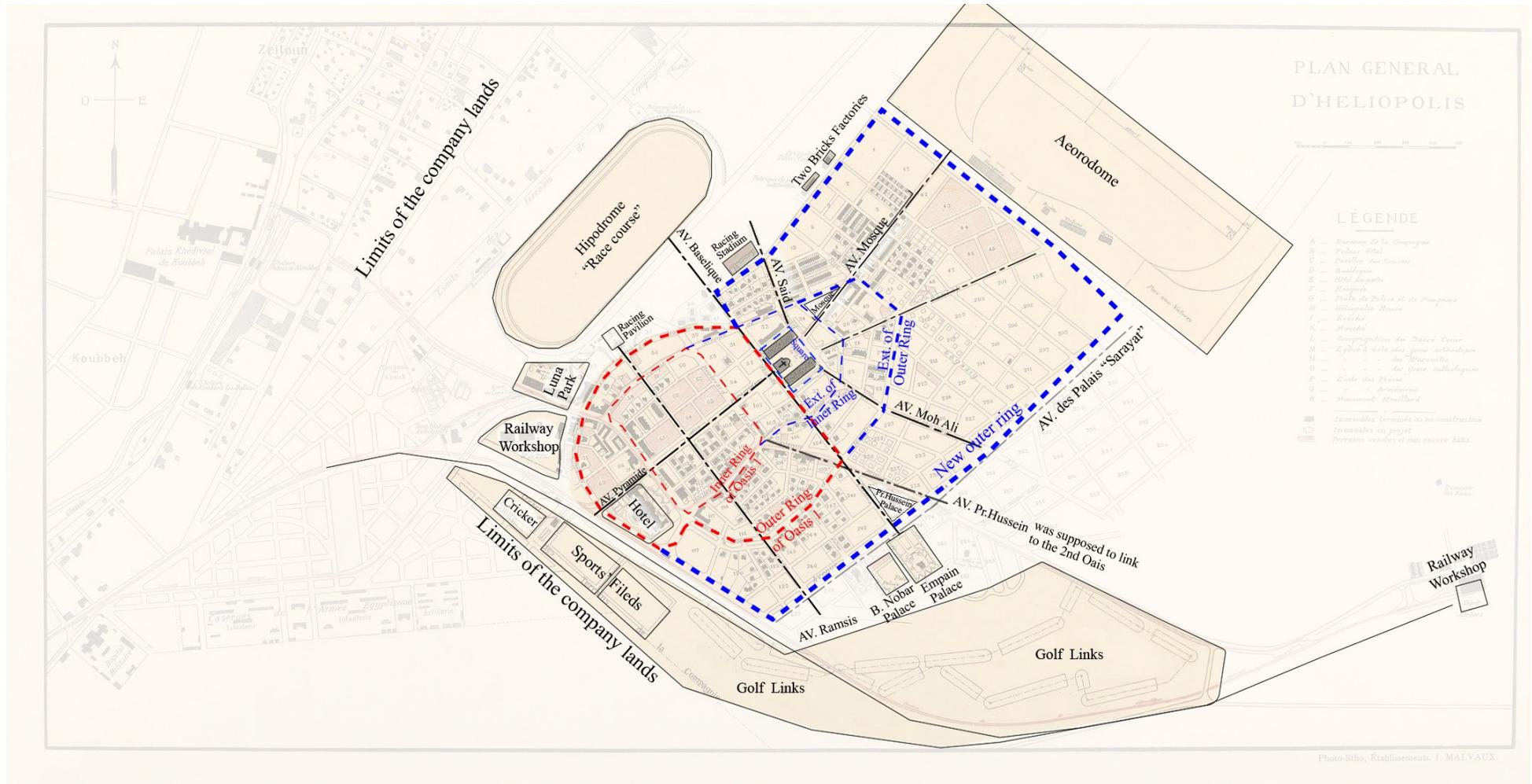


Figure 10-12: Analysis of the conceptual urban design of Heliopolis.
 Source: Created by the author on a 1913 map of Heliopolis from (CE Alex).

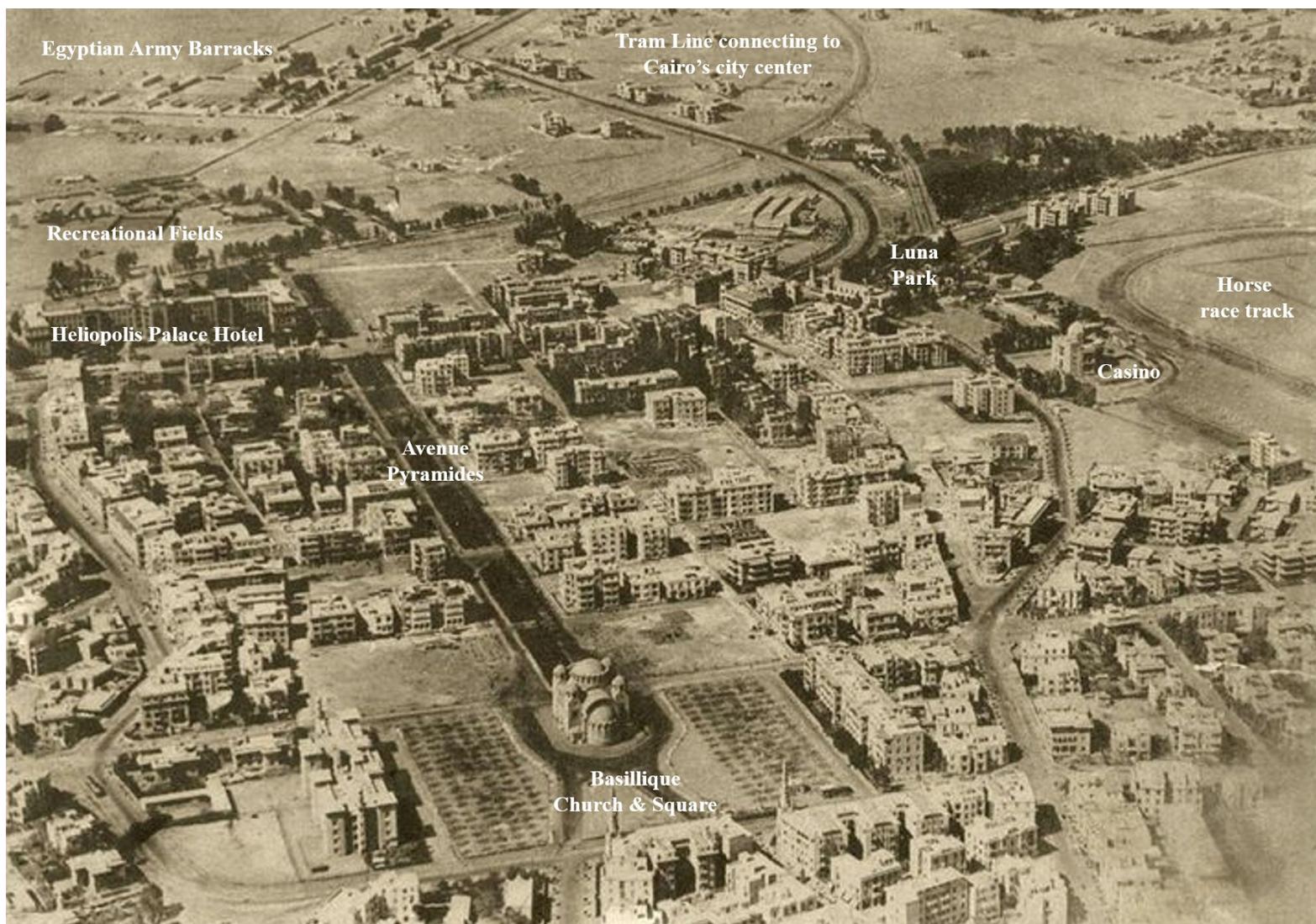


Figure 10-13: Aerial view of Heliopolis taken from a British army airplane around 1929.

Source: Heliopolis Oasis Company.

10.6 Street Typology

10.6.1 Street Network

Heliopolis' center had a spider web-like street network, similar to Letchworth's, with axial avenues radiating from a central square intersected with circular boulevards. The intersection between the avenues and boulevards formed a large sector similar to the wards, which was subdivided with a secondary road perpendicular to one side of its edges, thus forming rather a non-uniformed grid for the suburb's center. Outside the outer ring, a more orthogonal grid was implemented since the site was desert sand with minimal constraints.

10.6.2 Street Design and Dimensions: Main and Secondary

Heliopolis streets varied between large boulevards and avenues and narrow secondary streets. The circular boulevard of the extended inner ring hosted the tramline tracks. The tracks were located on the edge of the street, like Unwin's suggestion of the unaccomplished tramway of Letchworth. The boulevards were 36 m wide, with a 5 m footway on each side. The road is divided by a narrow island to separate the two vehicular directions; this was probably included in a later period.

The secondary streets were 11 m wide, with a footway on each side only 1.5 m wide. This is very narrow compared to the wide footways in Zamālik and Ma'ādī.

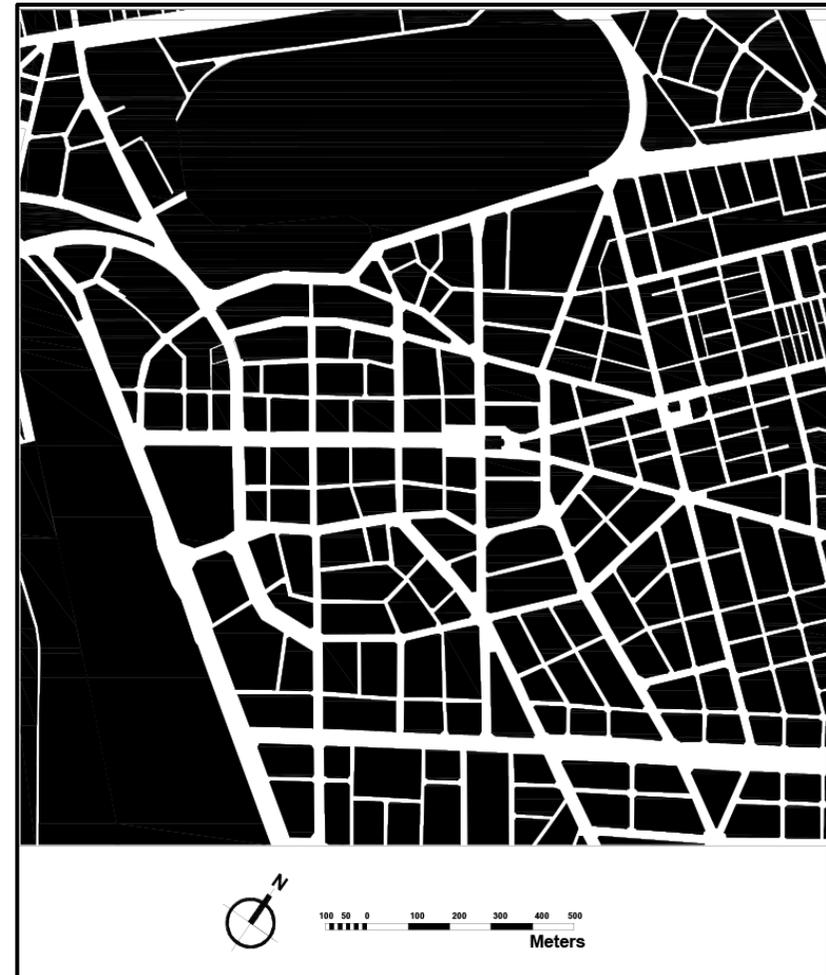


Figure 10-14: Heliopolis street network.

Source: Created by the author.

10.6.3 Shading Typology

Secondary streets did not include any trees, providing no shade for pedestrians. The reason behind this was probably that the streets were narrow, and the buildings were high enough to provide shade during parts of the day. Wide boulevards and avenues included tree-aligned streets, providing shade for pedestrians. On some boulevards, large apartment buildings with arcades provided a pleasant pedestrian experience that distinguished Heliopolis.

10.6.4 Street Names

The axial radiating streets were labeled as avenues, while the circular rings were labeled as boulevards. Heliopolis street names are quite interesting. Several boulevards and avenues were named after Mohamed Aly Pasha family members who ruled Egypt. Others were named after touristic attractions and iconic ancient Egyptian figures, such as the Avenue of the Pyramids and Cleopatra. Some of the small streets near the so-called city of the workers were named after different Egyptian cities, such as Qena, Edfu, and Giza, probably referring to cities the workers came from. According to R. Illbert, each housing group was designated for a different workers' group, be it European, Muslim, Copt, or Syrian.³³³

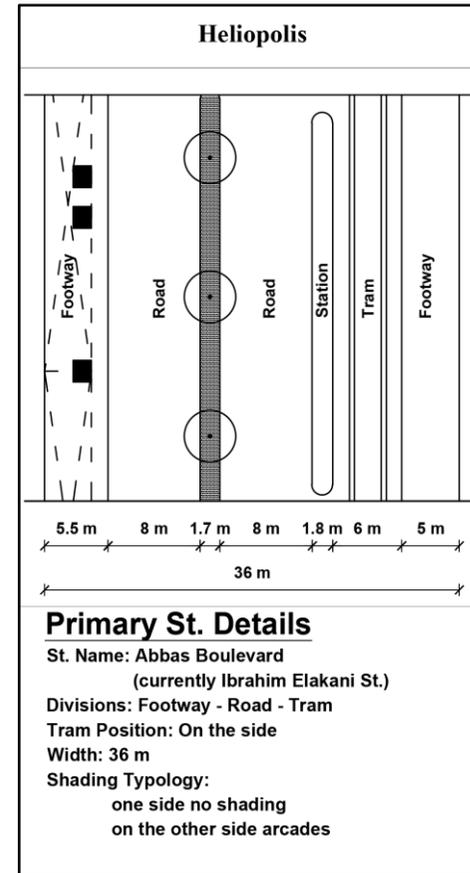


Figure 10-15: Heliopolis main street design.
Source: Created by the author.

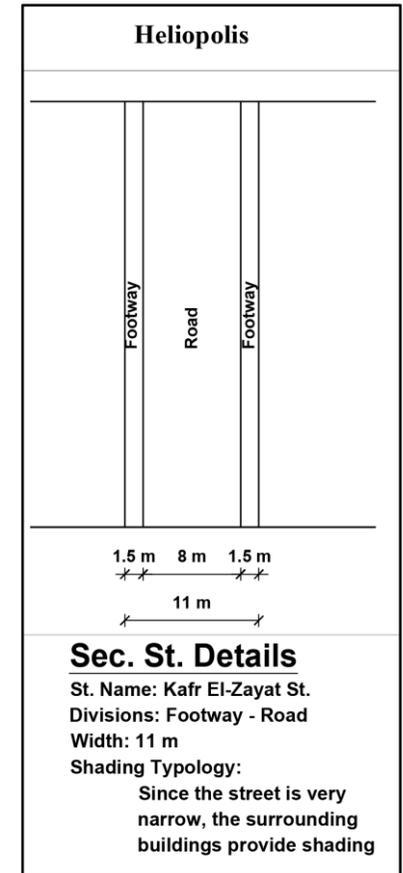


Figure 10-16: Heliopolis secondary street design.
Source: Created by the author.

³³³ Illbert, 'Heliopolis: Colonial Enterprise and Town Planning Success?' (above, n. 8), p. 40.

10.7 Residential Block Typology

The main street network of Heliopolis defined what can be called residential wards. These residential wards were subdivided by a secondary orthogonal street grid that formed the residential blocks solely designed for buildings. No shared common green open spaces were introduced, unlike Letchworth in which residential wards consisted of allotment gardens and shared common open facilities as shown in page 46. The company designed diverse types of residential buildings with a variety of rents categories to attract diverse social classes. R. Illbert identified six categories, as shown in Figure 10-17. The study, therefore, selected 6 different residential blocks representing these different categories, grouped from A to F, to conduct the morphological analysis, see Figure 10-18.

Group A represents the residential blocks designated for the construction of villas with a minimum rent of 500 piasters/month (pt/month, 1 Egyptian pound equals 100 piasters). Group B represents those designated for the construction of smaller villas with an average rent between 250 and 500 pt/month. Group C represents residential blocks designated for the construction of luxurious apartment buildings with a minimum rent of 500 pt/month per apartment, while group D represented those with an average rent between 250 and 500 pt/month per apartment and group E apartments with average rent less than 250 pt/month. Finally, group F represented residential blocks designated for workers houses.

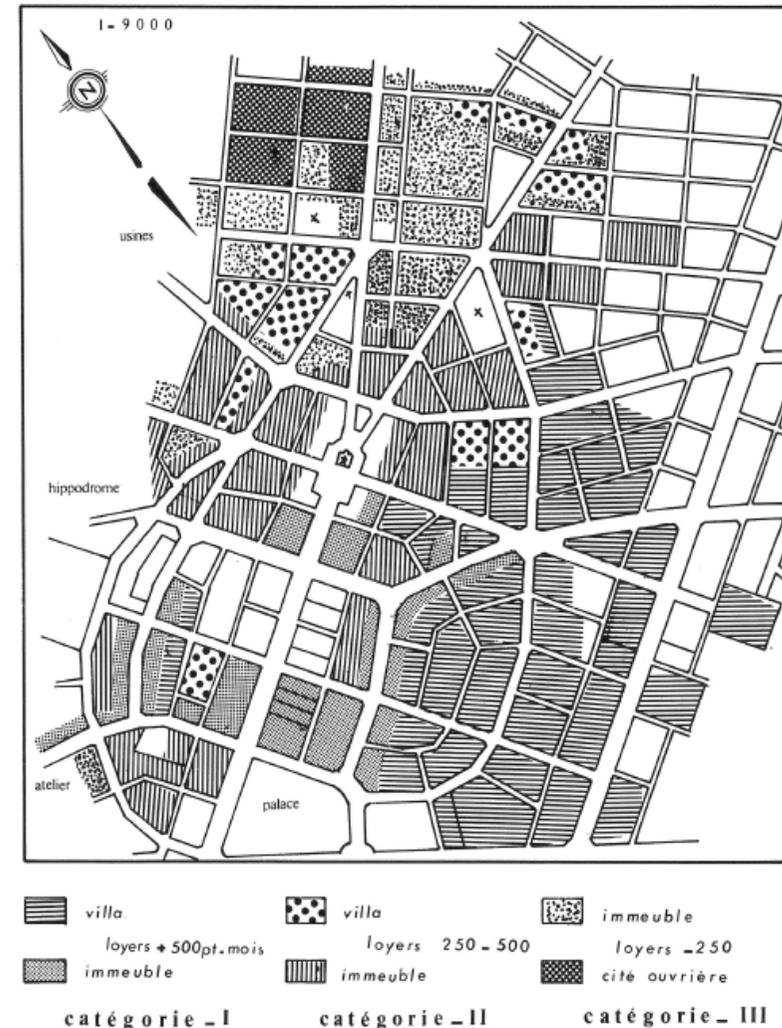


Figure 10-17: Heliopolis identified residential buildings categories.
Source: (Ilbert 1981)

