

MUTATIONS

REM KOOLHAAS

HARVARD PROJECT ON THE CITY

STEFANO BOERI MULTIPLICITY

SANFORD KWINTER

NADIA TAZI

HANS ULRICH OBRIST



MUTATIONS

REM KOOLHAAS
HARVARD PROJECT
ON THE CITY

STEFANO BOERI
MULTIPLICITY

SANFORD KWINTER

NADIA TAZI
HANS ULRICH OBRIST

ACTAR

arc en rêve centre d'architecture

At the outset of the twentieth century, 10% of the population lived in cities

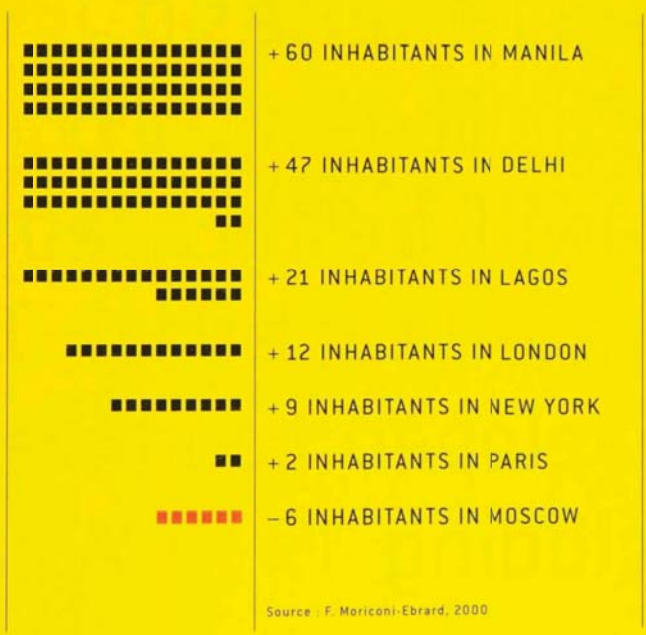
In 2000, around 50% of the world population lives in cities

In 2025, the number of city-dwellers could reach 5 billion individuals (two thirds of them in poor countries)

Source: Global Urban Observatory

In 1950, only New York and London had over 8 million inhabitants. Today there are 22 megalopolises

In one hour



Of the 33 megalopolises predicted in 2015, 27 will be located in the least developed countries, including 19 in Asia

Tokyo will be the only rich city to figure in the list of the 10 largest cities

Contents

Statistics _ Céline Rozenblat

- 10 **How to Build a City** Roman Operating System
(Harvard Project on the City)
_ Amale Andraos, Rami El-Samahy, Patricia Heyda, Jennifer Lee, Christina Long,
Allyson Mendenhall, Francisco Meza, Hunter Ford Tura, Peter Zellner
- 20 The Roman System, or the Generic in All Times and Tenses _ Jean Attali
- 30 Telegram from Nowhere _ McKenzie Wark
- 42 **Fragments of Net-Theory** _ Nadia Tazi
- 58 What's New About the New Media? _ Friedrich Kittler
- 70 A Mutation of Political Economy as a Whole _ Yann Moulier Boutang
- 84 Looking Like Flames and Falling Like Stars. Kosovo, the First
Internet War _ Thomas Keenan
- 96 Breakthrough to the World Code: etcy's Concept of Net Architecture
_ Reinhold Grether
- 104 The Global City: Introducing a Concept and its History
_ Saskia Sassen
- 124 **Shopping** (Harvard Project on the City)
_ Tae-Wook Cha, Chuihua Judy Chung, Jutiki Gunter, Daniel Herman, Hiromi Hosoya,
Sze Tsung Leong, Kiwa Matsushita, John McMorrough, Juan Palop-Casado,
Markus Schaefer, Tran Vinh, Srdjan Jovanovich Weiss, Louise Wyman
- 184 Control Space _ Sze Tsung Leong
- Photographic dossier**
- 196 Europa _ Francesco Jodice
- 206 Europa _ Jordi Bernadó
- 214 America _ Alex MacLean
- 226 China _ Jordi Bernadó
- 236 Urban Africa _ Edgar Cleijne
- 268 A Surpassing Mutation _ Jean Attali

