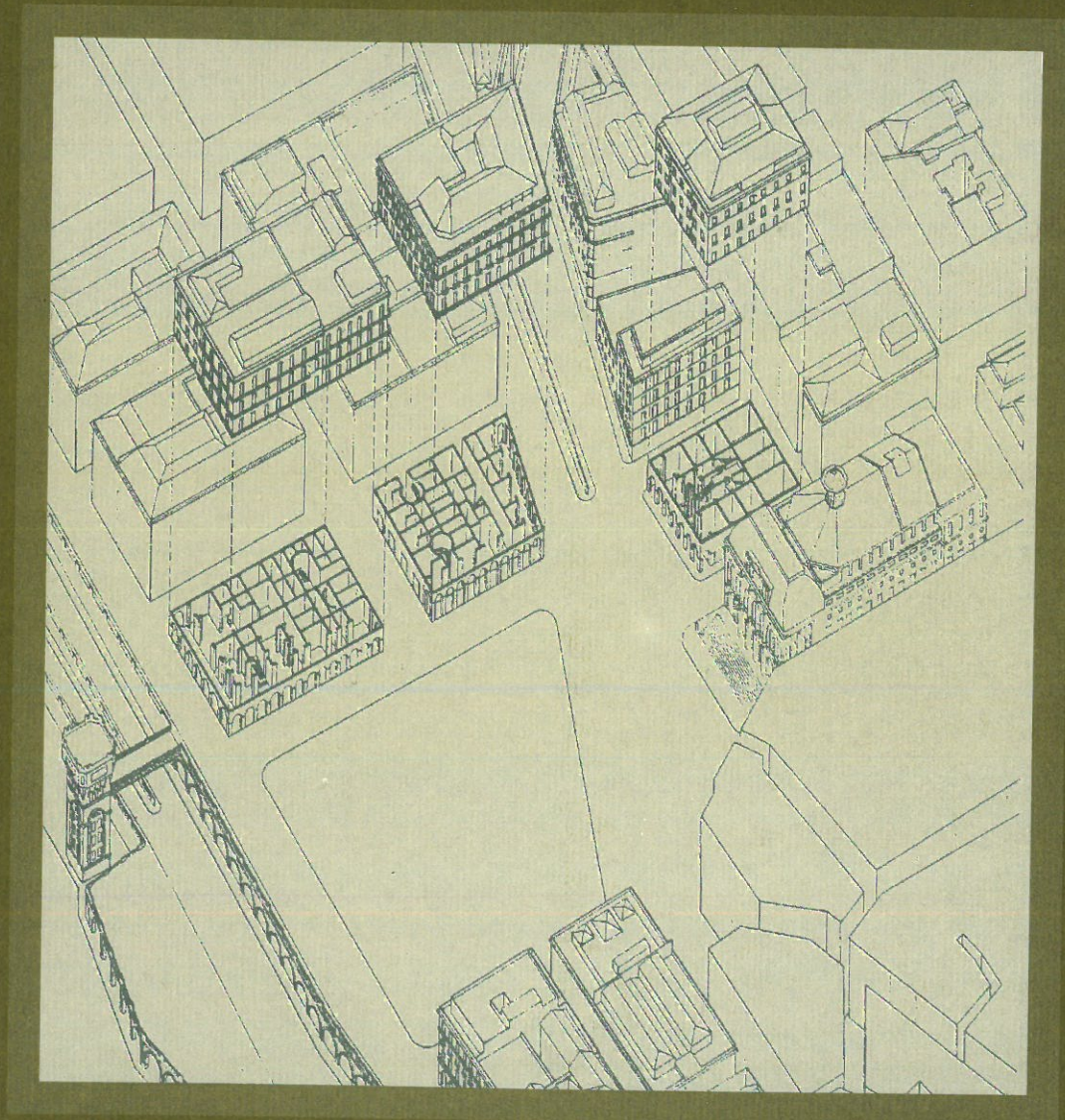
RETHINKING XIXTH CENTURY CITY

EDITED BY ATTILIO PETRUCCIOLI



Aga Khan Program for Islamic Architecture
at Harvard University and the Massachusetts
Institute of Technology, Cambridge

RETHINKING XIXTH CENTURY CITY

Much of the confusion and disorientation in the contemporary architecture is caused by the failure of finding an alternative to a market-oriented individualism, fashionable nichilism or picture-book historicism.
The new series of publications, proceeding of international symposia held at M.I.T. and sponsored by the Aga Khan Program for Islamic Architecture, provides a forum for debates on theory and design.
The objective is to develop a solid and well-defined design methodology based on the rigorous analysis of the existing fabric . In the design process historical consciousness would play a decisive role.
The field of interest is not limited to the Dar al Islam, the land administrated by Islamic law, but includes the Western built landscape, since the intellectual and physical mobility today makes it more difficult to circumscribe cultural territories.
The range of issues discussed includes the single architectural object as well as the urban fabric and the territory, due to the integration of the different scales of the built environment. in this vision the building is seen more as one element within a larger context than as isolated aesthetic object.
Central themes of debate are the morphological study of the cities, either as reading or operative design, as well as the restoration and conservation of the architectural patrimony.
Issues to follow: "Bukhara", "Courtyard House and Urban Fabric".

Edited by Attilio Petruccioli.

On the cover: Place de la Republique at Algiers (drawing by Attilio Petruccioli)

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Rethinking the XIXth Century City

Introduction

The nineteenth-century bourgeois house and neighborhood represent the most unique and highly developed form of dwelling based on a civic cohabitation contained under the same roof. Condominium inhabitants share the building elements of floor, ceiling and the peripheral walls. Even though a condominium's walls may hide the reality of class differences and inequalities, the inhabitants are in fact shareholders responsible for the common roof, cellar, and the connective spaces. Compared to previous building forms, this presumes a more highly developed civilization of social relations. In the second half of the nineteenth century, the apartment reached a level of comfort exercised by the demands of modern society that encompassed sophisticated forms of lighting, ventilation, and sanitation, even to the point of obscuring this very building form's typological clarity.

The nineteenth-century neighborhood is an efficient machine, whose public places and streets are carefully designed for mobility and décor with a clear separation between pedestrian and vehicular traffic. Green spaces are often cut in geometrical or naturalistic forms, and they play an important auxiliary role in public health. The matrix of this scenario is completed by a picture where commercial and cultural services are arranged to be easily accessible from the streets. Neighborhoods like Boston's Back Bay, Saint Germain in Paris, as well as the rue d'Isly in Algiers, testify to this high level of urban quality by their successful resistance to so many crises of urban transformation and population shifts. The nineteenth-century urban fabric has remained quantitatively and qualitatively relevant to the mutation of the contemporary city, even at a time when the challenges of modern-day urbanism and urban development are reaching an intensity last known during the urban renaissance of thirteenth-century Europe -- shortly before the arrival of the Black Plague.

Contemporary architects who adhere to standards of urban quality see the organic and continuous city as a form that resists many centripetal forces triggered by the Modern and Garden City movements. For instance, the urban formula of residential blocks, squares, boulevards and galleries of Leon Krier's nineteenth-century Luxembourg appears as a nostalgic glance back to a Golden Age, ignoring the derelict peripheries of the Modern movement as well as the general American tendency to identify suburbia with its more direct relationship to nature. Dismissed as a legacy of the "academy," the presence of this urban fabric contrasts sharply with the urbanistic and architectural historiography of the Modern Movement.

In reality, in the built fabric there are no traces of "academy." Neither in the form of the slow repetition of consolidated modes or by way of a certainty of systematic organization can this be substantiated. Rather, it is in continuous experimentation toward adequate solutions and as a coherent expansion from the chain of its preceding forms that the evolving city is built.

The inability of the modernistic culture to understand building history is based on several causes:

1. The preeminence of an idealistic vision from Hegelian aesthetics sees the piece of art as a unit suspended in time and space. This may privilege the personal inventions of a few architects on the basis of their artistic individuality. Or, the individual "piece" of art may be restricted to the sense of unit as it relates to and is evaluated in its function to the market and whose marketability is uniquely international.
2. In the context of an internationalism subjected to the Modern Movement, only those architects with an international connection and urban phenomena that anticipate the theories of the international Avant-Garde, merit the privilege and attention of a historian like Leonardo Benevolo.
3. The fabric and particularity that residential buildings may conserve are confronted by the inability to adhere to internationalism, since they are fostered in fact by local processes. This assumption can be easily demonstrated by my structural analysis of the nineteenth -century buildings of Rome or Boston. This analysis goes behind the thin skin of facades. It illustrates that while the "free" invention of the architect may be limited to the outer appearance of a building, the building type is, and could not be other wise, the leading local type, that is, the idea of an apartment module form shared by all the community at a given point in time. Therefore, the local architects, though well informed about the international theatre, have always been very cautious about introducing foreign factors into the building process, as they could have a distorting effect on the genius loci.
4. The urban fabric has been dismissed by the Modern Movement because it is considered anonymous and juxtaposed to the heroic vision of the Avant-Garde.

That picture of the nineteenth century that I depicted at the beginning was intentionally celebratory. Actually there is another side of the coin. The nineteenth-century city is the place where different aspects of the crisis of the preindustrial civilization became evident before their post-First World War explosion. In architecture, as it has been underlined by Gianfranco

Caniggia, the project becomes indispensable also at the level of the house. While up until the end of the eighteenth century it was a product of the free and spontaneous consciousness of artisans. The most significant consequence is that abstract procedures, mostly of a self-referential nature, are introduced into the process of design later, favoring the individualistic approach of the architect. The typological processes, which had been spontaneous, become more and more critically conceived at the desk and therefore separated from the reality of the actual users.

In fact, it becomes evident how the apartments of Paris and Vienna -- as well as Algiers and Rome -- experienced a loss of legibility that increases with time. "L"- shaped and "T"-shaped blocks appeared for the first time and were subdivided into units where the emphasis was no longer found in the structure of the apartment, but on its surface. The prevalence of triangular or trapezoidal plots, dictated by the new urban paradigm of a radical street pattern, created problems for the internal distribution of the type. The architects compensated for the separation of type from the building by a richer treatment of the facades, employing symmetry, horizontal and vertical moldings, cornices and other decorative elements. At the turn of the century, long facades over 600 feet were designed, emphasizing hierarchy in composition to avoid monotony. This virtuosity in facade treatment had little relationship to the internal layout of the apartment. In time this led to the dissolution of a recognizable type.

If we carefully examine the fabric of the nineteenth century, it reveals less of an organic nature than does the Medieval fabric. The latter, in a continuous stratification, formed a complex hierarchy of nodes and poles and a tangled net of streets. Both the product of writing and rewriting are in the body of the city. The former, though inspired by the medieval city, is schematic. Its grid plan favors the democratic distribution of its properties and remains a poor model when compared to the rich formation of matrix routes, planned routes, connection routes and their reciprocal interchange of value in the course of time recorded in the medieval fabric. Nodes are situated by the designers following a simplified hierarchy, in the urban focuses (as in the Baroque tradition) or in the corner of the block, as in Back Bay Boston (imitating a medieval tradition), where they could predict a concentration of determination. But here we are moving very far away from the hierarchical complexity of the previous city.

I believe that a return to the organic city of the past is impossible , even in its reductive nineteenth-century form. The acceleration of the fabric's

transformation, fostered by the mobility and the simultaneous presence of non-homogenous societies, pushes towards desegregation. Nevertheless, I believe there are values in the nineteenth-century city that should be incorporated in the modern-day city, as we will discuss in these proceedings.
Because I believe that the perspective of a city anywhere, anyhow, anytime is too meager, the architect and planner must find models for the city that, while different from those of the Renaissance (of which the nineteenth-century city is in part heir), are also capable of growing or changing coherently with their predecessors.
Before delivering this book to the printer I want to thank all those who have contributed to it (in addition to the authors who patiently accepted suggestions in order to improve their text several times to make it more accessible to a wider public): Margaret Sevcenko who has edited this volume magistrally , Shakeel Hossain and Georgyi Levashov who have made the layout. Invaluable were the contributions of the distinguished scholars who acted as discussants: Michael P. Conzen, Renata Holod, Rodolph El-Khoury, Pierre La Rochelle, Anne Vernez Moudon, Joe Nasr, Sten Nilsson, William Porter, Stanford Anderson, Erik Valle. Special thanks are due to Renee Caso who supervised the organization of the conference and to Alberto Balestrieri.

Attilio Petruccioli
Cambridge, Massachusetts
July, 1998

Julian Beinart

Form and Application in the Nineteenth Century City

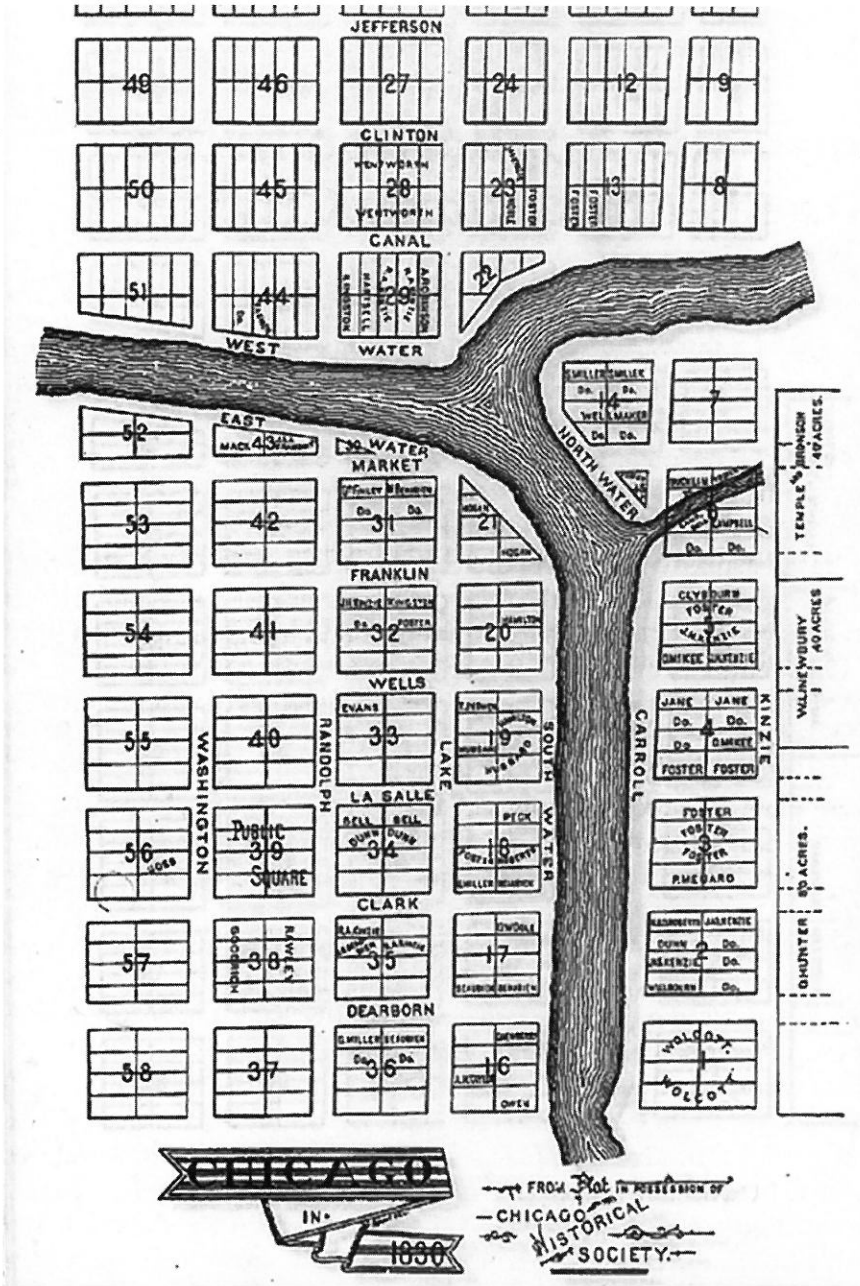
In 1836, Ludwig von Forster, one of the chief planners of Vienna's Ringstrasse, said that "the genius of the nineteenth century is unable to proceed on its own road.....The century has no decisive color."[1] Presumably he meant this to promote the past in the planning of the extension of the Austrian capital and the eclectic expressionism of the major public buildings on the Ring.

Yet it is possible to interpret Forster's statement differently. The enactment of the Ringstrasse, one of the 19th century's largest real estate projects, far exceeded its architecture in inventiveness and imagination. This is a theme of 19th century town building more generally : that the genius of the expansion of 19th century cities lies not so much in the invention of spatial form as in the creation of the instruments of political economy that made the execution of this expansion possible.