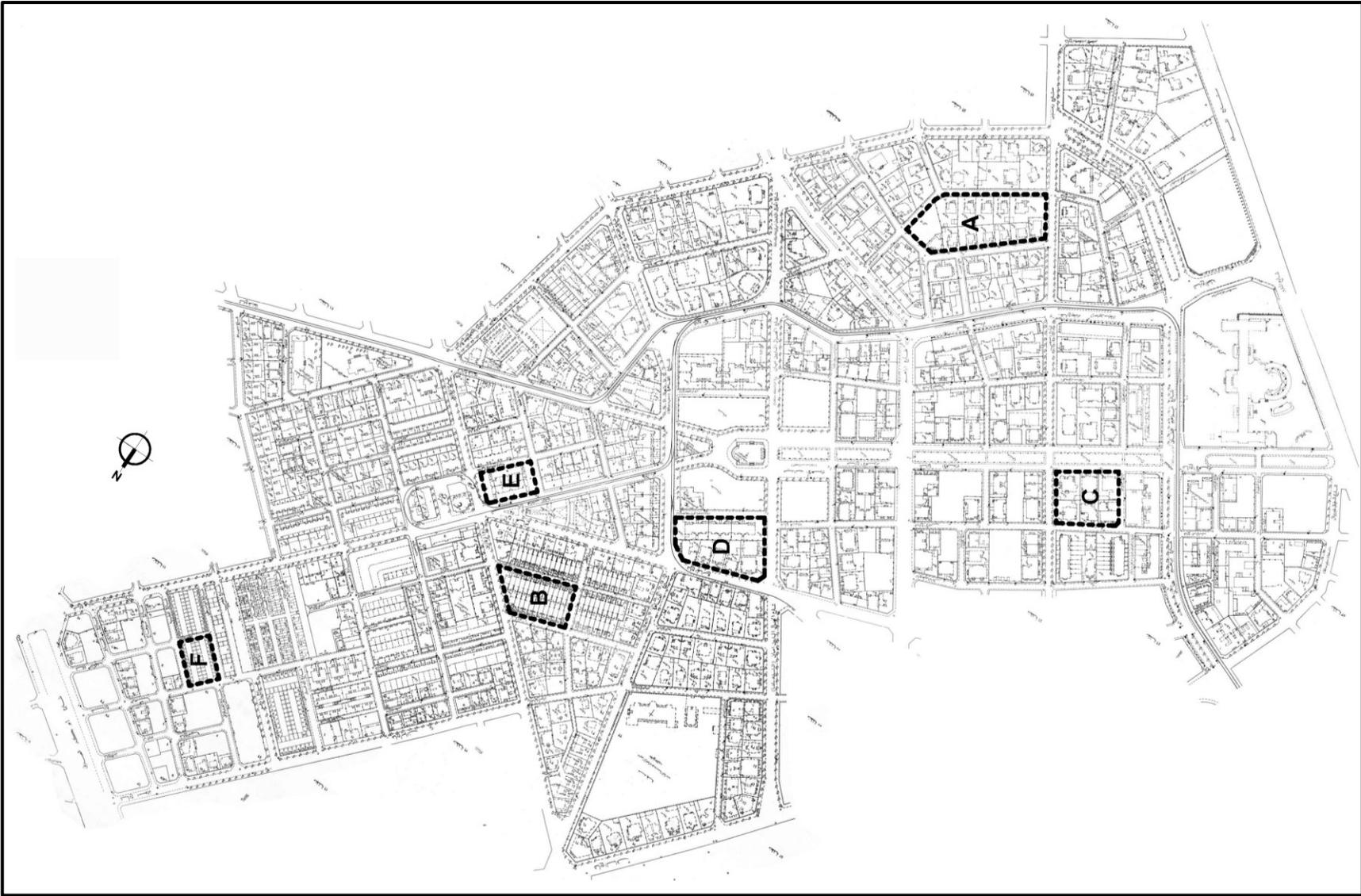
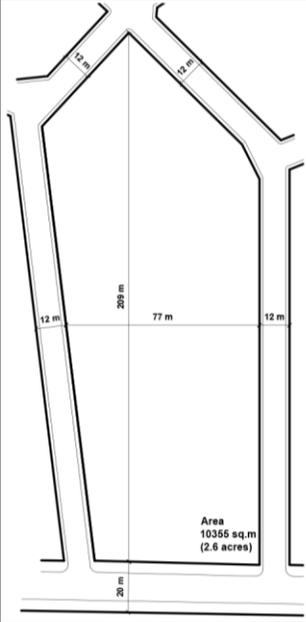
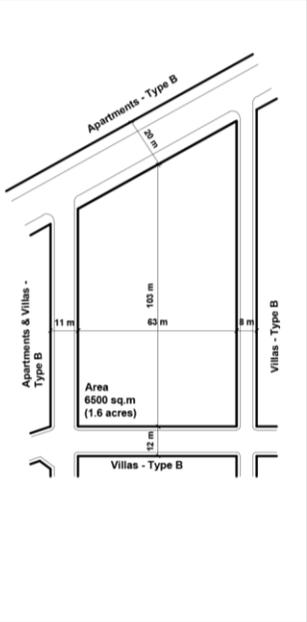
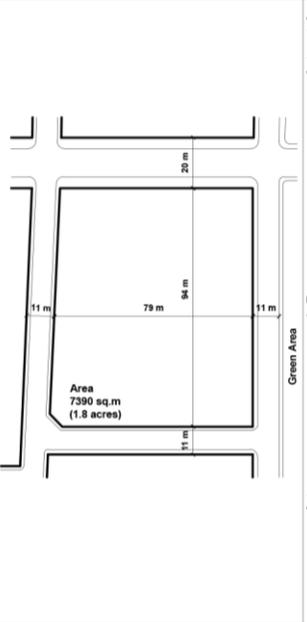
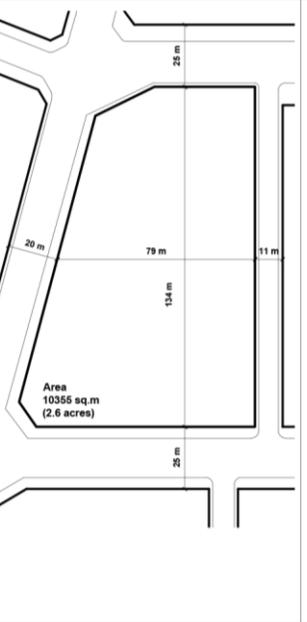
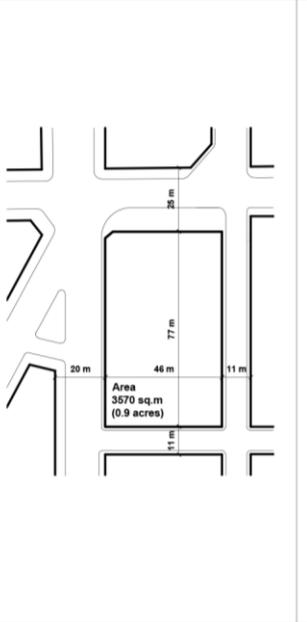


Figure 10-18: The selected residential block typology in Heliopolis on a collage of 1940 maps drawn in scale 1:1000.
Source: adapted from (The Egyptian Survey Department)

10.7.1 Block Pattern

The blocks shapes and sizes were diverse, as shown in the table below.

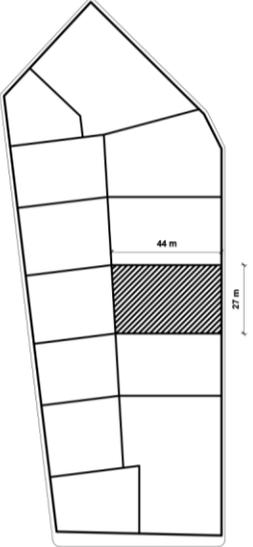
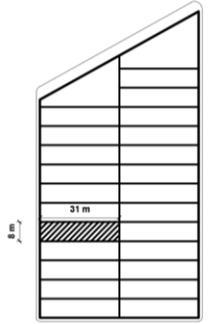
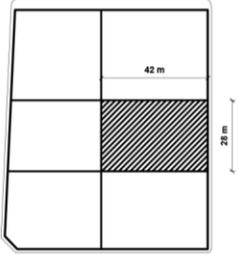
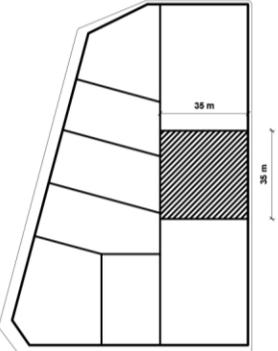
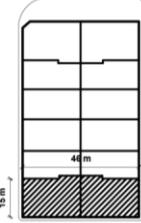
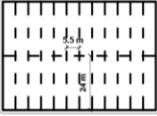
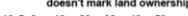
Table 10-1: Heliopolis block pattern analysis. Source: Created by the author.

Case A: Villa Type A	Case B: Villa Type B	Case C: Apt. Bld. Type A	Case D: Apart. Bld. Type B	Case E: Apart. Bld. Type C	Case F: Workers Housing
					
<p>Block Details Shape: Irregular Area = 10355 sq.m (2.6 acres) Dim. = 134'79 m (450'260 ft) Dist. btw Blocks = 12 m (39 ft) 10 5 0 10 20 30 40 50 m</p>	<p>Block Details Shape: Trapezoid Area = 6500 sq.m (1.6 acres) Dim. = 103'63 m (338'207 ft) Dist. btw Blocks = Varied 10 5 0 10 20 30 40 50 m</p>	<p>Block Details Shape: Rectangular Area = 7390 sq.m (1.8 acres) Dim. = 94'79 m (308'260 ft) Dist. btw Blocks = 11 m (36 ft) 10 5 0 10 20 30 40 50 m</p>	<p>Block Details Shape: Trapezoid Area = 10355 sq.m (2.6 acres) Dim. = 134'79 m (450'260 ft) Dist. btw Blocks = Varied 10 5 0 10 20 30 40 50 m</p>	<p>Block Details Shape: Rectangular Area = 3570 sq.m (0.9 acres) Dim. = 77'46 m (252'141 ft) Dist. btw Blocks = Varied 10 5 0 10 20 30 40 50 m</p>	<p>Block Details Shape: Rectangular Area = 3150 sq.m (34,000 sq. ft) Dim. = 67'47 m (220'154 ft) Dist. btw Blocks = 10 m (33 ft) 10 5 0 10 20 30 40 50 m</p>

10.7.2 Plot Subdivisions

The plots shapes and sizes were diverse in relation to the building typology and category. Villas of type A and apartment buildings of types A and B had almost equal plot areas. The plots designated for villas were surrounded by a steel fence.

Table 10-2: Heliopolis plot subdivision analysis. Source: Created by the author.

Case A: Villa Type A	Case B: Villa Type B	Case C: Apt. Bld. Type A	Case D: Apart. Bld. Type B	Case E: Apart. Bld. Type C	Case F: Workers Housing
					
 <p>Avg. Plot Details Shape : Rectangular Subdivisions = 13 plots Area = 1160 sq.m (12486 sq.ft) Dim.= 27*44 m (26*102 ft) Density: 4 houses per acre (4046 sq.m)</p> 	 <p>Avg. Plot Details Shape : Elongated Rectangle Subdivisions = 25 plots Area = 238 sq.m (2561 sq.ft) Dim.= 8*31 m (26*102 ft) Density: 17 houses per acre (4046 sq.m)</p> 	 <p>Avg. Plot Details Shape : Rectangular Subdivisions = 6 plots Area = 1180 sq.m (12700 sq.ft) Dim.= 8*42 m (91*137 ft) Density: -</p> 	 <p>Avg. Plot Details Shape : Rectangular Subdivisions = 9 plots Area = 1210 sq.m (13024 sq.ft) Dim.= 35*35 m (115*115 ft) Density: -</p> 	 <p>Avg. Plot Details Shape : Rectangular Subdivisions = 4 plots Area = 720 sq.m (7750 sq.ft) Dim.= 15*46 m (49*150 ft) Density: -</p> 	 <p>Average Plot Details Shape : Rectangular Subdivisions = 24 plots Area = 130 sq.m (1400 sq.ft) Dim.= 5.5*23.5 m (18*77 ft) Density: 26 houses per acre (4046 sq.m) — — — Division between plots that doesn't mark land ownership</p> 

10.7.3 Building Typology

Heliopolis included a wide variety in building typology, from stand-alone and semi-attached villas to apartment buildings and workers dwellings. They were mostly surrounded by gardens, except for apartment buildings of type C. Apartment buildings of types B and C occupied 80% of the plot. Semi-attached villas, workers housing, and apartment buildings of type A occupied 40% of the plot; villas of type A occupied only 20%.

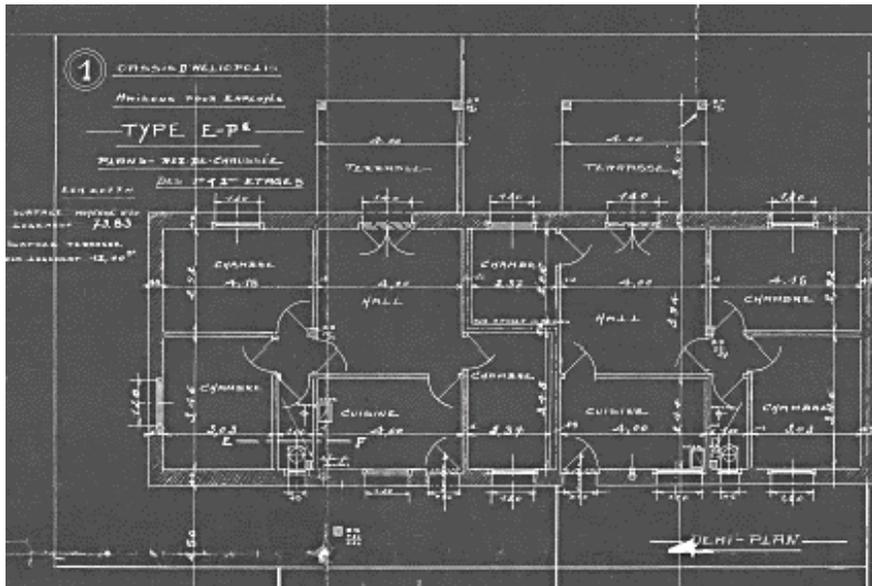


Figure 10-19: Partial Plan of workers houses typology.
Source: Heliopolis Company Archive



Figure 10-20: Villas in Memphis Street designed by architect Augustin Van Arenbergh.

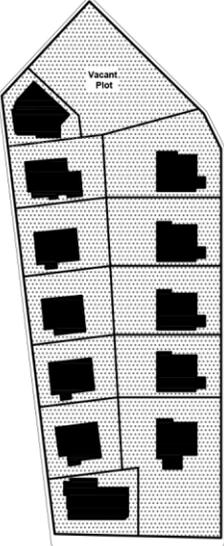
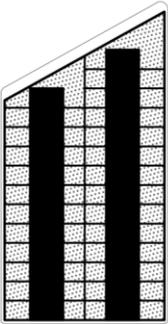
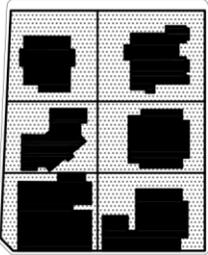
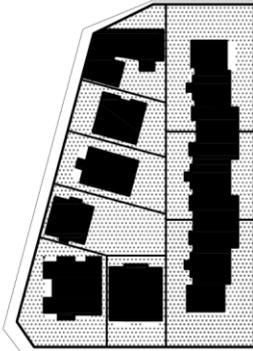
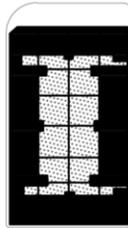
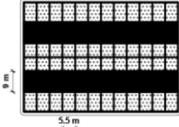
Source: La Nouvelle Héliopolis (van Loo 2010)



Figure 10-21: Boulevard Abbas between 1934 and 1939.
It shows some of the apartment buildings typology Source: Library of Congress.

Table 10-3: Heliopolis building typology analysis.

Source: Created by the author.

Case A: Villa Type A	Case B: Villa Type B	Case C: Apt. Bld. Type A	Case D: Apart. Bld. Type B	Case E: Apart. Bld. Type C	Case F: Workers Housing
 <p>  Gardens 20%  Buildings 20% </p>	 <p>  Gardens 40%  Buildings 40% </p>	 <p>  Gardens 40%  Buildings 40% </p>	 <p>  Gardens 80%  Buildings 80% </p>	 <p>  Gardens 75%  Buildings 75% </p>	 <p>  Gardens 40%  Buildings 40% </p>
<p>  </p> <p> Building Typology Building Type: Villas Grouping: Stand alone Building Area = 236 sq.m (5275 sq.ft) Building Frontage = 14 m (74 ft) Plot Area = 1160 sq.m (12486 sq.ft) Foot Print Ratio : 20% Garden: Surrounding the building 10 5 0 10 20 30 40 50 m </p>	<p>  </p> <p> Building Typology Building Type: Villas Grouping: semi-attached Building Area = 98 sq.m (486 sq.ft) Building Frontage = 8 m (18 ft) Plot Area = 238 sq.m (1055 sq. ft) Foot Print Ratio : 40% Garden: Equal Front-yard & Back-yard 10 5 0 10 20 30 40 50 m </p>	<p>  </p> <p> Building Typology Building Type: Apartments Building Grouping: Stand alone Building Area = 490 sq.m (5275 sq.ft) Building Frontage = 22.5 m (74 ft) Plot Area = 1180 sq.m (12700 sq.ft) Foot Print Ratio : 40% Garden: Surrounding the building 10 5 0 10 20 30 40 50 m </p>	<p>  </p> <p> Building Typology Building Type: Apartments Building Grouping: Stand alone or semi-attached Building Area = 590 sq.m (486 sq.ft) Building Frontage = 35 m (115 ft) Plot Area = 720 sq.m (7750 sq. ft) Foot Print Ratio : 80% Garden: Small Front-yard & Back-yard 10 5 0 10 20 30 40 50 m </p>	<p>  </p> <p> Building Typology Building Type: Apartment Buildings Grouping: semi-attached Building Area = 550 sq.m (486 sq.ft) Building Frontage = 46 m (18 ft) Plot Area = 720 sq.m (7750 sq. ft) Foot Print Ratio : 76% Garden: Small Back-yard 10 5 0 10 20 30 40 50 m </p>	<p>  </p> <p> Building Typology Building Type: Houses Grouping: Semi-attached Building Area = 50 sq.m (538 sq.ft) Building Frontage = 5.5 m (18 ft) Plot Area = 130 sq.m (1400 sq.ft) Foot Print Ratio : 40% Garden: Equal Front-yard & Back-yard 10 5 0 10 20 30 40 50 m </p>

10.8 Social Infrastructure

Heliopolis had a limited social infrastructure despite its various activities. This helped in fostering the social interaction between residents. Unlike previous suburban developments, a market was also established near the mosque and the so-called city of the workers.

10.8.1 Recreational

Heliopolis included various recreational fields, from polo grounds to a racecourse and an 18-hole golf course over sand.³³⁴ These fields later became the Heliopolis Sporting Club. The hotel and race pavilion have also provided areas for social gathering activities. The Luna Park was an amusing destination, not only for Heliopolis residents but for all residents and tourists of Cairo.

10.8.2 Religious Buildings

In the initial scheme of the 2 oases, Oasis 1 was landmarked by a church and Oasis 2 (the city of the workers) by a mosque. The 1908 modified plan shows the Basilique Church in the center of the new development. Behind the church an axial road lead to the mosque built near the area dedicated for the workers housing, market, and factories.

The Basilique Church that marked Heliopolis' center was a catholic church, as the main developer Baron Empain was Belgian, despite that most of the Egyptian Christians were orthodox. Later, a synagogue was built as well as several churches serving the diverse

Christian communities, including the Greek Orthodox, Armenian, Copt Orthodox, and Roman Catholic. Later other mosques were also established. This, thus, reflects the wide variety of the community in Heliopolis.

