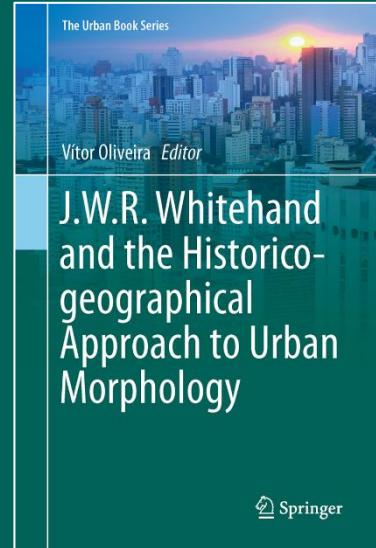
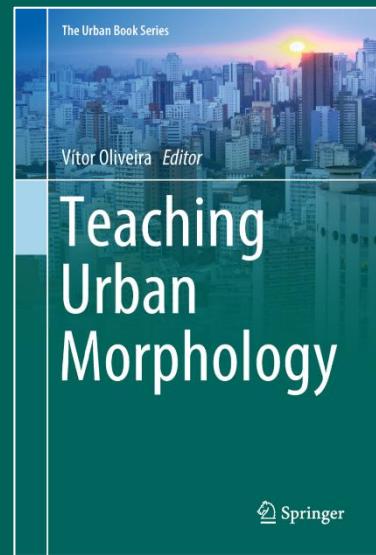
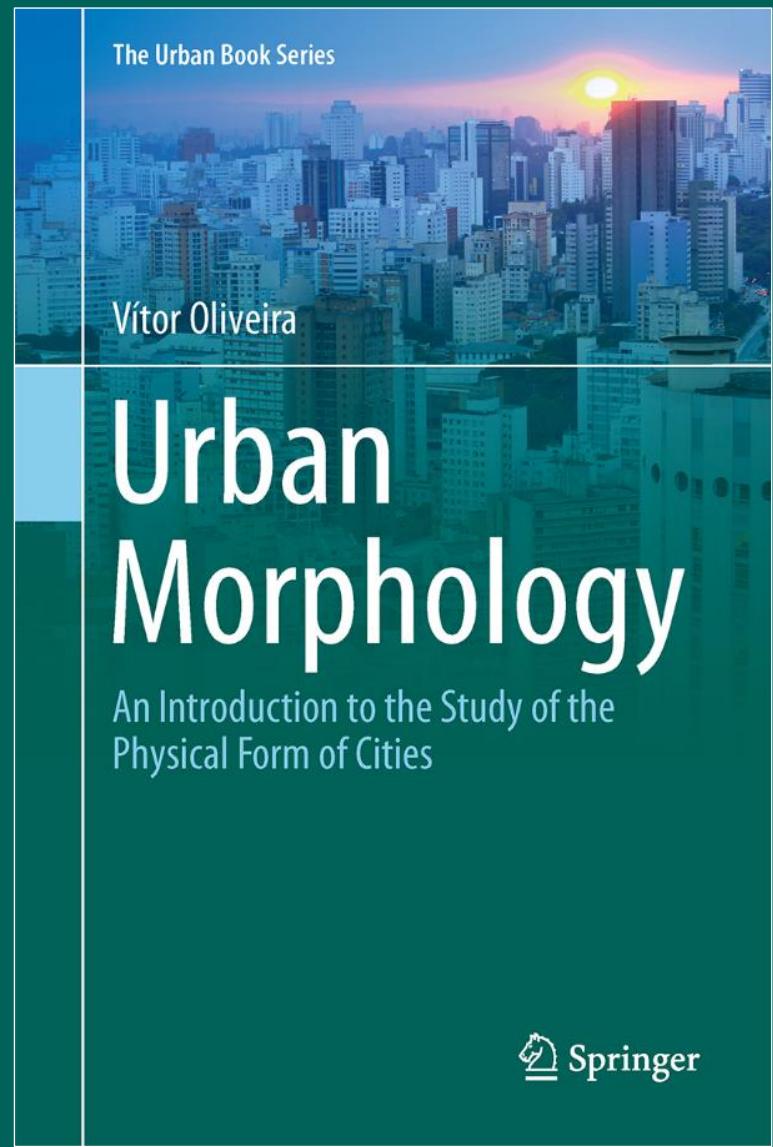


VITOR OLIVEIRA



URBAN MORPHOLOGY
MORFOLOGIA URBANA

AN INTRODUCTION TO THE STUDY OF THE PHYSICAL FORM OF CITIES
UMA INTRODUÇÃO AO ESTUDO DA FORMA FÍSICA DAS CIDADES



HISTORICO-GEOGRAPHICAL APPROACH

ABORDAGEM HISTÓRICO-GEOGRÁFICA

1. Background – German urban geography
2. MRG Conzen – the researcher
3. JWR Whitehand – the school of thought
4. Exercise

-

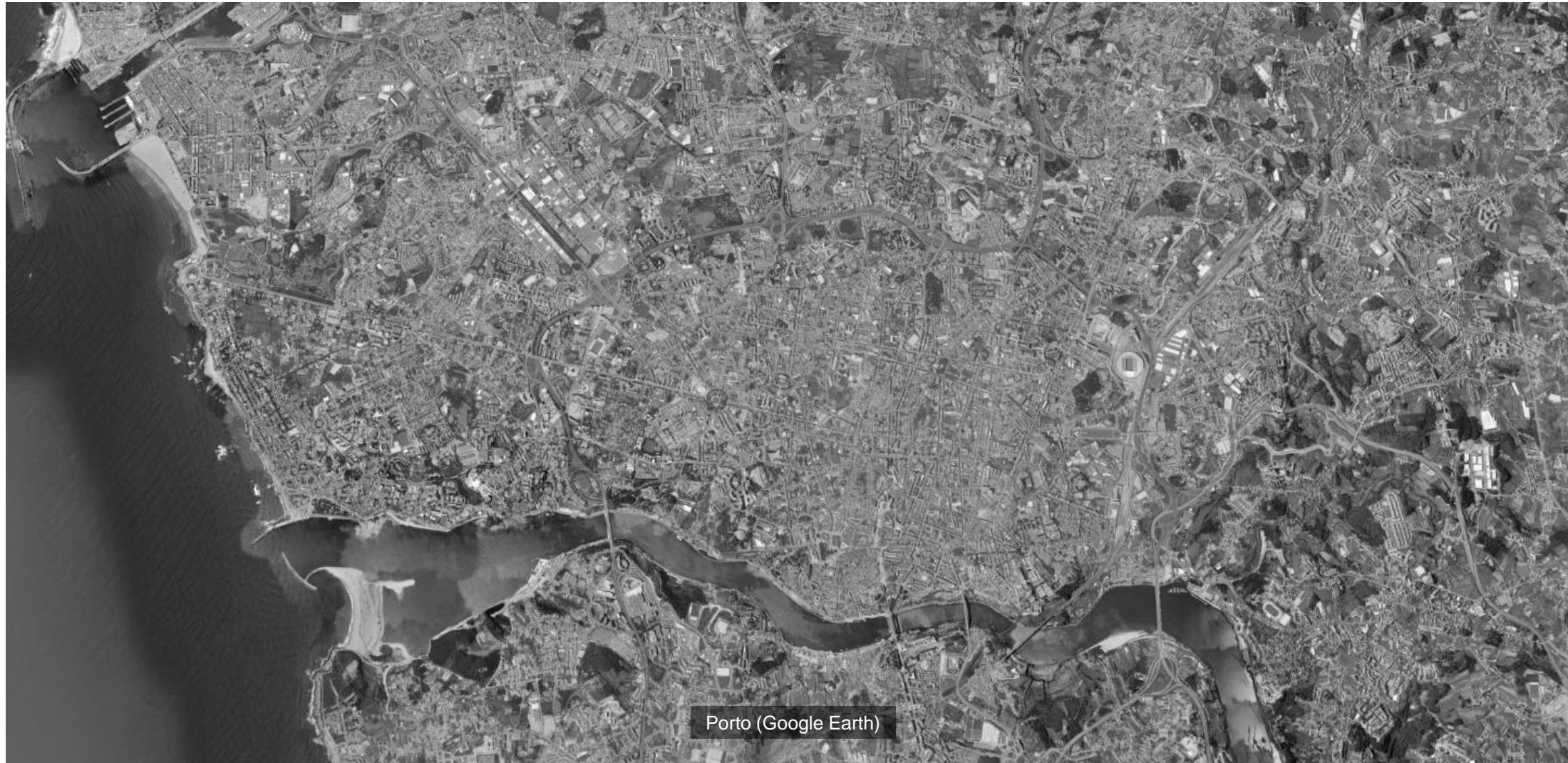
1. Antecedentes – geografia urbana Alemã
2. MRG Conzen – o investigador
3. JWR Whitehand – a escola de pensamento
4. Exercicio

BACKGROUND

ANTECEDENTES

How to deal with such a complex object as the city?

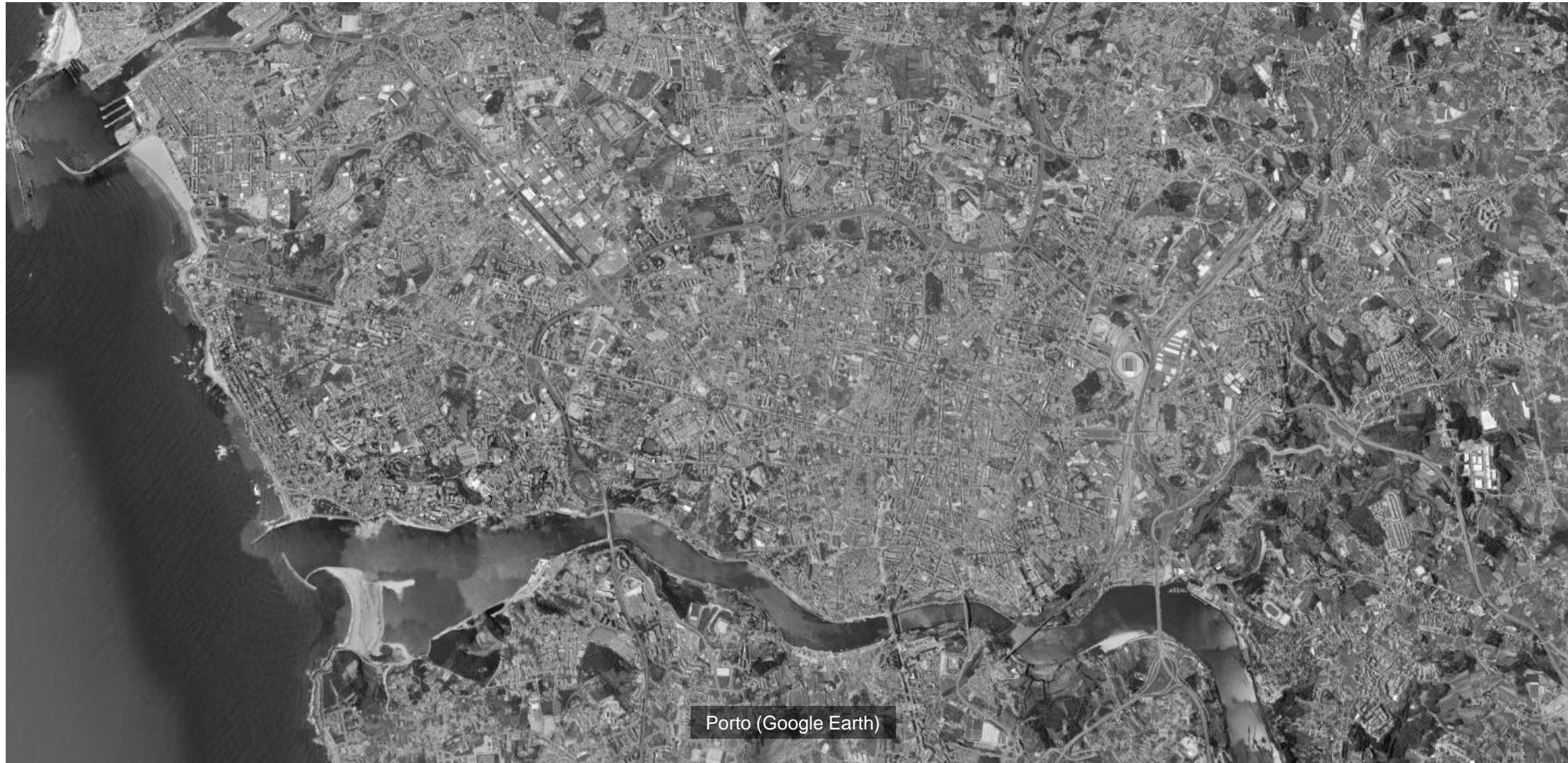
Como lidar com um objeto tão complexo como a cidade?



Porto (Google Earth)

Through the historicogeographical structure of the urban landscape.

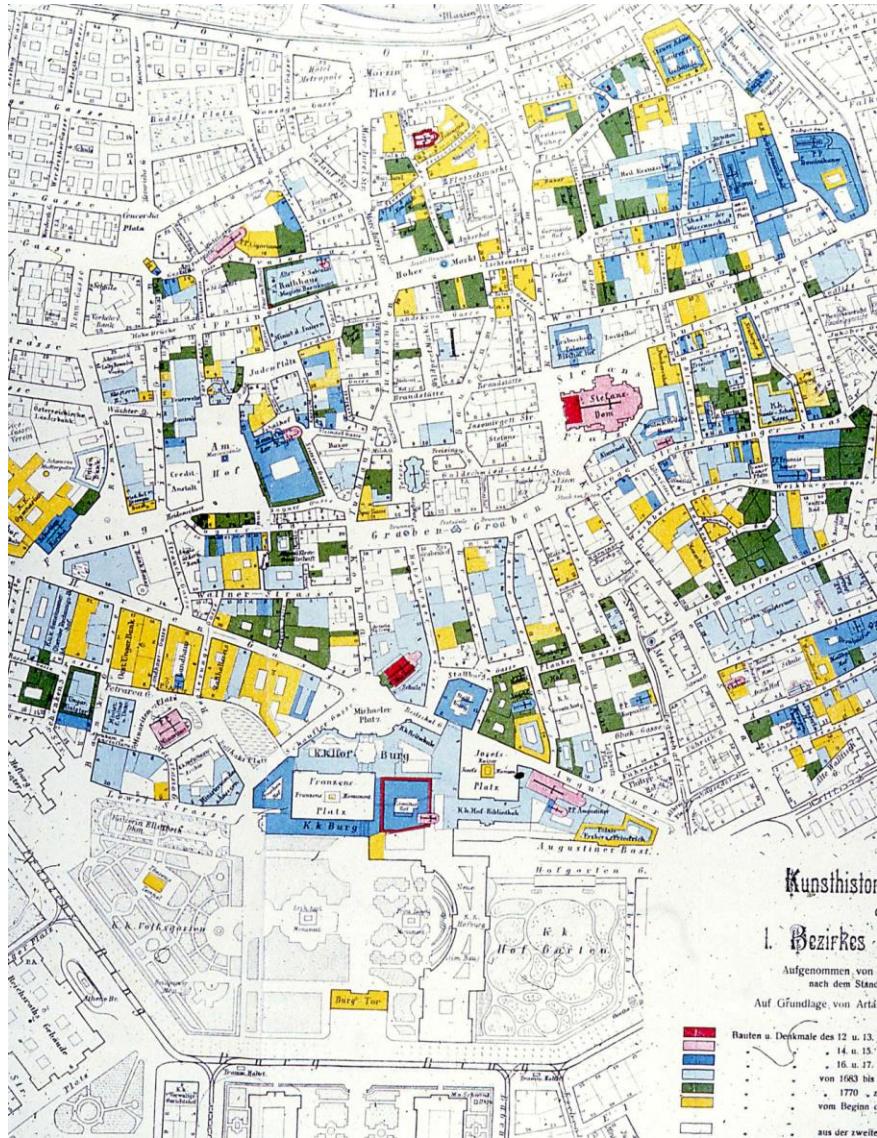
Através da estrutura histórico-geográfica da paisagem urbana.



Porto (Google Earth)

German urban geography, 1890-1939 (Oliveira 2016).

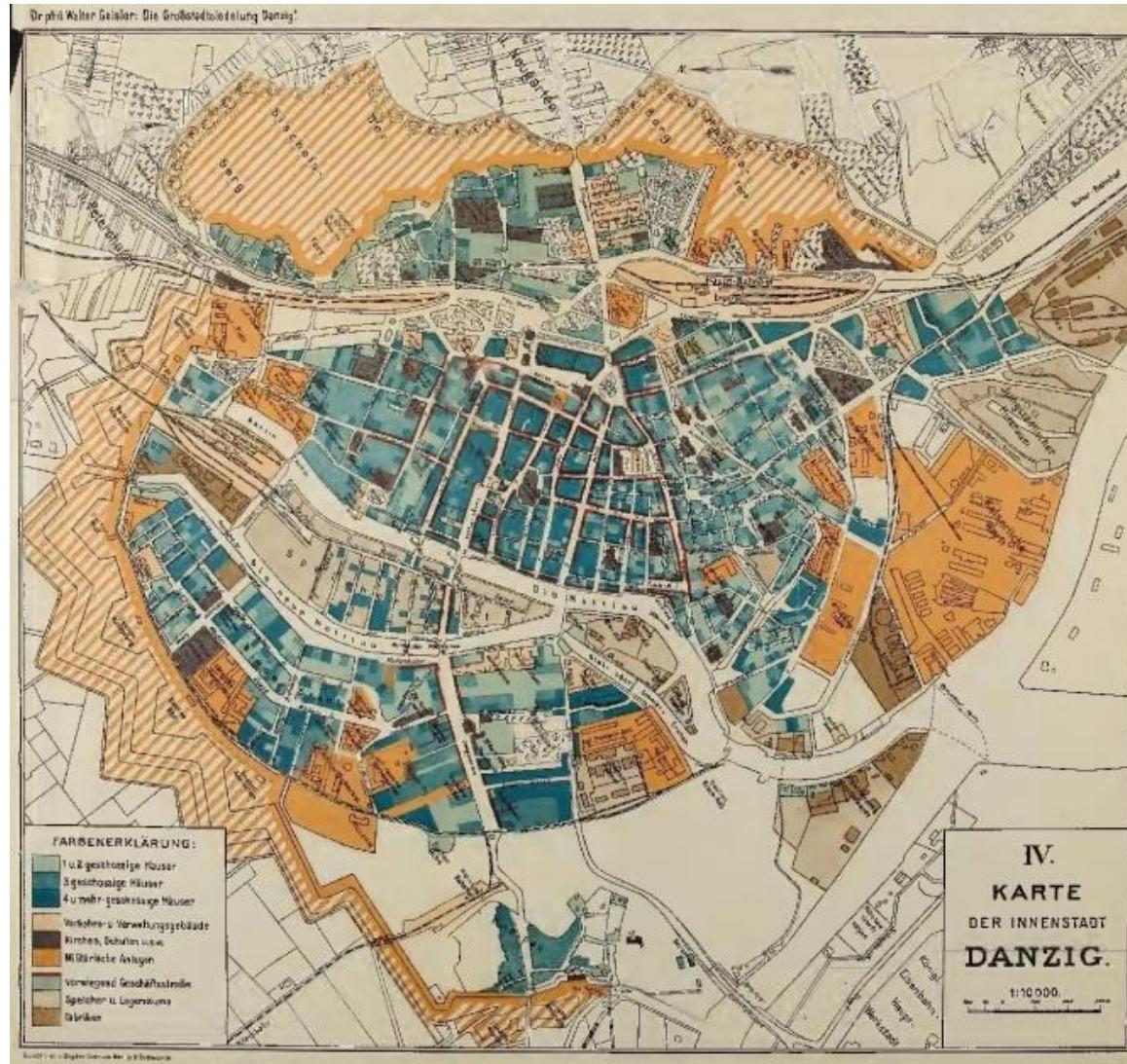
Decade	Year of publication	Author (Institution)	Studies on cities
1890–1899	1894	Johannes Fritz (Strasbourg)	<i>Deutsche Stadtanlagen</i> German city layouts
	1899	Otto Schläter (Halle)	<i>Über den Grundriß der Städte</i> On the ground plan of cities
1900–1909	1903	Friedrich Ratzel (Leipzig)	<i>Die Geographische Lage der großen Städte</i> The geographical location of large cities
1910–1919	1916	Hugo Hassinger (Vienna)	<i>Kunsthistorischer Atlas von Wien</i> Art-historical Atlas of Vienna
	1918	Walter Geisler (Halle)	<i>Danzig: ein siedlungsgeographischer Versuch</i> Gdansk: an essay on the settlement geography
1920–1929	1924	Walter Geisler (Halle)	<i>Die Deutsche Stadt: ein Beitrage zur Morphologie der Kulturlandschaft</i> The German town: a contribution to the morphology of the cultural landscape
	1925	Hans Dörries (Goettingen)	<i>Die Städte im oberen Leinetal, Göttingen, Northeim und Einbeck</i> The cities of Leinetal, Goettingen, Northeim and Einbeck
	1927	Hans Bobek (Vienna)	<i>Grundfragen der Stadtgeographie</i> Basic questions of urban geography
	1928	Rudolf Martiny	<i>Die Grundrißgestaltung der deutschen Siedlungen</i> The layout of the German settlements
1930–1939	1932	MRG Conzen (Berlin)	<i>Die Havelstädte</i> The Havel cities
	1936	Herbert Louis (Berlin)	<i>Die geographische Gliederung von Gross-Berlin</i> The geographical structure of Great Berlin



Viena, by Hugo Hassinger (Whitehand 2014).