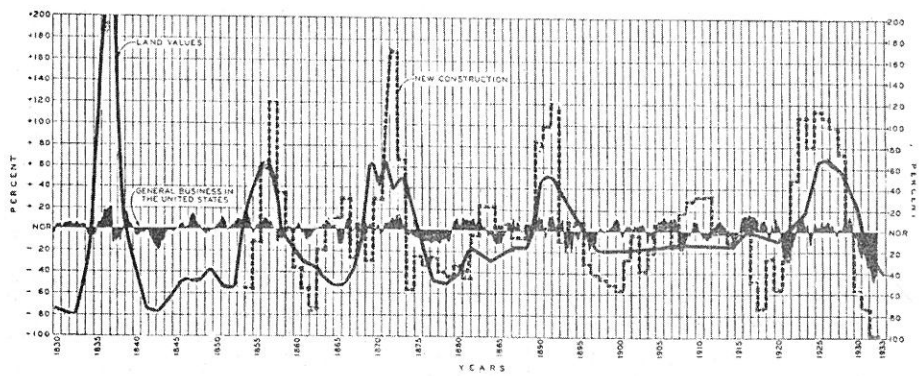
Many have pointed out how already existing models of city form have affected !9th Century urban development. Anthony Sutcliffe, for instance, has stressed the continuity of avenue building and infrastructure in Paris from 1783 to Haussmann.[2] Simon Jenkins has pointed to the effects of estate subdivisions in London from after the Great Fire (1666) to the work of Cubitt in Belgravia and Pimlico some 170 years later;[3] and Richard Sennett has argued the presence of the orthogonal grid from early Colonial times to American cities of the 19th century.[4]

If I am correct that we owe less to the 19th century for its formal and spatial lessons than to its legacy of enactment, we might regard the urbanism of post-1917 Russia in the opposite light. Post-revolution Russian urbanists took the problem of enactment for granted. The new state had neutralized the insidious market for land, so it seemed, and their appeared to be no problem of differential distribution. Freed from the constraints of application, Russian urbanists could be as inventive of urban form as they could imagine. From the internal fantasies of Melnikov to the mechanical dreams of Leonidov, there have arguably been few more fertile suggestions of alternative urban forms than in this pre-Stalinist period.

But the urban world which confronted Western Europe in the late 18th and 19th century was of a scale and a pace that had not existed before. The idea of capital was new: it involved new classes of people and its accumulation required new modes of organization, among which the city. Capital through the middle ages was a "sum of tangible wealth. Now property became capital, maintaining itself no longer in specific goods, but as an abstract sum of infinitely flexible use whose 'value' was its capacity to earn interest or profits."[5]



1. Thompson's plat, the first survey of the town of Chicago, August 4, 1830, with an estimated population of about one hundred people.

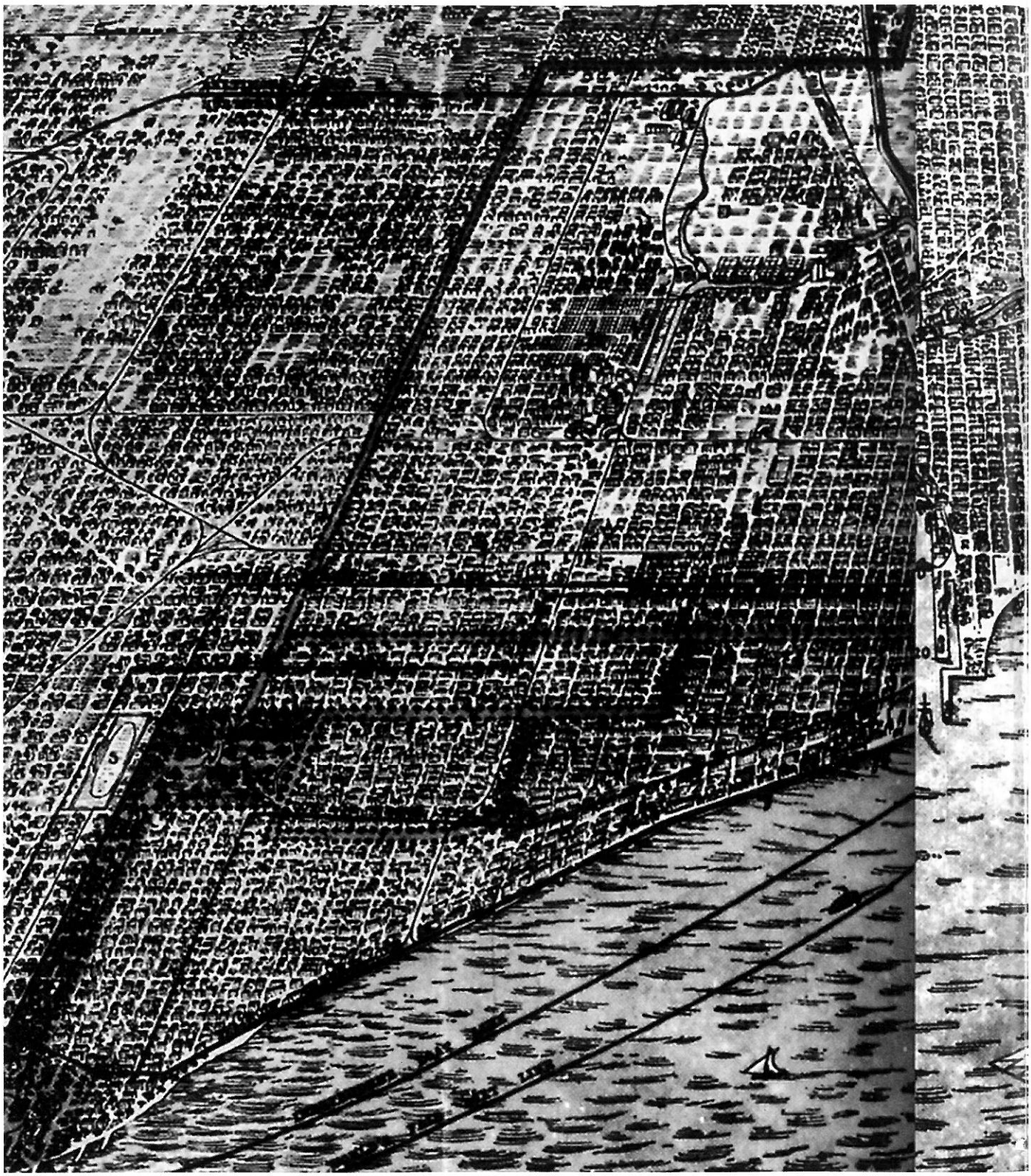


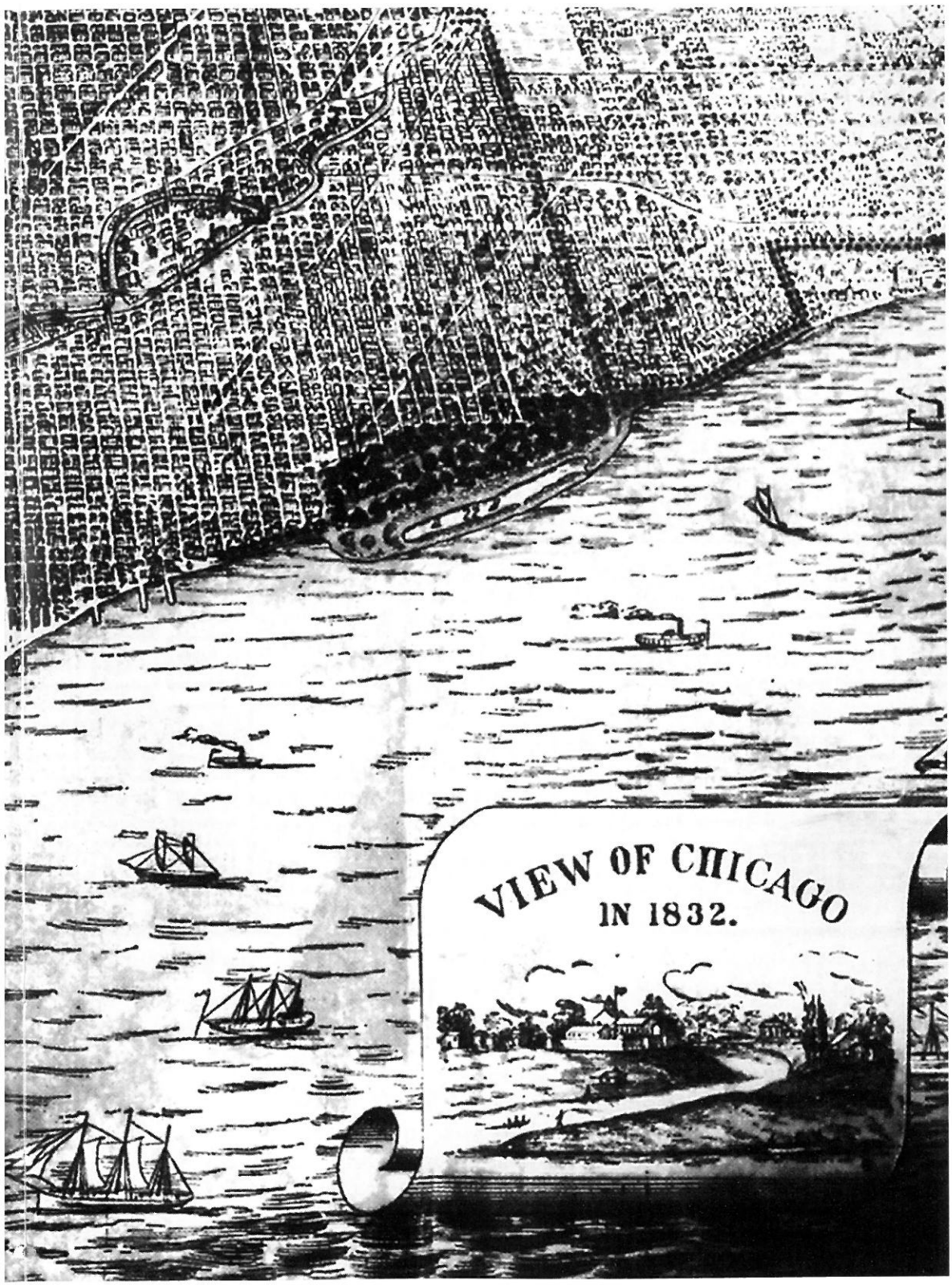
2. Homer Hoyt's analysis of one hundred years of land values and building cycles in Chicago from 1830 to 1930.

The conjunction of science and engineering and its fueling of the most rapid growth in history was new. (I have not used the word 'technology'" : Leo Marx reminds us that this word was first used only at the beginning of this century). Rostow argues that "the scientific revolution, in all its consequences, is the element in the equation of history that distinguishes early modern Europe from all previous periods of economic expansion."[6]
19th century rates of urbanization were unique, due partly to the capriciousness of an aristocratic agricultural class that consigned rural people to towns (the commons enclosures, for instance), and to the demographic effects of environmental improvement. Trevelyan in fact distinguishes the modern world by its new demography: "The survival of many more infants and the prolongation of the average age of adults mark off modern times from the past; and this change begins in the 18th cemtury.[7]
London was the largest city in the world in 1850 and, for the first time in 1,500 years, the largest city in the world was in Europe. More importantly, for the first time ever, a nation had as many people in cities as in the country, a mark the United Nations projects will be true for the whole world by about 2010. The modern factory and the journey-to-work were new. The demand for new and better building was so great that construction now constituted "perhaps the major single source of demand for capital during the nineteenth century."[8]
The methods by which this construction and its financing took place, were invented by bankers, builders and developers. There was little theory : Adam Smith was a mercantile economist, Malthus a demographer. Ricardo's theory of rent was essentially one of agricultural land. Marx's economics was primarily one of labor: "Capital is the command over the unpaid labor of others", proclaimed Engels.[9] Only with the work of Alfred Marshall in this century did economics emerge as its own discipline.

Instruments of Application

In this section, I want to comment very briefly on five of the economic inventions which I believe are fundamental in understanding the 19th century city. In concert these instruments of application enabled the transformation of the feudal and mercantile city into the capitalist industrial city, and remain in principle with us today. My examples are all European, largely because they pre-date their application elsewhere. The amortized building loan, for instance, was a British invention of the early 19th century, but was introduced in he USA only about 60 years ago. Prior to the 1930's, all loans in he U.S. were either standing loans (no amortization ; the entire principal becoming due on maturity) or balloon loans (some principal repaid before maturity). These crude instruments for borrowing money were one reason for the severity of the real estate collapse in the USA in the 1930's.[10]
i) Adele Nevitt claims that the invention of the constant repayment amortized building loan "is of such importance in housing economics that





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it should rank with the invention of the steam engine in changing the face of Britain. Owner-occupation and all the social changes which this implies only became possible when a method had been discovered and perfected of borrowing money over a short period and lending it over a much larger period."[11]

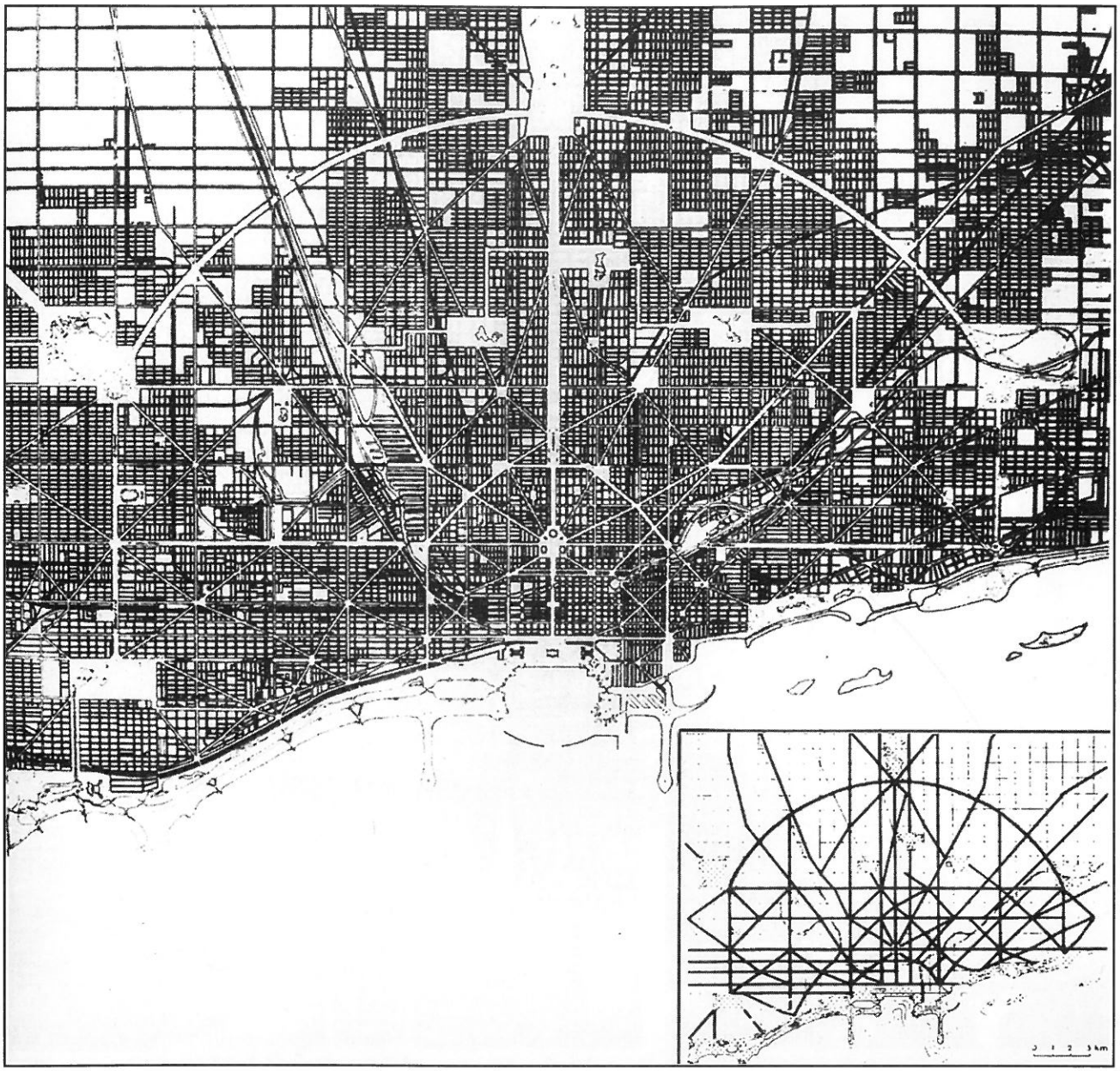
The amortized building loan meant that the length and amount of a loan was determined and unalterable. A regular monthly payment comprised the repayment of both interest and principal with the interest portion being highest at the beginning and the principal portion highest at the termination of the loan. Once a borrower received a mortgage loan, it meant ownership of a house, and, provided the monthly payment was made, the borrower was exposed to little economic risk. In fact, home ownership has proved to be the major source of capital formation for most middleclass families since. After generations of renters at the mercy of unreliable landlords, the amortized building loan now provided a less personal and more constant relationship between borrower and regulated institution.

ii) The design of a specialized organization for lending money came first in the form of the permanent building society. Permanent building societies evolved, in Birmingham circa 1775, from terminating building societies, which were guilds of skilled workers for the building of houses for guild members alone. Members of terminating societies met regularly and paid dues toward the building of a house for each member. Once a house owner, the member paid rent to the building society plus his regular dues. This continued for about ten years until all members had new houses.

Terminating building societies, however, were too intimate and inappropriate to the needs of a emerging middle class who needed a large and constant supply of money to own houses. So the permanent building society emerged, an early form of lending bank providing a major source of finance to house occupiers as well as to speculative builders and developers. One cannot imagine Victorian suburban development without the existence of an organized system of obtaining money and transferring that money into the hands of borrowers.

iii) This transformation of a pre-industrial guild of builders into a 19th century money source is paralleled by the story of the first large building firm, generally attributed to Thomas Cubitt. Cubitt inherited a building firm at the age of 27 but, instead of employing only itinerant journeyman, he now employed foremen, bricklayers and plasterers and paid them to be full-time workers all the year round. By 1828 he was already employing more than a thousand workers.