10.8.3 Educational Buildings

The initial plan did not include schools. With the suburb's population growth, several schools were established. The 1936 map of Heliopolis shows a wide variety of public and private schools and many schools related to the churches, such as Pensionat du Sacré-Coeur attached to the Roman Catholic church. Later several schools were built in response to the population growth of Heliopolis.



Figure 10-22: Horse Racetrack at Heliopolis. It introduced a new lifestyle of gambling. Source: (Heliopolis Club Archive)

³³⁴ Anne van Loo, 'De L'oasis a la Ville: L'unité dans la diversité', edited by Fonds Mercator, in *Heliopolis* (Bruxelles: Fonds Mercator, 2010), p. 131.



Figure 10-23:: Heliopolis Club swimming pool.
Source: Library of Congress.



Figure 10-25: The Mosque in Heliopolis around 1930's.
Source: La Nouvelle Héliopolis (van Loo 2010)



Figure 10-24: Heliopolis Casino.
Source: Library of Congress.



Figure 10-26: Armenian church in Heliopolis.
Source: Library of Congress.

10.9 Social Target Group

Heliopolis attracted several social groups with its variety in residential building typology. This was also catalyzed by the company strategy of renting villas and apartment buildings, not only selling vacant plots like in Zamālik and Ma‘ādī. This variety in residential typology and renting policy was reflected in the diversity of Heliopolis’ residents. The analysis of “Le Mondain Egyptien, 1939,” shows that Heliopolis had a little number of listed residents with foreign names compared to Zamālik and Ma‘ādī. The analysis of the work titles of the residents shows that most of the listed subscribers were working in the government or worked in certain professions. This was probably due to the renting strategy adopted by the company, in addition to easy access to Cairo’s city center via the tramway. The analysis also shows that 20% of the listed residents were retired or gained income through being landlords or rentiers.



Figure 10-27: The garden of the Heliopolis Palace, 1920s.
Source: (Ilbert 1981)

Heliopolis - Listed Elite Residents with Foreign Names in "Le Mondain Egyptien" - 1939

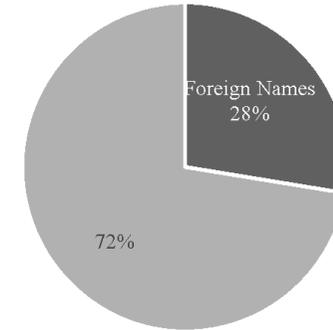


Figure 10-28: Chart showing the percentage of residents with foreign names living in Heliopolis.

Based on the list of subscribers in “Le Mondain Egyptian, 1939.”
Source: Created by the author.

Heliopolis - Listed Elite Residents Work Titles' Classification from "Le Mondain Egyptien" - 1939

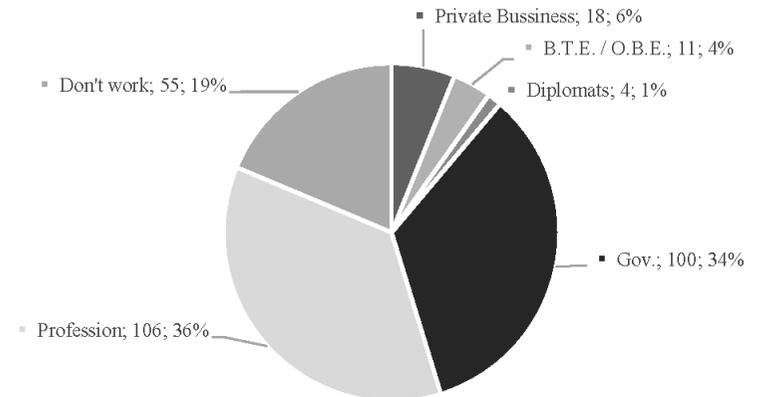


Figure 10-29: Chart showing the work title classification percentage of residents living in Heliopolis.

Based on the list of subscribers in “Le Mondain Egyptian, 1939.”
Source: Created by the author.

10.10 Summary on Heliopolis

Heliopolis was initially developed as an investment project with European foreign capital, catalyzed by the railway and tourism industry. Despite being described as a garden city, it was not self-sufficient and was indeed dependent on Cairo's city center. The tramline connecting Heliopolis to Cairo made it a commuter suburb, facilitating the residents' journey to commute daily to their work. The hotel, the Luna Park, the race courts, and the recreational fields distinguished Heliopolis' recreational activities, which attracted residents and tourists. The tramline reaching Cairo's main railway station in Bab El-Hadid square facilitated access to Heliopolis.

The 1908 modifications of the plan that introduced radiating axial avenues from the Basilique square made Heliopolis' center look like that of Letchworth Garden City. Similarly, Heliopolis included a central square with radiating avenues, intersected with circular boulevards. This network defined large parcels, similar to Howard's garden city residential wards. These parcels were subdivided by an orthogonal secondary street network defining the residential block. Unlike Letchworth, no shared common spaces were included in these large parcels. The company did not only parcel land and sell it to private tenants, like previous suburban development companies did at that time, but it also built garden-surrounded villas and apartment buildings that they rented. They provided a wide variety of residential typology, with varied renting prices. This strategy fostered the suburb's social diversity. The company also

established dwellings for workers who worked in the construction; two brick factories were constructed for the construction purposes.

Heliopolis was home for a wide variety of social classes of foreigners and Egyptians. It included a variety of services and recreational activities, which created a holistic community. It was a healthy extension to Cairo, becoming a garden suburb of Cairo laid out on garden city lines.

CHAPTER 11: COMPARATIVE ANALYSIS & CONCLUSION

The previous three chapters have shown that the 20th century modern suburban developments around Cairo were indeed garden suburbs similar to the British garden suburb. This chapter first presents a comparative analysis between the case studies. This comparison aims to highlight on the differences and similarities between the studied case studies in Britain and Egypt. Then, the discussion and conclusion highlight the main important findings of the study and the lessons learned that could support future conservation efforts and the design of new suburban developments.

11.1 Comparative Analysis

Since Zamālik, Ma‘ādī, and Heliopolis are identified as garden suburbs of Cairo, the study compares between them and the British example of Brentham Garden Suburb. It compares between selected analyzed urban morphological aspects, highlighting the differences and similarities between the British garden suburb and the garden suburbs of Cairo. The analysis also highlights the contrast between Zamālik, Ma‘ādī, and Heliopolis. Letchworth Garden City is only included in few aspects to highlight that Heliopolis was indeed a garden suburb despite being laid on few aspects of the garden city lines of Letchworth. Some analysis between the cases is unified in scale to allow readers to interpret the scale and differences between the case studies.

Background

The garden suburb emerged in Britain as a solution to the crowded industrial cities, providing a healthy extension to the cities. The garden suburbs of Cairo were also an extension to the relatively small historic and Khedivial Cairo on healthy lines. They were the product of the rise of land development companies, which was due to the sale of the land managed by the Dā’irah Sinā’īyah and Domains Administration, the establishment of several mortgage bank houses, the privatization of several public domains, the booming of the railway and tourism industries, and the urban population growth accompanied with the social changes resulting from the flow of Europeans.

By checking the dates of the establishment of the garden suburbs in Cairo, the study shows that they were developed simultaneously in almost the same time as in Britain. The idea of establishing Brentham, Zamālik, Ma‘ādī, and Heliopolis, started in 1901, 1903, 1904, 1905, successively. Although Brentham was only transformed into a garden suburb only in 1906, when Unwin developed a more promising plan for it. However, the construction and the implementation of most of the garden suburbs around Cairo didn’t start as well before that date. This shows the garden suburbs of Cairo are among the pioneer garden suburbs around the world.

Main Principles and Authority in Power Responsible for the Development

Letchworth garden city main aim was to create a self-contained independent city in remote from London while still being connected to it. It was designed to be self-contained agriculturally, industrially aiming to improve the quality of life by introducing the concept of a town-country. However, the main principle of Letchworth, and the British garden city in general, is the social reform that it created in terms of authority in power of the development. The idea of the municipal control and the unearned increment which returns for the community benefit is the core principal of Howard's garden city. This core aspect is not found in any of the suburban development around Cairo which were mainly developed for investment purposes.

Brentham, like most garden suburbs in Britain, was developed based on a co-partnership model. The companies mainly benefited from leasing the constructed houses to tenants. Thus, the initial plans included holistic land-use zoning and the outline of the houses to be constructed. Brentham was mainly a commuter suburb with easy access to adjacent big cities for employment purposes. It offered low-density garden-surrounded houses, along with recreational fields, which gave the suburb a pleasant social life. Additional services were added later with the suburb's growth in contrast to Unwin's principles of designing the garden suburb should be planned as a whole. However, Brentham emerged with social principals aiming for community benefit and creating a better quality of life.

In Egypt, Zamālik, Ma'ādī, and Heliopolis, were mainly developed by privately owned land development companies mainly with foreign European capital. This investment model differed from the British co-partnership model. The privately-owned land companies mainly bought the land from the state and then parceled it into buildable plots. Then, the new owners constructed their own houses following the company building regulations. Thus, there was no holistic land-use zoning; the initial plans of most of the suburban developments mainly included land subdivision of vacant plots. Heliopolis was an exception, as the company built few villas and apartment buildings and rented them.

The recreational activities and fields inspired from the British introduced a new paradigm of semi-public spaces in Egypt. The garden-surrounded homes along with the recreational fields, and the later introduced services shaped a holistic community. They, thus, provided the normal growth to the historic and Khedivial Cairo, on healthy line, forming the garden suburbs of Cairo. However, they differed in their core principal from the British garden city and garden suburb movement in the core principle. The British movements was derived from social reform aims while in Egypt it was mainly the result of real-estate investment. The following Table 11-1 illustrates how Unwin's garden suburb principles are achieved, however, Letchworth is included in the comparison to highlight on how the garden suburbs are based on the garden city lines and to emphasize on the contrast between both movement

Table 11-1: Table illustrating the adopted principles and authority in power responsible for the Development of the garden suburbs in each case study.

Source: created by the author

Case Study	Letchworth Garden City	Brentham	Zamālik	Ma'ādī	Heliopolis
Principles of a Garden Suburb					
Dependent on a nearby town or city – commuter suburb	Independent self-contained country-town	✓	✓	✓	✓
Planned as a whole - Zoned plan	Planned as a whole	Partially: educational & religious facilities were not included	Not planned as a whole	Not planned as a whole	Partially: educational facilities were not included
Garden surrounded homes – low density & recreational areas	✓	✓	✓	✓	✓
Limited in size, population & houses number	✓	✓	✓	✓	The purchase of a large land plot allowed the extensive growth
Green Belt – for fresh air, recreation and contact with growing nature	Surrounded by an agricultural estate	✓	✓	✓	Built in the desert
Growth – potential growth in terms of cluster around a big city directly connected to it	Growth in term of cluster but in a far distance from the central city	✓	✓	✓	The purchase of a large land plot allowed the extensive growth
Development Model – aiming social reform	Semi-municipal enterprise. Municipal control over landownership with return of “unearned increment” to community benefit	Co-partnership management scheme, where tenants were made joint owners with developers	Real-estate investment by private developer	Real-estate investment by private developer	Real-estate investment by private developer
Authority in Power Responsible for the Development					
Management	The collected funds from debentures is deposited into the hand of a board of management	The estate is managed by an elected committee of shareholders	-	The private estate board of management	The private estate board of management
Business Model	Building Houses & Renting & leasing Houses	Building Houses & Renting Houses	Selling Vacant Land Plots	Selling Vacant Land Plots & Selling Villas	Selling Vacant Land Plots & renting villas & apartment buildings

Urban Context: Area and Location

By comparing the area and location of Brentham Garden Suburb and Letchworth Garden City, in relation to the area of the city of London in 1900, to the suburban development around the historic Islamic Cairo and Khedivial Cairo, as shown in Figure 11-1, this analysis shows that the suburban development provided normal growth for the relatively small area of Cairo (historic Islamic Cairo and Khedivial Cairo combined), which in 1896 was only 17.7 sq.km (7 sq. mile).

The diagram shows that Cairo was relatively very small in comparison to London. In response to the population growth, the suburban development spread around Cairo in a relative proximity to make them directly connected and depending on the city center of Cairo. By comparing Heliopolis location Cairo in relation to Letchworth's location to London, the study shows that Letchworth was far away from London to ensure its dependency. On the other hand, Heliopolis, regardless its size which its land area was as big as Cairo at that time, was very close to Cairo thus depending on it. This corresponds to the definition of the garden suburb provided by Culpin and Howard that a garden suburb should provide the normal growth of existing cities on healthy line.³³⁵

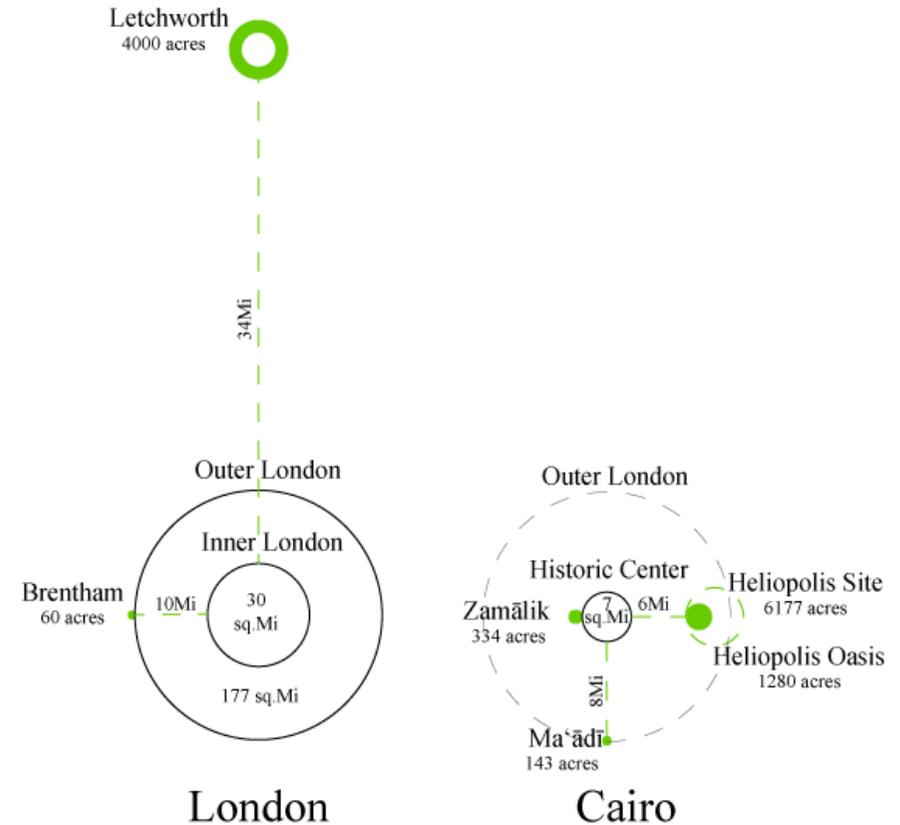


Figure 11-1: Comparison between the area and location of garden suburbs around Cairo in contrast to London.

Source: Created by the author

³³⁵ Culpin, *THE GARDEN CITY MOVEMENT UP-TO-DATE* (above, n. 24), p. 2; this definition is also quoted by Stern and Fishman in their book *Paradise Planned* after Ebenezer Howard himself when he, in 1910, wrote to the editor of the *builder* magazine

in an attempt to clarify the difference between the three terminologies: Garden City, Garden Suburb, and Garden Villages.

Urban Context: Surroundings Incentives

Letchworth was developed on an agricultural land to ensure its agricultural independency. While Brentham, Zamālik, and Ma‘ādī were surrounded by agricultural land, matching Unwin’s principle, in order to mainly limit the size of the garden suburb and to give access to the residents to the nature. In this case, the agricultural land also kept a reasonable touch of open country. However, with the growth of the city of Cairo and its surrounding garden suburbs, the urban development took over the agricultural land.

The location of Brentham, Zamālik, and Ma‘ādī next to a river lead that their initial development being far from the river’s shoreline, to be safe from floods. It also limited their growth from a certain side. Zamālik location on an island on the Nile River overlooking Cairo’s city center catalyzed its fast development. Heliopolis on the contrary was developed in the desert. However, Empain, benefit from this to attract tourist to enjoy the magnificent Arabian nights in the desert. Zamālik and Ma‘ādī were also located near farmers villages which provided the agricultural needs and the needed service personnel.

The proximity of the garden suburbs of Cairo to army barracks affected their social community. Zamālik’s proximity to the British army barracks was the catalyst for the development of the suburb that hosted several houses for British officers and official employees in the Egyptian government. Ma‘ādī and Heliopolis were also adjacent to Egyptian army barracks and thus in a later phase they started attracting Egyptian army personnel.

Urban Context: Accessibility

The proximity of the suburbs from the main cities provided the residents with the necessary employment opportunities and allowed them to enjoy the cultural aspects of main cities. The development of the railway and tramway lines and the extension of the paved road network system facilitated accessibility to the garden suburbs. Zamālik and Heliopolis were connected to Cairo’s city center by a tramway line that facilitated the commute of the residents to and from the suburb. The tramway was also passing through both suburbs; it was not only on the periphery. Ma‘ādī was connected to Cairo’s city center through the Cairo-Helwan railway line, located on its periphery. The frequency on the railway was less than that on the tramway line in Zamālik and Heliopolis. This has made the suburb of Ma‘ādī less accessible and more dependent on automobiles.

The analysis of “Le Mondain Egyptien, 1939,” shows that most residents of the three garden suburbs mentioned that they owned an automobile. The analysis shows that 78% of Zamālik subscribed residents owned a car, similarly Ma‘ādī with 79%, while only 53% in Heliopolis. This reflects their social class as well as their dependency on automobiles to commute to and from the suburb. Heliopolis’ residents possessed less cars than the residents of Zamālik and Ma‘ādī. Besides reflecting the social class differences between the suburbs, it also reflects that they were less dependent on it due to the tramway line that circulated the suburb.