The map distinguishes, by colour, the buildings' age and architectural style.

O mapa distingue, através da cor, os estilos arquitetónicos e a idade dos edifícios.

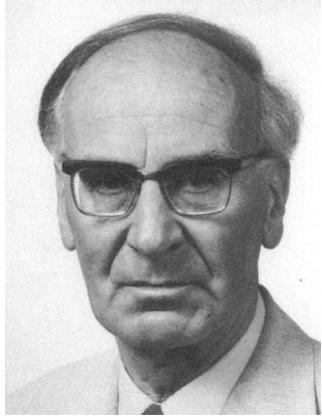


Danzig, by Walter Geisler (Geisler 1916).

The map distinguishes by colour, the land and building utilization (brown) and the number of storeys of residential buildings (blue).

O mapa distingue, através da cor, os diferentes usos do solo e do edificado (castanho), e ainda o número de pisos dos edifícios residenciais (azul).

MRG CONZEN



1907	Born in Berlin	Nasce em Berlim
1926-32	Studies geography history and philosophy (University Berlin)	Estuda Geografia, História e Filosofia na <i>University of Berlin</i>
1933	Emigrates to Great Britain	Emigra para a Grã-Bretanha
1934-36	Studies Town and Country Planning (VU of Manchester)	Estuda Planeamento na <i>Victoria University of Manchester</i>
1936-40	Starts a consultancy activity in regional and town planning	Consultor em Planeamento Regional e Urbano
1937-42	Engages in a postgraduation in historical geography	Realiza uma pós-graduação em Geografia Histórica
1940-46	Teaches geography in the University of Manchester	Dá aulas de Geografia na <i>University of Manchester</i>
1946-61	Teaches geography in the University of Durham	Dá aulas de Geografia na <i>University of Durham</i>
1961-72	Teaches geography in the U of Newcastle upon Tyne	Dá aulas de Geografia Humana na <i>University Newcastle upon Tyne</i>
2000	Dies in Newcastle upon Tyne (93 years).	Morre em Newcastle upon Tyne com 93 anos.

1960 ‘Alnwick Northumberland – a study in town-plan analysis’

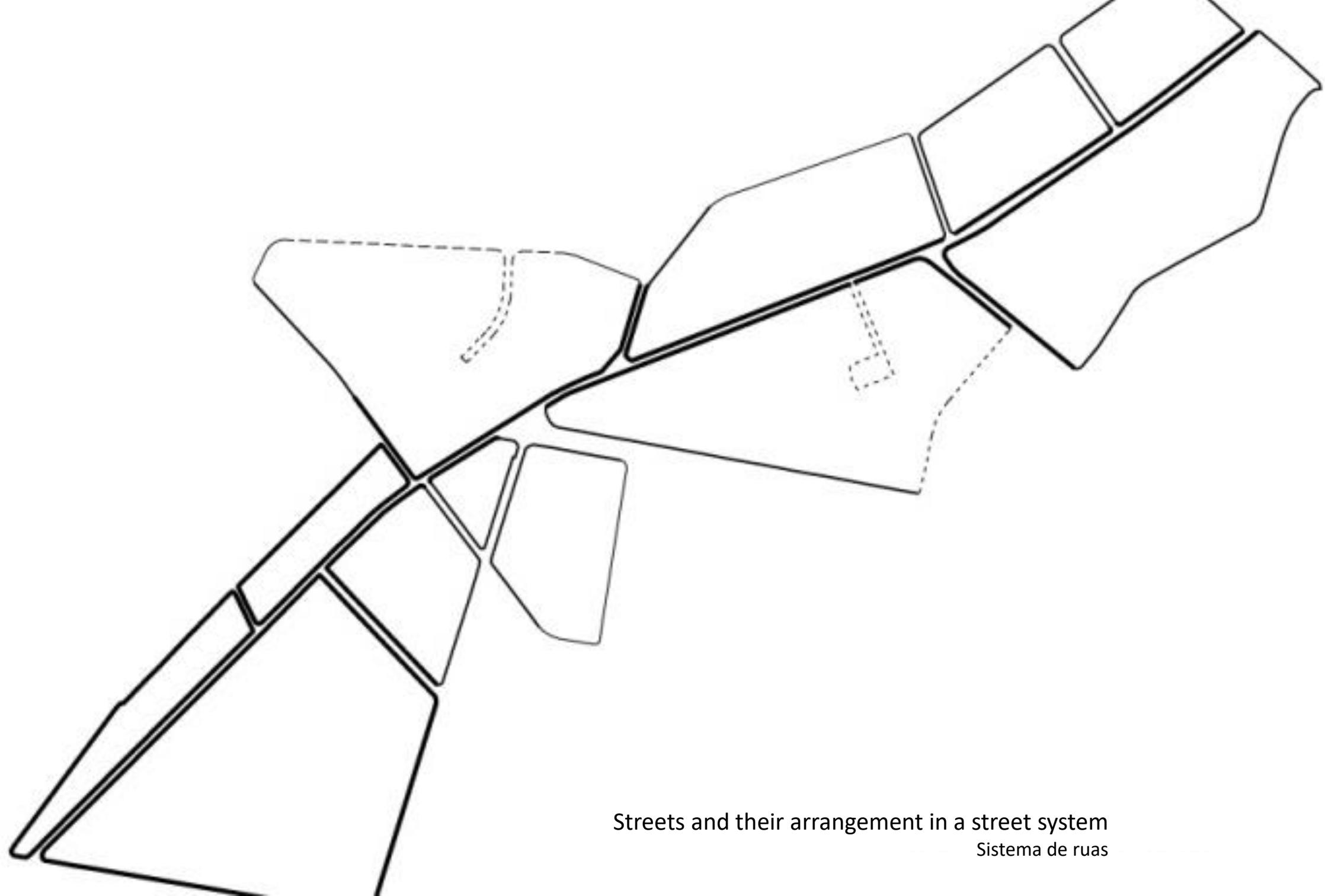
The tripartite division of the urban landscape:

- i) the town-plan (or ground plan)
 - streets and their arrangement in a street system,
 - plots and their aggregation in street blocks,
 - block plans of buildings;
- ii) the building fabric;
- iii) the land and building utilization.

-

Os três elementos básicos da paisagem urbana:

- i) o ‘plano’ (ou planta) da cidade
 - sistema de ruas,
 - o sistema de parcelas e a sua agregação em quarteirões,
 - sistema de edifícios (a implantação dos edifícios);
- ii) o volume edificado
- iii) os usos do solo.



Streets and their arrangement in a street system
Sistema de ruas

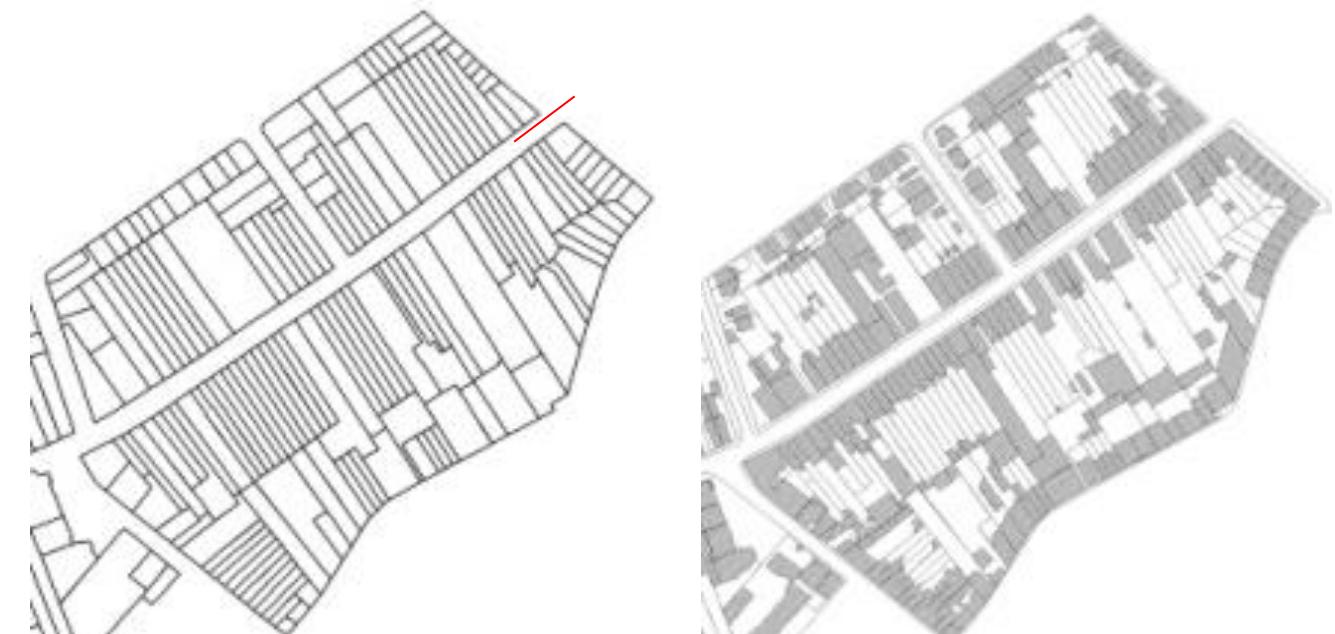


Plots and their aggregation in street blocks
O sistema de parcelas e a sua agregação em quarteirões



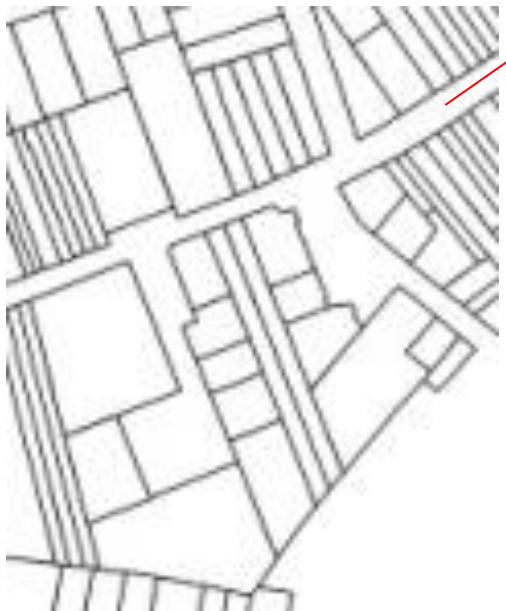
Block-plans of buildings

Sistema de edifícios (a implantação dos edifícios)









1960 ‘Alnwick Northumberland – a study in town-plan analysis’

Concepts on the process of urban development:

- i) fringe belt
 - ii) morphological region
 - iii) burgage cycle
-

Conceitos relativos ao processo de desenvolvimento urbano:

- i) cintura periférica
- ii) região morfológica
- iii) ciclo de parcela burguesa

FRINGE BELTS

The concept draws on the acknowledgement that **the growth of an urban area is very uneven**.

It is made up of a series of outward **expansions of the residential area separated by marked pauses**.

A fringe belt tends to form at the urban fringe during a period when the built-up area is either not growing or growing only very slowly.

It includes within it many relatively **open areas**, often vegetated, such as parks, sports grounds, public utilities and land attached to various **institutions** (Whitehand 2007).

CINTURAS PERIFÉRICAS

O conceito parte do reconhecimento de que **o crescimento de uma área urbana é descontínuo**.

O crescimento é constituído por um conjunto de **expansões da área residencial separadas por pausas**.

Uma cintura periférica tende a formar-se em períodos em que a área construída não está a crescer ou está a crescer de modo muito lento.

Inclui parcelas correspondentes a **espaços abertos** (normalmente com vegetação) como parques, recintos desportivos, equipamentos e solo associado a **instituições** diversas (Whitehand 2007).

THE URBAN FRINGE BELTS OF ALNWICK

UP TO 1774 | 1774 - 1827 | 1827 - 1851 | 1851 - 1864 | 1864- 1897 | 1897 - 1921 | 1921 - 1956 | POST- 1956

The legend illustrates the following plot types:

- INNER FRINGE BELT:**
 - PRESERVED FRINGE-BELT PLOTS: Filled with black dots.
 - TRANSL. OR ALIEN. FRINGE-BELT PLOTS: Filled with a grid pattern.
- MIDDLE/INTERMEDIATE FRINGE BELT:**
 - PRESERVED FRINGE-BELT PLOTS: Filled with red diagonal lines.
 - TRANSL. OR ALIEN. FRINGE-BELT PLOTS: Filled with red horizontal lines.
- OUTER FRINGE BELT:**
 - PRESERVED FRINGE-BELT PLOTS: Filled with green diagonal lines.
 - TRANSL. OR ALIEN. FRINGE-BELT PLOTS: Filled with green horizontal lines.