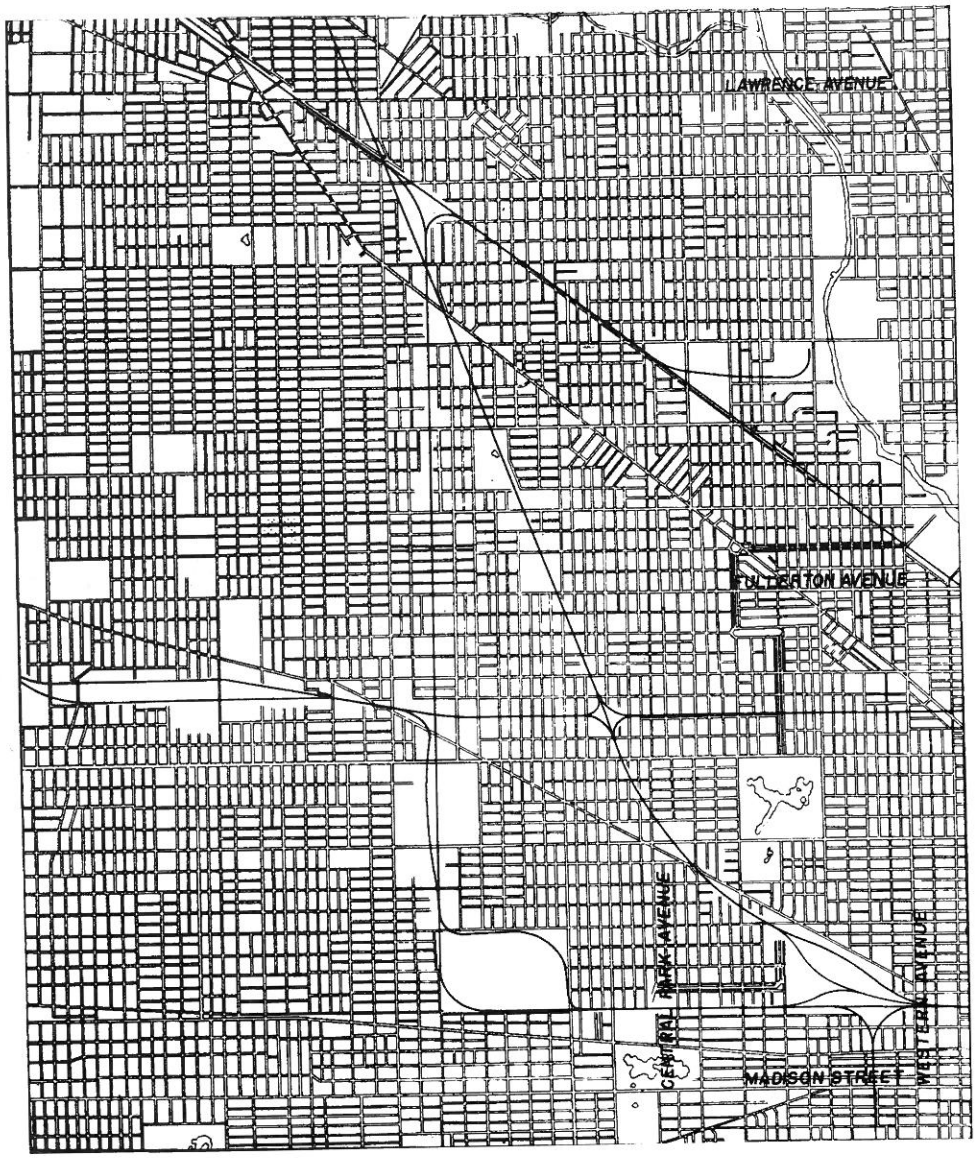
By industrializing and rationalizing site operations, he could lower production costs. With a modern construction organization at his disposal, he could also do two things that pre-industrial builders could not. Firstly, he could predict the cost of large-scale projects and "with a steady nerve to shoulder the risk",[12] he could assure developers in an uneven economy of the final cost of large projects. Like the amortized loan, he could make the future more financially secure. This he did with the



4. Diagram of Burnham's plan of Chicago, 1909

contract in gross , "that's to say, a form of undertaking of construction work that from the start decided all the operation to be carried out right down to the last detail, establishing the overall cost in such a precise and binding way as to leave the client with no margin of risk."[13]

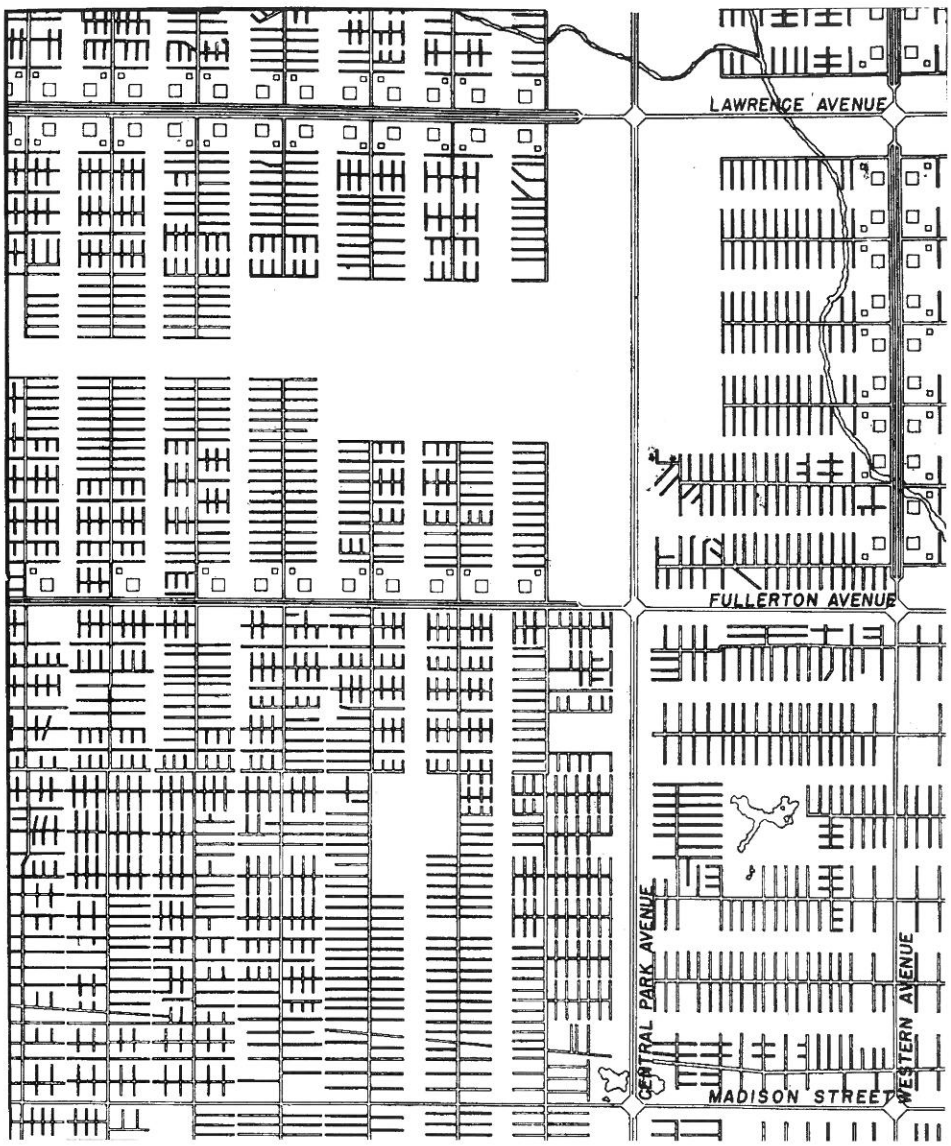
And secondly, he could engage in the performance of large-scale programs, such as those for Belgravia and Pimlico, and so benefit economically from being both real estate developer and builder. This, as De Carlo puts it, linked" building production with land speculation, in such a way as to make the one both motivation and result of the other. The shrewd use of these completely new tools gave his construction business unprece-



5a

dented stability."[14] (In October 1850 Cubitt became the supervisor of the construction of the Crystal Palace, and it is likely that he influenced the decision to abandon the international competition and give the project to the gardener Joseph Paxton.)

iv) New forms of land tenure had to be invented to satisfy the demand for housing by a new middle class and thus to enable a larger and more diverse city. Changes in the form of London illustrate the workings of altered forms of tenure. The large estates which made up the western part of the city were owned by an aristocracy who had been granted freehold ownership by the crown in feudal times. As this land became more valuable, the idea of leasing this land, on approval of parliament, was devised. This allowed artistocratic owners to maintain ownership of their land and theoretically to control the use of the land, thereby satisfying the



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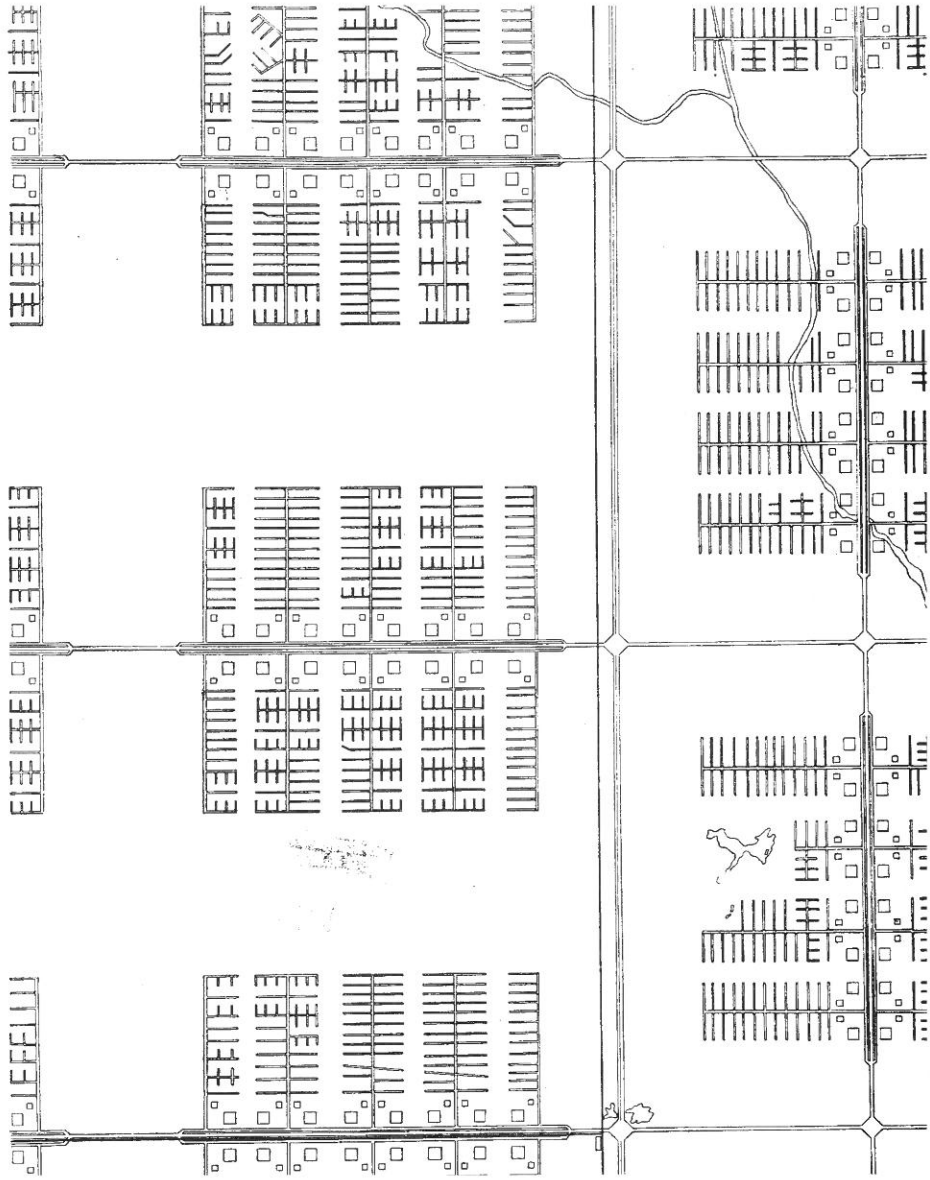
Crown, while granting leasehold rights to others to build on the land and to use the buildings for agreed purposes in return for an annual ground rent. Weinberg points out that "landlords, who were concerned with the distant future as well as the immediate present, had a financial incentive to provide good layouts which meshed well into those of surrounding estates.....On the expiration of the lease, which could vary from 21 to, more popularly, 99 years, the land, together with the improvements, reverted to the ground landlord who was at liberty to begin a new lease on the existing property, or to rebuild the estate."[15] This maintenance of ownership accounts, in part, for the relative uniformity and consistent architectural quality of the newly built estates, which Jenkins calls "the pseudo-palatial terraced facade which was to remain the hallmark of London upper-middle-class architecture."[16]

5. Three stages in the proposed development of the grid in the north side of Chicago by Ludwig Hilberseimer: 5a. (page 146) the existing street pattern, 5b. (page 147) an intermediate stage, and 5c. (right) a possible final stage with square communities.



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But the leasehold system took a different form in poorer districts, where large estate owners who were interested in reliable, long-term, low-yield investments, were unwilling to enter into direct leases with working-class home occupants, whose wages were low and irregular. The result was a proliferation of middle-men and a chain of sub-leases, ending in exorbitant rents, badly sub-divided land and degraded surroundings. By the time of the 1884-5 Royal Commission, 85% of working class people paid more than one- fifth of their income in rent, and 50% paid between a quarter and a half. And this often for no more than one room.

v) For the last of these 19th century economic innovations, we turn to Haussmann's well-documented rebuilding of Paris between 1853 and 1870. The amortized loan and the 'contract-in-gross' were grounded on an

optimism about the future, a kind of prophecy that progress and growth would be sustained and that profit would ultimately result. This was also the idea behind deficit spending, an anticipation that increased tax revenues would pay off long-term loans, and that a more efficient and more attractive city would yield great future economic benefits. As Girouard puts it : "The creative assumption made by Napoleon and his ministers was that, in a city as rich and on the up as Paris (by 1848 Paris had become the world's greatest manufacturing city), work on an enormous scale would pay for itself in he end."[17]

Borrowing on the basis of future pay-off was an idea embedded in the optimism of St. Simonianism, only very much later to be theoretically approved by the work of Keynes. So Paris borrowed more than any city had ever before. Haussmann's techniques have been well described, among which are the creation of betterment on both sides of wide avenues, the semi-legal associations with private contractors, and the need for speed to avoid the rising land costs which accompany development.

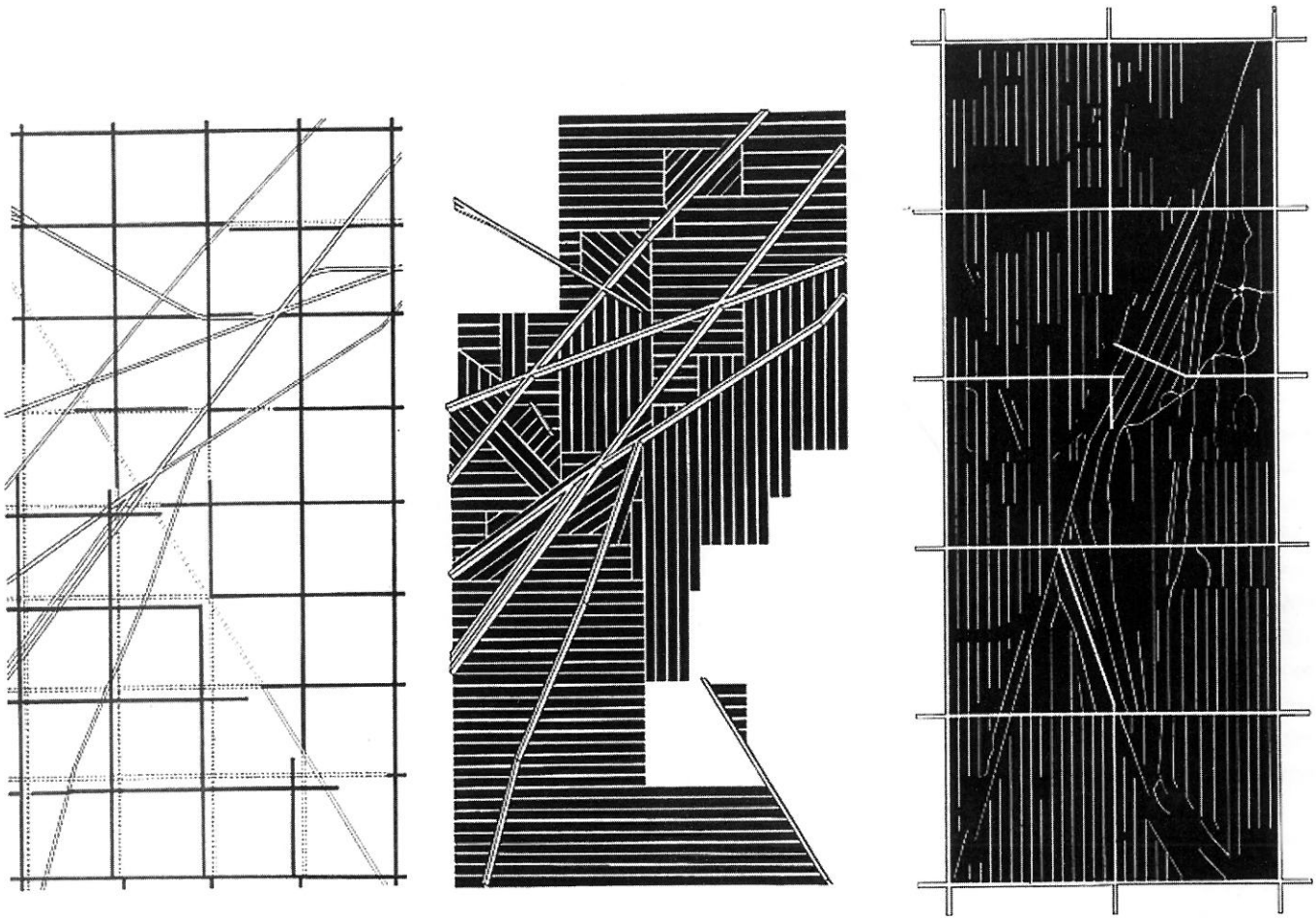
The calculus of Haussmann's economic practice is still under examination; perhaps just as we still puzzle today over the balancing our own national accounts. Haussmann's projects are estimated to have cost over 2,500 million francs. At the end of his prefectership in 1870, debt charges made up about 44% of the city's budget, and his loans were paid off only in 1929. Bastie' points out that, in the 43 years after Haussmann, Paris borrowed less than Haussmann did in 17 years.[18]

Howard Saalman, however, is sanguine about municipal deficits: "It was generally admitted that Paris could not only afford to do what was done, it could not have afforded not to do it." (19) And Daniel Burnham, so devoted to the beautiful Paris, wrote in his great plan for Chicago: "The task which Haussmann accomplished for Paris compares with the work which must be done for Chicago....It was Haussmann's theory that the money thus spent made a better city, and that a better city was a greater producer of wealth" (20). Burnham, in a footnote, calculates that Haussmann's work cost $265,000,000; and that "a reasonable estimate, for the single year 1907 of the gold imported into France by travelers, to be spend in hotels, transportation, amusements and purchases, is $600,000,000....." "One-fifth of this sum", he continues, "or $120,000,000, may safely be put down as the share of Americans."