Table 11-2: Comparing the surrounding incentives between the selected case studies. Source: Created by the author

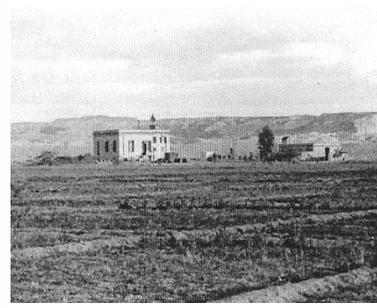
Letchworth	Brentham	Zamālik	Ma'ādī	Heliopolis
				
Built over agricultural land Next to two small towns	Built over agricultural land On the periphery of Ealing District surrounded by some hills	Built over agricultural land On an island in the river Overlooking Cairo city center & the British army barracks	Built over agricultural land Near the Nile river Next to the Egyptian army barracks Next to farmers villages	Built in the desert Touristic Attractions Next to the Egyptian army barracks

Table 11-3: Comparing the different accessibility means between the selected case studies. Source: Created by the author

Letchworth	Brentham	Zamālik	Ma'ādī	Heliopolis
				
Railway Located in the center of the city	Railway 1 mile away outside the suburb in Ealing District	Tramway Located in the center	Railway Located on the periphery	Tramway Located in the center as the tramway moved around in Heliopolis main streets
Connecting Letchworth to London and Cambridge	Connecting Ealing District to London	Connecting Zamālik to Cairo city center and Giza	Connecting Ma'ādī to Helwan and Cairo	Connecting Heliopolis to Cairo city center

Urban Design Concept

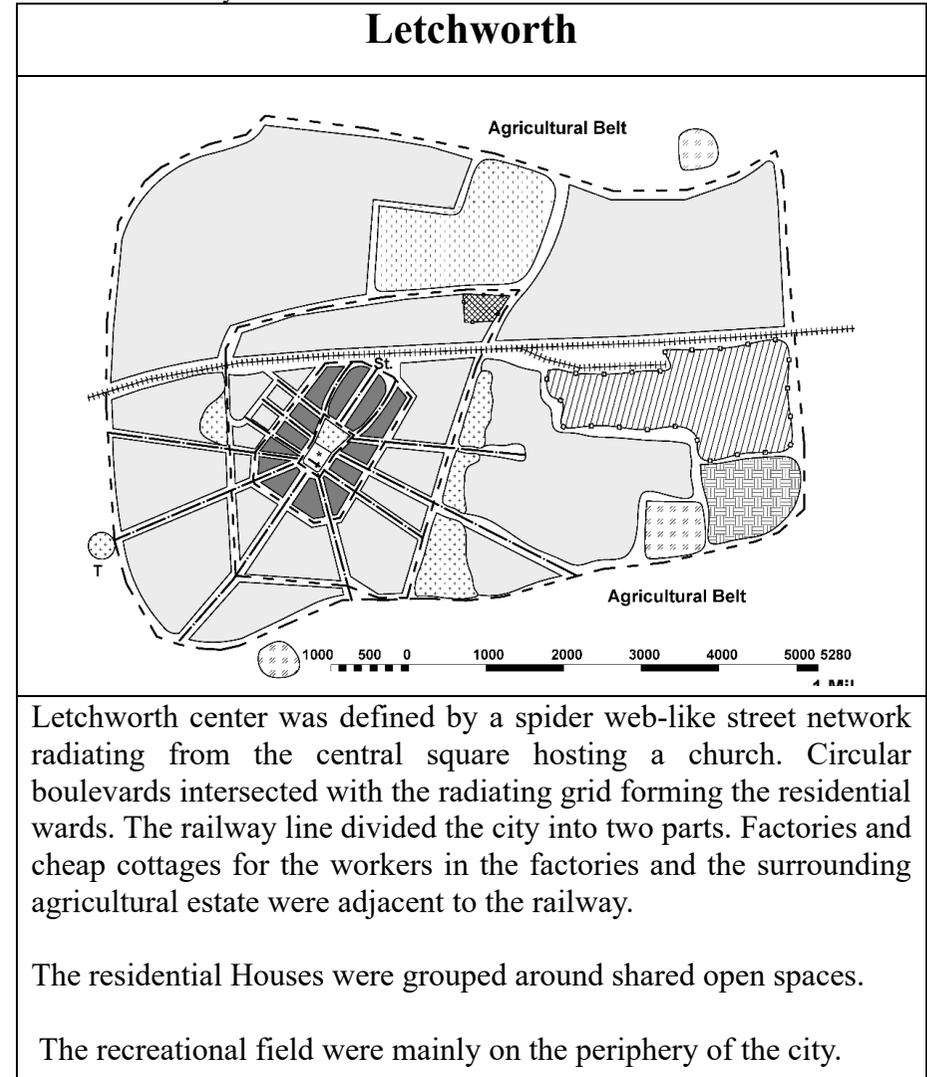
The main conceptual difference between Brentham and the garden suburbs in Cairo is that in Cairo the land was parceled in mainly using an orthogonal iron grid to maximize the plots to be sold as vacant plots for residential purposes. Brentham, on the other hand, was distinguished by its curvilinear streets following Unwin concept to create a street picture alike the villages street pictures. Brentham had a zoned plan from the beginning although it was not fully realized during implementation. However, this zoned plan didn't include religious and educational services which were later developed over land dedicated for residential purposes like most of the garden suburb of Cairo.

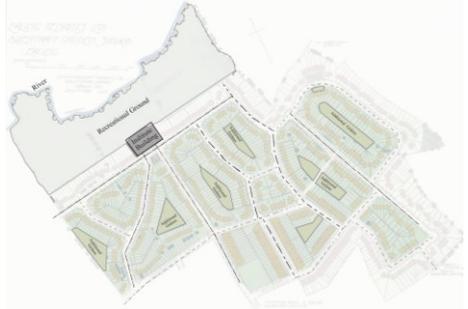
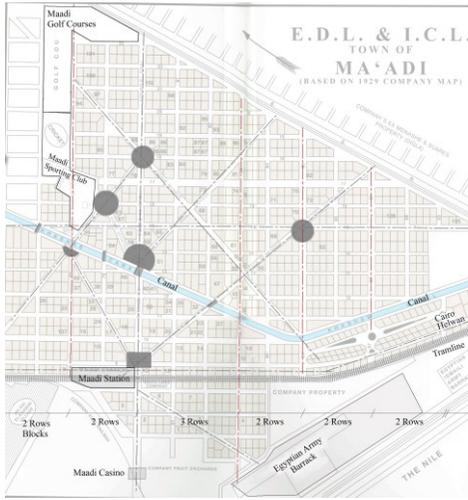
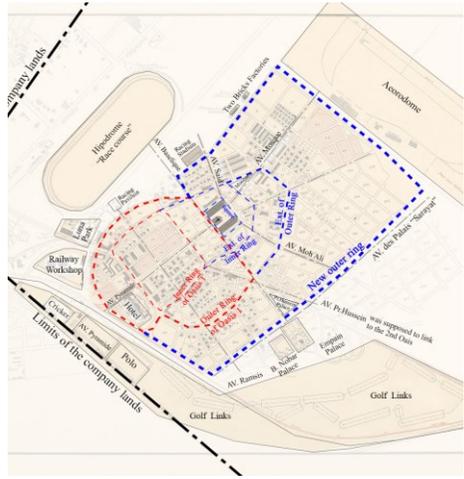
Another major difference is that in Brentham and Letchworth, the houses were grouped around shared allotment gardens while in Cairo such feature did not exist. This is due to maximize the sellable vacant plot used for residential purposes. What is common between Letchworth, Brentham, Zamālik, Ma'ādī, and Heliopolis, is that the recreational activities were mainly located on the periphery of the development. Despite that Ma'ādī didn't have recreational field at the beginning but they were soon laid down as they a core aspect of a successful garden suburb.

The center of Heliopolis was influenced by Letchworth garden city. They both had a church in the center with radiating street network emerging form the center. This grid was intersected by circular boulevards defining the residential wards.

Table 11-4: Urban design concept: comparative analysis

Source: Created by the author.

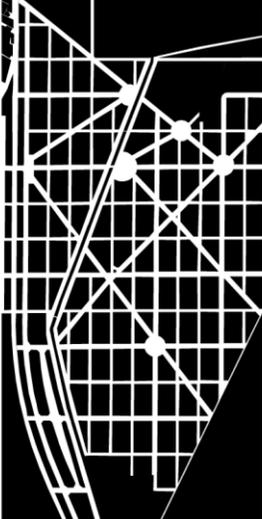
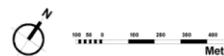


Brentham	Zamālik	Ma‘ādī	Heliopolis
			
<p>Brentham had a spider web-like street network radiating from the institute building and recreational grounds, forming residential blocks.</p> <p>Houses were grouped around shared open spaces.</p> <p>The recreational field were on the periphery of the suburb.</p>	<p>An orthogonal street network was applied on the parts of the Gezira Palace Gardens that defined the residential blocks.</p> <p>The orthogonal grid defined the rectangular vacant sellable plots.</p> <p>The recreational fields were already existing on the periphery.</p>	<p>An orthogonal grid defining rectangular lots of 2 acres each. This grid is intersected by an axial street network radiating from the railway station square leading to other circular squares</p> <p>The orthogonal grid defined the rectangular vacant sellable plots.</p> <p>The recreational fields were developed later on the periphery</p>	<p>The initial plan consisted of 2 oases which were combined into one. The center of the new plan is similar to Letchworth with a spider web-like street network radiating from the central square hosting the Church.</p> <p>The orthogonal grid defined the rectangular vacant sellable plots.</p> <p>The recreational field were on the periphery of the suburb.</p>

Street Typology: Street Network

In Cairo, an orthogonal grid was mainly applied to increase the number of vacant residential plots to be sold.

Table 11-5: Street network: comparative analysis. Source: Created by the author.

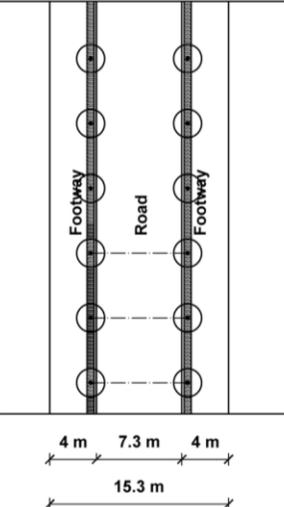
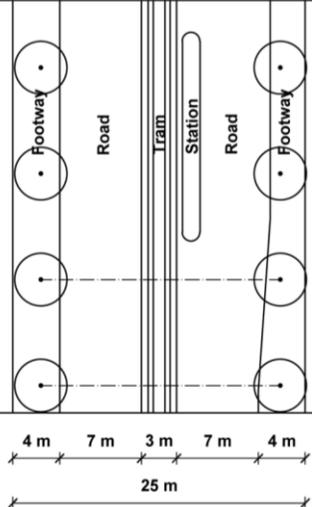
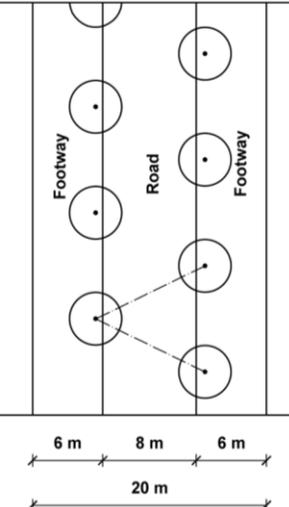
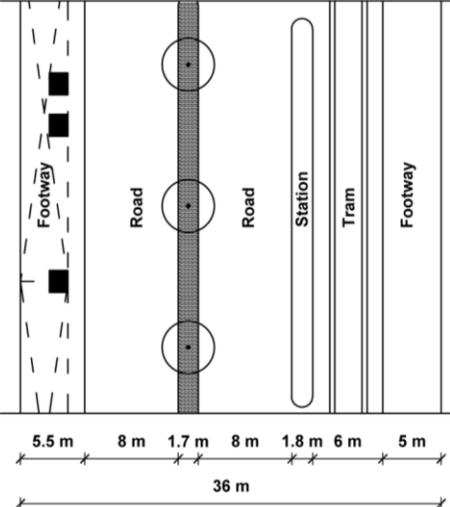
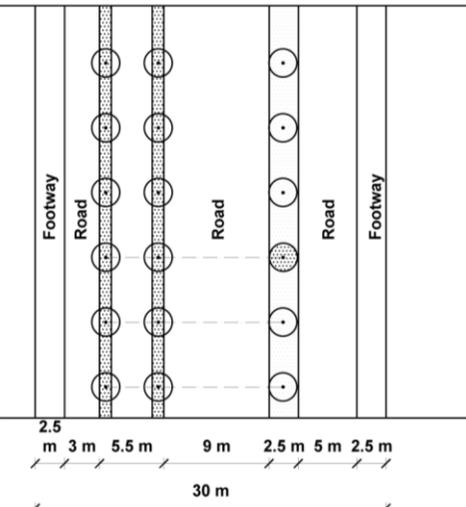
Brentham	Zamālik	Ma‘ādī	Heliopolis	Letchworth
				
				
<p>Spider web-like network.</p> <p>“street picture” similar to the villages</p>	<p>Orthogonal iron grid</p>	<p>Radiating axis connecting circular squares overlapped by an orthogonal iron grid</p>	<p>Spider web-like network with axis radiating from the center cut with radian rings; the circular rings were deviated with the change of the plan from two oases to only one.</p> <p>Street picture similar ‘grand designs’ in Beaux-Arts</p>	<p>Spider web-like network with axis radiating from the center cut with radian rings.</p> <p>“street picture” similar to the villages</p>

Street Typology: Primary Street Design

The streets were quite different in size. However, they were mainly distinguished by tree-aligned roads, sided by shaded footways. In case of tramways, they passed whether in the middle of the street or on its side.

Table 11-6: Main street design: comparative analysis.

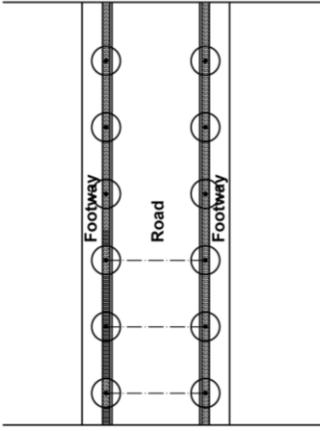
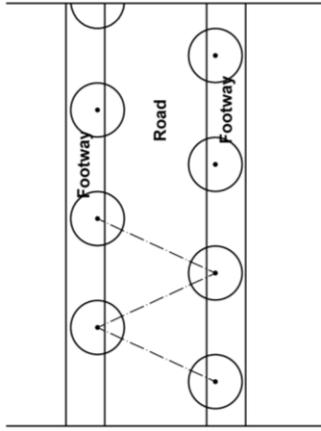
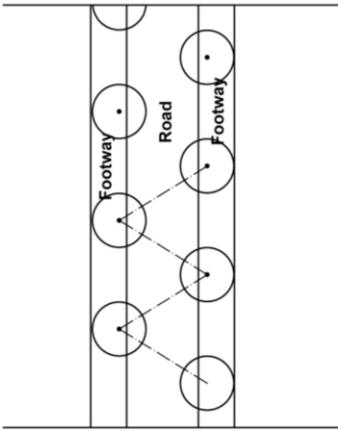
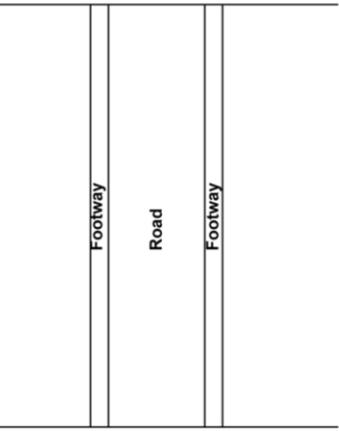
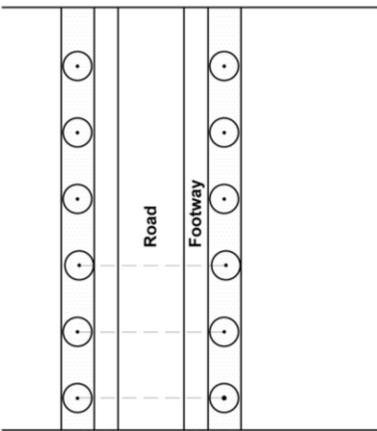
Source: Created by the author.

Brentham	Zamālik	Ma'ādī	Heliopolis	Letchworth
 <p>4 m 7.3 m 4 m 15.3 m</p>	 <p>4 m 7 m 3 m 7 m 4 m 25 m</p>	 <p>6 m 8 m 6 m 20 m</p>	 <p>5.5 m 8 m 1.7 m 8 m 1.8 m 6 m 5 m 36 m</p>	 <p>2.5 m 3 m 5.5 m 9 m 2.5 m 5 m 2.5 m 30 m</p>
<p>Primary St. Details St. Name: Brentham Avenue Divisions: Footway - Road Width: 15.3 m Shading Typology: Tree aligned street Trees on the same axis Mainly providing shade for the footway</p>	<p>Primary St. Details St. Name: Boulaq Avenue (currently 26th of July St.) Divisions: Footway - Road - Tram Tram Position: Center Width: 25 m (82 ft) Shading Typology: Tree aligned street Trees on the same axis Mainly providing shade for the footway</p>	<p>Primary St. Details St. Name: Mosseri Avenue Divisions: Footway - Road Width: 20 m Shading Typology: Tree aligned street Trees on shifted axis Providing shade for the footway and the road</p>	<p>Primary St. Details St. Name: Abbas Boulevard (currently Ibrahim Elakani St.) Divisions: Footway - Road - Tram Tram Position: On the side Width: 36 m Shading Typology: one side no shading on the other side arcades</p>	<p>Primary St. Details St. Name: Broadway (Main Avenue) Divisions: Footway - Road for cars - road for horse carriages - tramway - green buffer Width: 30 m Shading Typology: Tree aligned street Trees on the same axis mainly providing shade for the footway</p>

Street Typology: Secondary Street Design

They were tree-aligned streets sided by shaded footways. Zamālik and Ma‘ādī tree types and patterns provided shade over the roadway as well.

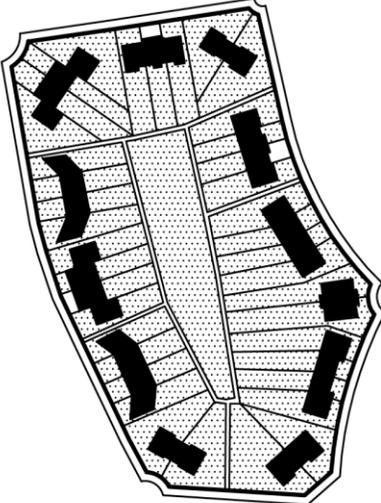
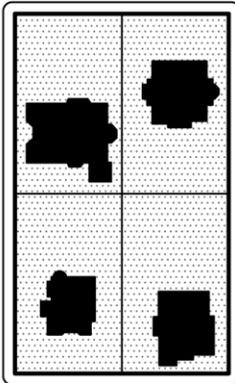
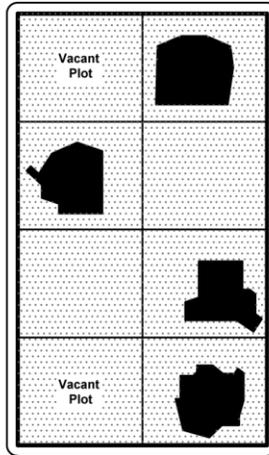
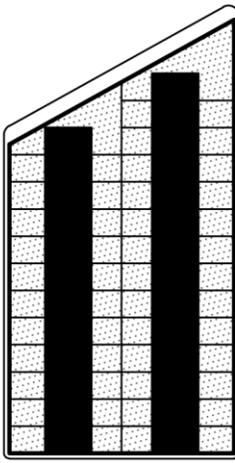
Table 11-7: Secondary street design: comparative analysis. Source: Created by the author.