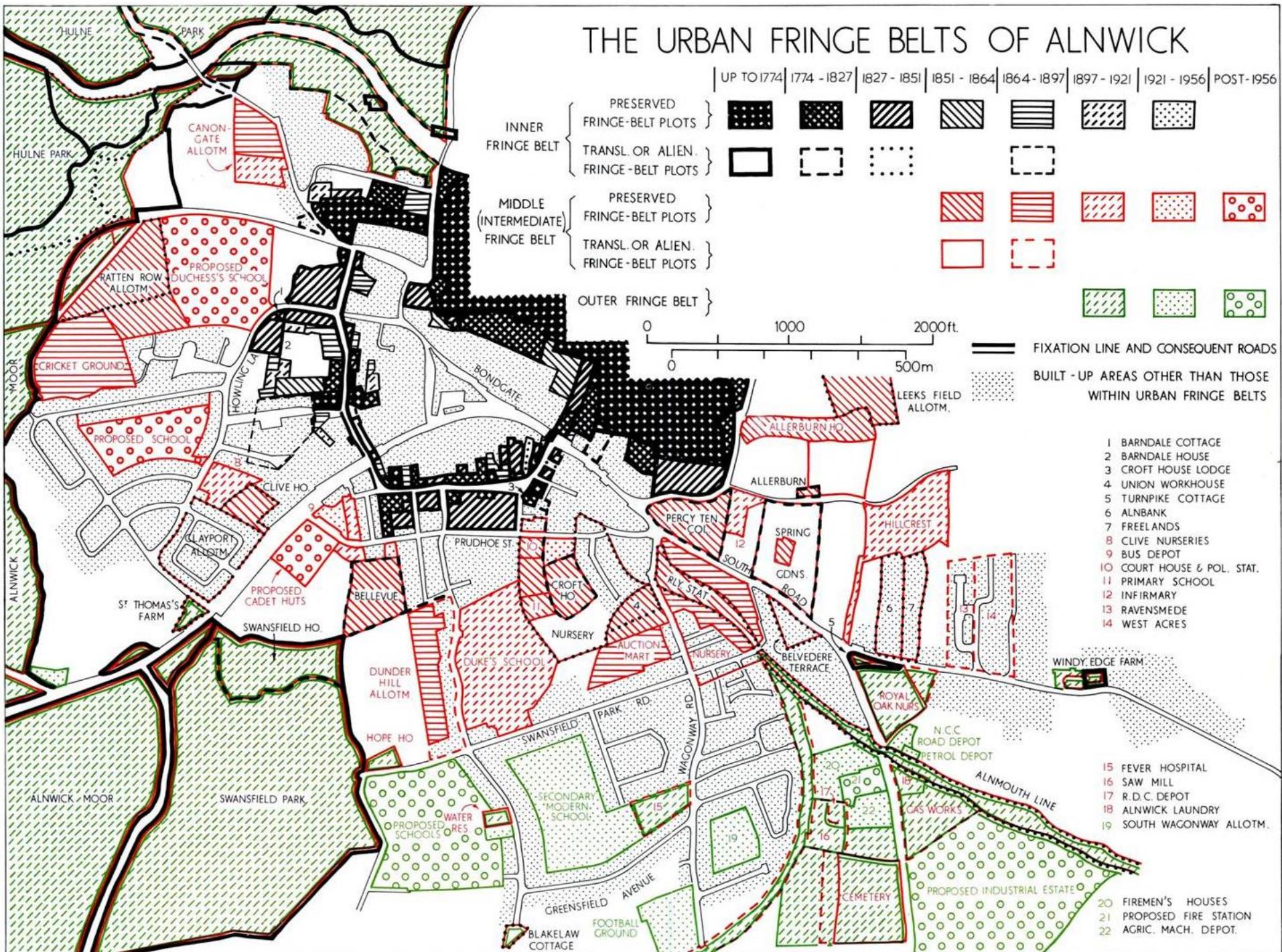
FIXATION LINE AND CONSEQUENT ROADS

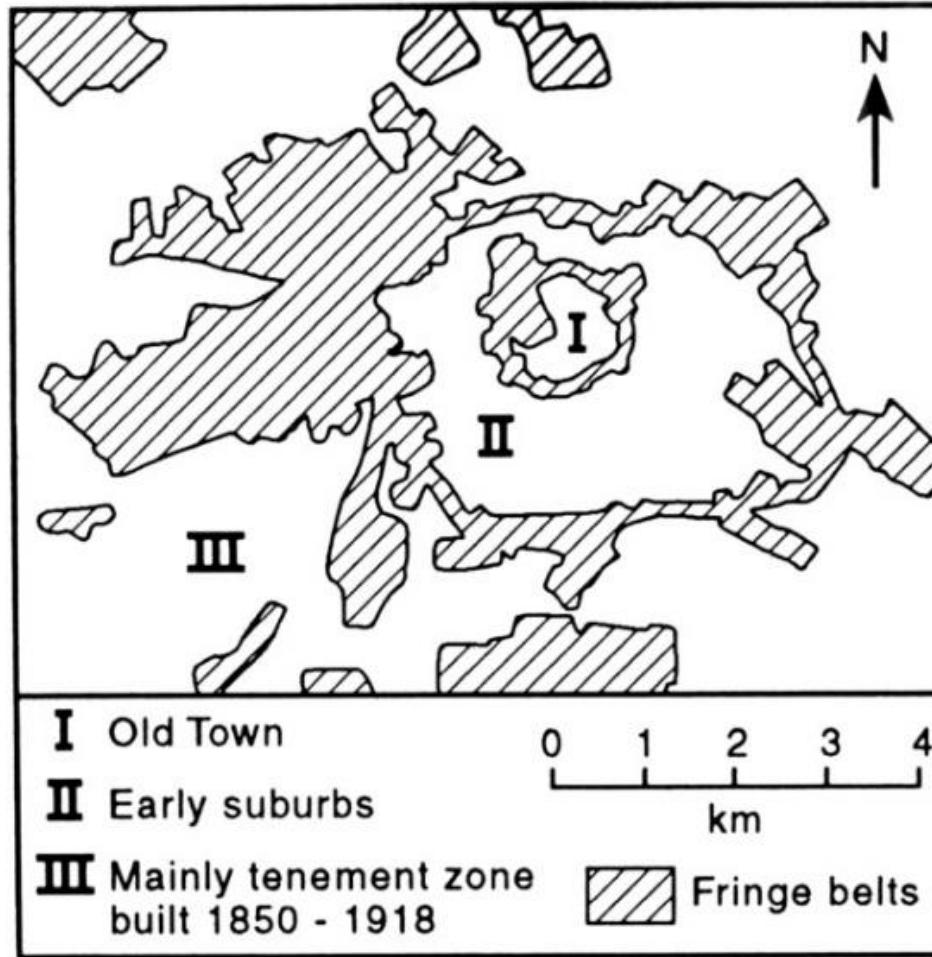
BUILT - UP AREAS OTHER THAN THOSE
WITHIN URBAN FRINGE BELTS

- 1 BARNDALE COTTAGE
 - 2 BARNDALE HOUSE
 - 3 CROFT HOUSE LODGE
 - 4 UNION WORKHOUSE
 - 5 TURNPIKE COTTAGE
 - 6 ALNBANK
 - 7 FREELANDS
 - 8 CLIVE NURSERIES
 - 9 BUS DEPOT
 - 10 COURT HOUSE & POL. STAT.
 - 11 PRIMARY SCHOOL
 - 12 INFIRMARY
 - 13 RAVENSMEDE
 - 14 WEST ACRES

- 15 FEVER HOSPITAL**
 - 16 SAW MILL**
 - 17 R.D.C. DEPOT**
 - 18 ALNWICK LAUNDRY**
 - 19 SOUTH WAGONWAY ALLOTM.**

- 20 FIREMEN'S HOUSES
 - 21 PROPOSED FIRE STATION
 - 22 AGRIC. MACH. DEPOT.





Macro and meso scales of analysis.

The distinction between **fringe belts** (IFB, MFB, OFB) and **residential areas** (I, II, III).

-

Escala de análise macro e meso.

A distinção entre **cinturas periféricas** (IFB, MFB, OFB) e **áreas residenciais** (I, II, III).

Video

History of Geographic Thought: M. R. G. Conzen, 1986
(<https://www.youtube.com/watch?v=g8tZ3aXjeP4> 42:10 – 45:10)



On the origins of the concept.

Sobre as origens do conceito.

MORPHOLOGICAL REGION

It is an area that has a unit in respect of its form that distinguishes it from surrounding areas.

The boundary between different regions can be more or less robust.

The map of morphological regions is a composite element made of different maps analysing town-plan, building fabric, and land and building utilization.

This map is the output of a method, of morphological regionalization, designed to reveal the historical development of an urban area.

-

REGIÃO MORFOLÓGICA

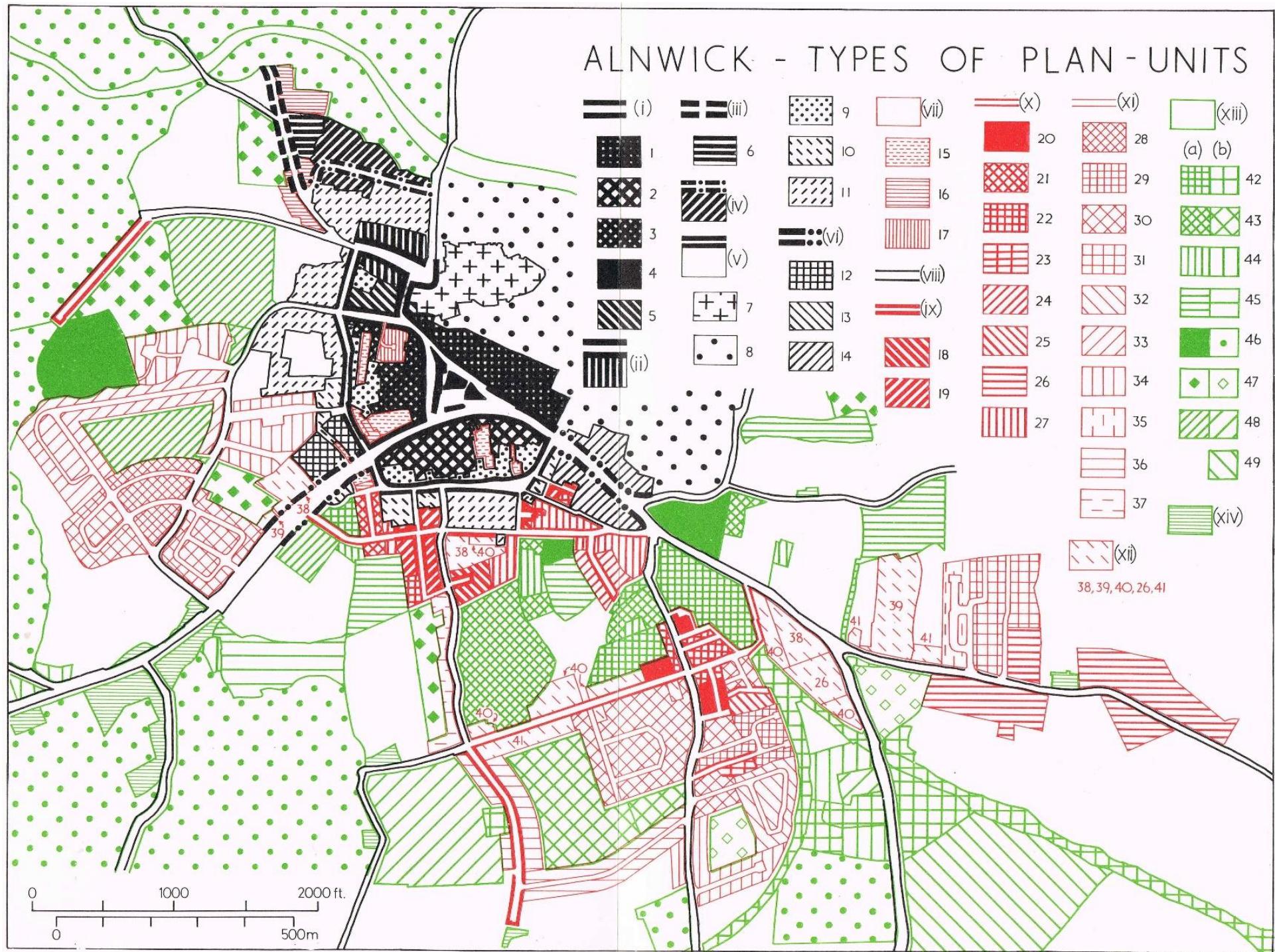
É uma área que tem uma unidade, no que diz respeito à sua forma, que a distingue das áreas envolventes.

No entanto, as fronteiras entre regiões variam em termos de robustez.

O mapa das regiões morfológicas é um elemento compósito de diferentes mapas identificando diferentes áreas em termos de tipos de plano, tipos de tecido edificado e tipos de usos do solo.

Esse mapa é o produto de um método concebido para revelar o desenvolvimento histórico de uma área urbana.

ALNWICK - TYPES OF PLAN-UNITS



Video

History of Geographic Thought: M. R. G. Conzen, 1986
(<https://www.youtube.com/watch?v=g8tZ3aXjeP4> 51:15 – 57:30)



The delimitation of morphological regions.

A delimitação de regiões morfológicas.

BURGAGE CYCLE

Is the **filling-in with buildings of the backland of burgage**, terminating in the clearing of buildings and in a period of urban fallow prior to the initiation of a redevelopment cycle.

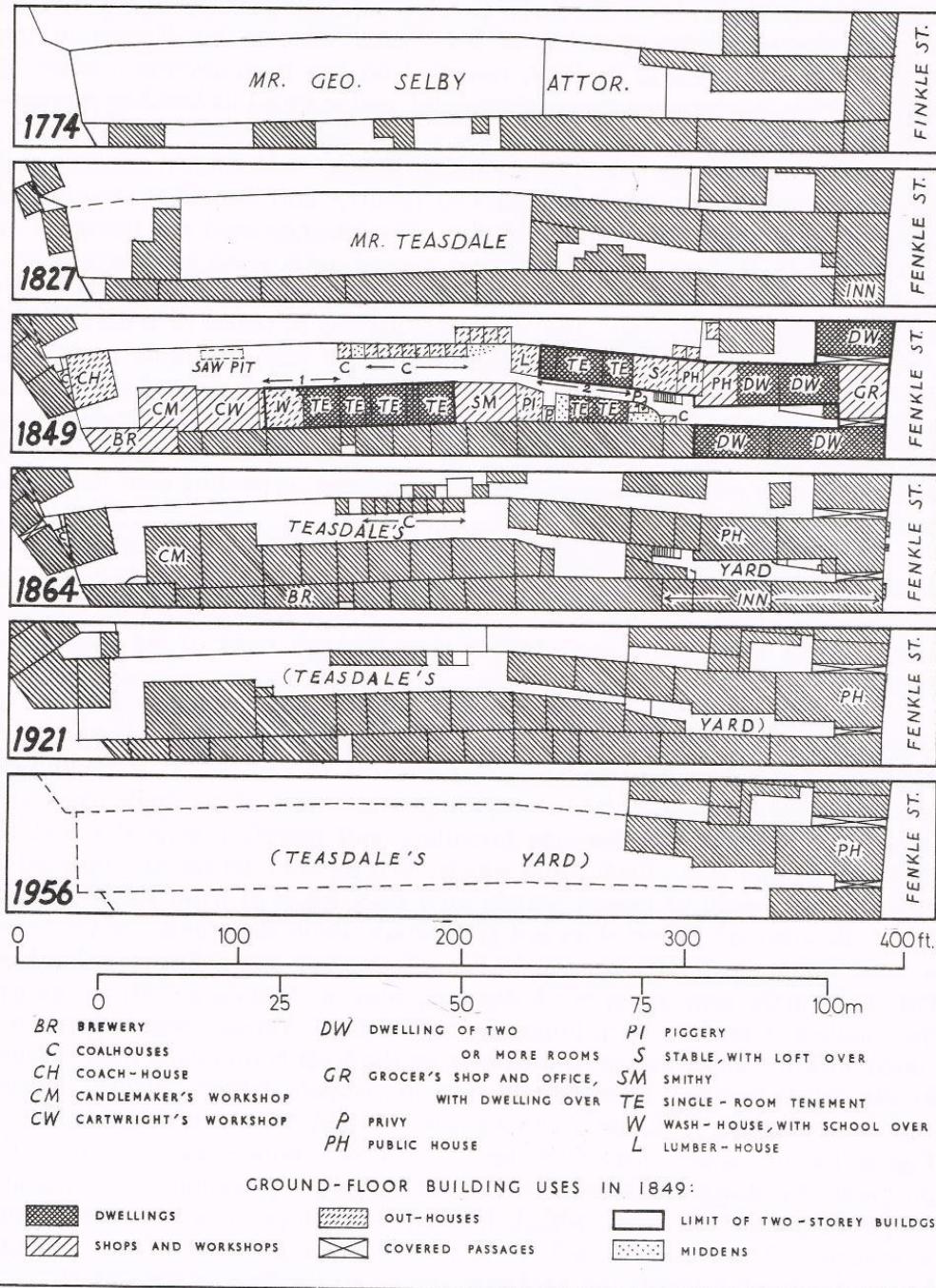
This cycle is a variant of a more general phenomenon of building repletion where plots are subject to increasing pressure, often associated with changed functional requirements, in a growing urban area.

CICLO DE PARCELA BURGUESA

Progressiva ocupação edificada da parte traseira da parcela, terminando na eliminação dos edifícios e num período de pousio urbano que antecede um novo ciclo de desenvolvimento.

Este ciclo corresponde a uma parte de um fenómeno mais geral em que as parcelas são sujeitas a uma pressão crescente, muitas vezes associada a novos requisitos funcionais num área urbana em crescimento.

TEASDALE'S YARD (FENKLE STREET) 1774 - 1956



Alnwick, Northumberland – burgage cycle (Conzen 1960).

The 'life' of a plot in six dates (1774-1956).

A 'vida' de uma parcela em seis períodos temporais diferentes (1774 -1956).

Video

History of Geographic Thought: M. R. G. Conzen, 1986
(<https://www.youtube.com/watch?v=g8tZ3aXjeP4> 38:27 – 42:10)



The significance of the burgage cycle.

A importância do ciclo de parcela burguesa.

JWR WHITEHAND



1938	Born in Reading , United Kingdom	Nasce em Reading, Reino Unido
1957-60	Studied at the University of Reading . BA in Geography	Estuda na <i>University of Reading</i> . BA em Geografia
1963-66	Taught Geography at the U. of Newcastle upon Tyne	Ensina Geografia na <i>University of Newcastle upon Tyne</i>
1964	PhD, U. Reading: 'Settlement patterns in the Chilterns'	PhD em Geografia, <i>U. of Reading</i> : 'Settlement patterns in the Chilterns'
1966-71	Taught Geography in the University of Glasgow	Ensina Geografia na <i>University of Glasgow</i>
1971-05	Taught Geography in the University of Birmingham	Ensina Geografia na <i>University of Birmingham</i>
1974-...	Head of the ' Urban Morphology Research Group '	Diretor do <i>Urban Morphology Research Group</i>
1996-...	Editor of the journal 'Urban Morphology'	Editor da Revista <i>Urban Morphology</i>
2005	Emeritus Professor of Urban Geography	Professor Jubilado de Geografia Urbana

Institutional contribution

Urban Morphology Research Group
International Seminar on Urban Form
The journal 'Urban Morphology'

Substantive contribution

Urban morphology as a field of knowledge
The definition of an historico-geographical approach
Comparative studies
The relation between research and practice
The agents of change
The concept of morphological region
The fringe-belt concept

Contributo institucional

Urban Morphology Research Group
International Seminar on Urban Form
A revista Urban Morphology

Contributo substantivo

Morfologia urbana como campo de conhecimento
A definição de uma abordagem histórico-geográfica
Estudos comparativos
A relação entre teoria e prática
Os agentes de transformação
O conceito de região morfológica
O conceito de cintura periférica

1. Urban Morphology Research Group (UMRG)

1971

JWR Whitehand – Lecturer in Geography
in the U of Birmingham

1972

MRG Conzen – Retirement from the
University of Newcastle upon Tyne
(and disappearance of a morphological
core in that university)

1974

Foundation of the UMRG headed by
Whitehand

2000

Feb. 4, Death of MRG Conzen in
Newcastle upon Tyne
MRG Conzen professional papers
donated to the University of
Birmingham

JWR Whitehand – Assistente Geografia
na *University of Birmingham*

MRG Conzen – Retira-se da *University of
Newcastle upon Tyne*
(desaparecimento de um forte núcleo
morfológico nessa Universidade)

Fundação do UMRG dirigido por
Whitehand

Fev. 4, Morte de MRG Conzen em
Newcastle upon Tyne
A *MRG Conzen collection* é doada à
University of Birmingham

PhD theses

- Kropf KS (1993) An inquiry into the definition of built form in urban morphology.
- Larkham PJ (1986) Conservation, planning and morphology in West Midlands conservation areas 1968-84.
- Lilley KD (1995) Medieval Coventry: a study in town-plan analysis.

Urban Morphology Research Monograph Series

MRG Conzen Collection

Current research

- Research and practice
Fringe belts and urban landscapes
Practical applications and comparative research
Historical urban morphology.

Teses de Doutoramento

- Kropf KS (1993) An inquiry into the definition of built form in urban morphology.
- Larkham PJ (1986) Conservation, planning and morphology in West Midlands conservation areas 1968-84.
- Lilley KD (1995) Medieval Coventry: a study in town-plan analysis.

Urban Morphology Research Monograph Series

MRG Conzen Collection

Investigação atual

- Teoria e prática
Cinturas periféricas e paisagens urbanas
Aplicações práticas e estudos comparativos
Morfologia urbana histórica.

2. International Seminar on Urban Form (ISUF)

1994

Lausanne meeting – founding of ISUF
23 urban morphologists (including
Whitehand) from five countries

1996-...

Whitehand, member of the ISUF Council

ISUF conferences (selection)

1994 - Lausanne – the first conference
1997 - Birmingham – Whitehand: Convener
2001 - Cincinnati – the first conference
outside Europe
2004 - Glasgow and Newcastle upon Tyne –
Whitehand: Co-convener
2007 - Ouro Preto – the first conference
outside Europe and North America
2008 - Guangzhou – the first conference in
Asia
2013 - Brisbane – the first conference in
Oceania

1994

Reunião em Lausanne – fundação do ISUF
23 morfólogos (incluindo Whitehand) de
cinco países diferentes

1996-...

Whitehand, membro do *ISUF Council*

ISUF conferências (seleção)

1994 - Lausanne – primeira conferência
1997 - Birmingham – Whitehand: *Convener*
2001 - Cincinnati – a primeira conferência
fora da Europa
2004 - Glasgow e Newcastle upon Tyne –
Whitehand: *Co-convener*
2007 - Ouro Preto – a primeira conferência
fora da Europa e da América do Norte
2008 - Guangzhou – a primeira conferência
na Ásia
2013 - Brisbane – a primeira conferência na
Oceânia



ISUF conferences in Birmingham, 1997, and in Glasgow and Newcastle upon Tyne, 2004
(photographs by Geoff Dowling and Heinz Heineberg; 'Urban Morphology' 2 and 8).