Deficit spending is still not only a system of financing major urban improvements to be paid off at some future date, but the subject of a continuing debate about the role of city governments as business corporations or as providers of public splendor and amenity.

Grid Form and Economic Cycles

Much has been written about the persistence of the grid form in American urban planning, from the early adoption of European forms to the rigid land division, the grids of expediency, of the Land Ordinance by Congress



6. Students' drawings investigating the "collisions, overlapping and fragmentation of the grid of Chicago" from a studio class taught by M.Gandelsonas at the University of Illinois in 1984.

in 1785. Yet it is the adoption of grid layouts in the 19th century, such as that proposed above Washington square in New York in 1811, that have caused speculation that there is a relationship between such forms and a particular 19th century economic system, capitalism.

This proposition is most forcibly stated in the writings of Lewis Mumford. Here are some excerpts: "resurgent capitalism.....treated the individual lot and the block, the street and the avenue, as abstract units for buying and selling."[21] "The rectangular street and block system, projected indefinitely toward the horizon, was the universal expression of capitalistic fantasies."[22] "Each lot, being of uniform shape, became a unit, like a coin, capable of ready appraisal and exchange."[23]

More recently this argument has been restated by Richard Sennett. Connecting "the grid city and capitalist economics" and associating "neutralizing space and economic development,"[24] he asserts that "(the grid) was a space for economic competition, to be played upon like a chessboard....the grid disoriented those who played upon it; they could not establish what was of value in places without centers or boundaries, spaces of endless, mindless geometric division."[25]

Their arguments are intuitively persuasive. Reducing land to identical, easily calculable items suggests their greater utility in a competitive market. Markets are seen to operate best when products are well-defined and standardized. My share of IBM is like everyone elses : I do not own its computers, you its real estate. Distant from the firm's overall content, we trade only abstract items. So presumably also for land when, shorn of content, it exists merely as a commodity for transaction.

But does this really hold for the grid plan of a city? Topologically all lots cannot have equal value. Some must be affected by proximity to a river or a mountain, or by closeness to a center, or by degree of building difficulty, or by adjacency to a municipal dump. Distance also distorts equality. Only in the totally electronically mediated city where communication costs are theoretically reduced to zero, may land items be neutralized to uniformity. For the moment, the crude bid-rent theories of land economics still hold. The empirical evidence is equally unclear. Is speculation in a non-gridded city such as Boston less and different than in a gridded city such as Chicago?

And is capitalism the culprit? Is there a more extensive example of a disregarded environment of endless, repetitive, identical units unaffected by nature, boundary or center than Soweto, the outcast city of Johannesburg? Here no-one competes for space nor may any outsider trade and profit from speculation. Built by the state after the private housing market for black people had been eliminated, Soweto, arguably the largest housing project in the world, suffers not from mindless capitalism but from its opposite : lack of choice, diversity and inclusion.[26]

We might explore the connections between grid form and political economy further through the case of Chicago. Chicago is probably the most 19th century city of all. From a dozen log huts in 1830 it grew to have one-twentyfifth of the world's railroads converging on it by the time of the World's Fair just over 60 years later.[27] As Cronon has described it's site, it had nothing naturally attractive about it, and Chicago's genesis and extra-ordinary growth were due to typical 19th century ingredients : energy, inventiveness, risk-taking and optimism.[28] "It was a place where stub-bornness was its own reward, where entrepeneurs like to think they had made everything around them - even the land, even the water."[29] Chicago is probably the most gridded of large 19th century cities as well. There were no walls to inhibit its planar expansion, no state to manage its growth, and no aristocracy to set precedents.

Homer Hoyt has documented the first century of the building economy of this city of immigrants in one of the classics of 19th century urbanism.[30] Starting from a total land value of a few thousand dollars in 1830, Hoyt catalogues land value and building cycles in Chicago, ending his research with the city's total land value being about five billion dollars in 1930. Two features of Hoyt's documentation of change over time are worth noting here. The first is the speculative frenzy that accompanied the first grid plan and canal land boom of the 1830's. It is described in one record as follows: "At first the purchases were what might be termed legitimate, a lot for cash

on which the purchaser would erect a dwelling or store. The legitimate demand soon absorbed the floating supply.....Lots sold one day for $50.00 were sold the next for $60.00 and resold the next month for $100.00. It did not take long under such circumstances to develop a strong speculative fever."[31] A visitor to Chicago in 1835 also uses the metaphor of disease: "....it seemed as if some prevalent mania infected the whole people."[32] Yet, as Hoyt's story continues, and as booms and busts continue, the atmosphere of investment seems to change, losing some of its "epidemic" quality, so that the boom associated with the moving of tenants from old office buildings to new skyscrapers some 50 years later seems relatively controlled.

The second observation is how jagged the growth of this city is. There are five major booms spread fairly regularly over the 100 years, each followed by a depression. The first two relate to specific infrastructural changes, the building of the canal and the advent of the railroad. Subsequent peaks are due to general improvements in the national business climate, after the civil war in the third , for example, and coincident with the World's Fair in the fourth. Only one of the depressions, after the third boom, may be associated with the aftermath of a local event, the great fire of October 1871. It is unclear whether the growth cycles of Chicago bear any relationship to those proposed by economists such as Kodratieff or Kuznets.[33]

What Hoyt has given us is a story of how a 19th century city emerged, almost accidentally, and then grew deliberately at a phenomenal rate passing through enormous swings as it proceeded towards a mature city. There is little empirical evidence to suggest that the size and nature of this growth could only have taken place on the gridded checker board that Chicago's plans resembled. What is clearer is that over time the citizens of Chicago modified their surroundings through modest adjustments within the grid structure of their city itself.

They had available to them, in their larger city, alternative models of city form which proved to be short-lived and not especially influential. Among these were, in the last years of the century, the three "perfect cities", the White City of the World's Fair, the Tent City of the Rev.Dwight Moody, and the company town of George Pullman.[34]

In the 20th century, there have been a series of urban propositions, these bearing on the grid itself. The first, and by far the most significant, was Daniel Burnham's plan of 1909 which sought to provide, among others, two of the elements that Sennett finds missing in "the endless, mindless geometric divison" of the grid, namely "centers" and "boundaries". Although the plan achieved significant transportation and landscape improvements, it did not diagonalize, centralize or delimit the grid as Burnham had hoped. Some forty years later, the German immigrant, Ludwig Hilberseimer, also set out to improve the grid of Chicago but, unlike Burnham whose love for Paris and the work of Haussmann was explicit, Hilberseimer applied his German rationalism to Chicago.[35] By creating discontinuities in the grid, thus reducing through traffic, and by opening up stretches of open space into which housing strips could finger,

Hilberseimer proposed a systematic aeration of the grid to be followed in later stages by the creation of isolated clusters of about 50,000 people. In 1984, just about thirty years after Hilberseimer's study, another examination of the Chicago grid, this by Mario Gandelsonas, seeks to avoid what George Baird calls "the inconsequential attempts at the 'Europeanization' of the North American vernacular."[36] Accepting the supposedly "wild morphology" of the North American grid subdivision and the primacy of the street in it, this study suggests that formal changes to the grid should come from games involving superimposing, shifting, and discovering the underlying structures of the grid.[37]

One way of explaining the form of Chicago over time may then be the following. At first it needed a free matrix of form and application so that wealth could be accumulated (and lost) rapidly. Once enough capital had been created, efforts to socialize it followed, such as elevating the quality of the environment, physical as well as cultural. Sullivan's Auditorium building is a brilliant example of both. But this seemed possible only at the level of the building complex and not at the scale of the urban proposals mentioned earlier, the enactment of which were stifled either by the invested inertia of the grid or by a communal rejection of any major alternatives. The failure of Burnham's plan, sponsored by the Commercial Club of leading merchants and strongly promoted by them, may have been due to both. The principle of selective renewal within the strictures of the grid is not only Chicago's story. Given the differences beteen European and American grids, it is the story of Florence's brilliant orchestration of the grid of the Roman castrum. On this side of the ocean, it is also the story of the amazing achievement of New York's unique delirium.[38]

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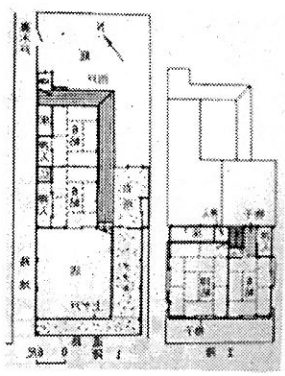
Hidenobu Jinnai

The Modernization of Tokyo during the Meiji Period

Typological Questions

The urban space of present-day central Tokyo has been constructed on top of the urban structure of its predecessor Edo by introducing the architecture, methods, and principles of town planning imported from Europe and the United States and adapting them to Japan, a process that took place during the *Meiji* era (1868-1912). The Edo shogunate fell in 1867, and this opened Japan up to modernization in an era known as the *Meiji* Restoration. After the emperor moved his capital from Kyoto to Tokyo, and it soon began to provide buildings for the various functions of the capital city of a modern state. The policy of isolation that had been followed throughout the Edo era was ended, the nation opened itself up to foreign engineers and architects who brought with them Western technology and ideas in architectural design and urban planning. The traditional context of Japanese cities also held firm, however, so that, although Western ideas were incorporated in an interesting way, they were still bound by traditional forms. This led to a uniquely Japanese urban structure.



Edo, The basis for the building of Tokyo. Shops and residences on the street.

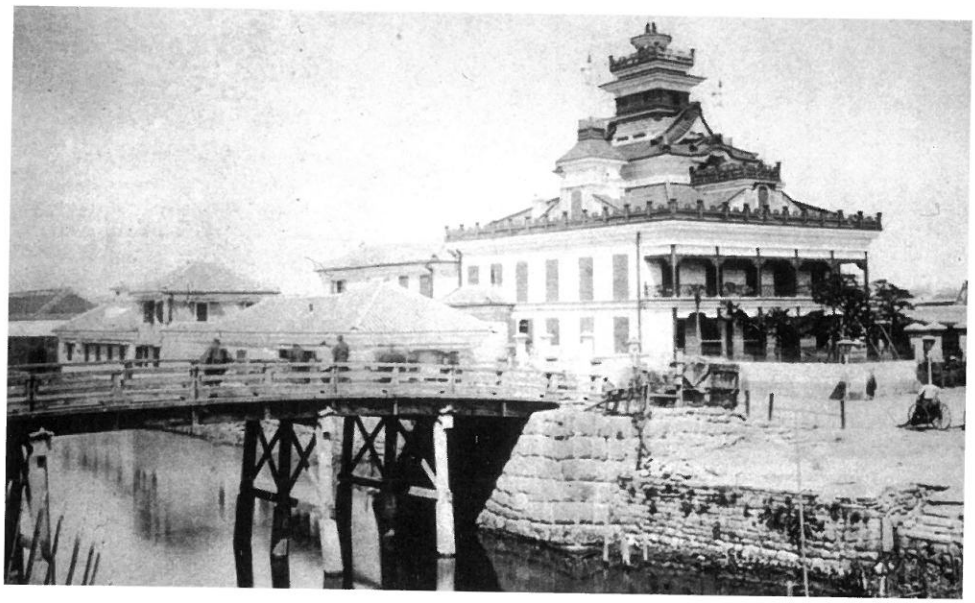
City Structure of Edo

First of all let us take a brief look at the urban structure when Tokyo was still Edo. Edo Castle was constructed on the eastern tip of the Musashino plateau. *Shitamachi*, as the lowlands to the east of the plateau were called, was similar to Venice in that it was connected by a network of canals that served the city's merchants and artisans. *Yamanote*, the vast area around and to the west of the castle, was a verdant and serene zone much like a garden city; there the samurai warriors lived on the hills, and merchants and craftsmen in the valleys below. The network of waterways in Shitamachi and the system of roads on ridges, slopes, and valleys in hilly Yamanote created an organic structure of great interest from a morphological point of view. The types of architecture in the two districts differed fundamentally. In Shitamachi, the machiya, a structure that combined a merchant's shop with his house, predominated. The store faced the street and had an open composition. The streets were full of people and the atmosphere lively. In the Yamanote area, in contrast, the yashiki that lined the streets were surrounded by high walls that closed the

the outside world. The district was quiet, calm, and formal. Houses in both districts were mainly single story and sprawling, with tile roofs.
It is into such a landscape that the new architectural style began to appear. It can already be discerned in a panoramic photograph taken in 1889 from the top of the dome of the Nikolai Cathedral which was under construction at the time.
When Tokyo made its transition from a feudal to a modern city, unlike the European cities or the colonial cities of Asia, no effort was made to transform the city based on the principles of a new age or to create a vast new planned zone. In Arabic-Islamic and Asian cities, the practice was to construct a new district based on Western principles outside the old district based on traditional principles. In the case of Tokyo, however, modernization took place as it was needed to meet new requirements, but was realized by projecting these changes on top of the old neighborhoods. A section called Akashicho, for example, was set aside for foreigners to live in and many Western-style houses sprang up there, but no change was made in the structure of the district. The city would widen old roads or construct new ones using the old road patterns. Rather than major surgery, Tokyo chose continuous and organic change to achieve growth and development. This mechanism continues in Tokyo even today.

Landmarks in the Blending of Japanese and Western Styles

In the early years of the *Meiji* Era, when the remnants of old Edo were still abundant, two buildings were built as a tribute to European architectural culture. One was the First National Bank (1872) by the Kaiun Bridge; the other was the Mitsui Bank (1874) which faced a street in the Surugacho area. Both were the work of Kisuke Shimizu, a master carpenter with traditional skills. They had an unusual design which mixed Japanese and Western styles by placing traditional castle-like roofs atop colonial-style buildings. The tall skyline created by the two buildings was very popular and regarded as a new symbol replacing Mt. Fuji. In both location and height the two were detached from the surrounding urban context, and that made them particularly prominent symbols of Japanese enlightenment by Western civilization.
The yearning for European-style architecture was also expressed in an interesting form on sites of former *daimyo* mansions, where ministries and university buildings were built one after another. In the first years of the *Meiji* era, some of the mansions were used to house ministries just as they were. The grand building was then made visible from the outside in spite of the high walls by making an axis of approach that would run through a pair of gateposts in a straight line to the symmetrically shaped building, which often had a tower as a symbolic element, usually with a clock.
Since most public buildings in Tokyo in the *Meiji* era were in large *buke-yashiki,* what could be called the *Yashiki* style typically had an entrance gate in the walls surrounding the grounds. For the Japanese, a symmetrical



Houses in Edo from circa 1889

The First National Bank by the Kaiun Bridge

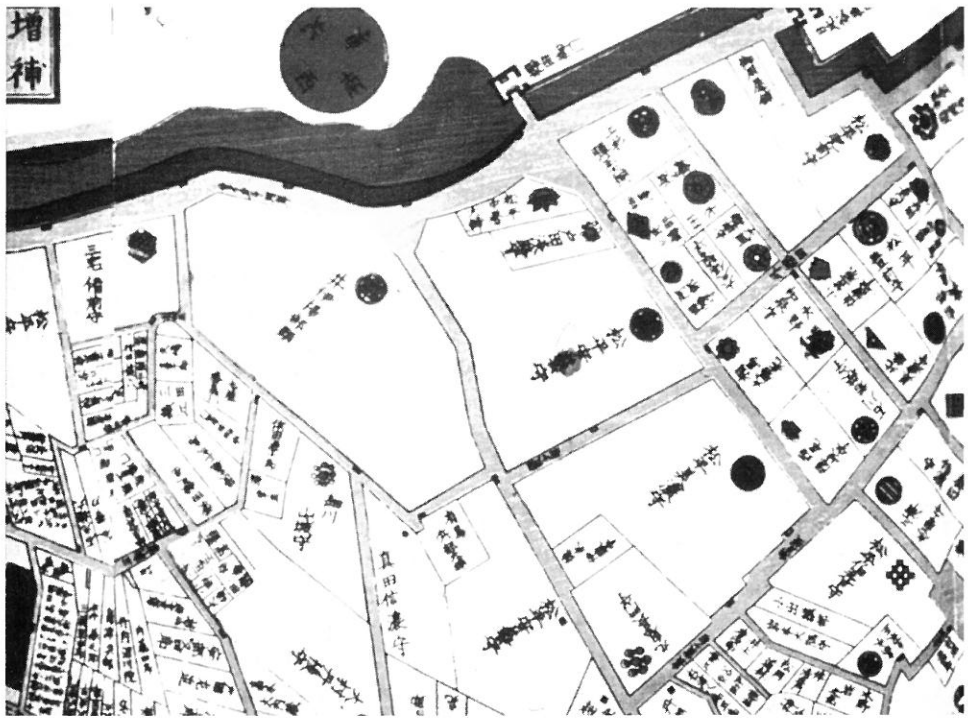
monument at the far end of a straight line of approach along an axis from a gate was familiar from religious buildings such as temples and shrines. The university and ministry buildings appearing in the early *Meiji* years were therefore given the aspect of a sacred building for a new age, and this may be the reason why this distinctive layout so reminiscent of religious space was so readily accepted and widely adopted.