Brentham	Zamālik	Ma‘ādī	Heliopolis	Letchworth
 <p style="text-align: center;">2.5 m 7.3 m 2.5 m</p> <p style="text-align: center;">12.3 m</p>	 <p style="text-align: center;">3.3 m 8.5 m 3.3 m</p> <p style="text-align: center;">15 m</p>	 <p style="text-align: center;">3 m 6 m 3 m</p> <p style="text-align: center;">12 m</p>	 <p style="text-align: center;">1.5 m 8 m 1.5 m</p> <p style="text-align: center;">11 m</p>	 <p style="text-align: center;">2.8 m 2 m 5.5 m 2 m 2.8 m</p> <p style="text-align: center;">15 m</p>
<p>Sec. St. Details St. Name: Woodfield Crescent Divisions: Footway - Road Width: 12.3 m (82 ft) Shading Typology: Tree aligned street Trees on the same axis Mainly providing shade for the footway</p>	<p>Sec. St. Details St. Name: Ibn Zinki St. Divisions: Footway - Road Width: 15 m Shading Typology: Tree aligned street Trees on shifted axis Providing shade for the footway and the road</p>	<p>Sec. St. Details St. Name: No. 30 St. Divisions: Footway - Road Width: 12 m Shading Typology: Tree aligned street Trees on shifted axis Providing shade for the footway and the road</p>	<p>Sec. St. Details St. Name: Kafr El-Zayat St. Divisions: Footway - Road Width: 11 m Shading Typology: Since the street is very narrow, the surrounding buildings provide shading</p>	<p>Sec. St. Details St. Name: Hillstott Divisions: Footway - Road - green buffer Width: 15 m Shading Typology: Tree aligned street Trees on the same axis mainly providing shade for the footway</p>

Residential Block Typology: Block Pattern

Letchworth mainly included residential wards, therefore, it is not included. Brentham and Heliopolis had diverse residential blocks' shape and size. The following were chosen as they were comparable in size.

Table 11-8: Block pattern: comparative analysis. Source: Created by the author.

Brentham	Zamālik	Ma'ādī	Heliopolis
			
<div style="display: flex; align-items: center;">  <div> <p>  Gardens  Buildings </p> <p>  30% </p> <p>Building Typology</p> <p>Building Type : Houses</p> <p>Grouping: Groups of 2, 3, 4</p> <p>Building Area = 45 sq.m (486 sq.ft)</p> <p>Building Frontage = 5.5 m (18 ft)</p> <p>Plot Area = 150 sq.m (1620 sq.ft)</p> <p>Foot Print Ratio : 30%</p> <p>Garden: Small Front-yard & Large Back-yard</p> <p>10 5 0 10 20 30 40 50 m</p>  </div> </div>	<div style="display: flex; align-items: center;">  <div> <p>  Gardens  Buildings </p> <p>  30% </p> <p>Building Typology</p> <p>Building Type: Villas or Palaces</p> <p>Grouping: stand alone</p> <p>Building Area = 420 sq.m (486 sq.ft)</p> <p>Building Frontage = 18-20 m (60-65 ft)</p> <p>Plot Area = 1500 sq.m (3240 sq.ft)</p> <p>Foot Print Ratio : 30%</p> <p>Garden: Surrounding the Building</p> <p>10 5 0 10 20 30 40 50 m</p>  </div> </div>	<div style="display: flex; align-items: center;">  <div> <p>  Gardens  Buildings </p> <p>  30% </p> <p>Building Typology</p> <p>Building Type: Villas or Palaces</p> <p>Grouping: stand alone</p> <p>Building Area = 300 sq.m (486 sq.ft)</p> <p>Building Frontage = 18-20 m (60-65 ft)</p> <p>Plot Area = 1050 sq.m (11302 sq. ft)</p> <p>Foot Print Ratio : 30%</p> <p>Garden: Surrounding the Building</p> <p>10 5 0 10 20 30 40 50 m</p>  </div> </div>	<div style="display: flex; align-items: center;">  <div> <p>  Gardens  Buildings </p> <p>  40% </p> <p>Case B: Villa Type B</p> <p>Building Typology</p> <p>Building Type: Villas</p> <p>Grouping: semi-attached</p> <p>Building Area = 98 sq.m (486 sq.ft)</p> <p>Building Frontage = 8 m (18 ft)</p> <p>Plot Area = 238 sq.m (1055 sq. ft)</p> <p>Foot Print Ratio : 40%</p> <p>Garden: Equal Front-yard & Back-yard</p> <p>10 5 0 10 20 30 40 50 m</p>  </div> </div>

Residential Block Typology: Plot Subdivisions

Letchworth residential wards were subdivided into group of residential plots surrounding allotment garden and shared open spaces. Brentham despite its relatively small residential block, the block included a shared allotment surrounded by the residential plots. On the other hand, in Zamālik, Ma’ādī, and Heliopolis, the residential block didn’t include any shared common spaces. This probably in order to maximize the financial benefit.

The plots were mainly rectangular in shape in all case studies. However, in Brentham and Letchworth, their size we relatively small compared with the luxurious large plot sizes in Zamālik, Ma’ādī, and Heliopolis. The plot area in Zamālik was almost ten times bigger than in Brentham. Thus, the density in terms of number of houses per acre was smaller in Zamālik, Ma’ādī, and Heliopolis, in relation to Brentham and Letchworth.

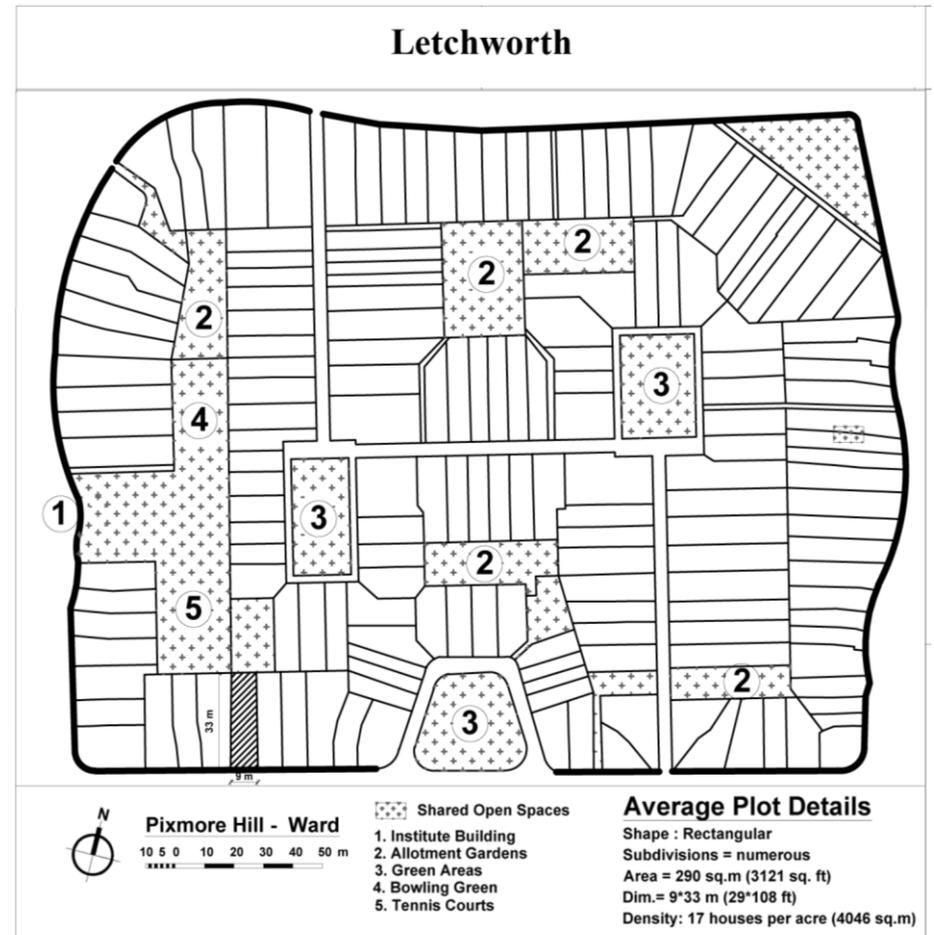
Heliopolis included various residential block patterns, as shown in Table 10-2, but the chosen case’s plots are comparable to the small plots of Brentham. Zamālik, and Ma’ādī, thus provided more luxurious larger plots sizes. This reflects the social targeted group from the elite community in contrast to Heliopolis, which provided diverse plot sizes targeting diverse socio-economic group beside the elite community.

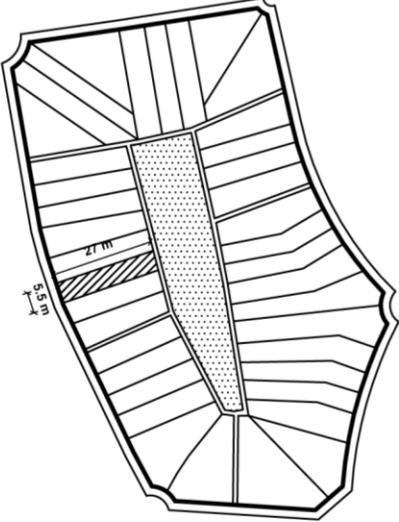
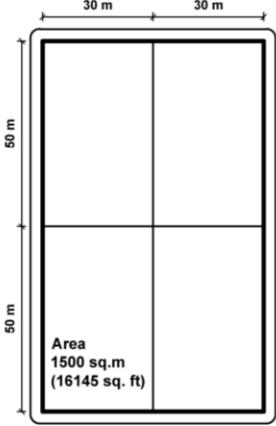
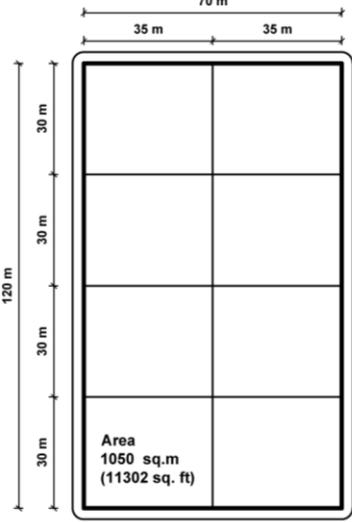
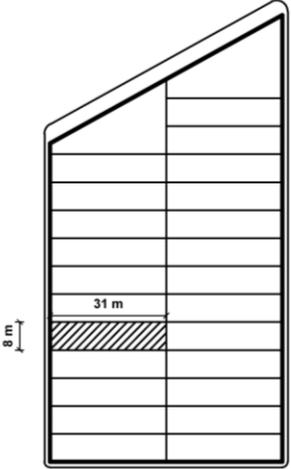
Residential Block Typology: Building Block Typology

They all provided garden-surrounded homes. However, Zamālik and Ma’ādī included large stand-alone villas, in contrast to Brentham’s groups of semi-attached small houses. Heliopolis included both

Table 11-9: Plot subdivisions-comparative analysis

Source: Created by the author.



Brentham	Zamālik	Ma'ādī	Heliopolis
	 <p>Area 1500 sq.m (16145 sq. ft)</p>	 <p>Area 1050 sq.m (11302 sq. ft)</p>	
<p>  </p> <p>  </p> <p> Average Plot Details Shape : Elongated Rectangle Subdivisions = 39 plots Area = 150 sq.m (1620 sq. ft) Dim.= 27*5.5 m (90*18 ft) Density: 17 to 24 houses per acre (4046 sq.m) </p> <p> 10 5 0 10 20 30 40 50 m  </p>	<p>  </p> <p> Average Plot Details Shape : Rectangular Subdivisions = 4 plots Area = 1500 sq.m (16145 sq. ft) Dim.= 50*30 m (164*98.5 ft) Density: 2.5 houses per acre (4046 sq.m) </p> <p> 10 5 0 10 20 30 40 50 m  </p>	<p>  </p> <p> Average Plot Details Shape : Rectangular Subdivisions = 8 plots Area = 1050 sq.m (11302 sq. ft) Dim.= 35*30m (115*98.5 ft) Density: 4 houses per acre (4046 sq.m) </p> <p> 10 5 0 10 20 30 40 50 m  </p>	<p>  </p> <p> Case B: Villa Type B Avg. Plot Details Shape : Elongated Rectangle Subdivisions = 25 plots Area = 238 sq.m (2561 sq.ft) Dim.= 8*31 m (26*102 ft) Density: 17 houses per acre (4046 sq.m) </p> <p> 10 5 0 10 20 30 40 50 m  </p>

Residential Block Typology: Building Block Typology

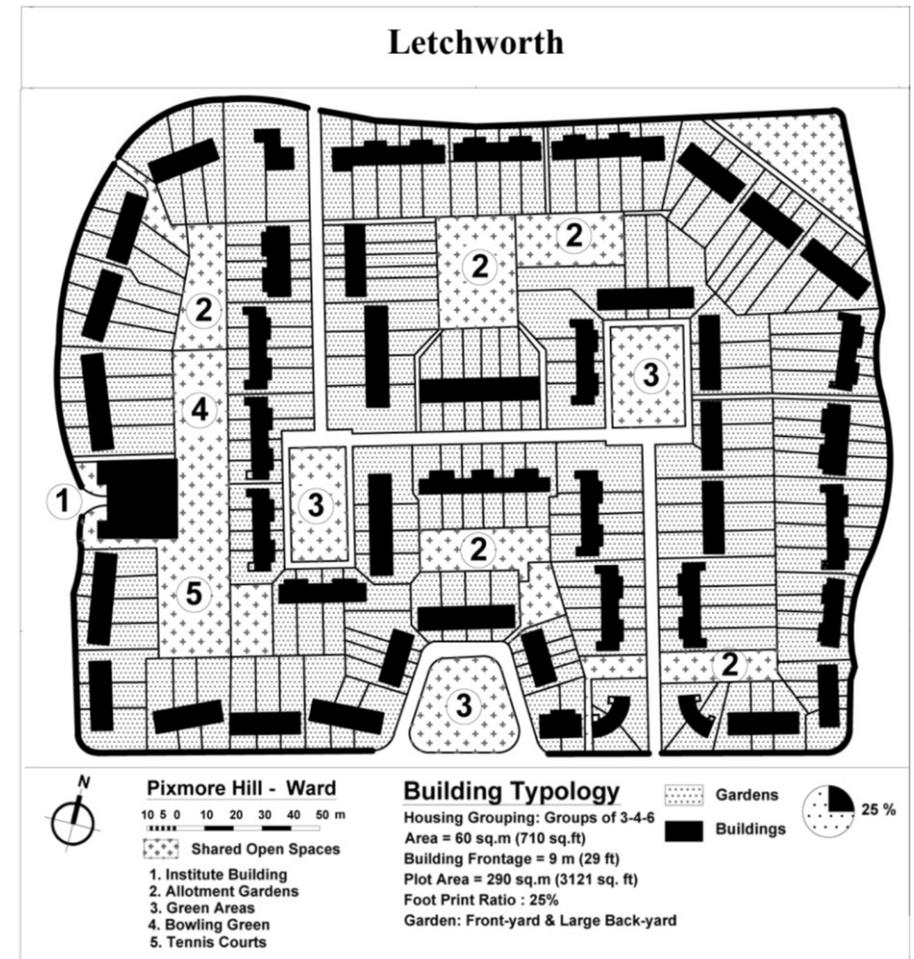
They all provided garden-surrounded homes. However, in Letchworth and Brentham, they were mainly semi-attached grouped in a 2-5 houses. The building in Ma'ādī and Zamālik were mainly stand-alone luxurious villas. In Heliopolis, there were a variety form semi-attached villa, stand-alone villas, palaces, workers house, and apartment buildings in response to the diverse targeted group.

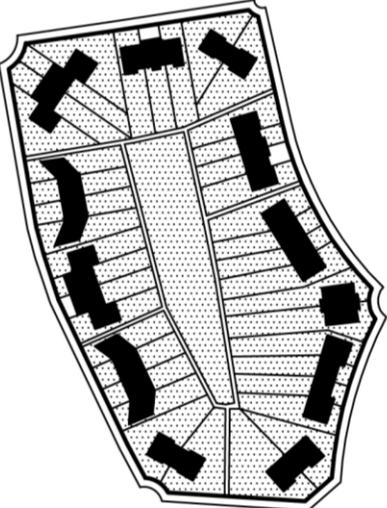
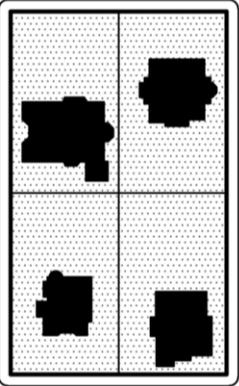
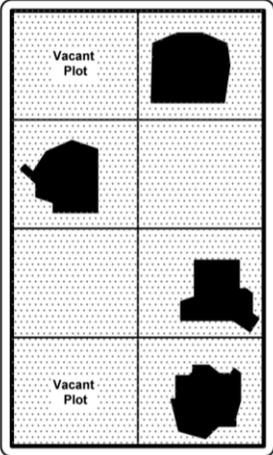
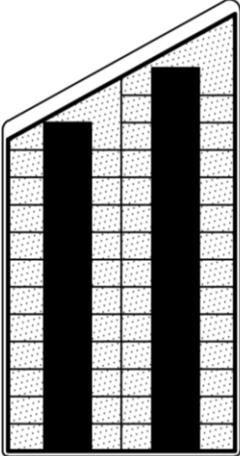
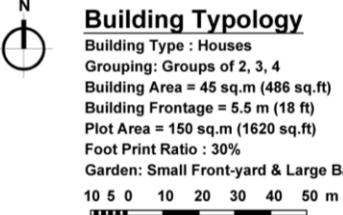
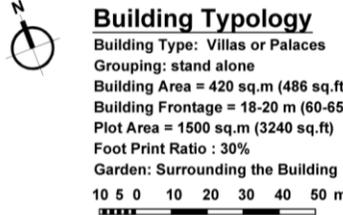
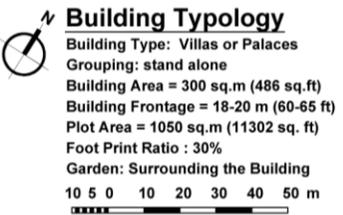
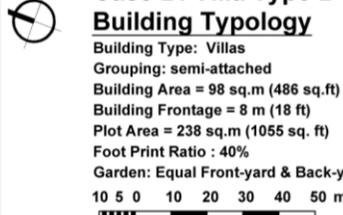
In Brentham, and Letchworth, the buildings location in the plot allowed to have a front yard and a large backyard. While, in Zamālik, Ma'ādī, and Heliopolis, the buildings were mainly located in the center of the plot, thus subdividing the garden area. This was a critic by Unwin regarding the stand-alone buildings located in the center of the plot. Therefore, he was in favor to the semi-attached group of houses with a small front yard and a large backyard to maximize the benefit from the garden. This is probable, the reason that in Ma'ādī, some residents bought more plots to increase their garden area.

The luxurious villas in Zamālik, Ma'ādī, and Heliopolis were definitely larger in size in comparison to the small semi-attached houses in Letchworth and Brentham. However, the semi-attached villa in Heliopolis was comparable in size with those of Brentham and Letchworth. The analysis shows that the footprint ratio was almost similar in the four case study in order to maximize the green area which the core of the garden city and garden suburb movement to provide garden surrounded homes with adequate ample gardens.

Table 11-10: Building block typology -comparative analysis.

Source: Created by the author.



Brentham	Zamālik	Ma‘ādī	Heliopolis
			
<p>  </p> <p>Building Typology Building Type : Houses Grouping: Groups of 2, 3, 4 Building Area = 45 sq.m (486 sq.ft) Building Frontage = 5.5 m (18 ft) Plot Area = 150 sq.m (1620 sq.ft) Foot Print Ratio : 30% Garden: Small Front-yard & Large Back-yard</p> <p>  </p>	<p>  </p> <p>Building Typology Building Type: Villas or Palaces Grouping: stand alone Building Area = 420 sq.m (486 sq.ft) Building Frontage = 18-20 m (60-65 ft) Plot Area = 1500 sq.m (3240 sq.ft) Foot Print Ratio : 30% Garden: Surrounding the Building</p> <p>  </p>	<p>  </p> <p>Building Typology Building Type: Villas or Palaces Grouping: stand alone Building Area = 300 sq.m (486 sq.ft) Building Frontage = 18-20 m (60-65 ft) Plot Area = 1050 sq.m (11302 sq. ft) Foot Print Ratio : 30% Garden: Surrounding the Building</p> <p>  </p>	<p>  </p> <p>Case B: Villa Type B Building Typology Building Type: Villas Grouping: semi-attached Building Area = 98 sq.m (486 sq.ft) Building Frontage = 8 m (18 ft) Plot Area = 238 sq.m (1055 sq. ft) Foot Print Ratio : 40% Garden: Equal Front-yard & Back-yard</p> <p>  </p>

Social Infrastructure

Brentham, Zamālik, Ma'ādī, and Heliopolis have limited social infrastructure in terms of public interaction space, which allows the community to interact more often than in big cities. This provides a pleasant and distinguishable social life. Its social infrastructure mainly included recreational fields and schools and religious facilities introduced later.