3. ‘Urban Morphology’

1996

Lausanne meeting decision:

‘The establishment of a journal that would facilitate communication between annual meetings, disseminate the results of research, and record the Group’s activities’ (Kropf, 1997).

1997

Publication of the first number

Editor: JWR Whitehand.

Structure: articles, viewpoints, reports, book reviews, news

A focus on the urban landscape

A focus on quality (rejection rate – 80 %)

1996

Decisão da conferência de Lausanne:

‘The establishment of a journal that would facilitate communication between annual meetings, disseminate the results of research, and record the Group’s activities’ (Kropf, 1997).

1997

Publicação do primeiro número

Editor: JWR Whitehand.

Estrutura: artigos, *viewpoints*, relatórios, *book reviews*, notícias

O enfoque na paisagem urbana

O enfoque na qualidade (taxa de rejeição – 80%)

Table. ‘Urban Morphology’ – most cited papers (source Scopus, June 2018).

Document title	Authors	Year	Cited by
Urban morphology as an emerging interdisciplinary field	Moudon	1997	161
British urban morphology: the Conzenian tradition	Whitehand	2001	92
The evolution of block size and form in North American...	Siksna	1997	52
Aspects of urban form	Kropf	2009	51
Urban morphology and the problem of the modern urban fabric	Levy	1999	46
How cities internalize their former urban fringes	MP Conzen	2009	38
Mapping urban morphology	Gauthier, Gilliland	2006	29
The structure of urban landscapes	Whitehand	2009	28
Saverio Muratori and the Italian school of planning typology	Cataldi et al.	2002	28
The study of urban form in the United States	MP Conzen	2001	28

1. Urban morphology as a field of knowledge

1. Morfologia urbana como campo de conhecimento

Mid-1980s to mid-1990s:

Interest in the physical form of urban areas in several disciplines, simultaneously.

Meados dos anos 80 a meados dos anos 90:

Interesse na forma física das áreas urbanas em diferentes disciplinas e em simultâneo.

Major books in the four morphological approaches

Hillier and Hanson (1984)

International books

Merlin *et al.* (1988)

Slater (1990)

Whitehand and Larkham (1992)

Batty and Longley (1994)

International conferences

1990, Birmingham

ISUF, 1994, Lausanne

Whitehand (1992) ‘Recent advances in urban morphology’

Computers and the study of urban form

Spatial analysis

Humanism and urban form

-

Urban morphogenetics

Historico-geographical

The agents of change

Historico-geographical

Urban landscape and management

Historico-geographical, Process typological

Computadores e o estudo da forma urbana

Análise Espacial

Humanismo e forma urbana

-

Morfogenética urbana

Histórico-Geográfica

Agentes de transformação

Histórico-Geográfica

Paisagem urbana e gestão

Histórico-Geográfica, Tipológica Projetual

Whitehand – Editorials in ‘Urban Morphology’, 1996-2016

Whitehand (2012) ‘Issues in urban morphology’

Multidisciplinarity

The problem of Anglophone squint

Euro-American myopia

The particular and the general

The need for comparative studies

The need for an integrated approach

Research and practice

Classics in urban morphology

Multidisciplinaridade

O problema do domínio anglófono

A miopia Euro-Americana

O particular e o geral

A necessidade de estudos comparativos

A necessidade de uma abordagem integrada

Teoria e prática

Clássicos em morfologia urbana

2. The definition of an historico-geographical approach

2. A definição de uma abordagem histórico-geográfica

Whitehand

Other authors | Outros autores

1977 The basis for an historico-geographical theory of urban form

**1981 The urban landscape: historical development and management.
Papers by MRG Conzen**

1987 MRG Conzen and the intellectual parentage of urban morphology

2001 British urban morphology: the Conzenian tradition

2007 Conzenian urban morphology and urban landscapes

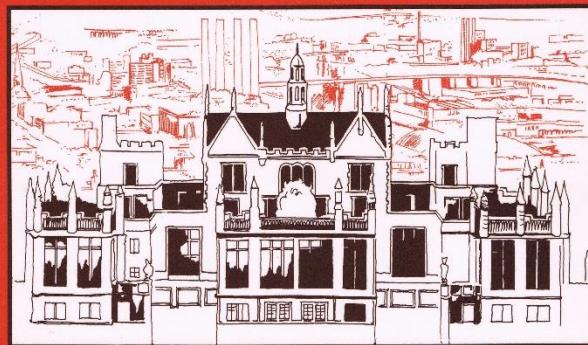
1990 Slater – The built form of western cities

1998 Larkham – Urban morphology and typology in the United Kingdom

INSTITUTE OF BRITISH GEOGRAPHERS SPECIAL PUBLICATION NUMBER THIRTEEN

**THE URBAN LANDSCAPE:
HISTORICAL
DEVELOPMENT
AND MANAGEMENT**
PAPERS BY M.R.G.CONZEN

Edited by
J.W.R.WHITEHAND



Published for the Institute of British Geographers by



ACADEMIC PRESS

A Subsidiary of Harcourt Brace Jovanovich, Publishers
London New York Toronto Sydney San Francisco

The urban landscape: historical development and management (Whitehand 1981)
C1. Background of the morphogenetic tradition
C6. Conzenian ideas: extension and development.

3. Comparative studies

3. Estudos comparativos

Whitehand

1981 Conzenian ideas: extension and development

2009 Comparing studies of urban form
2009 The structure of urban landscapes: strengthening research and practice

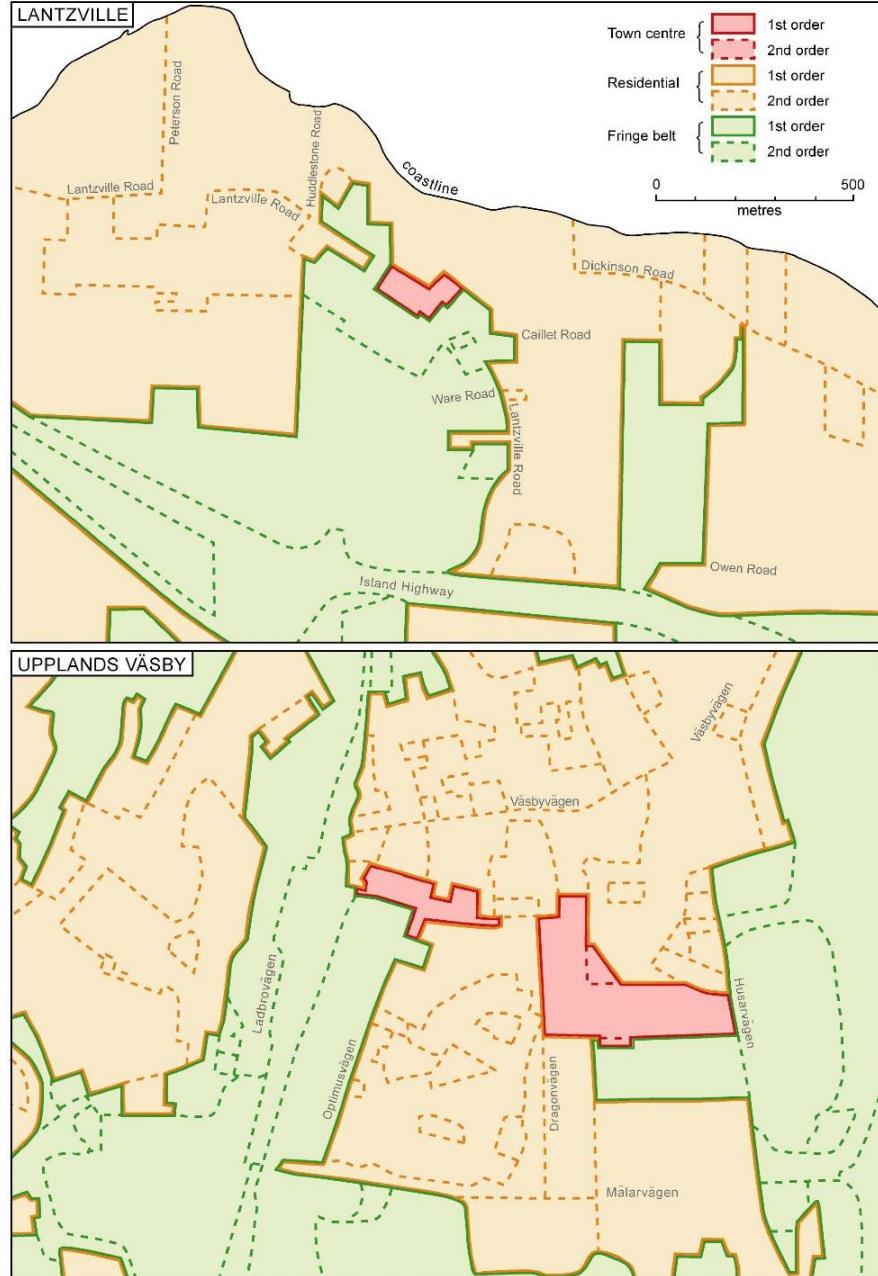
2012 Issues in urban morphology
2014 The typological process and the morphological period

Other authors | Outros autores

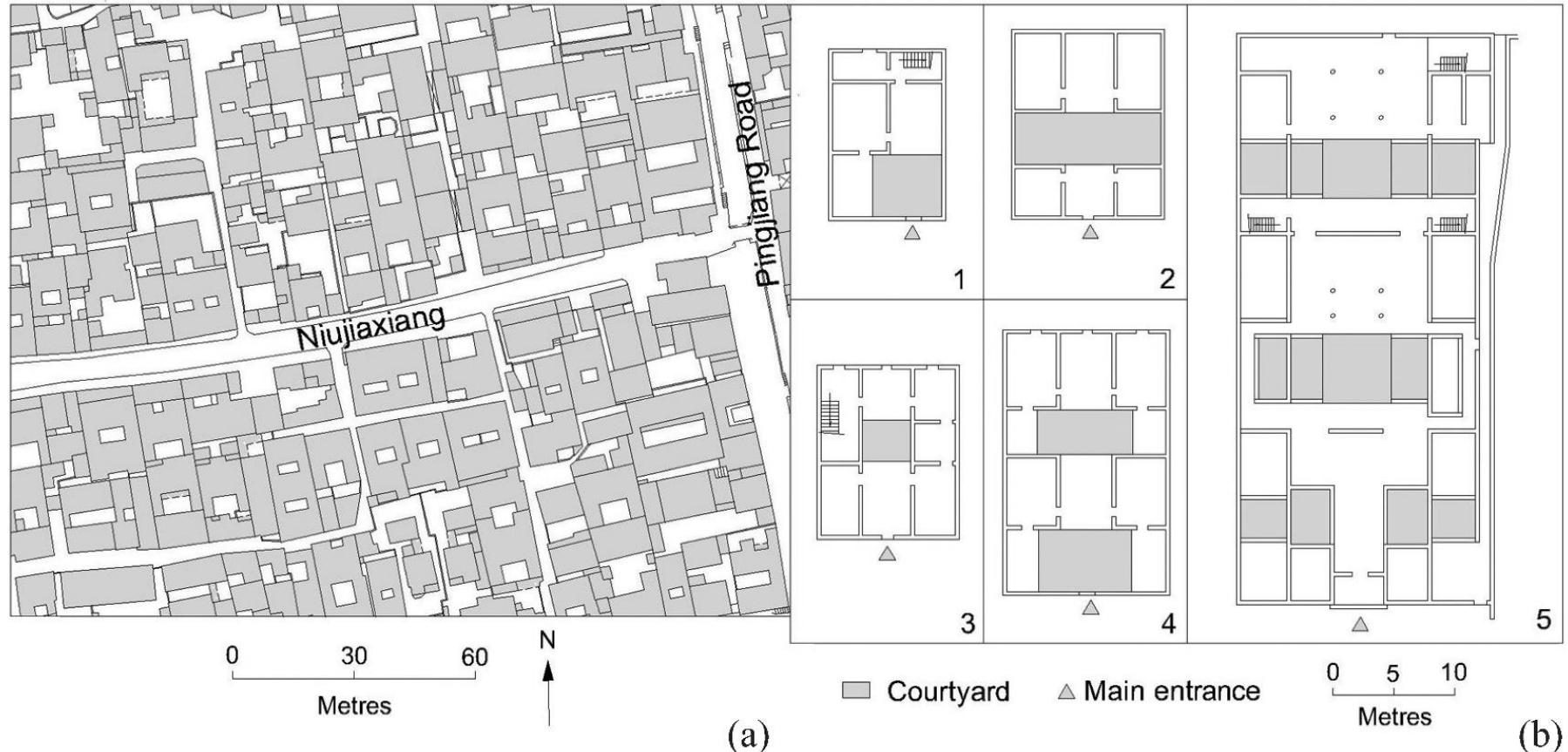
1988 A filmed interview with MRG Conzen

2009 Conzen MP – How cities internalize their urban fringes
2009 Kropf – Aspects of urban form

2015 Oliveira *et al.* – A comparative study of urban form



Urban landscape units in Lantzville, Canada, and Upplands Väsby, Sweden (Whitehand 2009).



(a) A traditional residential area in the Pingjiang district of Suzhou, China,
 (b) ground plans of various types of Jiangnan houses in Suzhou (Whitehand *et al.* 2014).

4. The relation between research and practice

4. A relação entre teoria e prática

Editorials in ‘Urban Morphology’

- 2000 From explanation to prescription
- 2007 Urban morphology and policy:
bridging the gap
- 2013 Urban morphological research
and practice

ISUF Task force on research and practice

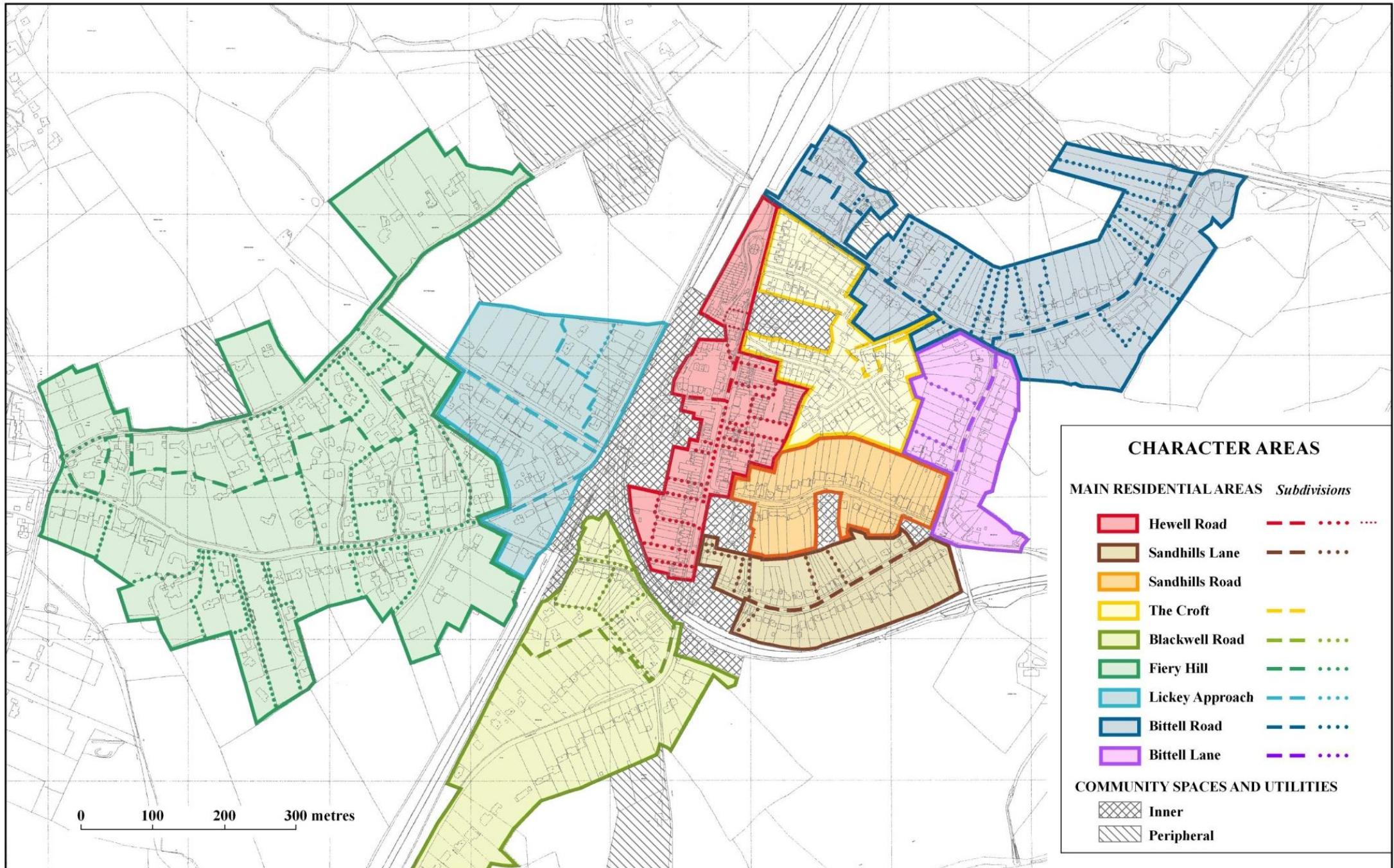
**Exploration of this relation through the
concepts of morphological region and
fringe belt.**

Editoriais na *Urban Morphology*

- 2000 From explanation to prescription
- 2007 Urban morphology and policy:
bridging the gap
- 2013 Urban morphological research
and practice

ISUF Task force on research and practice

**Exploração desta relação através dos
conceitos de região morfológica e
cintura periférica.**



The application of the concepts of morphological region and fringe belt in a plan for Barnt Green (Whitehand 2009).