In the early days even modern structures still had a touch of Japan to them and usually blended Japanese and Western elements. The General Staff headquarters constructed on the site of the Ii family residence near *Sakurada-mon* (the Sakurada Gate to the palace) was a Western-style building designed by an Italian architect Capellotti standing amid a very Japanese landscape consisting of moats, stone walls, pine trees, and turrets.

Utilization of Space along Canals and Bridges

Waterfront spaces like those along the canals retained their importance, but the way they were used changed with modernization. In Edo, both banks of the canals had been lined with storehouses made of earth to store merchandise and protect it from fire. On the far side of the warehouses were streets lined with *machiya* (shop houses). With the coming of the *Meiji* era, lots were combined to construct large-scale, Western-style brick warehouses which could incorporated both storage and offices.

In mid-*Meiji*, Eiichi Shibusawa, the founding father of the modern financial establishment in Japan, had his residence built facing the waters of Nihonbashi River. It was a beautiful white building modeled on the Venetian Gothic style and was designed by one of Japan's earliest architects Kingo Tatsuno in 1888.



A very Japanese landscape around the general staff office designed by Capellotti.

Of the riverside areas, those at the foot of bridges were especially valued, but their role also changed with the coming of modernization. In Edo, open spaces along the approach to bridges were reserved for fire fighting. At first in places like *Ryogoku Hirokoji* or *Edobashi Hirokoji,* they were used for amusement parks with roadside stands and show tents, but these were subsequently forbidden in the early *Meiji* days because they blocked traffic.

Japan's first modern post office was built on Edobashi Hirokoji in 1874 and brought with it another change. As Western- style buildings came to surround the approaches to bridges in the Taisho era (1912-26) and the early part of the Showa era (1926-1989) they produced monumental urban spaces similar to the plazas of Europe. The area around the Sukiya Bridge was built up with beautiful modern architecture in the 1920s and 1930s, creating a plaza that was immensely popular.

The Transformation of the Ginza

After a great fire in 1872 (the fifth year of *Meiji*), Ginza was rebuilt in Western-style brick buildings. Just before that the first railroad line between the port town of Yokohama, where Western culture was first introduced to Japan, and Shinbashi in the southern part of Tokyo had be completed and the new Ginza brick town led from the Shinbashi Station to the city center, symbolizing Japan's adoption of Western culture to

The foot of the bridge bustling with people.

Westerners coming to Tokyo from Yokohama.
The town was designed by an English architect, Thomas James Waters. It is said that he modeled it after London's Regent Street. Colonnades lined both sides of the street, giving it a uniformity unknown in Japan until that time. The colonnade was not only on the main street but continued through the entire district of Ginza. Even in the narrow back streets brick buildings with arcades sprang up everywhere.
The form of the brick town followed the gridiron pattern of streets dating from the Edo period. The streets were widened and the front part of the brick buildings facing the streets housed shops, but behind them one could still find traditional wooden houses. The facade may have been in the Western style but the inner part of the city blocks still retained its complicated network of alleys that had changed little from the town of Edo.
In the beginning, the main street had a sense of orderliness and uniformity usual in the West. However, the buildings gradually underwent remodeling which transformed them into more Japanese structures. The arcades, which were supposed to be public passageways, filled up as stores expanded into them and one could no longer pass through. Japanese style architectural elements were attached to the facade, and strangely shaped towers were added on top of the buildings creating, in the end, a very disorderly street scene.
Along the main thoroughfares in some commercial areas such as Nihonbashi and Kyobashi, large-scale brick buildings were also erected on

top of the Edo urban fabric of low, wooden *machiya* houses. The cityscape that finally resulted was a mixture of traditional and Western elements.

Plans for Civic and Business Centers

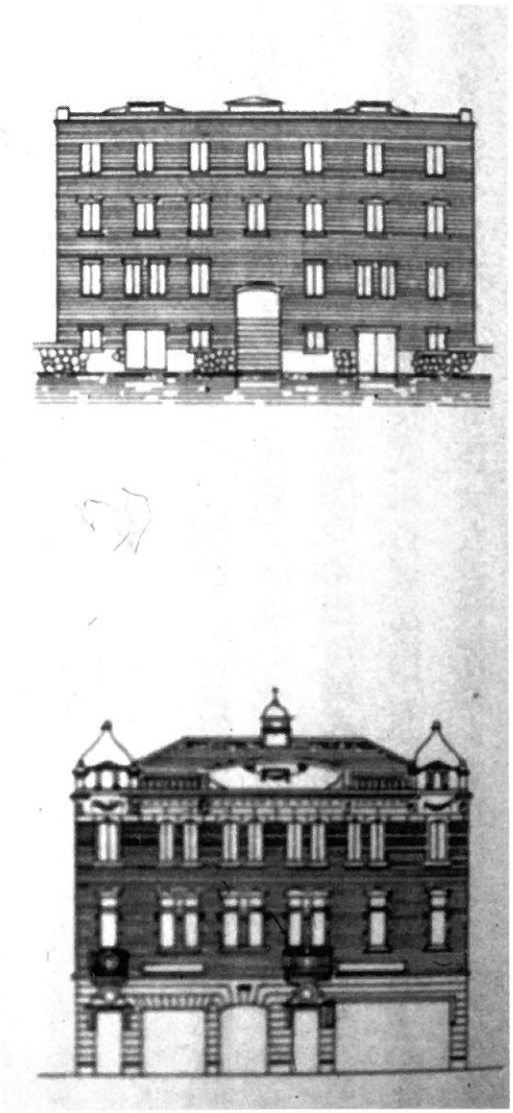
Ministry buildings, which are indispensable to a modern capital, were scattered in the area around the imperial palace in the early part of the *Meiji*. In 1886, a plan was made to construct a civic center comparable to those found in cities in Europe where all the ministries in the Hibiya area could be gathered together. Two architects from Germany, Hermann Ende and Wilhelm Backmann, were invited to design it; they had originally intended a grandiose complex in the neo-baroque style with boulevards and a radial road pattern which will have had the effect of the perspectives one finds in Paris and other European cities. In the end, however, the only building that was completed was the Ministry of Justice; the center itself never materialized, defeated by lack of enthusiasm and, consequently, funds. The idea simply did not match up with the Japanese sensibility. European-style urban space emphasizing axes and symmetry appeared in very limited areas, such as the spaces in front of the Akasaka Palace and the Diet building, but both had functions symbolic of the state.

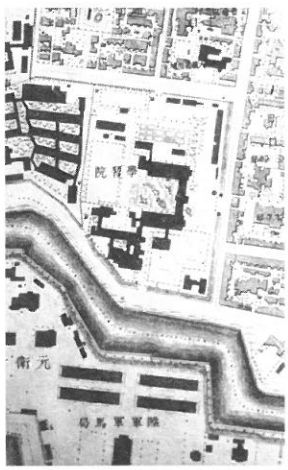
The modernization of urban space in the middle of the *Meiji* era was based on a master plan drawn up in 1884 and called the Shikukaisei. This plan adopted the basics of the city structure inherited from Edo, but reinforced its infrastructure such as roads and port facilities and constructioned new facilities such as markets, prisons, crematoria, and cemeteries. Even in the central part of the city, road patterns remained as they had been in Edo. If one were to compare an aerial photograph of the area from Ginza to Nihonbashi with an old map of Edo, one will see that the basic urban structure has changed very little.

The Marunouchi district had some ministry buildings built in the first part of *Meiji* but most of the area had become military property and was vacant. The land was later purchased by a private company, Mitsubishi Company, and turned into a business center. Starting with the First Mitsubishi Building designed by an English architect, Josiah Conder (1882), European-style brick office buildings were constructed one after another, giving this district the nickname "Little London." It certainly had the most Western urban fabric of any district in Tokyo. But the gridiron road pattern was a legacy of the *daimyo* mansion district from the Edo period.

Modernization in the Yamanote

Because the feudal lords and their subordinate warriors left Tokyo and returned to their native regions with the fall of the Shogunate, the Yamanote was rather sparsely populated until the middle of the *Meiji* era. The government encouraged growing mulberry and tea on the grounds of

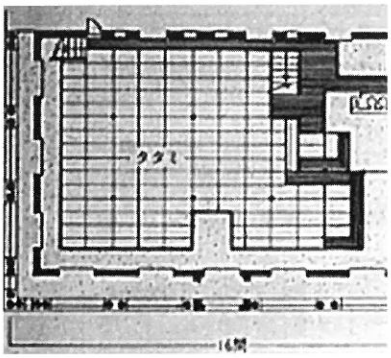




The Daimyo mansion grounds

Western style warehouses which incorporated housing and offices.

the huge *daimyo* estates. But as time went on, construction began to increase as people demanded Westerm-style houses and as the major universities in Tokyo also built on land formerly belonging to the *daimyo* palaces. One representative example is the University of Tokyo, which opened on the site of the mansion belonging to the Maeda family in 1876. Its first structure, the medical school, utilized the original building and kept the roads and gardens as they were. As the university expanded, the grounds became its campus. The layout of buildings in the neo-Gothic style that can be seen there today was the result of a reorganization after the Great Kanto Earthquake in 1923 (the twelfth year of Taisho). The composition consisted of an approach from the front gate down a ginkgo-lined avenue with the Yasuda Auditorium at the end of the extension of that axis road, typical of ministry and university architecture in central Tokyo in the early days of *Meiji*.



Brick buildings on narrower streets also fronted by arcades.

Some *daimyo* mansions were also built by the zaibatsu, families of influential financiers, for their use. The Mitsui Club (1913) and the Furukawa mansion (1913), both designed by Josiah Conder at the beginning of the Taisho era, are prime examples. In each case, the main building was built in the Western style with a geometrically patterned garden in front. But these mansions also had unique Japanese features such as traditional gardens. This mixture of Western and Japanese elements is a phenomenon found at all levels of the city in modern-day Japan. The tendency was to fashion public areas in the Western manner and use Japanese design for the more private sections. In this way the typical Japanese spirit was preserved behind a Western and modern exterior facade.

After the Great Kanto Earthquake of 1923 the wave of modernization reached its height. Most of the Shitamachi and a large part of the central district had been destroyed in the fire that followed the earthquake, and plans for its reconstruction involved restructuring for better fire prevention and the accommodatation of automobile traffic that resulted in a Westernized look as avenues were widened and alleyways running through the interior of city blocks were taken out to make each individual lot somewhat smaller and the urban fabric more orderly. Ordinary merchants' houses along the streets maintained the traditional plan within but had Westernized exteriors, creating a modern atmosphere even in residential neighborhoods. Numerous small parks were built in the most densely populated districts after the alleys were removed. As the railroad system was developed, squares were laid out in front of the stations to give the city a new appearance. By the early years of the Showa era (1920s) the structure of a modern city that led directly to present-day Tokyo had been established.

Recovery of Townscape Values in Tokyo after the 1970s

As can be seen from the beautiful scenes of Edo depicted in numerous ukiyoe prints, the Japanese people have always had a sensibility towards landscape. Places where the scenery was particularly beautiful were cultivated with care as meisho (a celebrated locality) which people could visit and enjoy. In the process of modernization, however, this particular sense of caring for the scenery began to diminish as interest shifted to industrial development and economic growth. This was especially true in the 1960s, when the destruction of the natural and urban environment reached its peak. Photographs from that period verify the deterioration. One of them, taken in 1963, shows all the passengers on a boat on the River Sumida holding handkerchiefs to their faces to protect themselves from the pollution in air and river. Another photograph is of a demonstration held on the water near Sukiyabashi bridge protesting the filling up of the outer moat of the palace to construct an expressway. Preparation for the Olympic Games in 1964 involved filling up many waterways to build

The Ginza Brick town designed by the British architect Thomas James Waters.

expressways in central Tokyo. The newspaper reporter who wrote the story about the opposition to the idea sympathized with the demonstrators but also noted that the area smelled so terrible that perhaps filling the moats was unavoidable. As expressway construction continued, the beautiful townscape with its extensive network of canals and rivers began to disappear. An expressway was even built over the Nihonbashi bridge, which had been Tokyo's most important landmark since the Edo times.

As the environment deteriorated, no consideration was given to the existing urban space; no one even thought to refer to old maps to understand it; no one gave any thought to the townscape. The only concern was how to utilize modern technology to create something new.

Under these circumstances Tokyo acquired a reputation for being a "concrete jungle." Particularly the young people living there began to flee to more attractive cities. An advertising campaign run by the Japan National Railway, called "Discover Japan" encouraged this migration. People rediscovered cities such as Nagasaki, Hakodate, Kobe, and Yokohama which had beautiful scenery with hills and a port. A movement began to preserve the traditional street scenes found in Kanazawa, Kurashiki, Takayama, and Tsumago, towns that seemed to heal the spirit of people tired of modern living. Visiting cities on sight-seeing trips began to replace the more traditional Japanese outings to mountains, the seaside, lakes, hot springs, shrines and temples.

The oil crisis in 1973 shook the economy and the lives of the people to their foundations and became a turning point for the city. Large-scale development projects had to be suspended, and people began to rediscover the city as a place for living. Interest in the natural environment as essential even for city living began to revive. Books on the city of Tokyo were published one after the other. The metropolis that had seemed to have severed all ties to its past was being rediscovered. Japanese society, which had been so busy engaging in modernization and industrialization, had finally reached maturity.

In the 1980s, interest in the environment became even more apparent. The government of Tokyo, adopting the slogan, "My Town Tokyo," embarked on a policy of beautification, and some of the more advanced wards began to place more emphasis on landscape in designing their districts. Academic studies on urban space and townscapes also began to appear by the end of the 1970s. The concept of primary landscape, which was suggested by Takeo Okuno in his work *Primary Landscape in Literature* (1972), stressed the importance of the landscape experienced in childhood in shaping character. Also attracting attention was Koichi Isoda's *Tokyo as an Ideology* (1978), which sought to connect the meaning of space in the Yamanote and Shitamachi districts, as depicted in the literary works of the *Meiji* and Taisho eras, with the ideology of modern times. Another influential work was Ai Maeda's *Literature in Urban Space* (1982).

In the area of architecture, several important books were published stimulated by Okuno's idea of "primary landscape." Noboru Kawazoe wrote in *The Primary Landscape of Tokyo* (1979) that the Yamanote area had once been a verdant garden city that gave rise to a unique culture that was disappearing. Yoshinobu Ashiwara wrote *The Aesthetics of Machinami* (1979) in which he preached the importance of a beautiful townscape; it helped make *machinami* (the appearance of a town) a popular idea. Civil engineering experts studied landscape. Some pioneering works by Tadahiko Higuchi, *The Structure of Landscape* (1975), and Yoshio Nakamura, *Introduction to the Study of Landscape* (1982), generated a boom in field. This movement is described in detail in a recent volume by Augustin Berque, *Du geste a la cite: Formes urbaines et lien social au Japon* (1993).

Developments on the waterfront reveal these changes in attitude most clearly. During the years of industrialization, waterfront spaces were occupied by factories and distribution terminals. No one showed any interest in them; it was difficult to gain access to the water which in any case was polluted. As society began to turn away from industrialization, however, the area began to attract the attention of people looking for urban amenities. In the 1970s, the River Sumida was brought back to life. For Tokyo, which had always been the city of water since the Edo period, this was its most symbolic river, a place that had inspired literature, music, and drama. Many cherished memories of it and joined the citizens' movement to resurrect it. There was also active involvement by the administration. As a result, the water became cleaner, fish returned to the river, fireworks

festivals were revived, and regattas and pleasure boats returned. The river was once again a place for cherry blossoms and fireworks and boat parties. The close ties between places and people typical of Japanese city culture since the Edo period is also tied to meisho, which is in turn linked to the act of performing. Cherry-blossom viewing has become increasingly popular, and many of the most famous locations for it have been on the water. There has also been a renewed interest in the scenic value of bridges. Takashi Ito indicated in *Bridges of Tokyo* (1986) that the bridges built after the Great Earthquake in 1923 had played an important role in creating the townscape of Tokyo. Bridges are not just constructions, they have a role in the creation of scenery. The construction of Sakura Bridge, a pedestrian bridge, in 1985 was quite an epoch-making event because it gave people access to the river. After that, promenades were built beyond the embankment by filling in part of the river.

The movement to revive the waterfront area reached the bay in the 1980s. People first focused on the canals, where cafes with live music, restaurants, and discos in renovated warehouses sprang up. People walk along the canals from dusk into the evening hours when light and darkness mingle. Especially popular in the bay area is Odaiba Park. A *daiba* or fort, a legacy of the Edo period, was in the core of this land reclaimed after the war. The metropolitan Tokyo government had filled the inlet with sand to make it into a seaside park. The number of fish have increased, attracting amateur fishermen, and young people use it for windsurfing. It boasts a panoramic view of Tokyo across the water.