What distinguishes Brentham from Zamālik, Ma'ādī, and Heliopolis is that the recreational fields in the garden suburbs around Cairo were in the form of sports and social clubs with exclusive access for members. Another major difference is that no shared common spaces were established between residential blocks in Zamālik, Ma'ādī, and Heliopolis, unlike Brentham and most British garden suburbs and garden cities.

Ma'ādī and Heliopolis included a variety of religious institutions, from churches to synagogues and the later introduced mosques, reflecting the social diversity of the suburbs' community. Heliopolis in specific included a variety of Christian communities' churches, such as the Greek Orthodox, Copt Orthodox, Roman Catholic, and so on. Zamālik island, on the other hand, hosted a major church on its northern side and, later, mosques and another church. This variety in religious institutions reflects the diversity in the community residing the garden suburbs of Cairo, in contrast to the British garden suburbs that could include only a church or two.

Listed Elite Residents with Foreign Names in "Le Mondain Egyptien" - 1939

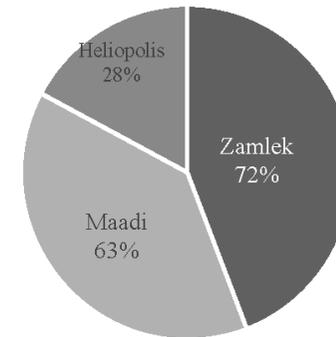


Figure 11-2: Comparison between listed residents with foreign names in Zamālik, Ma'ādī, and Heliopolis.

Source: Created by the author.

Social Target Group

Brentham initially targeted the low to middle class community, and then it started including a diverse one. Zamālik and Ma'ādī initially attracted the British community, and then the suburbs became home to foreigners and Egyptians, including doctors, engineers, professors, and employees in governmental institutions and private enterprises. However, Zamālik and Ma'ādī were home to more foreigners than Egyptians, in contrast to Heliopolis (Figure 11-2). Heliopolis' building and renting policy attracted a widely diversified range of social classes, in addition to the diverse residential buildings typologies, from luxurious villas to small villas, apartment buildings, and workers houses.

Table 11-11: Comparing the social infrastructure the selected case studies.

Letchworth	Brentham	Zamālik	Ma'ādī	Heliopolis
				
Recreational Facilities				
Recreational sports fields Golf Football Bowling Green Tennis Cricket Fields Hockey Lido (swimming Pool) Town Hall Parks Hotels	Sports & Social Club Tennis Courts Bowling Green Croquet Dancing classes	Sports & Social Club Golf Course Horse Racecourse Polo Grounds Tennis Courts Croquet Swimming Pool Park Hotel	Sports & Social Club Golf Course Bowling Green Tennis Courts Bowling Green Swimming Pool Croquet Casino	Sports & Social Club Golf Course Horse Racecourse Polo Grounds Tennis Courts Cricket Fields Swimming Pool Luna Park Hotel Casino
Recreational Sports fields were mainly located on the periphery				
Educational Facilities				
Included in the original plan to be built within the wards	Built over land dedicated for residential purposes			
Religious Facilities				
Churches	Church	Church Mosque	Churches (Diverse) Mosque Synagogue	Church Mosque Synagogue
Included in the original plan	Built over land dedicated for residential purposes	Built over land dedicated for residential purposes	Built over land dedicated for residential purposes	Only Built over land dedicated for residential purposes

The comparative analysis between Zamālik, Ma'ādī, and Heliopolis of listed elite residents' work titles from "Le Mondain Egyptien, 1939," The below figures, show several interesting aspects. Overall, the analysis of the three suburbs shows that Ma'ādī included a large percentage of the following professions: engineers, bankers, doctors, employees in private and public companies, and so on. It also shows that Heliopolis included the largest number of the government classification, which reflects their renting policy. The analysis also shows that Zamālik included the largest percentage of B.T.E./O.B.E. and diplomats, which explains its location near the British army barracks and proximity from Cairo's city center. It also explains initial establishments dedicated for British employees in the Egyptian government. Heliopolis included the largest number of the "Don't Work" category.

Zamalek - Listed Elite Residents Work Titles' Classification from "Le Mondain Egyptien" - 1939

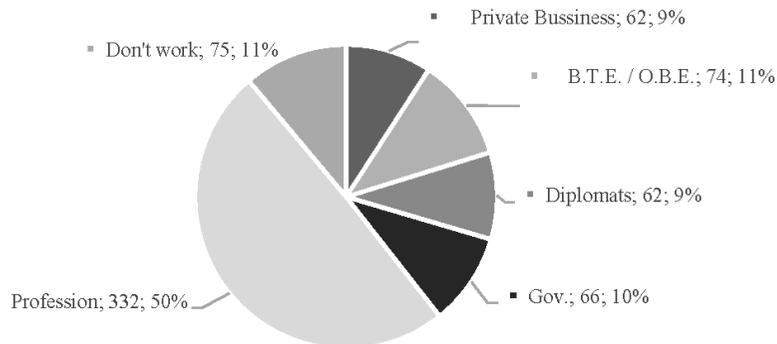


Figure 11-3: Zamālik - listed elite residents' work titles Chart. Based on "Le Mondain Egyptien, 1939". Source: Created by the author.

Maadi - Listed Elite Residents Work Titles' Classification from "Le Mondain Egyptien" - 1939

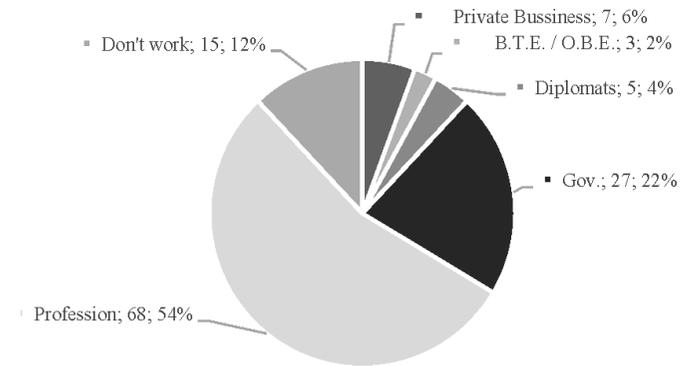


Figure 11-4: Ma'ādī - listed elite residents' work titles Chart. Based on "Le Mondain Egyptien, 1939". Source: Created by the author.

Heliopolis - Listed Elite Residents Work Titles' Classification from "Le Mondain Egyptien" - 1939

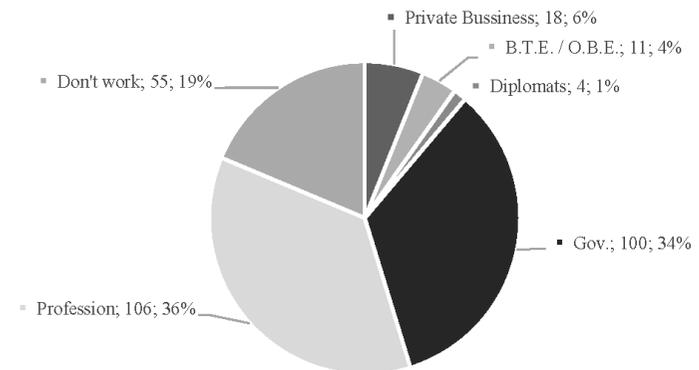


Figure 11-5: Heliopolis- listed elite residents' work titles Chart. Based on "Le Mondain Egyptien, 1939". Source: Created by the author.

11.2 Discussion

The discussion mainly summarizes the findings of the study from three aspects. The first is a discussion on the British garden city and garden suburb movements, summarizing the findings related to both and highlighting the differences between them. The second is a discussion on the transfer process, aiming to summarize the findings concerning the transfer of the garden suburb movement to Cairo. The third is a discussion on the garden suburbs of Cairo, summarizing the findings concerning their development, the differences between them, and how they relate to the British movement. The discussion also extends to highlight on aspects related to future conservation purposes and the lesson learned to influence the design of new suburban development around greater Cairo.

On the British Garden City and Garden Suburb Movements

The garden city movement was based on E. Howard's book and then implemented in practice. On the other hand, garden suburbs emerged in practice and then their principles were published in books. R. Unwin. The later after designing Letchworth, the first physical demonstration of Howard's garden city, promoted the design of garden suburbs with the principles of garden cities. He believed that the garden suburb provided a more practical solution to crowded big cities. Although garden suburbs were laid on the garden city principles, they were totally different.

A garden city offered a self-contained town with an industrial sector and an agricultural estate, creating an independent city. Its main principle was to bring the advantages of the countryside and the town

together. It was limited in size and population number. A development model was implemented to ensure the return of "unearned increment" to community benefit. They provided low-density garden-surrounded homes for working and middle classes.

Garden suburbs mainly provided the normal growth of existing cities on healthy lines based on garden city principles. They were thus depending on existing cities. However, they provided a diverse range of recreational activities and services for its community. They mainly formed residential commuter suburbs, and they also offered garden-surrounded homes for working and /or middle classes.

On the Transfer Process

In the beginning of the 20th century, the garden city movement started to gain a worldwide reputation. By 1913, garden city associations similar to the British association were formed in 18 countries, including France, Germany, Belgium, Russia, Japan, and Brazil. Thus, garden city and garden suburb models started to mushroom around the world. The mushrooming of both movements together, especially that the garden suburb was laid out on garden city principles, created a major misconception between both movements. This conflict, fostered with the international success of the garden city movement, made several housing estate or urban land developments claim to have been laid out on garden city lines and thus labeled as garden cities.

The study analyses the transfer process of both movements from Britain to the world, through a theory of transporting planning of

imported and exported urbanism, presented by Joe Nasr and Mercedes Volait in the book they edited together titled “Urbanism Imported or Exported?” The analysis shows that the British movements were transferred through the process of importation or exportation.

In several cases, the garden city and garden suburb movements were imported by the local authorities of the country via sending local architects to Britain to learn the concepts and return to implement them. For example, in France in 1911, French architect Henri Sellier took his architects to visit Unwin and used his books to design several garden cities in France. Another approach of imported urbanism was via inviting foreign experts to the country to plan new developments, such as the case in Brazil, where the city of Sao Paulo along with a private company, invited Unwin and Parker to design Jardin America in 1910.

The exportation of the garden city concept happened mainly via colonial dominance, especially in the British colonies as British engineers and surveyors were sent to implement new plans in the colonial countries, such as the Garden City of Lusaka in Zambia. The study identifies another approach of exportation via foreign enterprises. This was mainly the case in Egypt during the early 20th century. Although Egypt was occupied by the British, private land companies with foreign European capital were responsible for establishing several gardens suburbs around Cairo’s city center, such as Ma‘ādī, Garden City, Heliopolis and Zamālik.

Prior to the British occupation of Egypt, in 1882, the Egyptian government declared bankruptcy, during the reign of Khedive Ismail, who left his place to his son Tewfik in 1879. K.I. overloaded the Egyptian

treasury with debts to European countries. Foreign loans to Egypt were guaranteed by two administrations, the Dā’irah Sinā‘īyah, the authority that managed the Khedive Ismail personal estates, and Domains Administration’s lands. The estates were put under a joint British, French, and Egyptian management commission, which started to sell the lands of both administrations to locals and foreigners to settle the debts. The purchase of the land was facilitated through the establishment of several mortgage banks.

The British occupation fostered the flow of European capital through the transfer of assets and authority in many public domains to private hands, mainly the transport and tourism industries. The flow of European capital along with the establishment of mortgage banks and the development of the railway and tourism industries caused the emergence of the European industrial bourgeoisie. Egyptian landlords formed the small number of Egyptian agrarian bourgeoisies. More white collars from locals and foreigners, thus, started working in the governmental institutions and foreign enterprises. These social changes created an urban population growth that increased the demand on new housing.

All these factors supported the rise of urban land development companies with foreign European capital. Thus, the garden suburb movement was exported via foreign enterprises rather than colonial dominance. The suburban development was mainly conveyed by the development of the railway industry and tourism industry, which formed the initial investment of the partners of most of the urban land development companies.

Several suburban developments, thus, were established around the historic city center of Cairo, such as Zamālik (circa 1903), Ma‘ādī (1904), Heliopolis (1905), Garden City (1906), and Qubbah Gardens (1907). These suburban developments attracted residents wanting to live in a healthy suburb in a garden-surrounded home. The development of mechanically powered transportation, whether vehicular cars or railways, facilitated access to the new suburbs.

On the Garden Suburbs of Cairo

Unlike the British garden suburbs established based on a co-partnership model, which mainly benefited from renting the constructed homes to the tenants, the suburban developments around Cairo were established by land development companies that mainly parceled the land into buildable plots and sold it to tenants. Few companies, such as Heliopolis Oasis Company, built some villas and apartment buildings for rent beside selling vacant plots.

These suburban developments, despite being described, titled, or claimed to be laid out on garden city principles, were only garden suburbs of Cairo. Their proximity to Cairo, which its area in 1896 was only 17.7 sq.km, made these suburban developments provide the normal growth of the overpopulated city on a healthy line. The tramway line connecting them to the city center facilitated the suburbs' residents' daily commute to work.

Zamālik and Ma‘ādī orthogonal street network offered residential blocks, which were divided into large plots sold to tenants to build stand-

alone, fenced villas surrounded by gardens. Heliopolis had a spider web-like street network similar to Unwin's design of Letchworth center. The intersection between the radiating axial avenues and the circular boulevard radiating from its central square formed large sectors like the garden city wards. However, they were mainly subdivided into residential blocks. Heliopolis Company, besides selling buildable plots, built residential dwellings for rent. The company offered a variety of villas, apartment buildings, and workers houses, with different renting prices, attracting a wide variety of residents. The garden suburbs in Cairo mainly provided stand-alone houses surrounded by a garden while in Britain group of semi-attached garden surrounded homes were grouped around shared allotment gardens.

Zamālik and Ma‘ādī had a rather interesting street design, with streets aligned with trees planted on wide footways. The trees arrangements and types offered shadow for pedestrians as well as the road used by horse carriages. Recreational activities and especially recreational sports fields were a major component of these suburbs. They later became sporting clubs with membership access, introducing a new prototype of semi-public open space. Educational activities were not introduced in the initial plans, but with the growth of the suburbs, they were introduced over vacant plots designated for residential purposes.

The same applies for religious establishments, except in Heliopolis, which incorporated a church and a mosque. The diversity of religious establishments, from synagogues to mosques and catholic and orthodox churches, reflects the social diversity in the suburbs. However,

the late introduction of mosques compared to the other religious establishments reflects their minority in the beginning. It also reflects the control of the authority in power responsible for the development. For example, in Heliopolis, Baron Empain built a central catholic church, even though most Egyptian Christians are Copt orthodox. Similarly, in Ma'ādī, a synagogue was built as the developing company's board included a lot of Jewish families.

Most garden suburbs initially attracted foreigners, especially British, rather than Egyptians. The residents of these suburbs were not only of the rich European urban and industrial bourgeoisie or Egyptian agrarian bourgeoisie, but the suburbs were also home to foreigners and Egyptians, doctors, engineers, professors, and employees in governmental institutions and private enterprises. However, Zamālik and Ma'ādī attracted more foreigners than Heliopolis. This is probably due to the company's implemented renting policy that mainly attracted governmental employees.

On Future Conservation Efforts

Despite the value of Zamālik, Ma'ādī, Heliopolis, and the other 20th century suburban developments around Cairo, these areas are facing major deteriorations. This topic needs further investigation to identify the causes of deterioration and potential development. However, this study provides an initial step for such future research. By identifying these suburban developments as garden suburb, the study determines some principles that guided such development. The study also identifies several

urban design aspects that needs to be conserve beside the valuable architectural buildings that distinguish these historic areas.

Despite that these developments are currently embedded within Cairo, nevertheless, it is important to preserve their residential identity. The invasion of commercial and office activities that are taking over the residential buildings is deteriorating the core aspects of these areas as garden suburb that were merely residential. The densification process, in terms of, replacing old villas with multi-story apartment buildings, despite that it deteriorates the architecture, but it also affects the idea of having a limited population number. The limitation of the population number is a core aspect of a garden suburb in order to create a sense of belonging between the community as suggested by the TCPA. The continuous growth of these suburbs throughout the years without keeping a barrier from one another is one of the major aspects that did not only affect the garden suburb but also deteriorated the whole Cairo as well.

The transportation also plays an important role in these garden suburbs. Maintaining direct connectivity with the surrounding is crucial. This direct connectivity should be mainly through public transportation and not mainly relying on vehicles. The removal of Zamālik tramway and replacing it with an overflight bridge destroyed it. The current removal of Heliopolis tramway will also destroy it. Currently a new underground metro line is being laid down to connect Zamālik and Heliopolis with their surroundings, but this will also destroy these areas as did the previous metro line in Ma'ādī when it replaced the railway line.

Rather than removing the tramway in Heliopolis in order to widen the road for more vehicles, it better to encourage public transportation over vehicular usage. This should be fostered by the maintenance of the side shaded with trees despite that they currently also being deteriorated in favor to widen the streets or create more parking spaces. Maintaining the shaded sidewalks facilitates the access to the public transportation, service, and sporting clubs which are currently part of the daily routine of a lot of Egyptians. Preserving the walkability theme of these areas is major aspect to maintain their quality of life.

On Supporting the Design of New Suburban Developments

There is a lot to be learn from the 20th century garden suburbs that could support the design of new suburban development rather than solely appropriating the name and few architectural features. The analysis of the 20th century garden suburbs reveal several aspects that needs to be taken into consideration for future development. First, maintaining direct connectivity to the surrounding city, where the work is, is crucial for the success of the suburban development. This direct connectivity should mainly rely on public transportation beside automobiles.

Suburban development should be developed in form of cluster around not very big cities while ensuring growth limitation. The limitation in size and population number affects the quality of life. They should not merge with one another or merge with the city. They should be distance form one another while keeping direct connectivity between them and with the city they surround. The limitation of the size of the

suburban development doesn't mean that they should be surrounded with gates. Most of the current suburban development around Cairo are gated for assumed security purposes, thus, transforming them into enclaves. The edges of the 20th century garden suburbs showed that they were mainly defined by natural barriers or recreational fields. Unfortunately, some the suburbs grew and took over the surrounding agricultural or desert land.

The limitation in size should be also accompanied by limited adequate number of services in terms of educational, recreational, and religious facilities This limitation of social infrastructure allows that the residents the suburban get to meet and know each other which foster the sense of belonging. The social and sports club in the 20th century garden suburb was a catalyst for the success of these suburbs. Thus, for future development it might be more successful to design social and sports club or create sports fields, rather than creating small shared gardens between the residential blocks. This suggestion still needs further investigation.