5. Agents of change

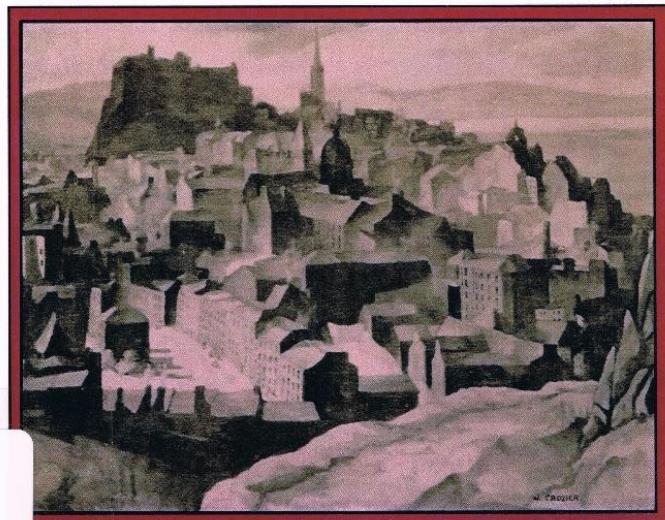
5. Os agentes de transformação

Whitehand

- 1980** 1983 The study of variations in the building fabric of town centres
1984 The physical fabric of town centres
1988 The changing urban landscape: the case of London's high-class residential...
1989 Development pressure, development control and suburban townscape change
-
- 1990** 1990 Makers of the residential landscape: conflict and change in outer London
1991 Suburban cramming and development control
1992 Recent advances in urban morphology
1992 The makers of British towns: architects, builders and property owners...
1992 The making of the urban landscape
1992 The changing suburban landscape in post-war England
-
- 2000** 2001 The creators of England's inter-war suburbs
-

THE MAKING OF THE URBAN LANDSCAPE

J. W. R. Whitehand



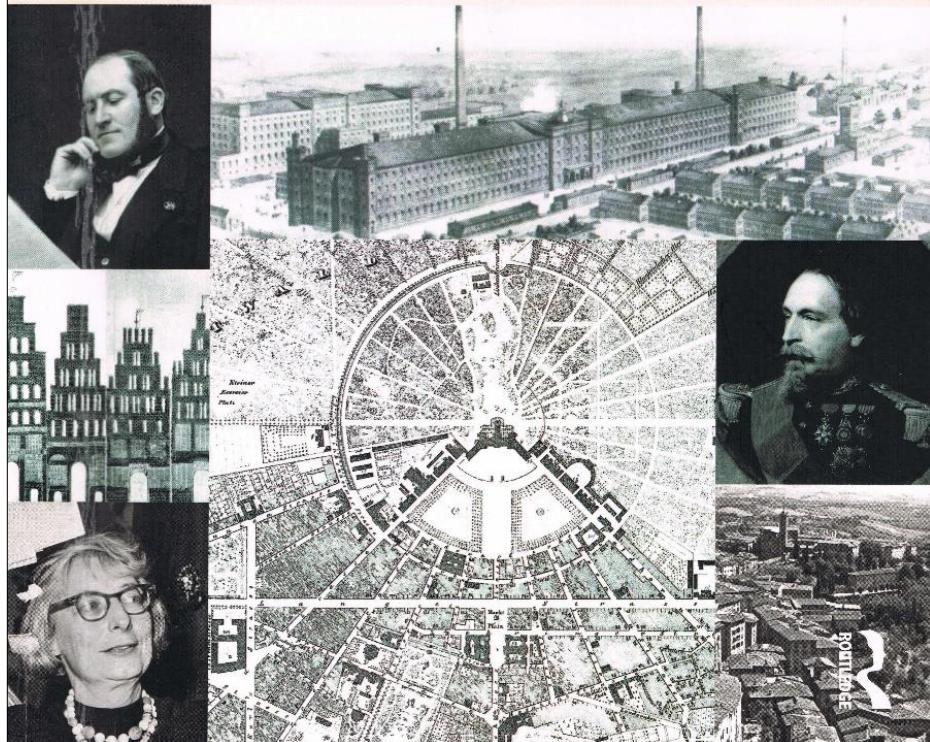
AK



SHAPERS of Urban Form

Explorations in Morphological Agency

Edited by Peter J. Larkham and Michael P. Conzen



'The making of the urban landscape' (Whitehand 1992),
'Shapers of urban form' (Larkham and Conzen 2014).

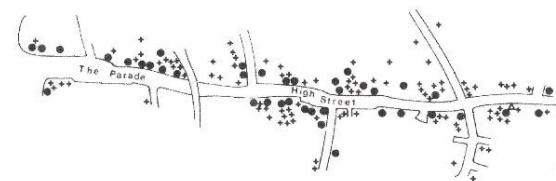
Research framework

Research procedures
Types of change
Timing of the changes
Types of agents
Relations between agents
Provenance of agents
Conflict
Compar. between different functional areas

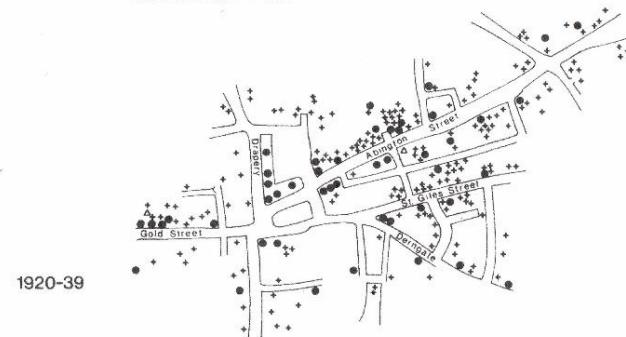
Estrutura de investigação

Procedimentos de investigação
Tipos de transformação
'Tempos' dos agentes
Tipos de agentes
Relações entre agentes
Proveniência dos agentes
Situações de conflito
Comparaçao entre diferentes áreas funcionais

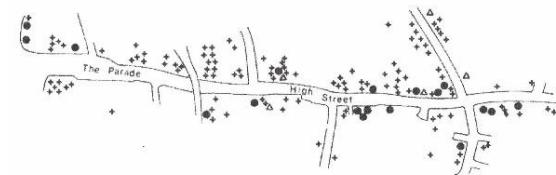
WATFORD



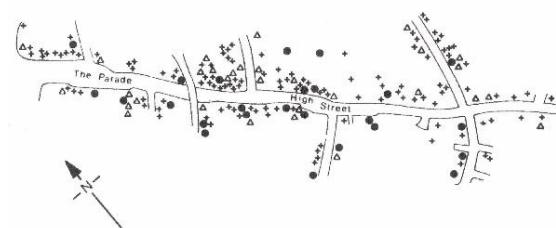
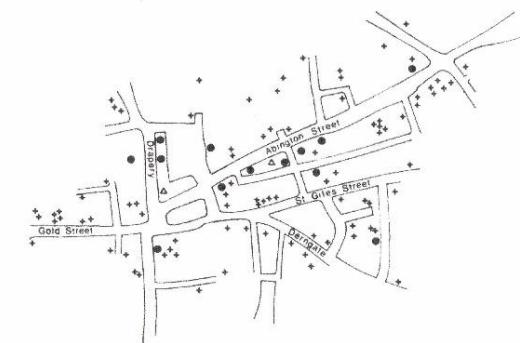
NORTHAMPTON



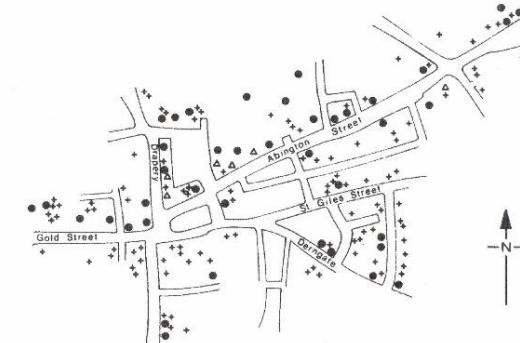
1920-39



1940-59



1960-79



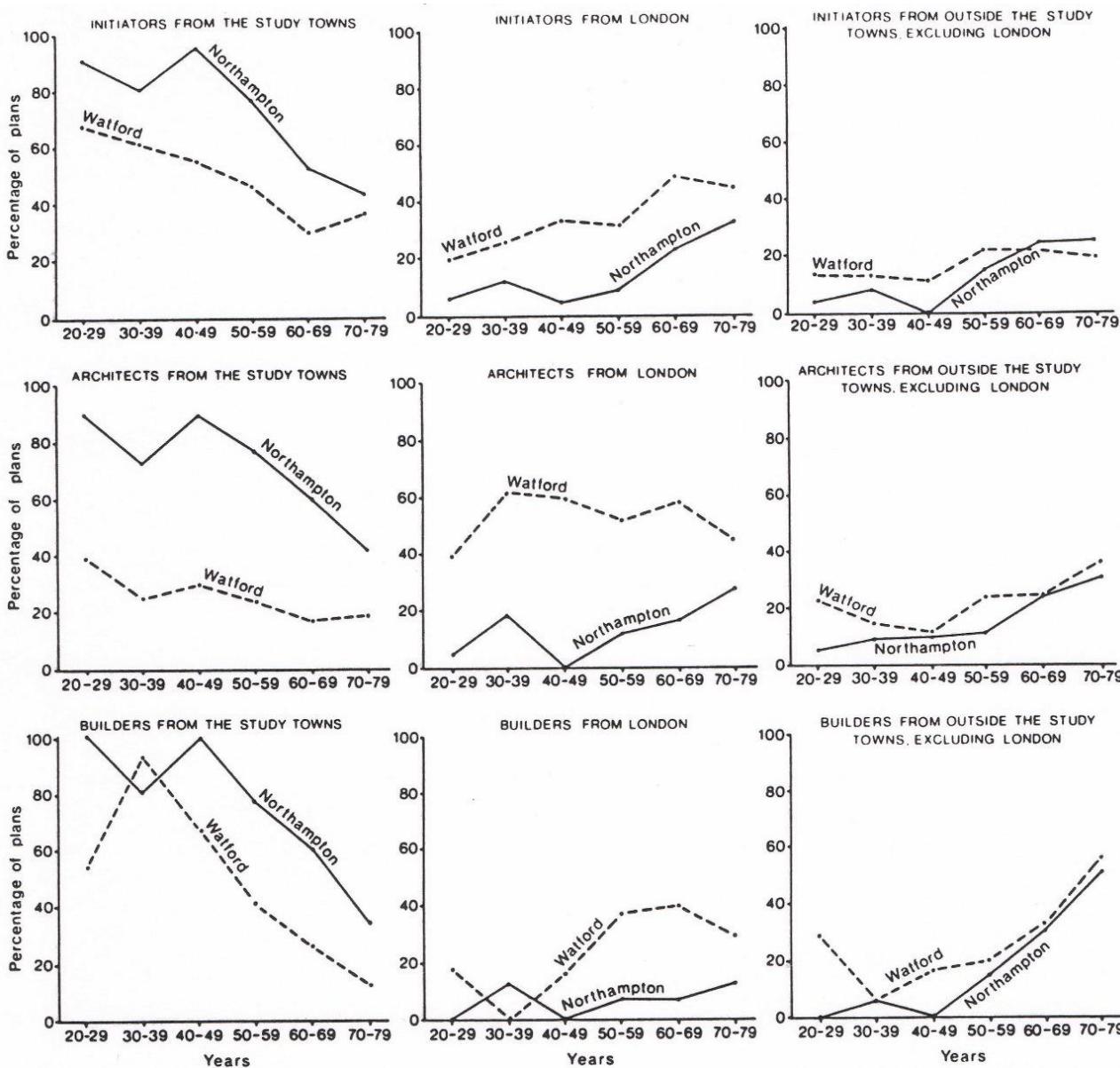
0 100 200 300 400m

● Major rebuilding

+ Addition

△ Structural alteration

Distribution of major rebuildings, additions and structural alterations in Watford and Northampton
(source: Whitehand and Whitehand, 1983).



Percentage of building plan applications in Watford and Northampton involving initiators, architects and builders from various locations
 (source: Whitehand and Whitehand, 1984).

Comparison between initial approval and actual development in South East and the Midlands
(source: Whitehand and Larkham, 1991).

	Development type		Type of difference				Applicant	
	Different	Same	Demolition	Density	Access	Building type	Different	Same
Amersham	5	13	2	4	2	3	12	6
Epsom	12	19	4	7	2	8	12	19
South East	17	32	6	11	4	11	24	25
Gibbet Hill	5	9	0	4	1	1	9	5
Tettenhall	8	40	2	7	4	3	10	39
Midlands	13	49	2	11	5	4	19	44

Video

An interview with Professor JWR Whitehand
(<https://www.youtube.com/watch?v=j8ss-axGn4Y&t=2691s> 42:10 – 47:30)



Northampton and Watford

6. The concept of morphological region

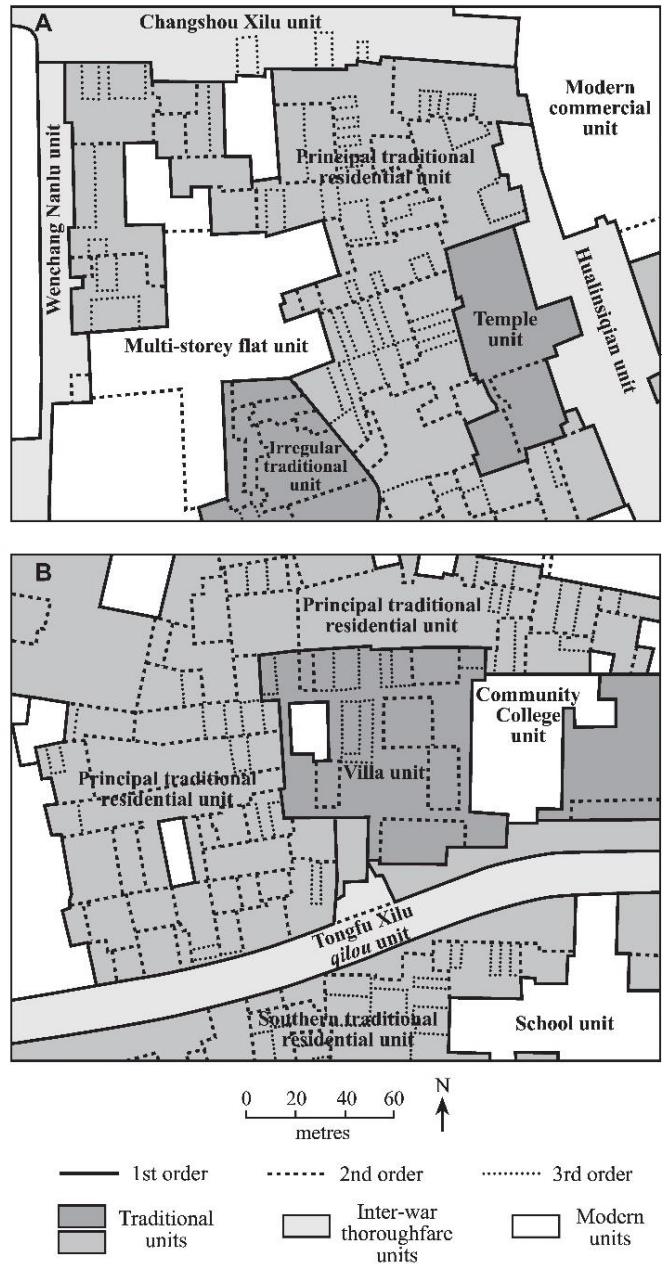
6. O conceito de região morfológica

Place Studied	Form complex (and hierarchy of form complex maps when these are prepared)	Hierarchy of mor. regions	Investigator(s)	Publ. Date
Britain				
Alnwick	Town plan	4 o	Conzen	1960
Ludlow	Town plan (5 o), building fabric (5 o), land utilization (5 o)	5 o	Conzen	1975
	Town plan (5 o), building fabric (5 o), land utilization (nh)	5 o	Conzen	1988
Amersham	Town plan, building fabric, land utilization	nh	Whitehand	1989
Barnt Green	Town plan, building fabric	3 o	Jones	1991
	Town plan, building fabric, land utilization, vegetation	4 o	Whitehand	2007
Edgbaston	Town plan, building fabric	3 o	Jones	1991
Northwood	Town plan, building fabric	3 o	Jones	1991
Worcester	Town plan	2 o	Baker, Slater	1992
Birmingham	Town plan (3 o), building fabric (3 o), land utilization (nh)	4 o	Barrett	1996
Bristol	Town plan (4 o), building fabric (3 o), land utilization (nh)	4 o	Barrett	1996
Bromsgrove	Town plan (4 o), building fabric (4 o), land utilization (nh)	4 o	Bienstman	2007
Edgware	Town plan	nh	Larkham, Morton	2011
Docklands (London)	Town plan	nh	Larkham, Morton	2011
Stratford-upon-Avon	Town plan, building fabric, land utilization	2 o	Birkhamshaw, Whitehand	2012

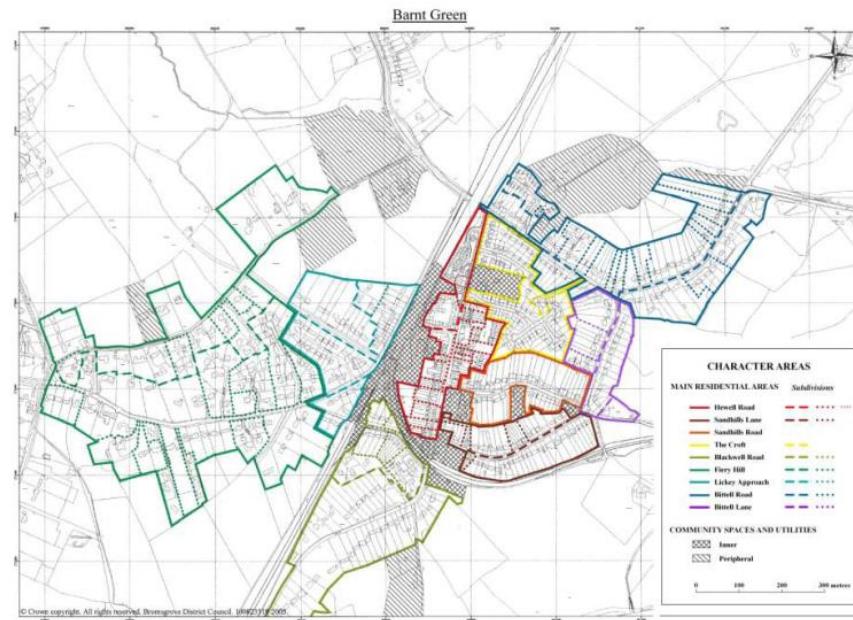
nh – no hierarchy, o – order

Place Studied	Form complex (and hierarchy of form complex maps when these are prepared)	Hierarchy of mor. regions	Investigator(s)	Publ. Date
Elsewhere in Europe				
Mennecy, France	Town plan, building fabric	nh	Kropf	1996
Antequera, Spain	Town plan, building fabric, land utilization	nh	Barke	2003
Alkmaar, Netherlands	Town plan (4 o), building fabric (4 o), land utilization (nh)	4 o	Bienstman	2007
Sibiu, Romania	Town plan	nh	Whitehand	2009
Upplands Väsby, Sweden	Town plan	2 o	Whitehand	2009
St Petersburg, Russia	Town plan	nh	Whitehand	2009
Porto, Portugal	Town plan, building fabric, land utilization	4 o	Oliveira et al.	2015
Africa				
Lusaka, Zambia	Town plan	nh	Whitehand	2009
Asia				
Xangai, China	Town plan	nh	Zhang	2003
Pingyao, China	Town plan	nh	Whitehand, Gu	2007a
Beijing, China	Town plan, building fabric, land utilization	2 o	Whitehand, Gu	2007b
Guangzhou, China	Town plan (2 o), building fabric (nh), land utilization (nh)	3 o	Whitehand et al.	2011
	Town plan	nh	Zhang	2015
North America				
Lantzville, Canada	Town plan	3 o	Whitehand	2009
Oceania				
Auckland, New Zealand	Town plan, building fabric, land utilization	3 o	Gu	2010

nh – no hierarchy, o – order



Urban landscape units in Guangzhou (Whitehand *et al.*, 2011).



Barnt Green, Jeremy Whitehand and Susan Whitehand, 2005
(*Google Earth* and http://www.urbanform.org/images/BarntGreen_large_map.html).