Another part of the bay shore that has received renewed attention is Tsukuda Island, which retains something of the atmosphere of old Edo. This island, which flourished as a community of fishermen in the early part of the seventeenth century, maintains the traditional environment with a shrine that can be reached from the sea, a small port, narrow alleys, and old houses that contrast with the newly constructed high-rise condominium, River City 21. People visit Tsukuda Island both for the natural scenery and its historic flavor.

During the economic boom (1985-91), the bay area, especially its waterfront, was a battleground for developers. Some of the redevelopment projects were completed, but the plan to build the so-called Waterfront Subcenter now faces bankruptcy as a result of economic collapse and that has required the city to change its course. The vulnerability of slapdash urban planning without long-term vision had been exposed. Having said that, interest in the waterfront area remains high, and urban development projects will certainly continue to take advantage of the waterfront area.

There is a distinctive idea in Japan called *shinsui-koen* (literally "love of water)", a type of a park found in no other country but increasing in number there. The word is untranslatable, but the Japanese people's love for the water is embodied in it. A typical shinsui-koen park can be found near the Otonashi Bridge in Oji. A controlled stream of clear water flows through a Japanese garden. Children love to go into the water to play. The idea of going beyond simply looking at the water to allow people actually

to go into it comes from the Japanese people's passion for feeling water on their bodies. There are several shinsui-koeni parks in Koto Ward, such as the one near Yokojukken River, and they are all quite popular.

Hills, Slopes and Western Style Architecture

Considerable research has been devoted to the Shitamachi, because it played such an important role in the Edo period. Less interest has been shown in the Yamanote, but those studies that have been done on the area by Noboru Kawazoe (*Primary Landscape of Tokyo,* 1979), Fumihiko Maki (*The Visible and Invisible City,* 1980), and by our group (*Space Anthropology in Tokyo,* 1985), show the characteristics of the Yamanote in respect to its space and typography. It originally consisted of undulating hills, with an organic space structure that took advantage of the topography. Because the residences of the warrior class were developed in the forests and woods of Musashino, the area was truly a "garden city," as Kawazoe called it.

The construction of tall buildings, the result of urban development in the recent years, has obstructed the views there, but since the 1970s, efforts have been made to recover the richness of the scenery. Like the bridges in the Shitamachi area, the slopes in Yamanote are essential to providing individuality to areas that are becoming more and more homogeneous. Most of the houses have been rebuilt, so there are not many old buildings left, but the layout of the streets remains as it was in the Edo period because no attempt was ever made to rezone it. The distinctive Japanese atmosphere remains, and one is able to experience the feeling of *oku* (depth) as described by Maki.

One example is the Azabu district. Starting from a verdant hill where many exclusive condominiums and embassies built on an old estate line the streets, and heading south down the Toriizaka slope, one comes to a busy shopping street called Azabujuban in what was once a commoners' neighborhood. Nearby, is a place of worship for the common people, the Juban-Inari shrine. Further south up the arcing Kurayamizaka slope, one enters another quiet and exclusive residential area (the site of another feudal lord's mansion). At the top of the hill is a lone pine tree (*Ipponmatsu*), a typical Japanese symbol, which had always been a landmark of this area. There are also many Western-style buildings as well as a church on the hill.

The duality of the landscapes of the upper world and the lower world has been retained, though both areas have changed. The many temples with cemeteries built on the hillside make the area a sacred place. There were also places called the *nanafushigi* (seven wonders) with natural elements such as trees and water where the powers of the genius loci could be felt. Its labyrinthine space is totally different in nature from the modern-day residential areas which are laid out in a rational and orderly manner. It could only happen in Tokyo that one would find a townscape which is a

European stlye Brick offices giving the district the nickname "little London".

The Meijiera expansion; the Shikukaisei master plan, 1884

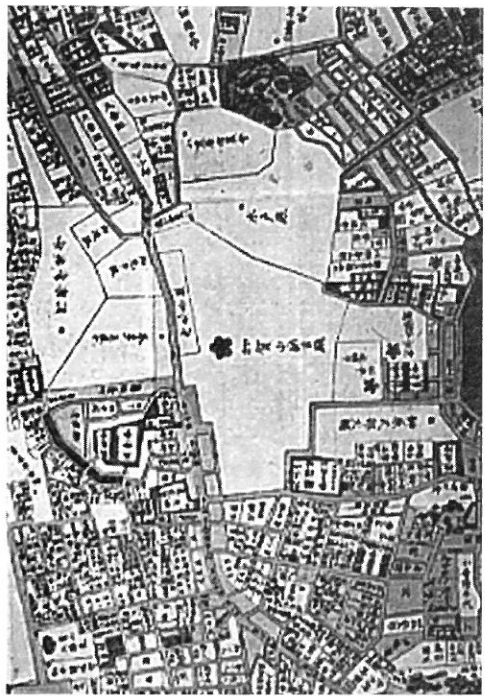
mixture of houses and condominiums in modern design and in this peculiar context that has remained since the Edo period.

The Popularity of Town Watching

In the 1970s, as interest in historical buildings grew, so did the attempts to preserve them. A missionary residence by Toshima
Ward was purchased and opened to the public as a museum. An Art Deco mansion became the *Teien* (Garden) Museum of the city of Tokyo. The

The University of Tokyo on the site of the Maeda Mansion, 1876

One of the Daimyo mansions acquired by the zaibatsu to be used as residences.



Wako building in Ginza and the fire department in Takanawa are both landmarks standing on a crossing and both are still used. It is not easy to preserve a building in Japan, where costs are high and the new highly valued, but we are gradually seeing more advocates of preservation.

The importance of buildings as landmarks in a townscape is now recognized and has gone beyond the traditional idea of preserving cultural assets. The Tokyo metropolitan government has designated approximately a hundred and fifty buildings as having historical value and has established a system of financial support for restoration work.

In Venice, an important work called *Venezia minore* (E. Trincanato, 1948) was published right after the end of the war and began a movement to recognize the value of even minor buildings in that city. Everyone understands that small but attractive buildings add to its charm.

In the latter half of the 1970s while studying many prewar structures, buildings that were small and modest but of interesting design were discovered. They were not designed by architects but were simply built by ordinary carpenters and craftsmen who had taken in many aspects of Western design by copying and adopting them in their own way. This resulted in a very original design and an interesting mixture of Japanese and Western elements. Terunobu Fujimori has coined a new expression, "billboard architecture," to describe the type of design that hides a traditional interior with a Western-style street facade reminiscent of a huge billboard. The interesting use of mortar and copper sheet details is also a distinctive feature of these buildings. Many old buildings still existed, but are in neglect. Once their value was rediscovered, it became fashionable to walk around the town looking for them, a pastime known as "town

watching." Minor structures such as small Inari temples and shrines were turned up. Small alleys, which used to be regarded as old-fashioned, assumed a new interest. In a manner somewhat different from Europe or the United States, the townscape of Tokyo was rediscovered.

Restoration in the 1980s

The charm of a Japanese city does not exist solely in terms of superb buildings and beautiful streets. If one looks at a screen "Edo-Zu-Byobu" depicting a scene from Edo in the middle of the seventeenth century, one sees not just merchants' houses, warrior mansions, temples, and bridges, but merchants and craftsmen, scenes from the theater, festivals, fashion, and customs that add color to the urban space. The buildings and streets appear as a kind of stage on which people perform.

Edo had a certain charm as a place for performing. The red-light district, theaters, amusement quarters, and other sight-seeing destinations were all created with this in mind. Elements such as waterways, bridges, and slopes were also important. A circular route or labyrinth made the experience even more complex and stimulating.

The fun of visiting crowded places and the charm of the city as a space for performance were rediscovered by the younger generation in the 1980s, when post-modern culture came into fashion. Shibuya took advantage of the many slopes in the district, and the combination of the fashionable main street with the labyrinthine-like back alleys made the area attractive as a place for walking. The neighboring district of Harajuku was successful in the same way. There one finds a symbolic axis called Omote Sando, which was built in the Taisho era as an access road to a *Meiji* shrine. There is also a winding back alley called Takeshita-Dori, which was originally a farm road. The two combined have created space that allows the possibility of circulating the area as if one were in a labyrinth.

The enthusiasm for urban spaces was common not only among young people but also with the elderly. The shopping street that leads to the Sugamo Togenukijizo (a deity said to remove splinters) allows people to circulate around the Koganji temple grounds on the days of the temple festival held three times a month). It is so popular among the elderly that the area is now called "Harajuku for grannies."

Monuments are important elements in European townscapes, but in Edo and in Tokyo today the concept of *meisho* developed instead. A *meisho* is a place where water and trees combine with any buildings to create an organic environment. Even if the buildings are rebuilt, the permanency of the place will remain. A typical example is the Sensoji Temple in Asakusa. The main temple building and its five-story pagoda are both concrete structures rebuilt after the war, but the perception that the location as a religious space is valuable (i.e., a *meisho*) has not changed at all. Tokyo inherited many meishos from the Edo period and even much earlier. Since the 1980s, the metropolitan government of Tokyo, together with ward and

city authorities, have been selecting new meishos, among them even a few post-war buildings and parks. The city has designated a hundred meishos as the "hundred new scenic points of Tokyo" selected from various parts of the city. In the central part the Shitamachi or the new Shitamachi area along the rivers in the eastern part of the city more than 30 percent of them, including temples, shrines, and gardens, date from the Edo period. The next largest group date from the *Meiji* era, and include many Western style buildings appearing as symbols of the enlightenment that came with Western civilization. One of them is the Akasaka palace, the official guest house. In the Yamanote area, built on foundations already existing in the Edo period, but an area of more recent image, about 25 percent of the meishos chosen are buildings and parks constructed during the period of rapid economic growth, including the Komazawa Olympic Park and Yoyogi Park. The Tama District, the suburbs further west, again is an area with a long history from ancient times; 31 percent of the meishos chosen there, such as the site of Kokubunji Temple and Okunitama-jinja shrine, are from the pre-Edo period.

Seen as a whole, the continuity of temples, shrines, and gardens from the Edo or the pre-Edo periods is especially striking. After *Meiji*, newly constructed buildings might become *meisho* for a time, but were subsequently torn down and disappeared. Although some recent architecture is much talked about today, much of it too will surely lose its value as *meisho* in the future to be replaced by structures not yet contemplated. The meishos from Edo and earlier are much more closely tied to nature, and their value remains stable because they are tied to the people's hearts at a very profound level. They will certainly continue forever as part of the townscape.

While maintaining the image of a modern city pursuing functionality and efficiency supported by advanced technology, Tokyo also shows traditional elements of a city when one looks at its framework such as the rivers, canals, and bridges in the Shitamachi or the hills, woods and slopes of the Yamanote which have been handed down from the Edo period. If one were to look behind the rows of inorganic modern buildings, one would find temples, shrines, and gardens which form a permanent and stable space hidden away but still important elements adding color to the townscape.

Often one can find elements of the city of the past in one form or another, even in the new spaces created every day in the forefront of Tokyo's architecture. The familiarity with water and greenery, the particular interest in the small scale, the sensibility shown in how space is segmented, the element of labyrinth, the circular path are only a few examples. It can be said that these elements add a cultural identity to the townscape of Tokyo. This coexistence of past and the present is important for making Tokyo's urban environment richer.

Pierre Pinon

The Parceled City

Istanbul in the Nineteenth Century

Urban parceling processes have played a fundamental, but long neglected role in the history of the European city.[1] The development of London in the eighteenth and nineteenth centuries, though based entirely on the subdivision of vast aristocratic properties through the use of long-term leases, has hardly been considered. In fact, parceling had been a private form of city planning that has never attracted the attention of historians of architecture and urbanism, who have concentrated their attention instead on the public politics of urban development at the municipal and national level. Studies on parceling strategies can be found, but mainly in studies on the design and the development of new towns, especially colonial ones. Although they changed over time, parceling systems were at the base of the development of the main European cities from the sixteenth to the nineteenth century. They ranged from the sixteenth-century parceling of the neighborhoods in Rome south of the Piazza del Popolo on both sides of the Corso[2] to the more recent parceling of northern European cities such as eighteenth-century Berlin. Considered the most logical strategy for developing new, ex-nihilo neighborhoods, as well as for restructuring ancient areas (provided they were large enough to allow such a comprehensive intervention), parceling met with widespread success.

As soon as a city begins to expand because of population pressures or the inhabitants' wish to spread beyond a cramped, ancient town, land owners and/or real estate investors understand immediately that the sale of agricultural land for building parcels will generate enormous profits. Landowners never miss an opportunity to profit from their landholdings, and real estate investors exploit the chance to buy up cheap agricultural land and sell it at a much higher price. The possibility of easy and immediate profit turns owners into entrepreneurs: since this was favored by the public authority, for a long time it limited its function to the encouragement and control of private initiative. Public administration adopted the same method to increase land value, either directly or through registered intermediary agents.

Parceling involves subdividing private property (whether patrimonial, expropriated or acquired for speculation) into lots to be sold or rented. It is a phenomenon that affects the entire urban environment or any environment that is to become urbanized, including agricultural land or marshland on the outskirts of a city, abandoned industrial or military sites, areas such as gardens suitable for development, vast properties belonging to impoverished aristocratic families, abandoned convents or monasteries, and so forth.

Opposite: The plot Divisions of Paris in the nineteenth century

Generally speaking, even if the final aim of any parceling operation is profit, it performs an urban role as well that should not be overlooked. Parceling was, and still is, frequently used by public administrations to develop projects such as road building and creating new and rehabilitating existing neighborhoods. It thus produces as many morphological variants as there are objectives and approaches to urban design. However, they all share the same intrinsic mode of intervention, one that produces relatively autonomous urban patterns. Parceling is done according to a preconceived set of boundaries that define the real estate or planning operation; the area within those limits is then subdivided and roads are laid to link this new area to preexisting networks. All these factors contribute to the creation of an ambiguous morphological relationship (juxtaposed or fused) between the newly parceled area and the overall urban form.

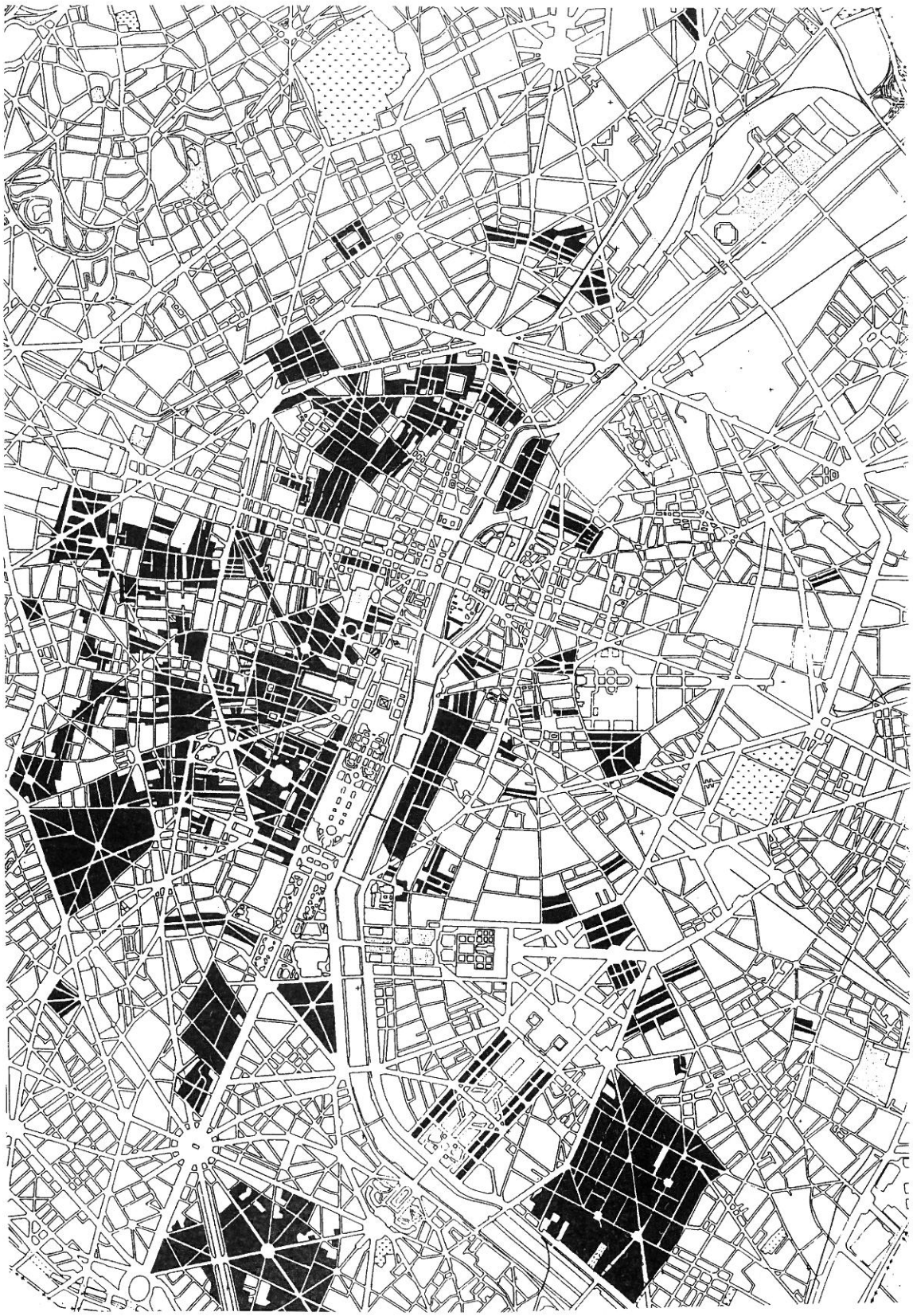
Another important feature of parcels is that they are architecturally relatively homogeneous because they are generally developed and sold in a short time (quick turnover is fundamental to the parceling process, for it shortens investment time) and the most common types of structures at the time of intervention are used for building on them. Building types might also be dictated by the shape and dimension of the parcels, unless a specific architectural model is imposed beforehand. Thus a precise relationship exists between parceling morphology and building types.