Despite that Zamālik, Ma'ādī, and Heliopolis had each a golf course, but it is not necessary to have one in future suburban development. Golf courses were laid down as a recreational activity which mainly attracted the British. It was not designed to create a pleasant landscape, as the case in some current suburban development, where the residential villas are overlooking the golf course. On the contrary, the analysis of the 20th century suburban development shows that the golf course along with the recreational fields where mainly allocated on the periphery of the development.

11.3 Conclusion

The 20th century garden suburbs of Cairo, during the British occupation, were the product of suburban development around the historic center of Cairo done by land development companies with foreign European capital. Thus, the garden suburb movement was exported via foreign enterprises rather than colonial dominance. The rise of land development companies was due to several aspects: the sale of the land managed by the Dā'irah Sinā'iyah and Domains Administration, the establishment of several mortgage bank houses, the privatization of several public domains, the booming of the railway industry and tourism industry, and the growth of the urban population.

The worldwide promotion of the garden city movement made several estate or land development projects claiming to be laid out on garden city lines be described as garden cities. Heliopolis is an example of these. It was a garden suburb of Cairo laid out on garden city lines. It was not self-contained as it depended on the city of Cairo. Its tramway connecting it to Cairo's city center facilitated the daily journey to work for the suburb's residents, making it a commuter garden suburb.

Zamālik, one of these 20th century suburban development around Cairo, started as a simple land development project without any services. However, its garden-surrounded homes, along with the previously existing Gezira Sporting Club, beside its proximity and direct connectivity to the city center of Cairo, and its limitation in size as it is located on an island in the Nile, transformed it into a distinguishable garden suburb. As for Ma'ādī, it was mainly a residential commuter

suburb, directly linked to and depending on Cairo's city center. It was designed and promoted by the land development company as a garden suburb of Cairo, despite that it had the contextual potential to be a garden city. The limitation in size and in social infrastructure, in terms of educational, religious and recreational facilities, distinguished the 20th century garden suburbs and fostered the community sense of belonging. The sport and social clubs with the recreational sports fields introduced a paradigm shift in the lifestyle of the Egyptian community.

These 20th century suburban developments around the relatively small historic Khedivial and Islamic Cairo, at that time, provided the normal growth of the city on a healthy line, and thus they became successful garden suburbs of Cairo. Being established in the early 20th century, makes them among the pioneer garden suburbs in the world.

List of Figures

Figure 1-1: General Map of Cairo in 1874 by P. Grand Bey.	3	Figure 3-5: Parker and Unwin original plan of Letchworth published in 1904.	38
Figure 1-2: Qubbah Garden on a partial map of Cairo in 1920.	4	Figure 3-6: Conceptual analysis of the 1904 plan of Letchworth.	39
Figure 1-3: “Garden-City” on a partial map of Cairo in 1920.	4	Figure 3-7: Aerial view of Letchworth Garden City in 1937.	41
Figure 1-4: Urban land development projects around Cairo in 1920.	4	Figure 3-8: Land use zoning based on Letchworth map in 1921.	41
Figure 1-5: A blueprint of an apartment building plan in Heliopolis.	4	Figure 3-9: Broadway, Letchworth Garden City, June 1925.	42
Figure 1-6: The densification process of Zamālik.	14	Figure 3-10: Leys Avenue near the junction with Eastcheap in the 1940's.	42
Figure 1-7: Value Map Project of Zamālik.	15	Figure 3-11: Postcard with title 'Letchworth, Garden City, Herts.	42
Figure 1-8: The removal of Heliopolis tramway tracks.	16	Figure 3-12: Letchworth street network.	43
Figure 1-9: A Map showing some of the new developments around Greater Cairo.	17	Figure 3-13: Proposed Town Square for Letchworth.	43
Figure 1-10: The golf course of Allegria in Sodic West.	18	Figure 3-14: The street design of Broadway Avenue.	44
Figure 1-11: New Korba in New Heliopolis City.	18	Figure 3-15: Part of the Broadway from the South.	44
Figure 2-1: Howard’s garden city diagram.	22	Figure 3-16: Street design analysis of the main Broadway.	45
Figure 2-2: “Garden Cities of To-morrow” - Book Cover of 1902.	23	Figure 3-17: Street design analysis of Hillshott Road.	45
Figure 2-3: The Three Magnets Diagram by Ebenezer Howard.	26	Figure 3-18: Meadow Way, Letchworth.	45
Figure 2-4: The garden city and rural belt diagram by E. Howard.	29	Figure 3-19: Bird-Hill ward designed by B. Parker and R. Unwin.	47
Figure 2-5: Ward and Center of Garden City diagram by E. Howard. ...	30	Figure 3-20: a group of Cottages Birds Hill.	47
Figure 3-1: Advertisement for Letchworth Garden City.	33	Figure 3-21: Golf at Letchworth in 1920.	50
Figure 3-2: Sir Ebenezer Howard, Barry Parker and Sir Raymond Unwin.	35	Figure 3-22: The opening of the Letchworth Lido 1935.	50
Figure 3-3: Letchworth Garden City and its surroundings based on a map of Letchworth in 1921.	36	Figure 4-1: Town Planning in Practice by Raymond Unwin book Cover	52
Figure 3-4: First Letchworth Station, pre 1912.	37	Figure 4-2: Raymond Unwin diagram showing the garden city principles applied to suburbs.	53

Figure 4-3: City with defined suburb and satellite towns (after Unwin).	59	Figure 5-10: Ludlow-road-looking-south.....	76
Figure 4-4: Polar Groove Street, Easwirck Estate.	61	Figure 5-11: Brentham street network diagram.....	76
Figure 4-5: A Village Street, Kersey Suffolk.	61	Figure 5-12: Brentham main street.....	77
Figure 4-6: Main street design suggested by Unwin inspired by the German town planning.....	62	Figure 5-13: Brentham secondary street.....	77
Figure 4-7: Secondary and residential roads prototype.	62	Figure 5-14: Aerial View of Brentham in 1924.....	78
Figure 4-8: Unwin’s diagram comparing two contrasted organization systems for residential block design.	63	Figure 5-15: Brentham average block size.	79
Figure 4-9: Unwin’s diagram comparing Schemes I and II.	63	Figure 5-16: Brentham average plot subdivision.	79
Figure 4-10: Table showing the variation in plot size suggested by Unwin.	64	Figure 5-17: Group of houses at Brentham Garden Suburb.....	79
Figure 4-11: A schedule showing the variation of plots and building areas.	64	Figure 5-18: Brentham average building typology.....	79
Figure 5-1: Advertisement of Brentham Garden Suburb.....	67	Figure 5-19: Tennis fields in Brentham next to the Institute Building..	80
Figure 5-2: The development phases of Brentham Garden Suburb.....	68	Figure 6-1: The International Garden City and Town Planning Association.	86
Figure 5-3: The Main Committee, Ealing Tenants Ltd, 1906.....	69	Figure 6-2: Imported and exported urbanism diagram.....	87
Figure 5-4: The 1907 modified plan of Brentham by Unwin and Parker.	70	Figure 7-1: the quarters of Ismailiya, Bab-el-Luq, and Nasiriyah on a partial map of Cairo in 1874.....	94
Figure 5-5: Aerial View of Brentham in 1924.	71	Figure 7-2: Sample of the Le Mondain Egyptien analysis of the addresses of the subscribers.	99
Figure 5-6: Plan of Brentham Garden Suburb in 1911.	72	Figure 7-3: The distribution of the 1939 “Le Mondain Egyptien” subscribers around Cairo.	101
Figure 5-7: Conceptual analysis of Brentham.	73	Figure 7-4: Chart showing the percentage of car ownership and those living in a villa or palace in relation to their address.....	102
Figure 5-8: The proposed site for Brentham Garden Suburb on 1896 map of Ealing.....	74	Figure 7-5: A colonial town planning model suggested by Robert Home.	106
Figure 5-9: Brentham land use zoning analysis.....	75	Figure 8-1: Gezira Palace Hotel advertisement.....	109
		Figure 8-2: A map of Zamālik circa 1900.....	110

Figure 8-3: Delchevalerie's plan of Gezira island in 1878.	112	Figure 8-22: Grotto Garden on 1936 map of Cairo.	125
Figure 8-4: Location of Zamālik from Cairo's center.	114	Figure 8-23: Tennis matches at the Gezira Sporting Club between 1934-39	126
Figure 8-5: Boulaq Avenue & Tramway	115	Figure 8-24: A foreign family playing golf.	126
Figure 8-6: Zamālik on a partial map of Cairo in 1914.	115	Figure 8-25: Chart showing the percentage of residents with foreign names living in Zamālik.	127
Figure 8-7: Zamālik on a partial map of Cairo in 1920.	115	Figure 8-26: Chart showing the work title classification percentage of the residents living in Zamālik.	128
Figure 8-8: Urban design conceptual analysis of Zamālik.	116	Figure 9-1: Advertisement for Ma'ādī promoting it as the garden suburb of Cairo.	129
Figure 8-9: Aerial view of Zamālik in 1932.	117	Figure 9-2: General Plan of Helwan.	131
Figure 8-10: Zamālik street network.....	119	Figure 9-3: Location of Ma'ādī from Cairo's center.	133
Figure 8-11: Zamālik development phases.	119	Figure 9-4: Ma'ādī urban conceptual design.	133
Figure 8-12: Layout of the primary streets of Zamālik.....	119	Figure 9-5: Ma'ādī street network.	134
Figure 8-13: Layout of the secondary streets in Zamālik.	119	Figure 9-6: Ma'ādī main street.	135
Figure 8-14: The street layout and section of the Gezira Circular Promenade, created by G. Delchevalerie.	120	Figure 9-7: Ma'ādī secondary street.	135
Figure 8-15: Zamālik in 1932.	121	Figure 9-8: The selected residential block typology of Ma'ādī on a collage of 1940 maps drawn in scale 1:2500.	137
Figure 8-16: The selected residential block typology in Zamālik on a collage of 1936 maps, drawn in scale 1:500.	122	Figure 9-9: Ma'ādī block pattern.	138
Figure 8-17: Zamālik block pattern.	123	Figure 9-10: Ma'ādī plot subdivisions.....	138
Figure 8-18: Zamālik general plot subdivision implemented by the company.	123	Figure 9-11: Ma'ādī building typology.....	138
Figure 8-19: Zamālik plot subdivision implemented by the Domains Administration.	123	Figure 9-12: Mosseri Square.	139
Figure 8-20: Zamālik buildings typology diagram on the blocks that were parceled into 4 plots. Source: Created by the author.	124	Figure 9-13: Ma'ādī Swimming Pool.....	139
Figure 8-21: Zamālik buildings typology diagram on the blocks that were parceled into 8 plots.	124	Figure 9-14: Chart showing the percentage of residents with foreign names living in Ma'ādī.	141

Figure 9-15: Chart showing the job title classification percentage of residents living in Ma'ādī.	141	Figure 10-20: Villas in Memphis Street designed by architect Augustin Van Arenbergh.	166
Figure 10-1: 1913 advertisement for Heliopolis.	142	Figure 10-21: Boulevard Abbas between 1934 and 1939.	166
Figure 10-2: List of shareholders of the Heliopolis Oasis Company.	147	Figure 10-22: Horse Racetrack at Heliopolis.	168
Figure 10-3: Egypt: Cairo Electric Railways and Heliopolis Oases Co., 1 founders share, 1906.	148	Figure 10-23: Heliopolis Club swimming pool.	169
Figure 10-4: Reginald Oakes family and education.	150	Figure 10-24: Heliopolis Casino.	169
Figure 10-5: The site of Heliopolis.	151	Figure 10-25: The Mosque in Heliopolis around 1930's.	169
Figure 10-6: Location of Heliopolis from Cairo's center.	151	Figure 10-26: Armenian church in Heliopolis.	169
Figure 10-7: Aerial view of Heliopolis in 1932.	153	Figure 10-27: The garden of the Heliopolis Palace, 1920s.	170
Figure 10-8: Heliopolis tramway in Tanta street around 1945.	154	Figure 10-28: Chart showing the percentage of residents with foreign names living in Heliopolis.	170
Figure 10-9: Heliopolis 2 oases scheme.	154	Figure 10-29: Chart showing the work title classification percentage of residents living in Heliopolis.	170
Figure 10-10: Advertisement for Heliopolis Palace Hotel.	156	Figure 11-1: Comparison between the area and location of garden suburbs around Cairo in contrast to London.	175
Figure 10-11: Heliopolis map in 1913.	157	Figure 11-2: Comparison between listed residents with foreign names in Zamālik, Ma'ādī, and Heliopolis.	188
Figure 10-12: Analysis of the conceptual urban design of Heliopolis.	158	Figure 11-3: Zamālik - listed elite residents' work titles Chart.	190
Figure 10-13: Aerial view of Heliopolis taken from a British army airplane around 1929.	159	Figure 11-4: Ma'ādī - listed elite residents' work titles Chart.	190
Figure 10-14: Heliopolis street network.	160	Figure 11-5: Heliopolis- listed elite residents' work titles Chart.	190
Figure 10-15: Heliopolis main street design.	161		
Figure 10-16: Heliopolis secondary street design.	161		
Figure 10-17: Heliopolis identified residential buildings categories.	162		
Figure 10-18: The selected residential block typology in Heliopolis on a collage of 1940 maps drawn in scale 1:1000.	163		
Figure 10-19: Partial Plan of workers houses typology.	166		

List of Tables

Table 1-1: The studied morphological urban analysis aspects.....	9
Table 3-1: Residential block typology comparison between two wards in Letchworth Garden City: Westholm Green and Pixmore Hill.	48
Table 6-1: Comparison between the garden city and the garden suburb.	83
Table 6-2: Summary of the Transfer Process.	89
Table 7-1: Cairo’s population growth in the 19 th and 20 th centuries.	98
Table 7-2: The numbers of “Le Mondain Egyptien, 1939” subscribers living in Cairo.	100
Table 7-3: The authority in power responsible for the development of the suburban land development in Cairo.	102
Table 8-1: List of trees planted in some important streets of Zamālik.	120
Table 9-1: List of trees planted in Ma‘ādī and Helwan.	135
Table 10-1: Heliopolis block pattern analysis.	164
Table 10-2: Heliopolis plot subdivision analysis.	165
Table 10-3: Heliopolis building typology analysis.	167
Table 11-1: Table illustrating the adopted principles and authority in power responsible for the Development of the garden suburbs in each case study.	174
Table 11-2: Comparing the surrounding incentives between the selected case studies.	177
Table 11-3: Comparing the different accessibility means between the selected case studies.	177
Table 11-4: Urban design concept: comparative analysis.	178
Table 11-5: Street network: comparative analysis.	180
Table 11-6: Main street design: comparative analysis.	181
Table 11-7: Secondary street design: comparative analysis.	182
Table 11-8: Block pattern: comparative analysis.	183
Table 11-9: Plot subdivisions-comparative analysis.	184
Table 11-10: Building block typology -comparative analysis.	186
Table 11-11: Comparing the social infrastructure the selected case studies.	189

References

- Abdel Ghani Ghanam, *Hadaek Al-Azhaar (The Flowers' Gardens) - Arabic Book* (Egypt: Altogaria Alkobra (The great commercing), 1928).
- ABU-LUGHOD, JANET L., *Cairo: 1001 years of the city victorious*, Princeton Studies on the Near East (Princeton: Princeton University Press, 1971).
- Adham, Khaled, 'Cairo's urban Deja Vu: Globalization and Urban Fantasies.', edited by Yasser Elsheshtawy. In *Planning Middle Eastern Eastern cities. an urban kaleidoscope in a globalizing world* (London: Routledge, 2004), pp. 134–168.
- Al-Masry Al-Youm, 'Zamalek streets closed for third metro line construction', 2017, <http://www.egyptindependent.com/zamalek-streets-closed-third-metro-line-construction/>, accessed 30 November 2017.
- Arnaud, Jean-Luc, *Le Caire: Mise en place d'une ville moderne, 1867-1907 des intérêts du prince aux sociétés privées*, La bibliothèque arabe (Arles: Sindbad; Actes Sud, 1998).
- Batchelor, Peter, 'The Origin of the Garden City Concept of Urban Form', *Journal of the Society of Architectural Historians* 28, no. 3 (October 1969): pp. 184–200. <http://www.jstor.org/stable/988557>.
- Beattie, Andrew, *Cairo: A cultural history*, Cityscapes (Oxford, New York: Oxford University Press, 2005).
- Besançon, Jacques, 'Une banlieue du Caire: Héliopolis', *geoca* 33, no. 2 (1958): pp. 119–151. doi:10.3406/geoca.1958.2266.
- 'Bogos Nubar Pasha', 2017, http://www.armenian-history.com/Nyuter/BIOGRAPHY/bogos_nubar_pasha.htm, updated 8 Sep 2017, accessed 15 October 2018.
- Bremner, G. A., *Architecture and urbanism in the British Empire*, The Oxford history of the British Empire. Companion series (Oxford: Oxford University Press, 2016).
- Brentahm Garden Suburb, 'History: Brentham Garden Suburb', <https://brentham.com/brentham-garden-suburb/history/>, accessed 05 January 2018.
- Brentahm Society, 'The Building of Brentahm 1901-1915', 2014, http://www.brentham.org.uk/html/building_1901-1915.html, updated 3 Feb 2014, accessed 04 January 2018.
- Brentham Society, 'Social Life in Brentham 1901-1915', 2014, http://www.brentham.org.uk/html/social_life_1901-1915.htm, updated 3 Feb 2014, accessed 04 January 2018.
- Bruyn, Gerd de, *Die Diktatur der Philanthropen: Entwicklung der Stadtplanung aus dem utopischen Denken*, first (Berlin, Deutschland: Braunschweig Wiesbaden Vieweg, 1996).
- Chaichian, Mohammad A., 'The Effects of World Capitalist Economy on Urbanization in Egypt, 1800-1970', *International Journal of Middle East Studies* 20, no. 1 (February 1988): pp. 23–43. <http://www.jstor.org/stable/163584>.
- Clevenger, Sam, 'Working class bodies in English garden cities', 2017, <http://www.historyworkshop.org.uk/working-class-bodies-in-english-garden-cities/>, accessed 14 December 2017.
- Culpin, Ewart G., *THE GARDEN CITY MOVEMENT UP-TO-DATE* (London: The Garden City and Town Planning Association, 1913).