Main Areas (Order1)	Sub-areas (Orders2-4)		
	2	3	4
Hewell Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandhills Lane	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sandhills Road	<input checked="" type="checkbox"/>		
The Croft	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Blackwell Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiery Hill	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lickey Approach	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bittell Lane	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bittell Road	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Community Spaces and Utilities			
<input checked="" type="checkbox"/> Inner			
<input type="checkbox"/> Peripheral			

This interactive map shows the character areas and sub-areas. Use the control panel above to click on what you want to reveal in the map.

The information overlaid on this map is provided by a third party, and Google is not responsible for it. The information you enter above may become available to the third party.



Barnt Green (http://www.urbanform.org/images/BarntGreen_large_map.html).



Barnt Green

(a) Hewell Road Area, (b) Inner Zone of Community Spaces and Utilities, (c) Lickey Approach, (d) Sandhills Road Area, (e) Sandhills Lane Area, (f) Bittell Lane Area, (g) Bittell Road Area, (h) The Croft Area (i) Fiery Hill

(fonte: http://www.urbanform.org/images/BarntGreen_large_map.html).



Barnt Green: Hewell Road (1st and 2nd order regions)
http://www.urbanform.org/images/BarntGreen_large_map.html



Barnt Green: Hewell Road (3rd and 4th order regions)
http://www.urbanform.org/images/BarntGreen_large_map.html



UMRG, Oct 2013

Morphological regions' studies (Whitehand 2014).

Video

An interview with Professor JWR Whitehand

(<https://www.youtube.com/watch?v=j8ss-axGn4Y&t=2691s> 1:15:10 – 1:19:55)

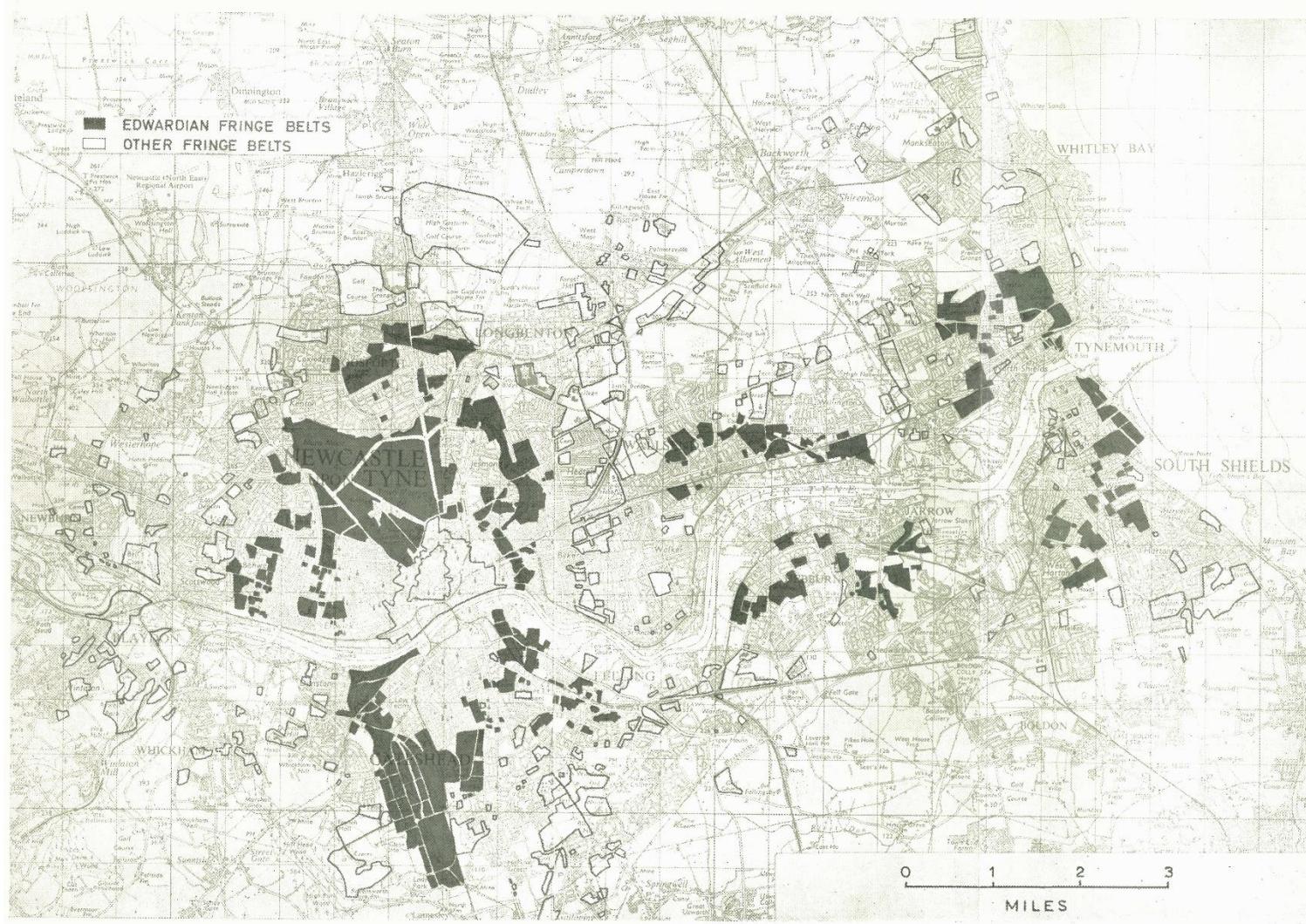


On the potential of the concept

Sobre o potencial do conceito

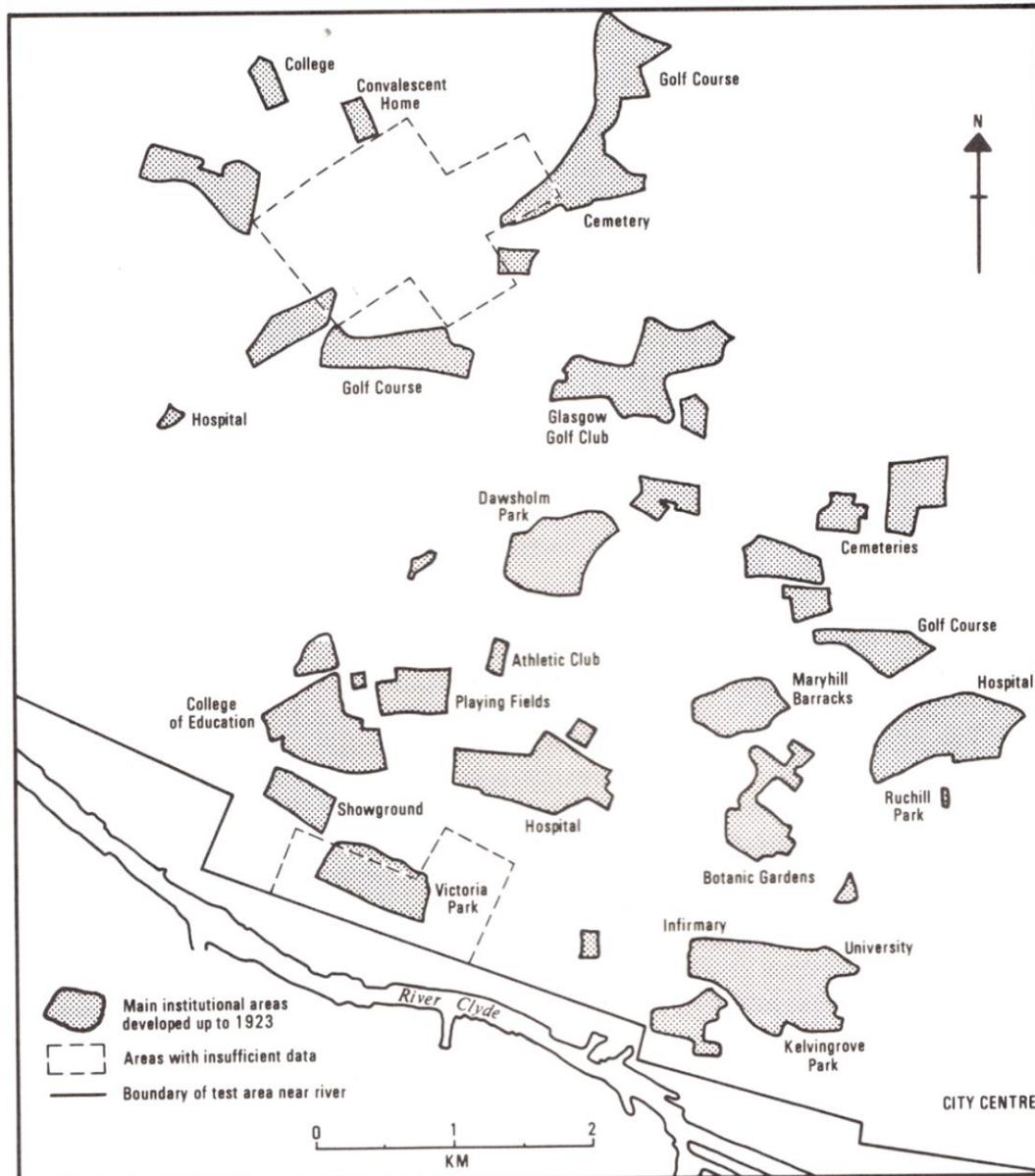
7. The fringe-belt concept

7. O conceito de cintura periférica



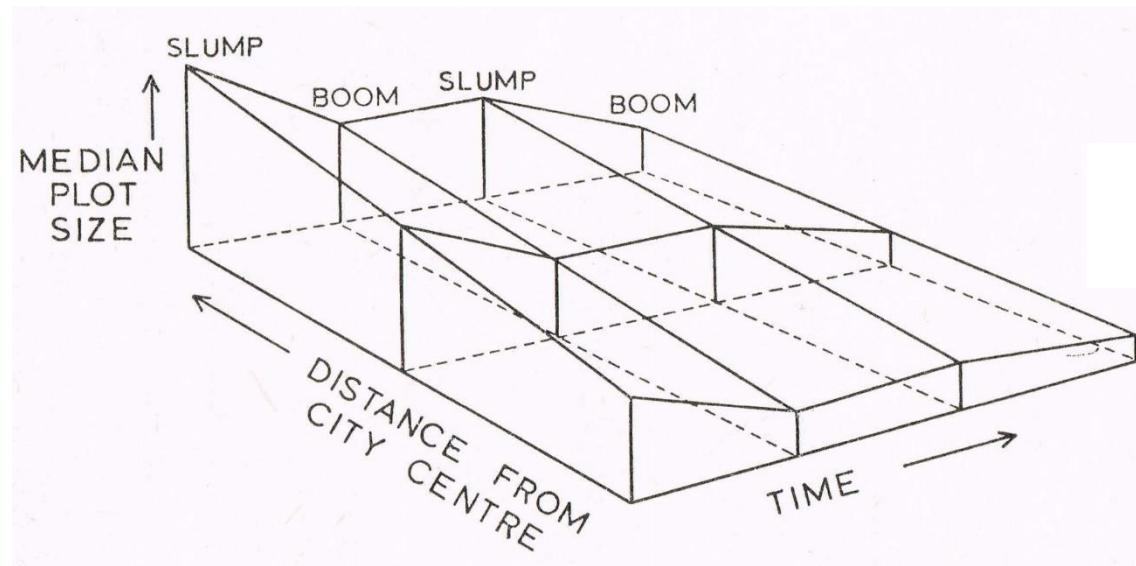
The fringe belts of Tyneside (Whitehand 1967)

As cinturas periféricas de Tyneside



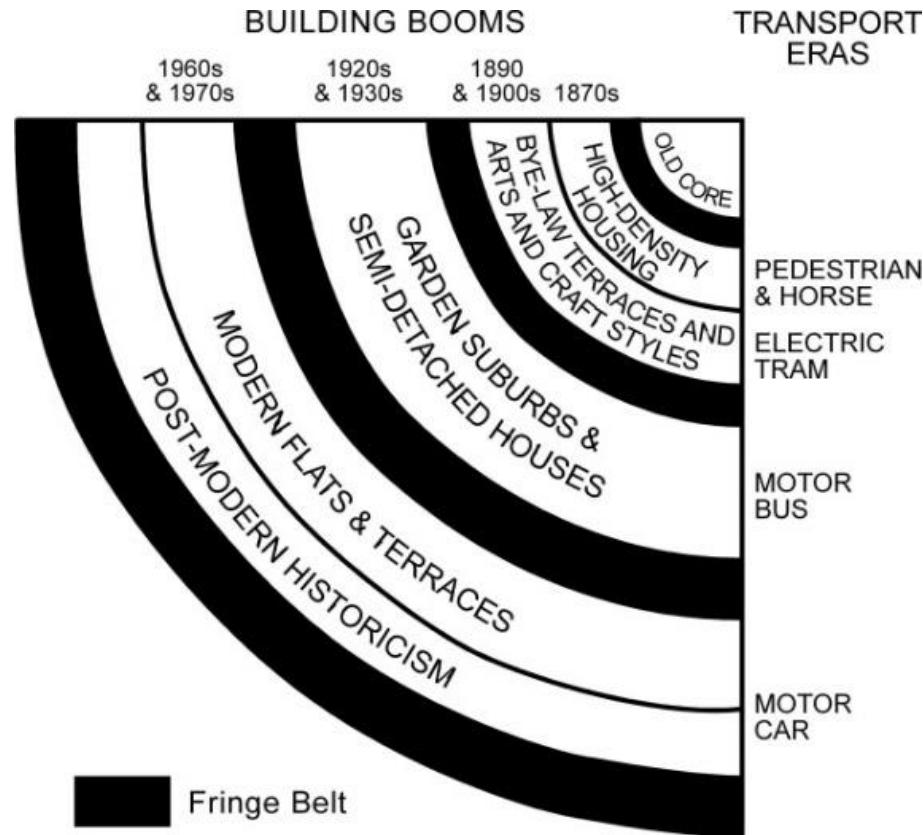
The main institutional areas in Glasgow (Whitehand, 1972a)

As principais áreas institucionais em Glasgow



Approximate variations in the size of new plots developed in relation to time and distance from the city centre (Whitehand, 1975).

Variações aproximadas na dimensão de novas parcelas relativamente à dimensão temporal e à distância ao centro da cidade.



An innovation / building cycle model
 (Whitehand, 2001, based upon Whitehand, 1994).

Um modelo que relaciona ciclos de edificação com inovação

	Edwardian fringe belt ^a	Late-Victorian and Edwardian housing zone ^b	Interwar housing zone ^c
Plot shape (% rectilinear)	0	90	95
Plot size (ha)			
mean	10.04	0.04	0.03
median	5.64	0.02	0.03
range	0.31–64.22	0.01–0.27	0.02–0.05
Building coverage (%)			
mean	3.8	33.1	16.3
median	1.0	34.0	15.0
range	0–25	7–58	12–25
Hard surface (%)			
mean	9.8	47.9	24.6
median	4.0	44.0	24.5
range	0–70	9–92	14–33
Road length (m per ha)			
mean	5	137	131
median	0	152	121
range	0–40	93–160	100–163
Road crossings (number per km)	1.7	8.2	8.1

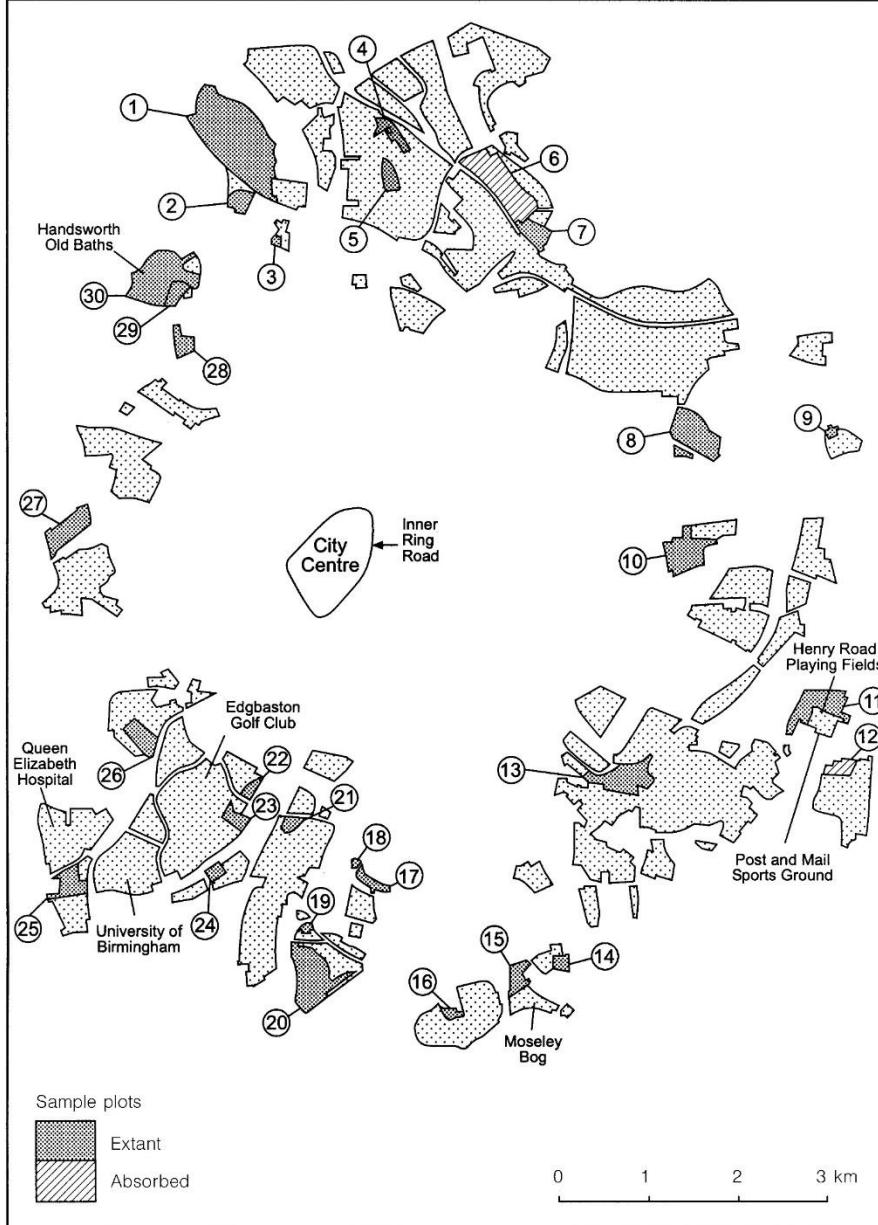
^a 28 sample plots (road length based on 10 random sample squares).

^b 15 random sample plots (road length based on 10 random sample squares).

^c 20 random sample plots (road length based on 10 random sample squares).