- 280 **PRD Pearl River Delta** (Harvard Project on the City)
_ Bernard Chang, Mihai Craciun, Nancy Lin, Yuyang Liu, Katherine Orff, Stephanie Smith
_ Rem Koolhaas
- 338 **USE Uncertain States of Europe** _ Stefano Boeri and Multiplicity
- 356 Notes for a Research Program _ Stefano Boeri
- 380 **USE Cases**
- 414 Notes for a Cultural History Between Uncertainty and the Contemporary
Urban Condition _ Yorgos Simeoforidis
- 424 Post-It City: The Other European Public Spaces _ Giovanni La Varra
- 432 Unstable Geographies _ Valentin Blum
- 433 Observe and Interact _ Lorenzo Romito
- 434 Green Is The Color _ Mirko Zardini
- 440 Cityscapes _ Gabriele Basilico
- 450 Smooth Space _ Aldo Bonomi
- 457 Strata, Not Mutations _ Eduard Bru
- 460 The New Landscape _ Bart Lootsma
- 474 Temporary Habits _ Francesco Jodice
- 484 **The American City** _ Sanford Kwinter, Daniela Fabricius
- 494 Urbanism: An Archivist's Art?
- 508 Television: The Infrastructural Revolution
- 524 Generica
- 546 Houston™
- 566 Contract with America
- 602 American Noir
- 628 Dossier
- 650 **Lagos** (Harvard Project on the City)
_ Pierre Belanger, Chuihua Judy Chung, Joshua Comaroff, Michael Cosmas,
Sonal Gandhi, A. David Hamilton, Lan-ying Ip, Jeannie Kim, Gullivar Shepard,
Reshma Singh, Nathaniel Slayton, James Stone, Sameh Wahba
- 721 Urban Rumors _ a project curated by Hans Ulrich Obrist
produced in collaboration with Fri-Art, Fribourg, Switzerland

How to build a city

ROMAN OPERATING SYSTEM

(HARVARD PROJECT ON THE CITY)

AMALE ANDRAOS, RAMI EL-SAMAHY, PATRICIA HEYDA, JENNIFER LEE, CHRISTINA LONG,
ALLYSON MENDENHALL, FRANCISCO MEZA, HUNTER FORD TURA, PETER ZELLNER

This section contains the basic instructions for installing and configuring a city, the Roman Empire's most elevated subject and most useful object. Building cities is the single most important act of production (and reproduction) within society, and as such, is the entity through which Rome most clearly expresses and refines its global aspirations.

Each city comes complete with a set of standardized components used to assert and maintain Imperial authority. These components are governed by a recognizable "visual language" which determines the form, orientation and siting of public architecture: the essential programmatic activities to enable movement inside and between cities, and the necessary network interface (infrastructures, public services and "urban armatures") to ensure efficient communication and exchange with other cities in the Empire.

Once you know how cities function in the Roman system, you will have all the necessary information to configure and program your own. The question then becomes: **HOW CAN I BUILD A CITY?**

There are four main elements that you will need to understand for the building, proliferation and networking of a city:

- 1 The city is comprised of standardized parts arranged on a matrix. These parts are the standard equipment included in the container of each city and are easily identifiable.
- 2 The city is organized according to a series of general principles which are socially, culturally and politically determined, and in most cases are manifested in clear architectural and urban examples.
- 3 The city is the relationship of constantly changing flows superimposed onto a generic template.
- 4 You will have the ability to customize your city according to local topographical, climactic or cultural conditions.

For all its apparent complexity, once you know the rules, a city is easy to build.

The following section will give you the necessary information to configure a generic city, or *genericity*, like those built in the Imperial period as "the result of colonization, union, transference, growth, or settlement."¹ These cities are like those resulting from a rapidly expanding global system when "most cities in Italy and the Western provinces received their first public buildings in marble, streets, squares, and gateways", establishing a degree of uniformity and a codified "series of signs". This global system is manifested through the standardization of certain building types, planning strategies, and infrastructures unifying the "world" under a single rule.

Before building your own city, please note that this manual is influenced by three methodological decisions:

- 1 These are generic cities and reflect the form of no actual city; yet the principles of this manual are evident in all cities.
- 2 This manual considers the city in both a sectional and planimetric way, doubling the number of possible understandings of the city. This 180-degree conceptual hinge alters the traditional understanding of cities, which, at least since the time of Nolli, has favored a "limited and measurable" understanding of urbanism. This manual, instead, helps to build cities "which never rest ... mov(ing) in both directions at once," and favors movement within the Roman system as a primary factor in the creation and understanding of the city.
- 3 This manual assumes the city to be a "box of speeds," rather than an "urban artifact," implying the potential of the architecture of the city to be a passive agent, acting merely as a vessel for movements and flows.

STANDARD EQUIPMENT

Before you can start setting up your city, it is important to familiarize yourself with the equipment used in the Roman system. The city consists of standardized buildings, monuments, planning techniques, services and infrastructures which will allow you to create the necessary armature in your city. This armature will provide the necessary hardware to communicate with other cities in the Empire.