The Parceling of Istanbul in the Second Half of the Nineteenth Century

The greater part of the parceling of Istanbul was realized between the second half of the nineteenth century and the beginning of the twentieth. It was done in two ways: through rebuilding after a major fire, and through the development of undeveloped land.

Throughout Istanbul's history great fires often destroyed entire neighborhoods of this largely wooden city. The Ottomans exploited the opportunity these fires presented to reorganize the city based on grid planning, ignoring those houses that had already been rebuilt in alignment with the ancient roads. In the new neighborhoods north of Pera (the European and Levantine quarters), parceling strategy was based on the subdivision of formerly large properties. Urban growth based on Western principles of urban planning was carried out essentially by juxtaposing after-fire and development parceling on fallow or agricultural land on the periphery of Pera north of the Golden Horn and around preexisting villages along the Bosporus. The absence of any comprehensive planning strategy produced a patchwork of patterns made by parceling those areas of the old town destroyed by fires on the Stamboul side and through real-estate speculation on the Pera side.

"One can imagine the fury of fires in a city where thousands of houses, built with matches, so to speak, are packed one against the other," wrote von Moltke in 1836.[3] As frequent in Istanbul as in all the other cities of the northwestern Ottoman Empire where houses were mainly built of wood,



fires were long considered unfortunate but not catastrophic events. It was not until later, when they came to be thought of as catastrophic that paradoxically they generated two positive developments: modernization and insurance. We can argue that fires played an important role in the modernization process, leaving open the question as to whether a fire was simply considered a fatal chance leading to modern redevelopment or a fundamental factor in revealing the possibility of modernizing the city.

Before the first half of the nineteenth century, fires played no role in the evolution of urban form. A map of Istanbul from 1882[4] shows that modernized neighborhoods corresponding to areas destroyed by fires occurred only after 1845. The rest of the urban fabric--whether rebuilt after a fire or not -- maintained its traditional structure. Until 1845, fires were not regarded as an opportunity to modernize the old fabric, and they never led to any special urban intervention: the street network, alignments, and parceling systems were generally simply reconstructed. G. A. Olivier, a traveler who visited Istanbul at the end of the eighteenth century, testifies that "damage provoked by fire is soon taken care of. A few days afterwards, we can see houses being raised everywhere similar to those destroyed by the fire; the defects of the previous streets, narrow and badly traced, are perfectly conserved; nothing is changed in the order and distribution of the apartments."[5]

Beginning in the second half of the nineteenth century everything changes. Particularly in neighborhoods inhabited by minorities (Greeks, Armenians or Jews),[6] fires began to be seen as an opportunity to restructure the urban form: in the area destroyed by the fire the street network is remodeled according to a more regular grid, and a new parceling system is either designed beforehand or defined at a later stage when parcels are assigned. It was in this period that public urban planning began, though it was still limited to general parceling layouts.[7]

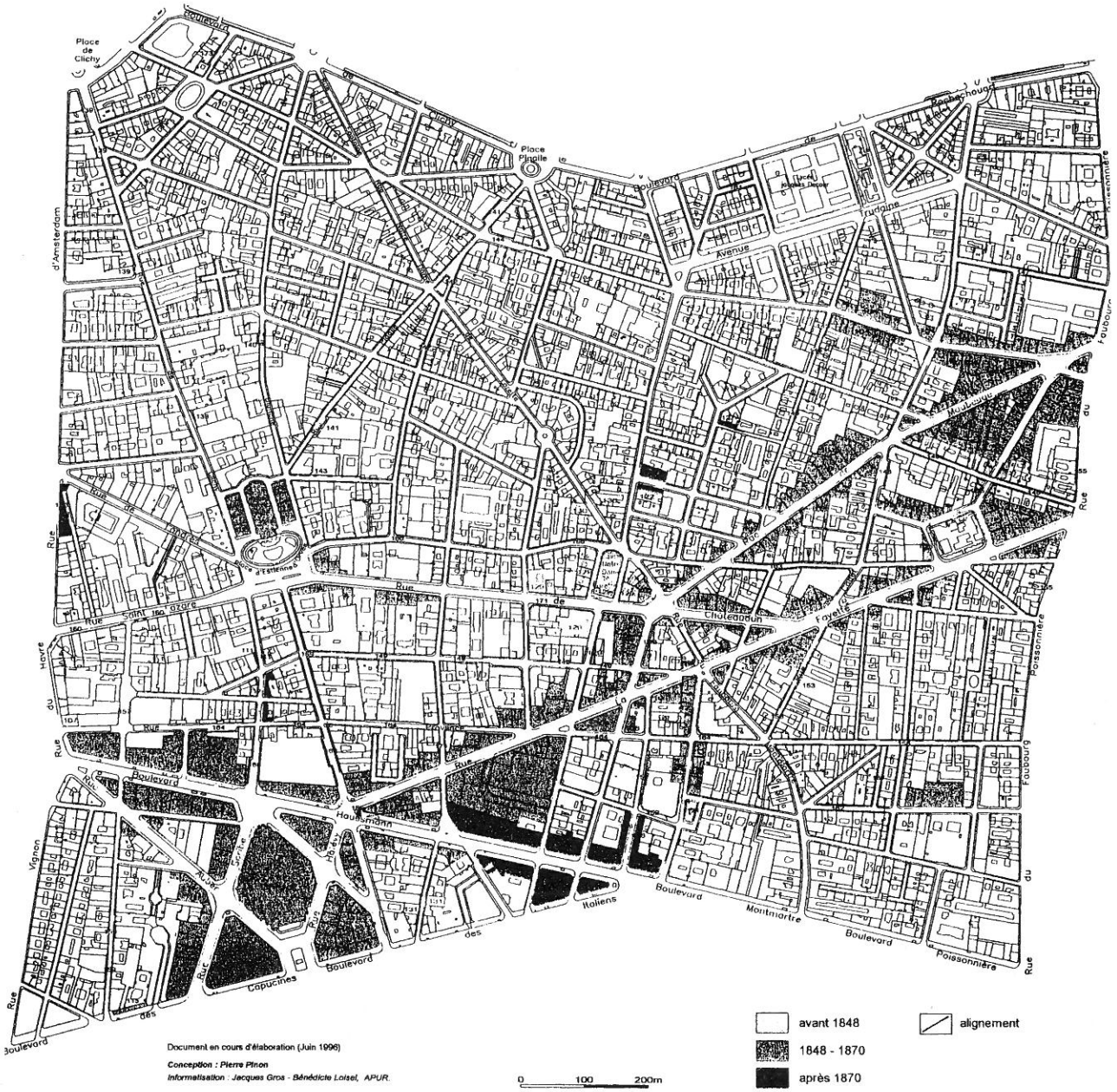
Towards a Parceling Atlas of Istanbul

The existing cartography constitutes the main source for developing a comprehensive catalogue of Istanbul's parceling systems. The maps conserved in the Istanbul Municipal Archives[8] are the most reliable and precise sources for the analysis of "after-fire" parceling. They outline the burned-down areas, the ancient city structure (street network and parcels), new street planning, and sometimes new parceling layouts. Cartographic analysis of general and especially detailed maps[9] allows one to retrieve much important information, since the regular layout of the new parceling is easily distinguishable from the more irregular urban fabrics dating from before the nineteenth century. The most useful detailed plans for research based on morphological criteria are the insurance cadastral maps that also show agricultural plots. They were produced by insurance companies to collect the data needed to estimate insurance coverage (building materials, type of construction--wood or masonry, function, etc.).[10] Two firms

specialized in insurance maps, that of Charles Edward Goad,[11] which produced 55 plans between 1904 and 1906 (among them plans for Stamboul, Pera-Galata, and Kadikoy), and the company of Jacques Pervititch (basically working for the French insurance company, L'Union), which produced hundreds of maps at 1:500 scale between 1922 and 1943. The following list of parcels is clearly incomplete. It lists the "after-fire" parceling of Stamboul first, followed by the development parceling north of the Golden Horn.

The Parceling of Stamboul:

- The parceling of Yenikapi[12] (1760, perhaps remodeled after 1782) is the earliest one known; it was developed on an artificial embankment on the Marmara Sea. In the Stolpe map of 1863 it appears to be slightly different from what it looks like today, suggesting that the area was remodeled at the end of the nineteenth century. On the Kauffer map, it is either missing, or so badly drawn as to be unrecognizable; the map merely identifies it as a "New Armenian neighborhood."
- The first parceling of Aksaray,[13] designed by the Italian engineer Luigi Storari,[14] is the first parceling system resulting from the Tanzimat's new urban policy. Dated 1854,[15] it is represented for the first time in the Stolpe plan of 1863. An almost regular grid of new streets frames Aksaray Caddesi. Cut planes define small trapezoidal places at the main crossroads.
- The second parceling of Aksaray,[16] replacing the 1854 parceling destroyed by the great fire of 1814, was the largest parceling of the time ("Bostanlar parceling," wrote J. Pervititch). It was designed according to larger modules, a different layout based on two diagonal routes cutting across the grid, and a hierarchical organization of the streets according to their width.
- Tawghan Tachi Yokouchou, also called Pavsan (Beyazit) after the original name of the area's main street (today's Mithat Pasa Caddesi),[17] is a small regular parceling realized after the fire of 1919. In 1924 it was still largely incomplete, with only a few masonry houses.
- The parceling of Fatih 1[18] is not represented on the map of 1882, and it is still incomplete in the Pervititch plans: many of the lots do not form a coherent part of the new grid (and are therefore preexisting), but instead clutter the street network under construction. It might have been realized after the fire of 1909.
- The parceling of Fatih 2,[19] despite the apparent uniformity of the blocks, involved two different parceling operations, one on each side of Eski Mutaflar Sokagi. The one adjacent to the Fatih Kulliye was realized before circa 1882, while the other one, integrating Omerefendi Sokagi, came only later, perhaps after the great fire of 1918. The first features an interesting sector organized around At Pazari Meydani.
- The parceling of Salmatomruk[20] situated near Edirnekapi was realized after the fire of December 9, 1957. The area, which corresponds to a large block adjacent to Salmatomruk Caddesi, previously featured a low building density and only two secondary streets marking its boundary to



Plot divisions along the thoroughfares of the IXth arrondissement at Paris

the east. The intervention was based on laying out a small grid defining four principal blocks in the center of the burned-out area, thus breaking down the former single block. The main feature of this layout is that the two central axes, until then limited to the internal distribution of the lots, formed a cut-plane intersection[21] probably designed by the engineer Luigi Storari, who signed the plan.

- Hocapasa,[22] the area between the Sirkeci railway station, the Hamidiye Medrese, Ebussuut Caddesi, and the Topkapi walls, is cut across by Ankara Caddesi (formerly Aziziye Caddesi). Before the fire of September

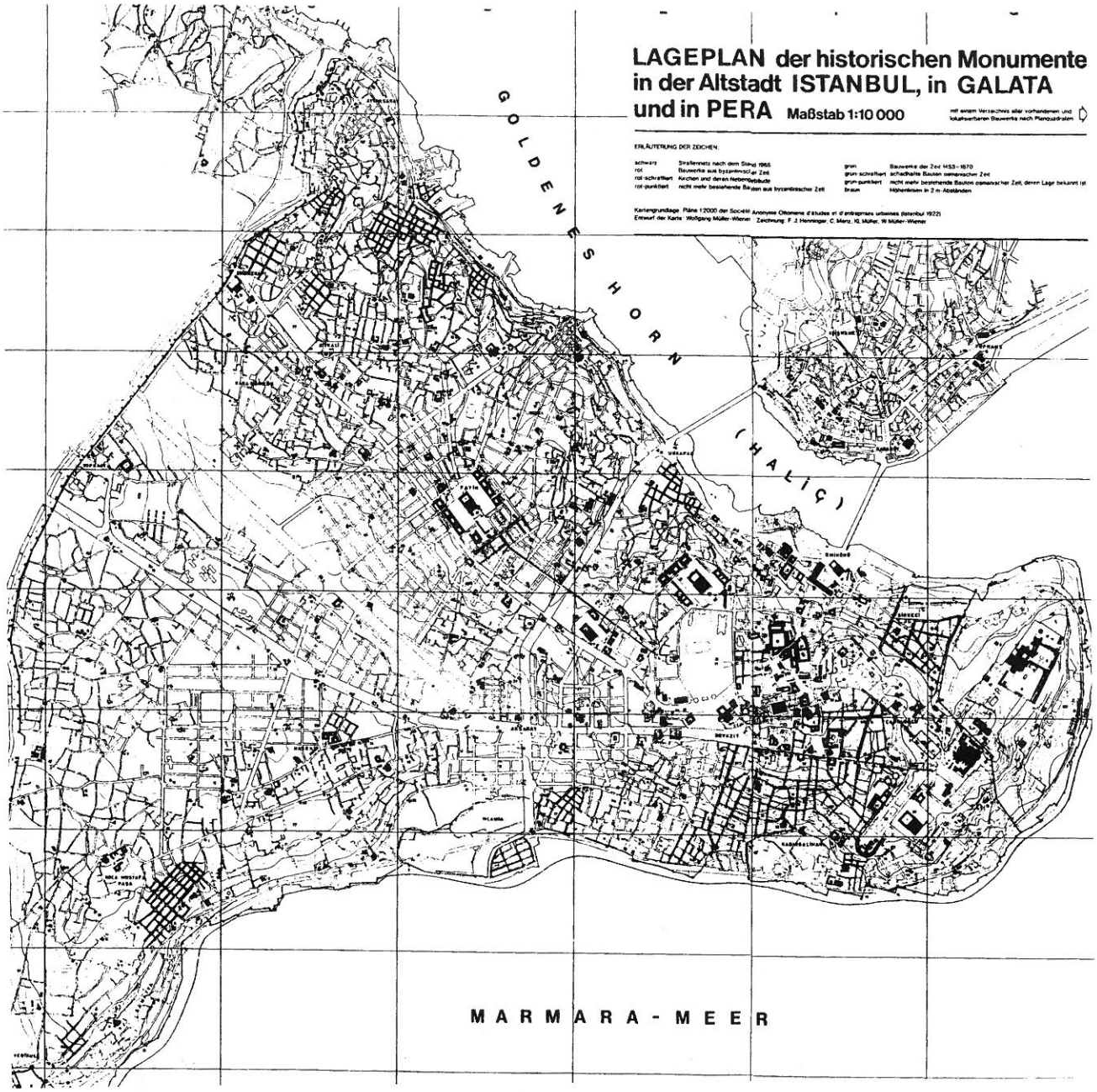
18, 1865, the *mahalle* was organized around three main streets converging in Hamidiye Kulliyesi and then toward Yeni Cami and Bahçekapi--the door opening out onto the Golden Horn. Its main characteristic is that of new streets defining a very irregular pattern. The explanation for this is that certain new routes simply enlarged and straightened the main, preexisting ones. An oval open space was designed at the main crossroads. The tracing corresponds to the building regulation of July 1, 1866,[23] and to the administrative directives of March 3, 1867.[24] The realization was abridged in 1866-67 and the plan remained incomplete as one can see from examples like the elliptical square that was quickly finished in cut planes.

- The parcel of Kumkapi[25] continues the preceding one from Divanyolu to the Marmara Sea. It was also realized after the fire of 18 September 1865, and the new street plan is dated 1866-67. The northern part (Kadirga) was organized along a wide road forming an elbow--a layout explicable only as an adaptation to the steep terrain. Kumkapi proper was most affected by the intervention. The plan was realized both to redistribute the neighborhood of Ordekli Bakkal Sokak, which was previously organized around a central axis that was now enlarged and straightened,[26] and to link Balipasa Yokusu with Kumkapi Caddesi. Starting from an opening in the maritime walls (a preexisting space that did not correspond to an ancient gate), three new streets converged in a small semi-circular area in a sort of goose-foot shape. This monumental layout is an exception: the original plan was almost completely realized. The Musellim Caddesi, which could not reach Divanyolu without interfering with the Kaliçeci Hassan Cami and the addition of a few secondary streets to achieve higher parceling density were the only changes.
- The parceling of Balat[27] was also realized after the fire in April 1866. This vast parcel was designed using an almost regular grid superimposed on the preexisting urban fabric, without the slightest consideration for the remnants of earlier structures. The parceling of Balat is one of the most brutal examples in Stamboul of geometric rigor. A few variations of the base module, a squared block of 25 meters, are the only irregularities in the pattern, and they have no explanation. ch as 25 by 35m blocks. Other variants can be explained by the presence of churches, sometimes producing one single block of 50 m by 50 m composed by four base modules. It is probably because of the presence of a church that the northern part was not realized--the topography and other morphological constraints brought to a grid composed of two contiguous yet shifted quadrangular sectors. The main axis is logically the one tangent to the two quadrangular areas (Dörtyol Agzi Caddesi).

Parceling north of Golden Horn:

- The parcel of Sakizagaci[28] is located in the Beyoglu neighborhood, which was destroyed by fire on 22 January 1857. The project was essentially focused on enlarging and straightening preexisting roads, with the exception of the Sakizagaci Caddesi, which was already rectilinear and sufficiently wide. It was limited to rectifying roads, so all the links with the preexisting network were respected. This project was not realized.