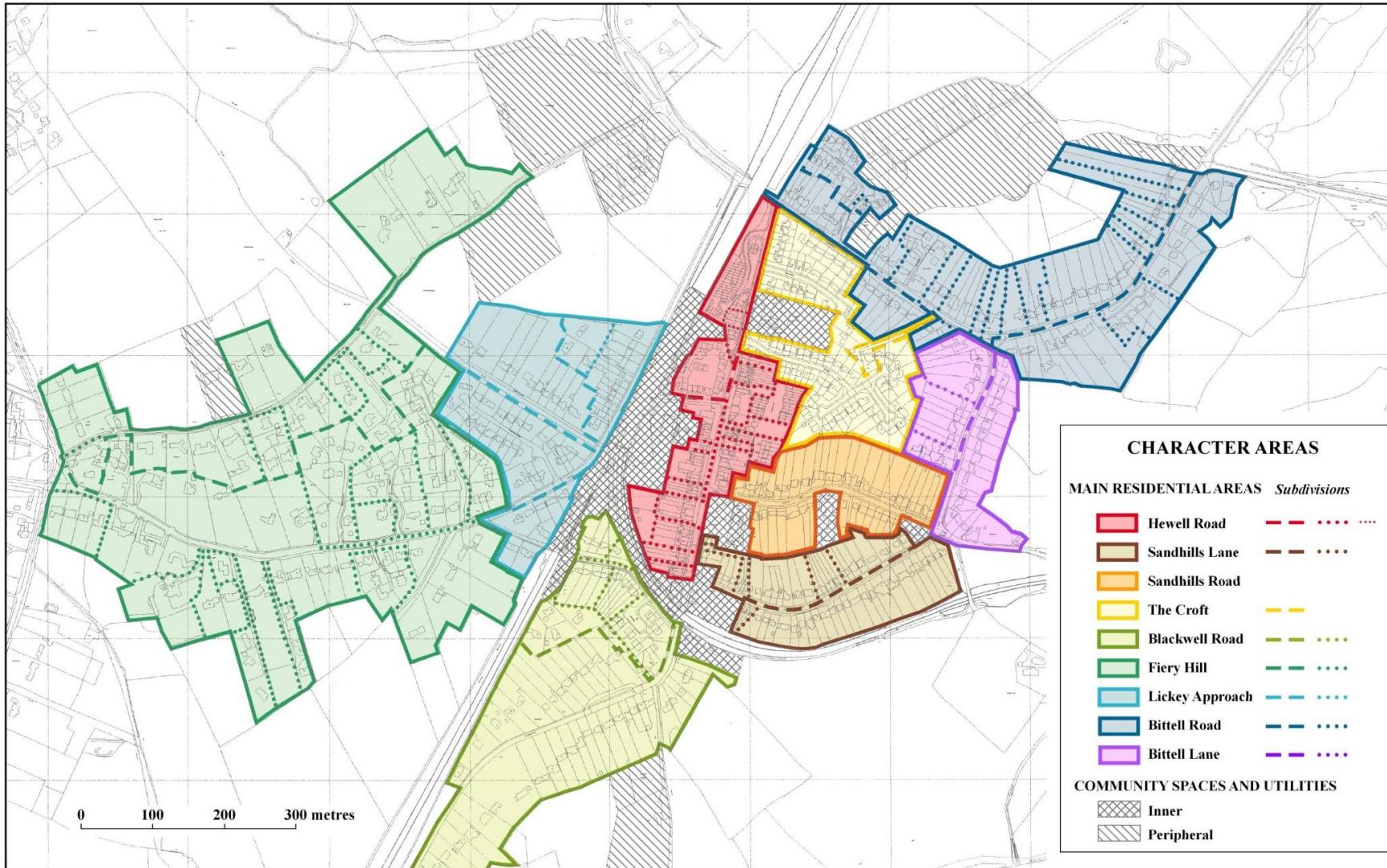
Physical characteristics of Birmingham's Edwardian fringe belt and neighbouring housing zones (Whitehand Norton, 2003).

Características físicas da cintura periférica ‘Edwardiana’ e das áreas residenciais envolventes, Birmingham.



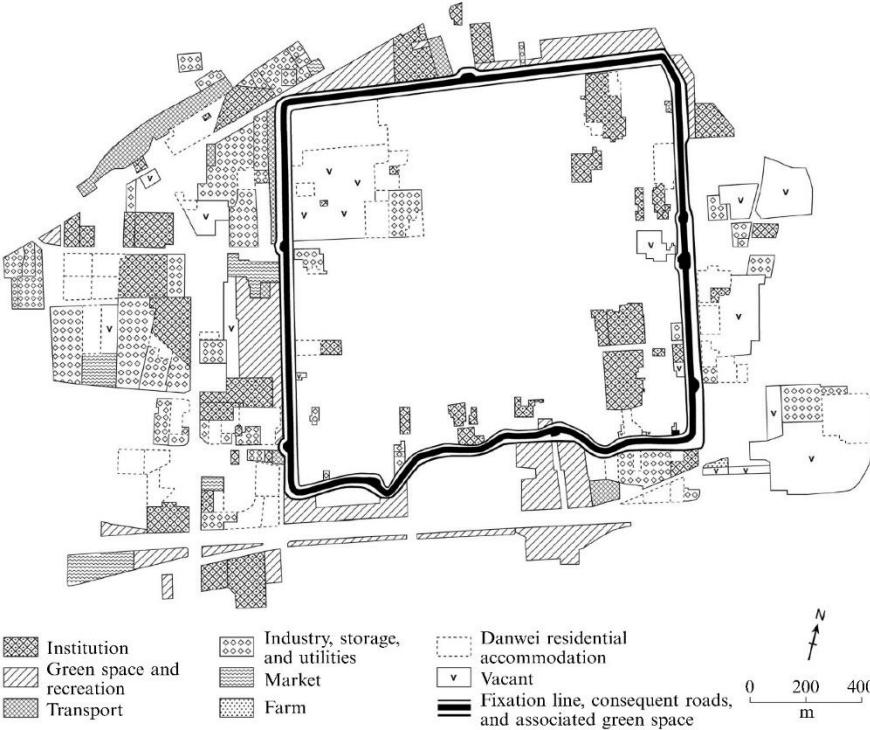
Sample plots in Birmingham's Edwardian fringe belt (Whitehand Norton, 2003).

Amostra de parcelas da cintura periférica ‘Edwardiana’, Birmingham.



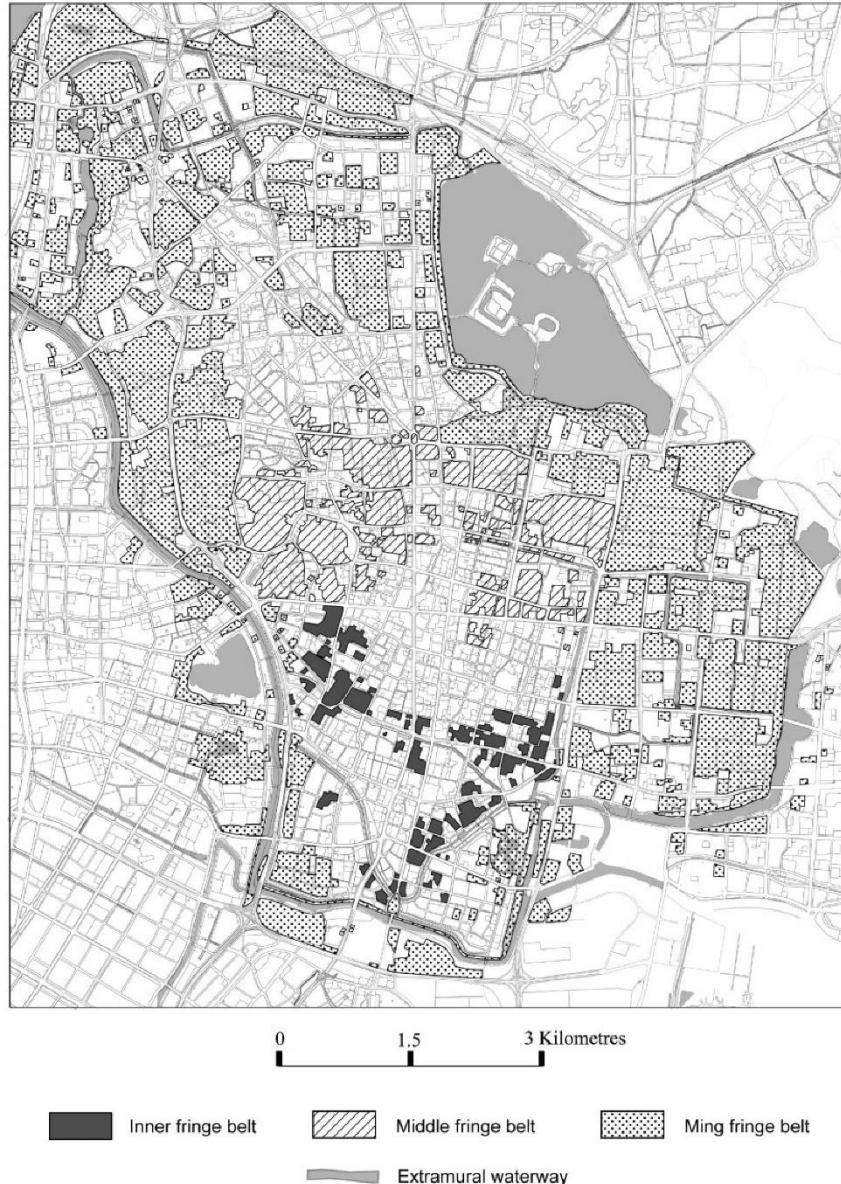
The application of the fringe-belt concept in a plan for Barnt Green (Whitehand, 2009).

A aplicação do conceito de cintura periférica num plano para Barnt Green



The fringe belt of Pingyao (Whitehand *et al.*, 2011).

A cintura periférica de Pingyao



The fringe belts of Nanjing (Whitehand and Gu, 2017).

As cinturas periféricas de Nanjing

The fringe-belt concept

1960s – metropolitan dimension of the concept
1970s – economic perspective
1980s – comprehensive review
2000s – planning and agency perspective
2010s – different cultural contexts

O conceito de cintura periférica

1960s – a dimensão metropolitana do conceito
1970s – a perspetiva económica
1980s – uma revisão abrangente
2000s – a perspetiva do planeamento e dos agentes de transformação
2010s – os diferentes contextos culturais

Video

An interview with Professor JWR Whitehand

(<https://www.youtube.com/watch?v=j8ss-axGn4Y&t=2691s> 25:00 – 30:35)



Combining urban rent-theory, time series and morphogenesis

EXERCISE
EXERCICIO

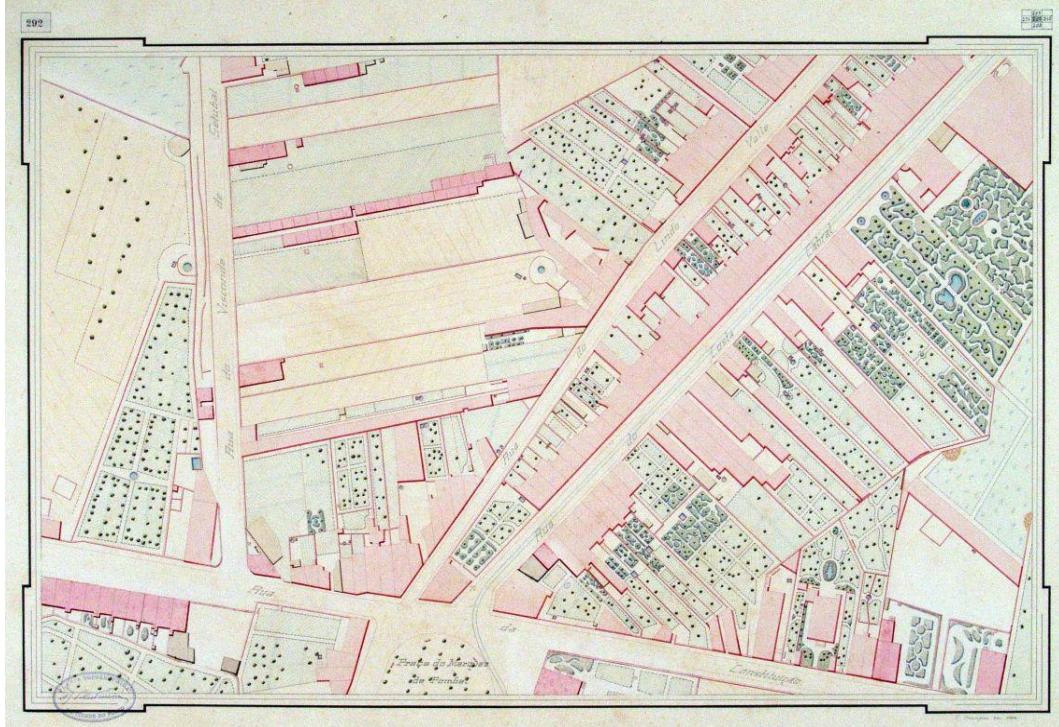
MORPHOLOGICAL REGION

REGIÃO MORFOLÓGICA



A. Definition of the case study area (Rua de Costa Cabral, Porto – Oliveira et al., 2015)

A. Definição do estudo de caso (Rua de Costa Cabral, Porto – Oliveira et al., 2015)



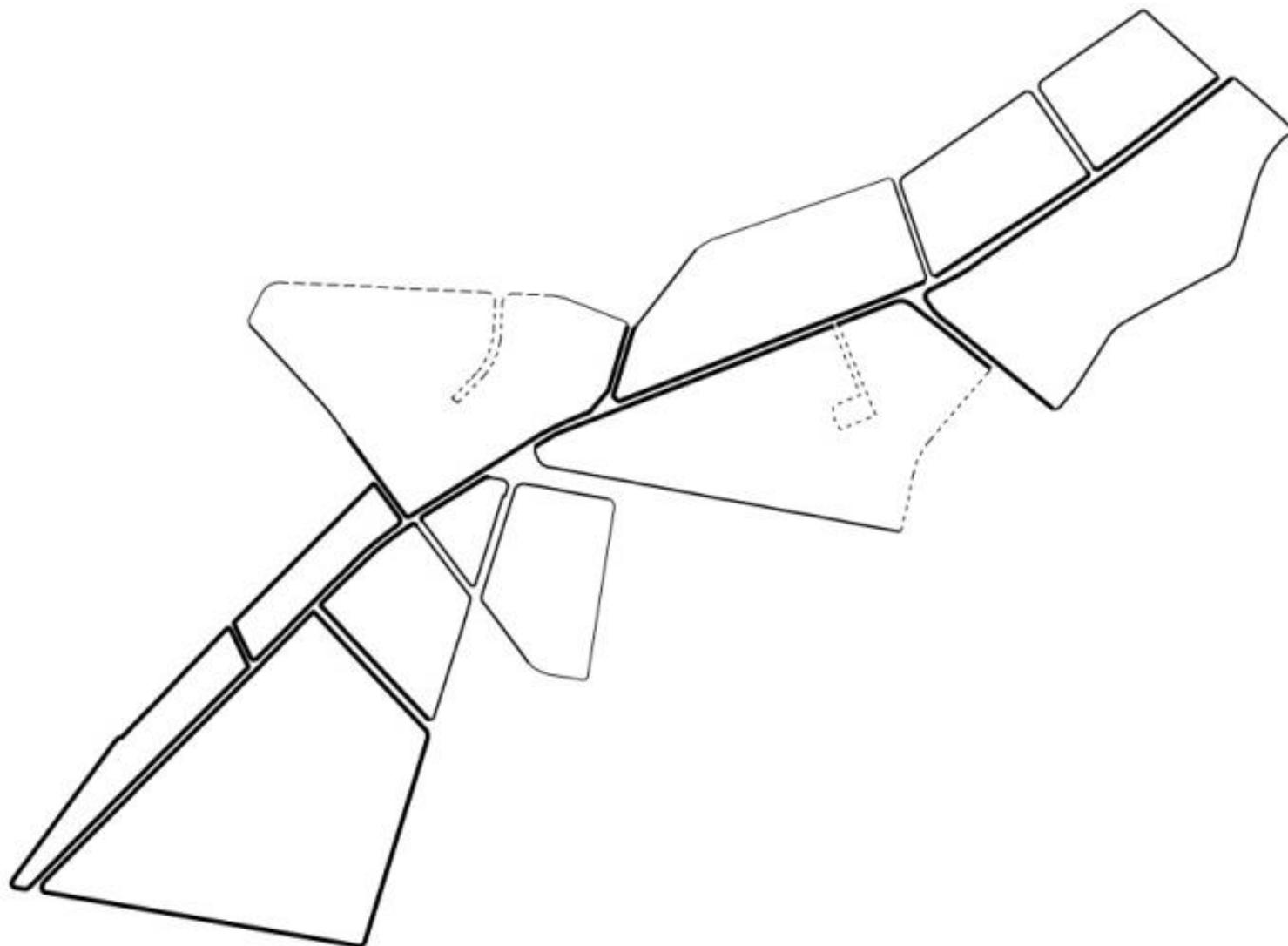
1892

Cartography

- 1892 *Planta Topográfica da Cidade do Porto* - Telles Ferreira
- 1903 *Planta da Cidade do Porto* - STCMP
- 1932 *Planta Topográfica da Cidade do Porto* - STCMP
- 1937 *Planta Topográfica da Cidade do Porto* - STCMP
- 1948 *Carta Militar de Portugal* - IGE
- 1960 *Planta Topográfica da Cidade do Porto* - STCMP
- 1978 *Leyntamento Aerofotogramétrico* - DGPU
- 1992 *Cartografia Digital* - STCMP
- 1997 *Carta Militar de Portugal* - IGE
- 2010 *Planta da Situação Existente* - STCMP