- Dalachanēs, Angelos, *The Greek exodus from Egypt: Diaspora politics and emigration, 1937-1962 / Angelos Dalachanis*, 1st (New York: Berghahn Books, 2017).
- Deeb, Marius, 'Bank Misr and the Emergence of the Local Bourgeoisie in Egypt', *Middle Eastern Studies, Special Issue on the Middle Eastern Economy 12*, no. 3 (October 1976): pp. 69–86. <http://www.jstor.org/stable/4282607>.
- Delchevalerie, Gustave, *Les promenades et les jardins du Caire: avec un catalogue général détaillé et les noms scientifiques français et égyptiens des plantes, arbres et arbustes utiles et d'ornement cultivés dans les champs* (France: Chaumes (S. et M.) et chez les principaux libraires D'Égypte, 1899), accessed 29 March 2017.
- DeVries, Annalise J.K., 'Utopia in the Suburbs: Cosmopolitan Society, Class Privilege, and the Making of Ma'adi Garden City in Twentieth-century Cairo', *Journal of Social History* (2015): shv048. doi:10.1093/jsh/shv048.
- Dobrowolska, Agnieszka, and Jarosław Dobrowolski, *Heliopolis: Rebirth of the City of the Sun / Agnieszka Dobrowolska, Jaroslaw Dobrowolski* (Cairo: American University in Cairo Press, 2006).
- Editors of The Encyclopaedia Britannica, 'Nubar Pasha', 1911, <https://archive.org/details/in.ernet.dli.2015.73294/page/n895>.
- Elazzazy, Mohamed, 'Towards the Thematic Conservation of Historic Urban Landscapes: Identifying the Historic Urban Landscape Themes of El-Zamalek' (Master of Science, ARAB ACADEMY FOR SCIENCE, TECHNOLOGY AND MARITIME TRANSPORT, December 2011).
- Elserafi, Tamer, Dalila Elkerdany, and A. Shalaby, 'Challenges for sustainable urban mobility in Zamalek district', *Open House International* 42 (2017).
- Encyclopedia of World Biography, 'Muhammad Ali Pasha Biography', <http://www.notablebiographies.com/supp/Supplement-Mi-So/Pasha-Muhammad-Ali.html>, accessed 22 January 2018.
- Fahmy, Khaled, *Cairo*, Urban Conservation, 18 December 2013 (Cairo University, 2013).
- Fayad, Ashraf, 'About: SODIC West', <http://www.theallegriacairo.com/en/SODIC-West>, accessed 30 November 2017.
- First Garden City limited, *Letchworth Garden City in fifty-five pictures* (London : Halton House: Letchworth [Hertfordshire] : First Garden City Ltd., 1911?), <https://archive.org/details/lethworthgarden00firsuoft/page/n3>, accessed 09 October 2018.
- First Garden City Limited - Estate Office, 'Letchworth Garden City: General Remarks' (June 1909). <https://archive.org/details/FirstGardenCityLtdCCA37511>.
- Foster, Joseph, 'Baronetage and Knightage of the British Empire: Forming the Second Part of "The Peerage, Baronetage, and Knightage of the British Empire"', 1882, <https://archive.org/stream/peeragebaronetag02fost#page/n5/mode/2up>, accessed 28 February 2017.
- Gaudin. Jean Pierre, 'The French Garden City', edited by Stephen V. Ward. In *The Garden city. Past, present and future / edited by Stephen V. Ward* (London: Spon, 1992), pp. 52–68.
- Genealogy Collection (ed.), *The County Families of the United Kingdom, Aristocracy of England, Wales, Scotland, and Ireland* (london: Messrd

- Spottiswoode & Co. Ltd, 1908), <https://www.myheritage.de/research/collection-90100/zusammenstellung-von-veroeffentlichen-quellen?itemId=474464848&action=showRecord#fullscreen>.
- Gouda, Sara Moustafa, *Towards a sustainable preservation approach to Egyptian heritage neighborhoods: The case of Heliopolis*.
- Hall, Peter, and Colin Ward, *Sociable cities: The legacy of Ebenezer Howard* (Chichester: J. Wiley, 1998).
- Hall, Peter, and Colin Ward, *Sociable cities: The 21st century reinvention of the garden city*, 2nd edition, Planning, history and environment series (Abingdon, Oxfordshire, New York: Routledge, 2014).
- Hanson, Jack, and Adam Partington, 'Aspects of Suburban Landscapes: Inherited Landscapes & Suburban Greens 1850-2015' (2015). <https://content.historicengland.org.uk/images-books/publications/aspects-of-suburban-landscapes/aspects-suburban-landscapes.pdf/>.
- Hardy, Dennis, '1899-1999 Tomorrow & Tomorrow: The TCPA's first hundred years and the next...' (1999). <https://www.tcpa.org.uk/Handlers/Download.ashx?IDMF=60068eb3-df05-4cd8-9072-f11f0018c770>.
- Home, Robert K., 'Town planning and garden cities in the British colonial empire 1910–1940', *Planning Perspectives* 5, no. 1 (1990): pp. 23–37. doi:10.1080/02665439008725693.
- Howard, Ebenezer, *GARDEN CITIES OF TO-MORROW: BEING THE SECOND EDITION OF "TO-MORROW: A PEACEFUL PATH TO REAL REFORM"* (London: SWAN SONNENSCHNEIN & CO., Ltd, 1902).
- Howard, Ebenezer, 'Garden cities of to-morrow', edited by Frederic James Osborn. In *Garden cities of to-morrow* (Cambridge, Mass.: The M.I.T. Press, 1976), pp. 41–167.
- Howard, Ebenezer, 'GARDEN CITIES of To-morrow', edited by Attic Books. In *Garden Cities of To-morrow* (Great Britain: Antony Rowe Ltd, Chippenham, Wiltshire, 1997), pp. 3–122.
- Humphreys, Andrew, *Grand hotels of Egypt: In the golden age of travel*, Paperback edition (Cairo: The American University in Cairo Press, 2011).
- Hunting, H. G., 'City Bulton Desert Sands', *Technical World Magazine* (1909): pp. 371–373.
- Ilbert, Robert, *Héliopolis: Le Caire 1905-1922* (Paris: Éditions du Centre national de la recherche scientifique, 1981).
- Ilbert, Robert, 'Heliopolis: Colonial Enterprise and Town Planning Success?', edited by Ahmed Evin. In *In The Expanding Metropolis. Coping with the Urban Growth of Cairo* (Singapore: Concept Media/Aga Khan Award for Architecture, 1985), pp. 36–42, <https://archnet.org/publications/2640>, accessed 15 January 2018.
- Jones Lang LaSalle - JLL, *Cairo: Real Estate Market Overview - Q4*, <https://www.jll.co.za/>, accessed 09 February 2014.
- Kedourie, Elie, 'Sir Herbert Samuel and the Government of Palestine', *Middle Eastern Studies* 5, no. 1 (January 1969): pp. 44–68. <http://www.jstor.org/stable/4282274>.
- Kesseiba, Karim, 'Cairo's Gated Communities: Dream Homes or Unified Houses', *Procedia - Social and Behavioral Sciences* 170 (2015): pp. 728–738. doi:10.1016/j.sbspro.2015.01.075.

- Krämer, Gudrun, *The Jews in modern Egypt, 1914-1952* (London: I.B. Tauris, 1989).
- LEISER, GARY, 'The First Flight Above Egypt: The Great Week of Aviation at Heliopolis, 1910', *JRAS* 20, no. 03 (2010): pp. 267–294. doi:10.1017/S1356186310000039.
- Letchworth Local Committee, *Letchworth: A Town Built on a Book* (Great Britain: National Library Week Committee, 1968), <https://archive.org/details/lethworthatown00britgoog?q=lethworth>, accessed 06 February 2018.
- Louche, Denis (ed.), *Mémoires Héliopolitaines*, Gael Le Borgne (Cairo: Al-Ahram Establishment, 2005).
- McLean, William, 'Local Government and Town Development in Egypt', *The Town Planning Review VII*, no. 2 (April 1917): pp. 83–97.
- McLean, William H., *Regional and Town Planning: In Principle and Practice* (London: Crosby Lockwood and Son, 1930).
- Meacham, Standish, *Regaining paradise: Englishness and the early garden city movement* (New Haven, Conn., London: Yale University Press, 1998).
- Merlin, Pierre, and Françoise Choay, *Dictionnaire de l'urbanisme et de l'aménagement*, 3e éd. rev. et augmentée (Paris: Presses universitaires de France, 2000).
- Miller, Mervyn, 'Garden Cities and Suburbs: At Home and Abroad', *JOURNAL OF PLANNING HISTORY* 1, no. 1 (2002): pp. 6–28. doi:10.1177/153851320200100102.
- Miller, Mervyn, *English Garden Cities: An introduction* (Swindon: English Heritage, 2010), accessed 05 January 2018.
- Ministry of Culture (ed.), *Le Millenaire du Caire 969-1969* (Leipzig: R.D.A. Deutger Buch-Export und-Import, 1969).
- Morris, Eleanor Smith, *British town planning and urban design: Principles & Policies* (Harlow: Longman, 1997).
- Mumford, Lewis, 'Introduction', edited by Frederic James Osborn. In *Garden cities of to-morrow* (Cambridge, Mass.: The M.I.T. Press, 1976), pp. 29–40.
- Nasr, Joe, and Mercedes Volait, 'Introduction: Transporting Planning', edited by Joseph Nasr and Mercedes Volait. In *Urbanism: Imported or exported? Native Aspirations and Foreign Plans* (London: Academy Editions, 2003), pp. xi–xxxviii.
- Nasr, Joseph, and Volait, Mercedes (eds.), *Urbanism: Imported or exported? : native aspirations and foreign plans / Joseph Nasr and Mercedes Volait* (London: Academy Editions, 2003).
- National Organization for urban Harmony, 'Aims', http://www.urbanharmony.org/en/en_target.htm, accessed 28 December 2010.
- National Organization for urban Harmony, 'Value Map', http://www.urbanharmony.org/en/en_cvaluemap.htm, accessed 03 January 2011.
- Neale, Jon, 'Forget garden cities, we need a garden suburbs movement', 2012, <https://www.theguardian.com/housing-network/2012/oct/30/garden-cities-movement-urban-planning>, accessed 01 December 2017.
- Network, Nile, 'Heliopolis Heritage Initiative', <http://www.ardic-developments.com/english/voting/choice.aspx?cid=1&choiceid=2>, accessed 30 November 2017.

- Orfanou, Alexia, 'The Upper Bourgeoisie Education of the Greek Diaspora in Egypt in the Late 19th Century Through Penelope Delta's (1874-1941) Literature', *AJIS* 4, No 1 S1 (2015): pp. 13–26. doi:10.5901/mjss.2015.v4n1s1p13.
- Purdom, Charles Benjamin, *The Garden City: a study in the development of a modern town* (London: J.M. DENT & SONS Ltd, 1913).
- Purdom, Charles Benjamin (ed.), *Town theory and practice* (London: Benn Brothers, Limited, 1921).
- Purdom, Charles Benjamin, *The building of satellite towns: a contribution to the study of town development and regional planning*, New ed. (London: J.M. Dent & Sons, 1949).
- Raafat, Samir W., 'Heliopolis Old Photos and Map', <http://archive.is/p8dnZ>, accessed 08 February 2018.
- Raafat, Samir W., *Maadi 1904-1962: Society and history in a Cairo suburb*, [2nd ed.] (Cairo: Palm Press, 1995).
- Raafat, Samir W., 'GEZIRA SPORTING CLUB MILESTONES', 1996, <http://www.egy.com/zamalek/96-02-10.php>, accessed 07 February 2018.
- Raafat, Samir W., 'THE GEZIRA PALACE', 1999, <http://www.egy.com/zamalek/99-10-14.php>, accessed 30 November 2017.
- Raafat, Samir W., 'AND THEN THERE WERE NONE', 30 November 2000, <http://www.egy.com/zamalek/00-11-30.php>, accessed 06 February 2018.
- Raafat, Samir W., 'The Zamalek Legend 1860-1940', 2000, <http://www.egy.com/zamalek/00-12-15.php>, accessed 05 February 2018.
- Raafat, Samir W., 'Gezirah: Population 400', 2001, <http://www.egy.com/zamalek/>, updated 28 Dec 2010, accessed 05 February 2018.
- Raafat, Samir W., *Cairo, the glory years: who built what, when, why and for whom?* (Alexandria, Egypt: Harpocrates, 2003).
- Reid, Aileen, *Brentham: A history of the pioneer garden suburb 1901-2001 / Aileen Reid* (London: Brentham Heritage Society, 2000).
- Richmond, Ernest Tathan, 'The Significance of Cairo', *The Journal of the Royal Asiatic Society of Great Britain and Ireland* (January 1913): pp. 23–40. <http://www.jstor.org/stable/25188915>.
- Richmond, Ernest Tathan, *Moslem Architecture: 623 to 1516 Some Causes and Consequences* (London: The Royal Asiatic Society, 1926), accessed 14 February 2018.
- Rodriguez-Lores, Juan, and Gerhard Fehl, *Die Kleinwohnungsfrage: Zu den Ursprüngen des sozialen Wohnungsbaus in Europa*, Bd. 8, Stadt, Planung, Geschichte (Hamburg: Christians, 1988).
- Roskamm, Nikolai, *Dichte: EINE TRANSDISZIPLINÄRE DEKONSTRUKTION*, Diskurse zu Stadt und Raum (Bielefeld: Transcript Verlag, 2011).
- Rosten, David B., *The Last Cheetah of Egypt: A Narrative History of Egyptian Royalty from 1805 to 1953* (Bloomington: Iuniverse Inc, 2015).
- Rutherford, Sarah, *Garden cities and suburbs*, vol. 782, Shire library (New York N.Y.: Shire Publications, 2014).

- Saul, Samir, 'Chapitre V. Un contrôle jalousement gardé : entreprises belges et capitaux français', 1997, <http://books.openedition.org/igpde/767>, updated 1 Jan 1997, accessed 08 January 2018.
- Saul, Samir, 'European Capital and its Impact on Land Distribution in Egypt: A Quantitative Analysis (1900-1914)', edited by Gregory Blue, Martin P. Bunton, and Ralph C. Croizier. In *Colonialism and the Modern World. Selected Studies* (Armonk, N.Y., London: M.E. Sharpe, 2002).
- Scott, M. Baillie H., S. D. Adshead, P. W. Wilson et al., *Garden Suburbs: Town Planning and Modern Architecture* (London: T. Fisherb Unwin Adelphi Terrace, 1910).
- Smouha, Richard, Cristina Pallini, and Marie-Cécile Bruwier, *The Smouha City Venture: Alexandria 1923-1958* ([place of publication not identified]: CreateSpace Independent Publishing Platform, 2014).
- St Barnabas Church Ealing, '02 : The Brentham Estate', <http://www.barnabites.org/history/brenthamestate/>, accessed 03 January 2018.
- Stern, Robert A. M., David Fishman, and Jacob Tilove, *Paradise planned: The garden suburb and the modern city* (New York: The Monacelli Press, 2013).
- Stewart, Dona J., 'Changing Cairo: The political economy of urban form', *International Journal of Urban and Regional Research* 23, no. 1 (1999): pp. 128–147. <http://www.iupui.edu/~anthkb/a104/egypt/cairodevel.htm>.
- The General Organization for physical planning with I.A.U.R.I.F, *Reorganization and de-concentration of existing agglomeration: Cairo Report*, The General Organization for physical planning.
- The Institution of Mechanical Engineers, 'Proceedings', 1891, <http://scans.library.utoronto.ca/pdf/9/15/proceedings1891inst/proceedings1891inst.pdf>, accessed 28 February 2017.
- The Institution of Mechanical Engineers, 'List of Members: Articles and By-Laws', 1901, <https://ia802700.us.archive.org/14/items/listofmembers1901instuoft/listofmembers1901instuoft.pdf>, accessed 28 February 2017.
- The Monacelli Press, 'Paradise Planned: The Garden Suburb and the Modern City', 2013, <http://www.monacellipress.com/book/?isbn=9781580933261>, accessed 13 February 2018.
- The Pioneer co-partnership suburb: A record of progress issued as a souvenir of the visit of T.R.H. the Duke and Duchess of Connaught to declare open the Brentham Club and Institute of the Ealing Tenants Limited* (London: Brentham Society, 1990).
- Thomas, Ray, 'Introduction: Howard's Neglected Ideas', edited by Attic Books. In *Garden Cities of To-morrow* (Great Britain: Antony Rowe Ltd, Chippenham, Wiltshire, 1997), pp. vii–xxix.
- Tolba, Osama Salah-Eddin, and Alaa El-Habashi, 'Restoring the Streets of Egyptian Cities', edited by Cairo University. In *ARCHCAIRO* (Cairo: Cairo University, 2006), pp. 201–215.
- Town and Country Planning Association, 'creating garden cities and suburbs today: policies, practices, partnerships and model approaches – a report of the garden cities and suburbs expert group' (May 2012). https://www.crestnicholson.com/~media/about%20us/new%20about%20us/reports/creating_garden_cities_and_suburbs_today.pdf?la=en.

- University of Westminster - Highbury Group on Housing Delivery, 'GARDEN CITIES, GARDEN SUBURBS AND URBAN EXTENSIONS: Comments by the Highbury group on housing delivery on issues raised in the TCPA Report: Creating Garden Cities and Garden Suburbs Today'. https://www.crestnicholson.com/~media/about%20us/new%20about%20us/reports/creating_garden_cities_and_suburbs_today.pdf?la=en.
- Unwin, Raymond, *Town Planning in Practice: an introduction to the art of designing cities and Suburbs* (London: T. Fisher Unwin, 1909).
- Unwin, Raymond, *Nothing gained by overcrowding: How the Garden City type of development may benefit both owner and occupier* (Westminster: P. S. KING & Son, 1912).
- van Loo, Anne, 'Retour d'Egypte: Ernest Jaspar (1876-1940). D'Héliopolis à Hyderabad', *remmm* 73, no. 1 (1994): pp. 343–362. doi:10.3406/remmm.1994.1687.
- van Loo, Anne, 'De L'oasis a la Ville: L'unité dans la diversité', edited by Fonds Mercator. In *Heliopolis* (Bruxelles: Fonds Mercator, 2010).
- van Loo, Anne, 'La Nouvelle Héliopolis: Invention d'une ville-jardin dans le désert', edited by Fonds Mercator. In *Heliopolis* (Bruxelles: Fonds Mercator, 2010).
- Vitalis, Robert, *When capitalists collide: Business conflict and the end of empire in Egypt / Robert Vitalis* (Berkeley, Calif., London: University of California Press, 1995).
- Volait, Mercedes, 'Making Cairo Modern (1870-1950): Multiple Models for a 'European-Style' Urbanism', edited by Joseph Nasr and Mercedes Volait. In *Urbanism: Imported or exported? Native Aspirations and Foreign Plans* (London: Academy Editions, 2003), pp. 17–50.
- Volait, Mercedes, 'Un ensemble urbain Art Déco en Egypte: Héliopolis, banlieue du Caire', edited by Antonio Bravo Nieto. In *I Congrès International Ville et patrimoine, Art Déco, modèles de la modernité* (Melilla, Spain: Edicions Bellaterra, 2006), pp. 221–254, <https://hal.archives-ouvertes.fr/hal-00446019>, accessed 10 January 2018.
- Volait, Mercedes, 'Egypt (1914-2014): Global architecture before globalization' *Chapitre de l'ouvrage "Architecture from the Arab World (1914-2014): a selection"* (September 2014): pp. 1–7. <https://halshs.archives-ouvertes.fr/halshs-01059419>.
- Walford, Edward, 'The County Families of the United Kingdom, Aristocracy of England, Wales, Scotland, and Ireland: varies: 1860-68, R. Hardwicke; 1882-1904, Chatto Windus; 1908- Spottiswoode', 1919, <https://www.myheritage.de/research/collection-90100/zusammenstellung-von-veroeffentlichen-quellen?itemId=478353034&action=showRecord>, accessed 27 February 2017.
- Ward, Stephen V. (ed.), *The Garden city: Past, present and future / edited by Stephen V. Ward*, first (London: Spon, 1992).
- Ward, Stephen V., 'The Garden City Introduced', edited by Stephen V. Ward. In *The Garden city. Past, present and future / edited by Stephen V. Ward* (London: Spon, 1992), pp. 1–27.
- Watanabe, Shun-ichi, 'The Japanesse Garden City', edited by Stephen V. Ward. In *The Garden city. Past, present and future / edited by Stephen V. Ward* (London: Spon, 1992), pp. 69–87.

Zohry, Ayman, *Armenjans in Egypt*,
https://www.academia.edu/1300264/Armenians_in_Egypt.