The following list contains an explanation of the standard equipment used in the city. Use these easy-to-identify ideograms for quick reference:

¹ All quotes in this text are from Aelius Aristides and Menander Rhetor, see "The 'Roman System,' or the 'Generic' in All Times and Tenses" by Jean Attali, following - Translator.

BUILDINGS



THE BASILICA is a flexible building used for gatherings and commercial transactions. It is commonly located adjacent to the forum, and it is intended to house market activities during inclement weather. Due to its flexibility, the basilica is easily appropriated by Christians for their liturgical needs.



THE CAPITOLIUM is the temple of state religion. Dedicated to the Capitoline Triad (Jupiter, Juno, and Minerva), the capitoliium is easily identified by its tripartite plan, in which each cella houses a cult statue. Only cities swearing an allegiance to Rome have a capitoliium, and therefore, it is an indicator of Romanness.



TEMPLA are religious buildings dedicated to the veneration of gods, the Imperial family, and native cults. The templum is the official "residence" of a god or emperor within a particular city and therefore has no interior function other than the display of statuary and ritual sacrifice. The Roman templum is "usually in the middle of the city, integrated into the center of religious, political, and economic life."





THE THEATRUM is a building dictated by an Imperial edict which requires games in honor of the Capitoline Triad. The theatrum is used for the presentation of games and performances, although not comedies and pantomime acts, which are reserved for the amphitheater.




THERMAE are baths. They provide an important public service to the city (hygiene) as well as an important space for socializing, political brokering and business transactions.


MONUMENTS


 **THE ARCUS** is a monument used to commemorate a military or legislative victory. Arches are usually located in prominent locations in the city, such as flanking the capitolium at the head of the forum (as in Pompeii) or at the intersection of the cardo and decumanus (as in Jerash).

 **THE COLUMNA** has a similar function to that of the arch, as it is primarily used for commemorative purposes in a prominent urban location.


PLANNING


 **CARDO ET DECUMANUS** are the primary perpendicular axes which define the geographical and spiritual center of the city. *Cardo* is the Latin word for "hinge," which indicates its cosmological significance as "the ideal line on which the sky seem(s) to swing." The rite of establishing the *cardo* and *decumanus* is performed by a magistrate who determines the center of the new city according to solar orientation.


 **CENTURATIO** is the process of "gridding" for agricultural purposes and establishes an inseparable connection between the city and its surrounding landscape.

 **THE FORUM** is a centrally located outdoor space intended for the exchange of goods and services, as well as the main public social space in the city. Many of the main public buildings (particularly the capitolium, basilica and templa) are directly adjacent to the forum, thereby establishing a close relationship between commerce and governance.



INFRASTRUCTURE

 **AQUAE DUCTUS** is the infrastructure system used for the transport and distribution of water.

 **LIMITES** are the system of edges. They can be walls (as in the case of Britain and parts of Northern Europe), or ditches (as in the case of Germany). *Limites* may be intended as a fortification for the exclusion of barbarian invaders, although it is more common for edges to serve as regulators of trade, controlling the flow of goods entering, or leaving, the Empire. On the scale of the city, Roman walls also serve as containers, thereby establishing an interiorized urban condition.

 **VIAE** form the network of stone-paved roads which connect all the cities of the Empire to one another. *Viae* are between 4-6m wide and allow for large-scale trading activity. Similarly, *viae* allow for the efficient (and regulated) flow of commercial products, slaves, animals, and mail.

TRADE/SERVICES

  **TRADE** is a defining characteristic of the city. Commercial goods which might influence the development of the city include amphorae, animalia, argentus, aurum, marmor, materia, oliva oleum, piscis, garum, triticum, and vinum.



GENERAL OPERATING PRINCIPLES

It is important to understand that the city is organized according to certain general principles. First, it is important to determine the appropriate site for your city. The city should have access to trade, water, and transportation, and may be in one of the following conditions:

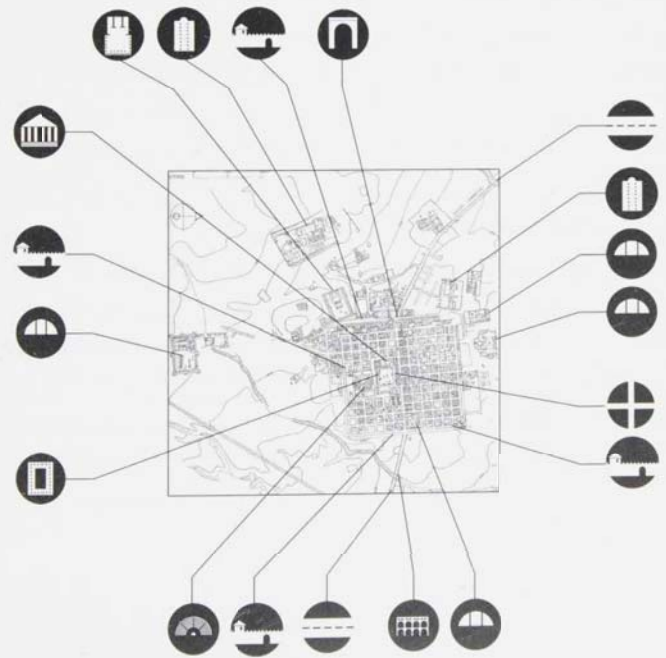
1) mountainous, 2) level, 3) dry and waterless, 4) rich and well-watered, 5) fertile and abundant, or 6) barren and less fertile. Secondly, consider the advantages of one landscape over another. For example, island sites are better for "security," whereas cities on flat plains are easier to enclose. Next, if you desire "pleasure and utility" in your city, it is important that you consider the "relation to sky and seasons... in terms of cold, heat, mistiness, clearness of atmosphere, or the balance of all seasons."

The next principle to understand is that cities are to be arranged in a rectangular form with two main thoroughfares (cardo and decumanus) crossing in the approximate center of the city. Next, you should fix the four cardinal points (as determined by the main streets) and establish a perimeter around the city. The gates of city should be at the points where the main streets intersect the perimeter enclosure. After the perimeter and gates are defined, one should "lay out the secondary roads in the manner of a chess board." Next, a series of rituals should be performed to "place the future city under the protection of the gods." After you have secured the protection of the gods and satisfied the necessary geometric requirements, you are ready to begin programming your city.

SETTING UP THE PROGRAM

The first programmatic element to place is the forum for commercial activity. It is best if the forum is centrally located to accommodate a wide range of functions. Around the forum, place the capitolium, basilica, as well as thermae and other public buildings. It is important that these individual buildings establish "greatness and harmony" for the city, as an inconsistent appearance may be undesirable. Likewise, it is important that these buildings evoke the power and vision of the Emperor.

After you have secured the protection of the gods and satisfied the geometric requirements of the new city, it is important to begin programming the remainder of the city with additional activities related to defense, commerce, entertainment, hygiene, agriculture, worship, and administration. Meanwhile, you should begin to develop neighborhoods in three of the city's quadrants; be sure to reserve one quadrant for an amphitheater and other public buildings (granaries, museums, libraries) which cannot be placed around the forum. Remember, "variety" is a desirable characteristic of your new city. When your genericity is sufficiently programmed, you should begin to grid the surrounding landscape for agricultural purposes.



RUNNING THE PROGRAM

The city is the interaction of a generic armature with several layers of flows and undercurrents running through it. If all of the necessary equipment is in place, you have successfully installed your genericity. At this point, you can begin proliferating your city. You should begin to notice "unimpeded movement and casual assembly, appropriately channeled and tellingly marked out, and ready access to public places effectively identified." This will both establish "connection and passage" and allow for the necessary fluid infrastructure to activate your city.

PROLIFERATING

Now that you have set up a genericity, you will be able to multiply this model and connect it with other cities in the system. To proliferate your genericity, repeat the steps as necessary as stated in the Programming section.

As you begin to proliferate your cities, it is important to remember that the genericity must always be modified to respond to its "local situation." As you alter the genericity according to its local factors, you will have created what is known as a *specificity*. The modifications will create "two sets of advantages," in effect, making it "like many cities in one." This is known in the Roman System as a 200% city because these customizing operations allow you to make your 100% generic city 100% specific.

NETWORKING

Now that you have set up genericities and proliferated them, it is important to connect your cities. Use the standard infrastructural components (aquae ductus, viae, and limites) to establish the connection between cities. It is important to remember that the space in between cities can be as dynamic as those within the container of each genericity. By programming the in-between space, not only are you able to activate your genericity, you will also be able to configure a system in constant movement.

The Project on the City, formerly known as "The Project For What Used to be the City," is an ongoing research effort at the Harvard Design School that examines the effects of modernization on the urban condition. Each year the Project on the City investigates a specific region or a general condition undergoing virulent change. The Project attempts to document and understand the mutations of urban culture in order to develop a new conceptual framework and vocabulary for phenomena that can no longer be described within the traditional categories of architecture, landscape, and urban planning.

The first project focuses on the new forms and speeds of urbanization in the Pearl River Delta, China. The second project investigates the impact of shopping on the City. The third project explores the African metropolis of Lagos, Nigeria.

The fourth project examines the invention and expansion of the 'systematic' Roman city as a precursor of modernization and a prototype for the current process of globalization.