B. Identification of available material

B. Identificação de material disponível

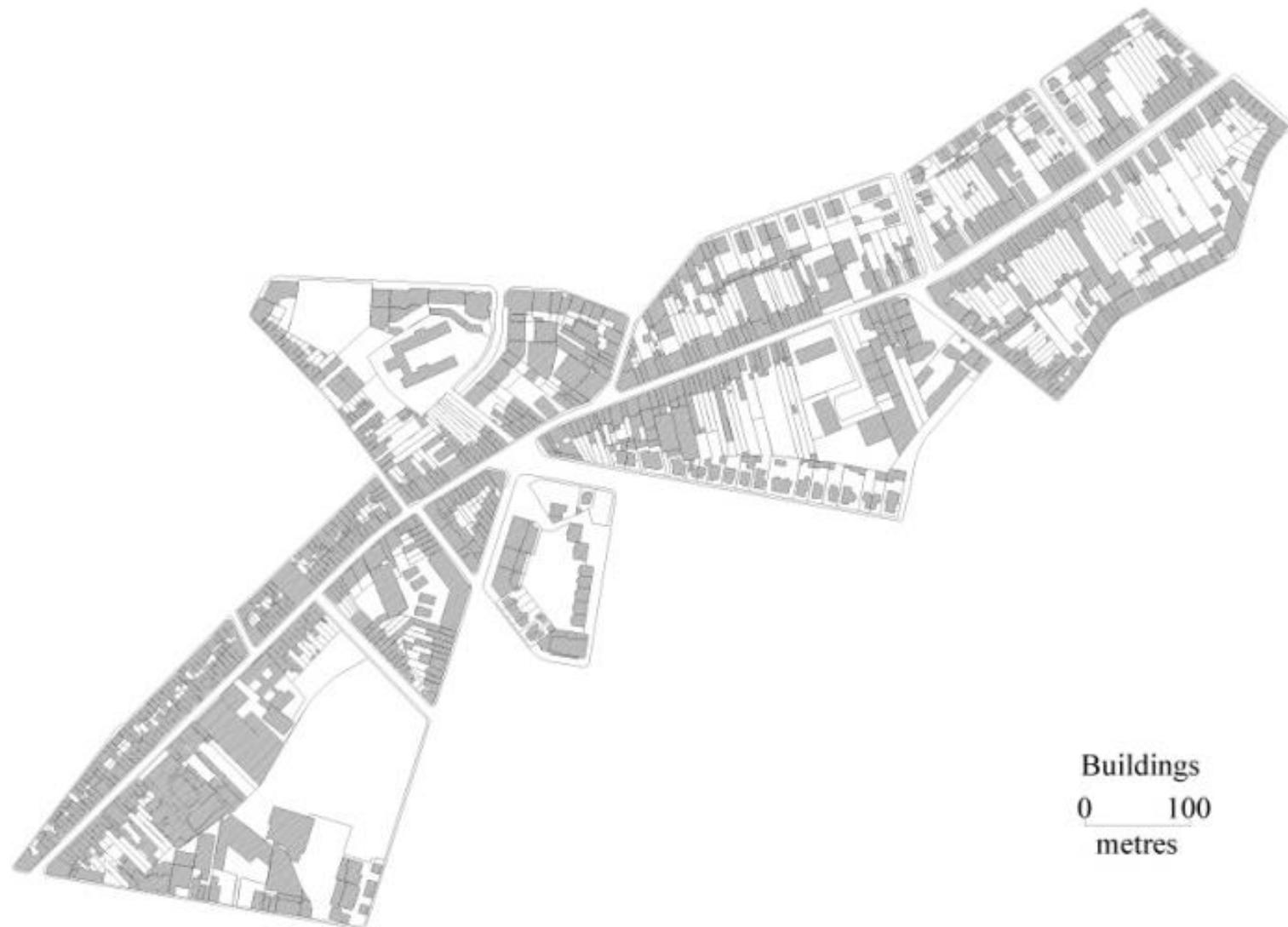


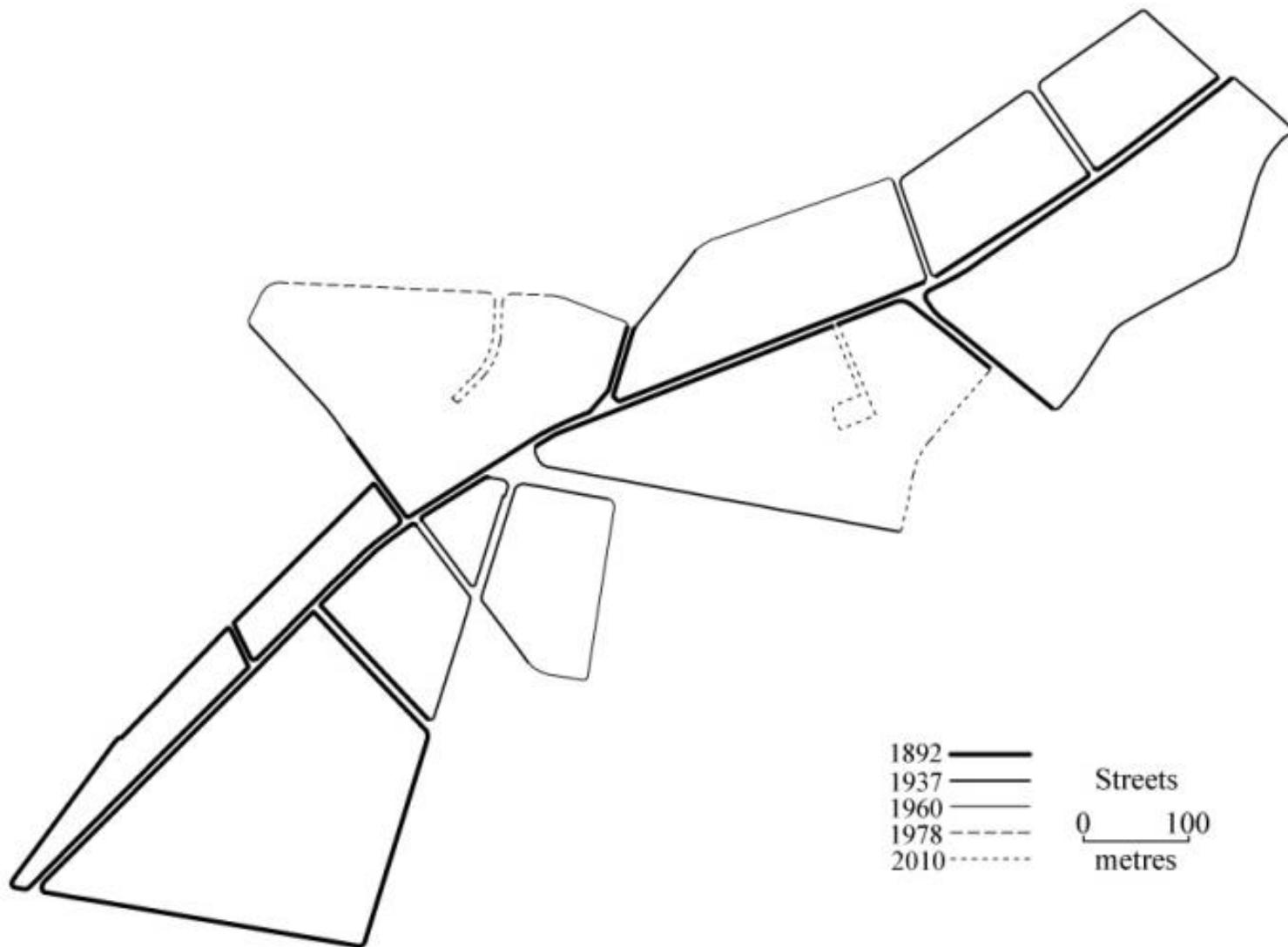
C. Preparation of the maps for streets, plots and block-plans of buildings

C. Elaboração das plantas de ruas, parcelas e implantação dos edifícios



Plots
0 100
metres





D. Identification of a timeline for the construction of streets

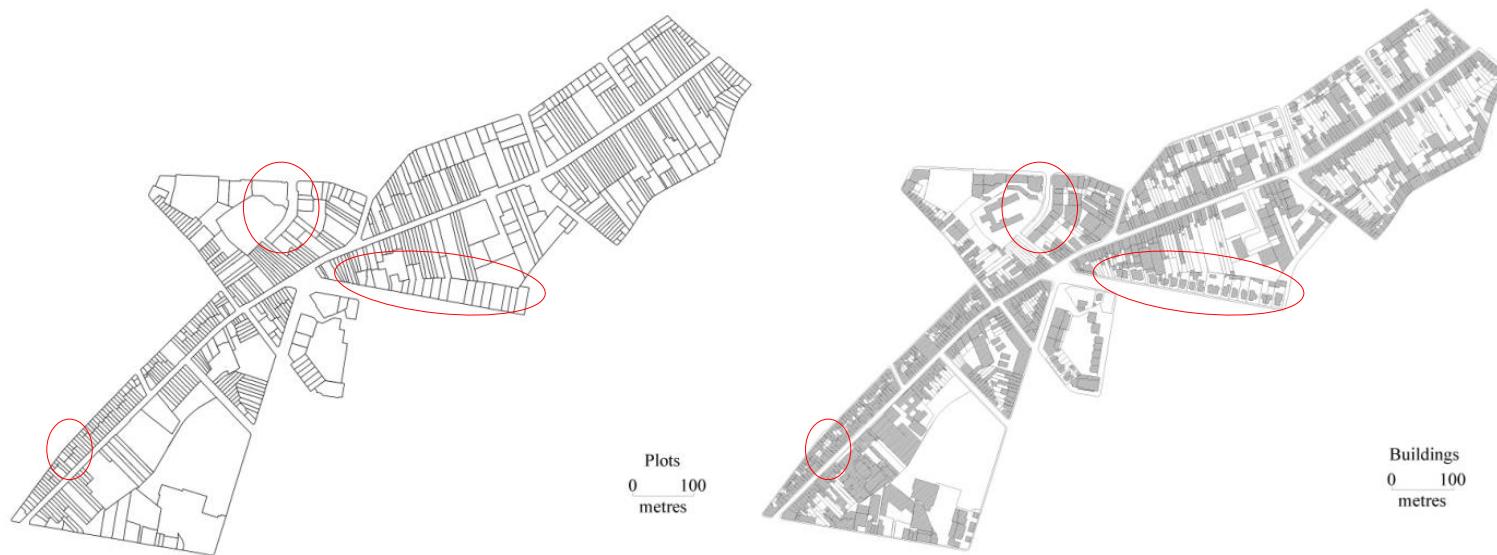
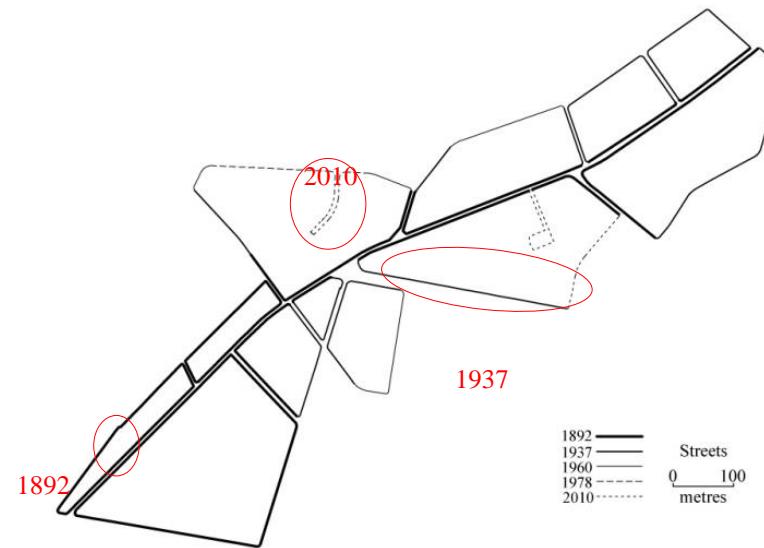
D. Identificação de uma linha temporal para a construção das diferentes ruas

Attribute	Persistence	Contribution to hierarchy (rank)
Ground plan	High	Mainly high and intermediate
Building fabric	Variable, but often considerable	Mainly intermediate and low
Land utilization	Low	Mainly low and intermediate

Source: Adapted from Whitehand (2007).

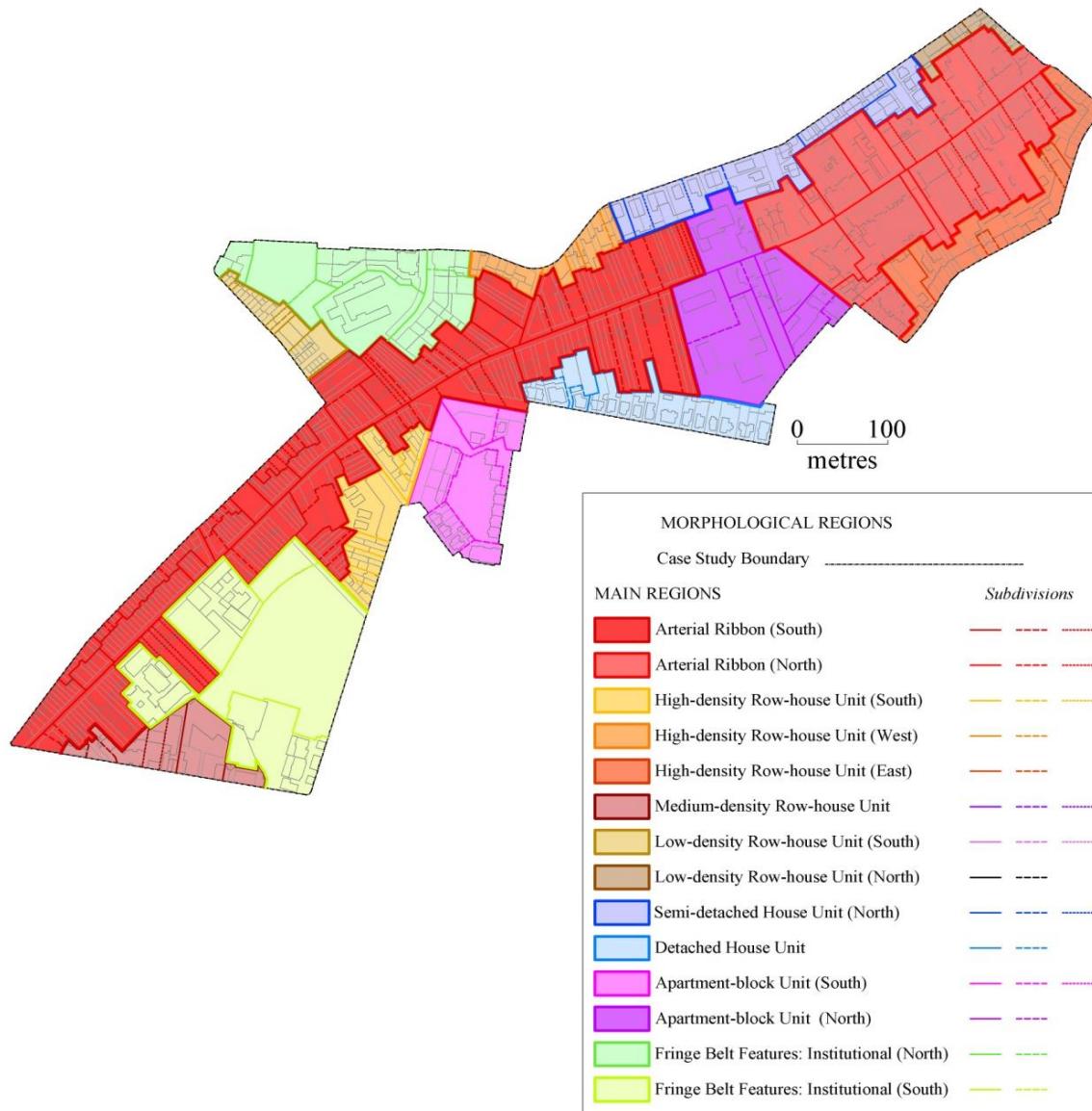
E. Definition of criteria for the identification of the different regions

E. Definição dos critérios para a identificação das diferentes regiões



F. Beginning of identification of the different regions

F. Início da identificação das diferentes regiões

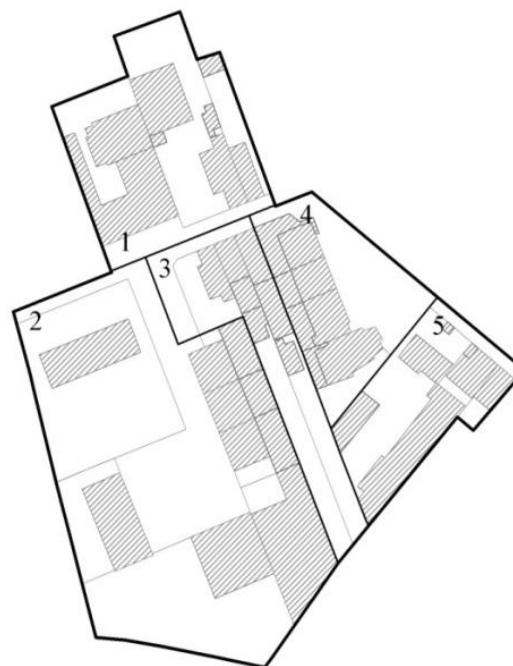
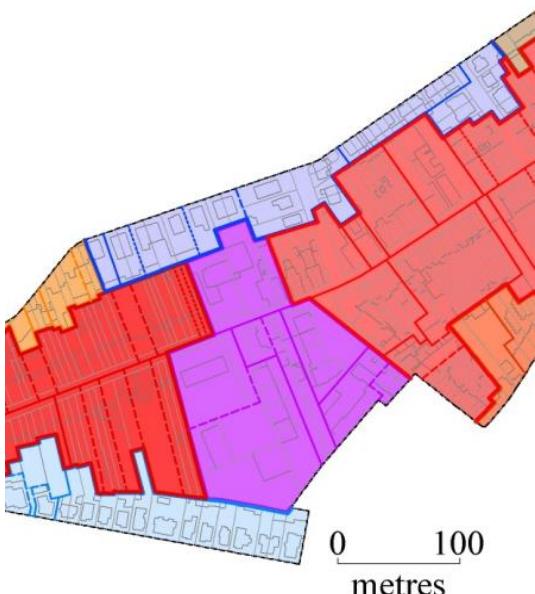


G. Preparation of the map of morphological regions (1st order)

G. Elaboração do mapa de regiões morfológicas (1^a ordem)

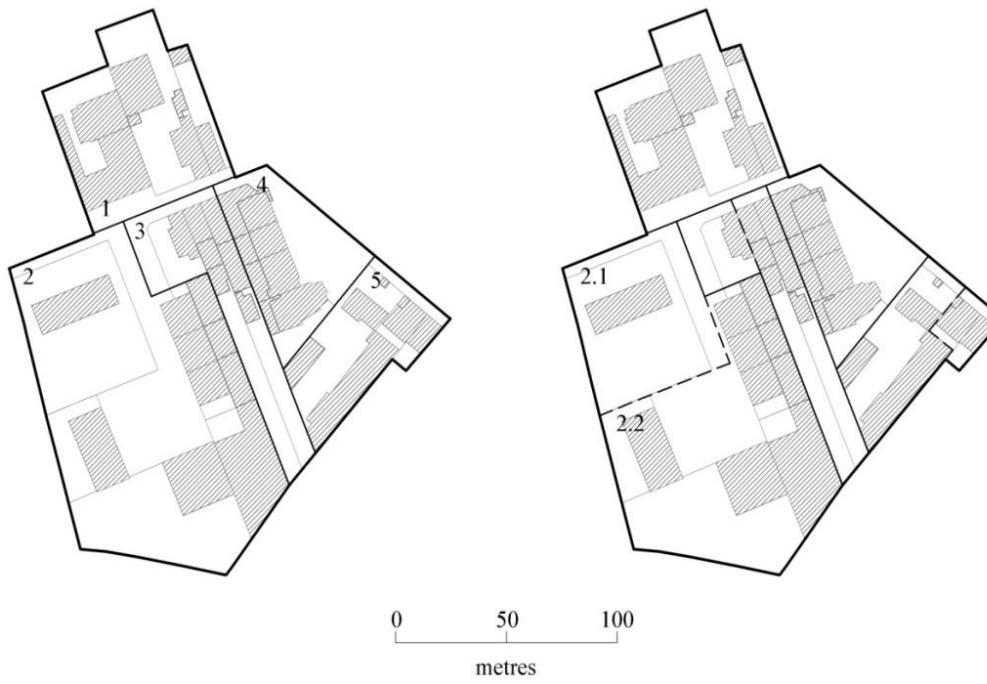


Photographs of the different regions



2nd order morphological regions

Regiões morfológicas de 2^a ordem



3rd order morphological regions

Regiões morfológicas de 3^a ordem