- The military camp of Taksim[29] was a regular parcel featuring homogeneous architecture; it was realized according to a layout very different from the original project. The plan of 1925 is entitled "Official Layout of the Ex-military Field Parceling."
- The parceling of Cihangir[30] was begun after the fire of 1914 and was still under construction in 1926. Roads were laid out, some houses rebuilt, but traces of the earlier urban fabric remained. The morphology of the area, and especially the difficult topography brought to a complex street network partly organized in a grid, was partly articulated around a polygonal space at the center of a radial network.
- The parceling of Akaretler (Besiktas)[31] is the only one in Istanbul in which buildings were completely planned. The project of the architect, Sarkis Balyan, was supposed to house part of the staff of the Dolmabahce Palace.[32] The Akaretler parceling may have been realized between 1880 and 1890.
- The parceling of Ilhamur Deresi Caddesi (Besiktas)[33] comprises a possibly coordinated ensemble of parceling systems situated along important roads (Ilhamur Deresi Caddesi and Nuzhetiye Caddesi). The uniformity of the overall layout is derived from the recursive repetition of a single parceling module. Variances within it are due to the irregularity of the street network and to the fact that certain blocks are entirely parceled despite overlapping with parts of large orchards. It appears as though a single agent may have parceled the area for its real-estate potential, but was unable to acquire all the terrain needed to carry out a comprehensive operation.
- The "Parmezian" parceling (Besiktas),[34] named after the factory located at its center, emphasized the interaction between the two.
- Ilhamur-Yildiz[35] is a small, regular parcel in the middle of a konak located in large gardens. The steep topography turned the transverse routes into stairways.
- Parceling the Yenimahalle Dere (Besiktas)[36] involved the development of a large konak (Serajmer Riza Pasa, Ibrahim Tawfir Efendi, opposite Ilhamour Street), with remaining land to be built on. The majority of the houses were built in masonry.
- The parceling of Yeni Yol Caddesi (Besiktas)[37] is still incomplete. It is a small parcel of former vegetable gardens and land to be built on featuring some ruins. The street network is under construction. Only the southern part is already parceled and built with masonry houses.
- The parceling of the military field of Yildiz[38] produced a large, very irregular parcel named after the adjacent military camp. Two blocks were burned down at its northern edge on 5 April 1922. Could it have been an old parceling from the end of the nineteenth century, since all the houses were built of wood?
- Sehait Nuri Pamir Sokaci (Besiktas-Ortaköy)[39] is a small rudimentary type of parcel realized at the end of the nineteenth century. Its geometry is adapted to the preexisting parceling subdivision. It is cut across by a



Plot divisions of Istanbul in the nineteenth century.

slightly curved street giving access to a large orchard, perhaps a former agricultural path. Some houses are wooden and some masonry.

- The parceling of Fistikliköşk Sokagi (Besiktas-Ortaköy)[40] was clearly designed in its southern part along the Çervirmeci Sokagi; it becomes irregular on the north side, adjacent to the Jewish cemetery. Still not completely developed, the majority of houses there are built of wood.
- The parcel of Sisli[41] is a vast, regular parcel north of the large Latin cemetery of Sisli.

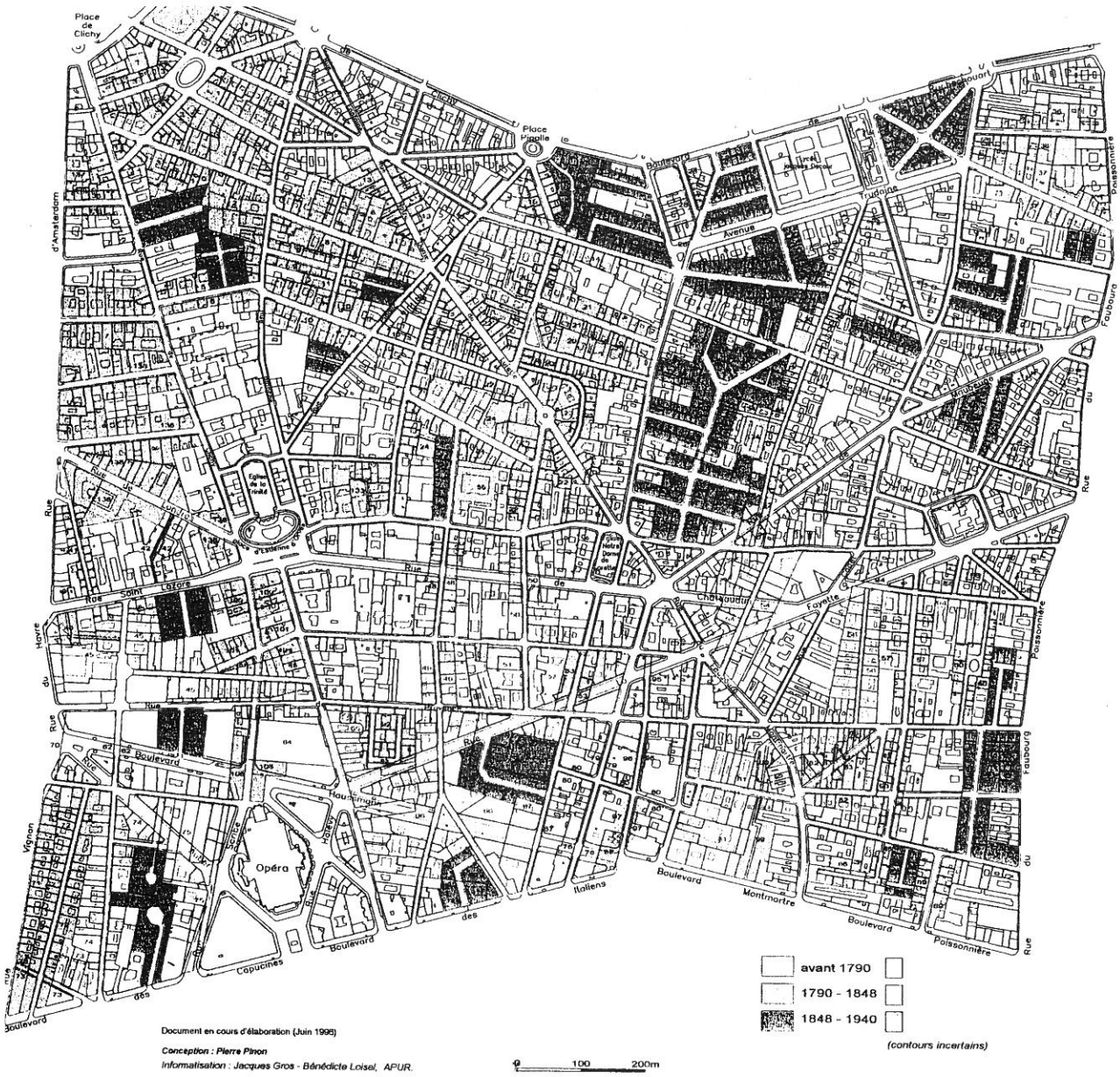
Parceling Regulations

The new urban policy, based on parceling in 1839, grew out of the *Tanzimat's* decision to modernize the administrative structure of the empire. Modernizing urban space was an integral part of that program. Istanbul's principle for future urban intervention is expressed in the remark by Rashid Pasa after the fire of 1836 in the Beyazid mosque neighborhood: "It occurs to me that the prestigious places destroyed in this last fire, located in the center of the Land of Happiness, must be rebuilt in an exemplary way by tracing the streets according to geometric rules, by leveling certain places as much as possible, and by building masonry houses and shops in a new style and attractive form."[42] This principle was first applied after the fire of 1856 in the Aksaray neighborhood.

The building code of 1848[43] prescribed new building alignments in order to widen streets and recommended the continuation of dead-end streets. The code of 11 March 1856[44] normalized the expropriation of private property for public use when it was necessary for performing urban operations such as the redevelopment of a neighborhood or the widening of a street. Rashid Pasa had also foreseen the need to employ European engineers or architects to organize "an urban design requiring thorough knowledge of geometry." Luigi Storari, who had been practicing in Istanbul and Smirna (Izmir) between 1854 and 1862, was appointed for the Aksaray project. Storari also designed other neighborhoods: Mirahur (1856), Salmatomruk (already mentioned), and Küçük Mustafa Pasa (1862).[45] At the same time, an Urban Planning Commission composed mainly of minorities and foreigners, was appointed in 1856 to elaborate urban and building regulation proposals. It was replaced by the Street Network Improvement Commission in 1863.[46]

The technical document introducing parceling operations was the Street Construction Code of 20 October 1863.[47] It focused on the design layout of streets to be widened and straightened and on "burned-down neighborhoods." Article 12 concerns the latter: In case of fire in neighborhoods or blocks surrounded by streets, the leveling, alignment, and cleaning of each street will be organized in the following way: a general plan of the premises will be drawn, priority being given to the indication and surface of preexisting streets and parcels. Then, new streets and new parcels allocated to their legitimate owners will be designed, their surface clearly indicated. The parcels defined according to such a plan will insofar as possible be squared or with straight angles, and their surface and front side will be analogous to those of the ancient parcels. To each of these a place will be reserved according to the advantages and quality of its former position.[48] The approval and application of such a plan will occur according to the first three paragraphs of article 8 regarding new streets. During the redevelopment of these neighborhoods, the land sold or acquired for the widening of streets will be regulated according to article 5 in those areas falling under a municipality.

Article 8 indicates that public administration is in charge of the design of



Plot divisions of the IXth arrondissement of Paris (P.Pinon, Apur)

new streets and the allocation of the lots to private owners; the supervision of expropriations for the widening of streets was to be evaluated by a special commission, and the owners were to be reimbursed an adequate sum "before inhabitation of the premises." Article 9 clarifies that the development of a "new neighborhood" must be approved by imperial decree, which can be obtained after presentation of a plan to the Ministry of Commerce in charge of examining "the opportunity, and evaluating its advantages and disadvantages." Article 5, concerning street alignments, regulates the estimates and modes of reimbursement to private owners in case their parcels are reduced "because of the need to lay out" the new streets.

This authoritarian planning is clearly set with regard to new roads, but the criteria for parceling were more ambiguous. Aside from indicating that they should be proportional to the original parcels, no official requirements for the new designs are mentioned. But neither is design left to private discretion, since public authority controls the overall organization and allocation. Among the parceling projects we analyzed, only one, that of Salmatomruk, has the subdivision indicated in the original plans and regulations. In the other cases, parcels were apparently laid out according to their intended function and the configuration of the original lots. If the parceling is not represented in the project (i.e., the project shows only the new street network), it is because, at the moment of its realization, the layout had not yet been completely defined, or was to be changed or adjusted at a later stage. Parceling irregularities that were not the result of recouping preexisting traces, whether designed beforehand (as for Salmatomruk) or not, were subject to negotiations between public authority and private owners.

The great fire of 1865 "from Hokapasa to Kumkapi ruined almost half of the most prosperous neighborhoods of the Land of Happiness, throwing their inhabitants into flames of despair." A report of the High Assembly, dated 10 May 1866,[49] regarding "the design and adequate leveling of the newly traced streets within the planning of the area of the great fire," announces that "eliminating this kind of calamity requires two kinds of intervention: first, avenues and streets that are as wide and level as possible; second, converting buildings from wood to masonry construction." Since fires led to the remodeling of the urban fabric, they too represented an active and direct agent of modern development. The fire of today could be used as the best way to avoid a fire in the future. The report also details the design and financial aspects of parceling interventions: "After considering the three-plate map of the burned-down area elaborated after a careful survey by the Ministry [of Commerce], as well as the estimates of reimbursements due the legitimate owners, and after it had been forwarded to the Sublime Porte and thoroughly examined there, we reached the conclusion that, leaving aside the mosques, medreses, mausoleums, cemeteries, and masonry *khans* and *hammams* that did not burn down, the new development will cause the loss of twenty-seven cubits out of the one hundred comprising all the parcels; considering that this is approximate, the real loss will actually not exceed twenty-five percent."

From that time on, 25 percent was adopted as the standard estimate for loss of buildable land to the new street network. A code arising from the same fire (1 July 1866)[50] adds the following to the parceling regulations: Once the leveling and opening of the grand avenues [...] is accomplished, the neighborhood's parcels will be progressively laid out and assigned to their owners. And this operation will be coordinated by a special intermediary committee appointed by the Commission, which will be composed of high state officials as well as agents and engineers of the special services for construction and fires.

After the important procedure of parceling subdivision and assignment [of lots] to their legitimate owners [is complete], authorization letters will be distributed free so that everybody can build his house in conformity with the general plans that will be published and widely distributed.
Article 6 of the same code informs us that the cost of expropriating the buildings that are still standing, canalization, and the paving of public areas will be entirely assumed by the state.
An official report dated 3 March 1867 following the great fire of 1865[51] focuses on technical details. They include finding "a way to avoid the new streets interfering with mosques, because in those cases demolition is impossible"; and to ensure that "houses that were standing at crossroads,[52] as well as those located in privileged areas, can be placed in sites of comparable value." The same report plans the demolition of some areas (not damaged by or otherwise connected to the fire) around St. Sofia, "that grand temple, the oldest in the world." Finally, the report describes the geometric layout of the interventions: "The new streets in the neighborhoods burned down near Samatya and Balat are designed according to a straight regular grid, following the example of most recent cities."
These various codes clearly reflect two different parceling strategies. For "development parceling," public administration limits its intervention to the control of designs presented to them by private agents. For "after-fire" parceling, however, the public authority takes charge of the whole intervention: reconstructing the street network, parceling the subdivision, expropriation, allocation of the lots. Each of the two procedures have corresponding parceling layouts that are quite similar. The "after-fire" parceling appears more complex, but that is only because it has to deal with topographical constraints and a more detailed design.

Streets, Blocks, Parcels

Despite the long use of parceling systems (from the second half of the nineteenth century -- not considering the parceling of Yenikapi and Haydarpas -- to the beginning of the twentieth), and their variations and evolution over time, all parceled areas in Istanbul are quite similar: orthogonal grid, scarcity of public open spaces, absence of monumental design, long rectangular blocks, parceling organized in rows. Variants were produced only under specific conditions: cut planes at crossroads and polygonal public open spaces.
The first large parceling operation, that of Aksaray by Luigi Storari, adopted cut planes as a design solution to the narrowness of the existing streets (6 meters), although it was only used at the main intersections along Divanyolu. The four cut planes define peculiar lozenge-shaped crossroads. Similar but smaller cut planes can also be found in the original project of the parceling of the military camp at Taksim (not realized). There are only two polygonal open spaces, both found in special topographical conditions. In Cihangir, the steep and sinuous south side is developed

according to a radial layout composed by four streets converging onto a public open place. In Kumkapi, the east side is diagonally cut across by the Byzantine walls; three streets radiate out from the triangular space between the fortification and Merdivenli Kilisa and Tchifte Gueline. In all other cases, the urban fabric is more or less orthogonal. The most developed parceling design (we might say the most "urban") features squared or slightly rectangular blocks (Kumkapi, "Tawghan Tachi Yokouchou," Taksim).

Other parceling systems are composed of very long blocks (Ilhamur-Yildiz Caddesi, Sisli), the sides of which sometimes have a proportion of 1:10 (the military camp of Yildiz). Such a peculiar shape was dictated by economic factors, since long blocks allow the maximum number of lots along a given street length, but it represents the poorest type of parceling, often isolated in the middle of orchards and developed with wooden houses.

The geometry of the urban blocks is often approximate -- almost square, almost rectangular. Angles are rarely orthogonal even in the most regular cases. Truncations are very common, sometimes due to the presence of diagonal streets cutting across the neighborhood (as in the second parceling of Aksaray), but more often because of the irregular boundaries of the area (Ilhamur-Yildiz Caddesi, Yenimahalle Dere, "Permezian"). Some blocks feature very fragmented shapes, like the parceling of Ilhamur Deresi Caddesi (Besiktas), developed almost anarchically inside existing gardens. Contrary to the uniformity of the overall geometry, the dimensions of the blocks are variable: on the Stamboul side (Balat, Aksaray), blocks range from 20 by 30 meters minimum, to 30 by 70 maximum (as in the second phase of Yenikapi); in Pera, blocks can reach 50 by 200 meters (Ferikoy), while the average dimension ranges between 60 and 100 meters in length. With some exceptions (for example, a 55-meter-wide block in Besiktas), their width ranges from ca. 30 to ca. 40 meters corresponding to parcels approximately 15-20 m long.

The parceling layout is very uniform. It is generally composed of a double row of narrow and deep parcels subdividing blocks of approximately the same proportions. Within this system, parcels range from 4 to 6 m wide, and from 10 to 30 m long. Exceptions are rare: the original project for the parceling of the military camp of Taksim featured parcels of 18 by 24 m, although the realized variant shrinks them to 9 by 24 m; the parceling of Nisantasi for a small *konak*[53] yielded lots that were 25-30 m wide by 30-50 m long. The main variation of the double-row parceling system came at the corner at the end of the longer side of the block. In Istanbul one of three solutions was used: either there was no special turning mechanism -- the last houses simply exposed the side facade, or the row turned to the shorter side of the block by using parcels that were shallower than those on the long side, or, finally, there was a partial turning in the middle of the short side of one, two, or three parcels more or less deep--in this case the last parcels on the long side become shorter. There are also variants, although the regular stepped-back solution sometimes seen in Paris was never used.[54]

The "after-fire" parceling focused on the design of the new street network and the blocks it produced. Subdivision remained unresolved, either because the reconstruction projects that subdivided the blocks came at a later stage (using plans that were irretrievable or simply not conserved) or, more probably, because they were exclusively concerned with the subdivision of the area into blocks without any further developing of its parceling layout. We know from codes and regulations that new parcels were allocated to their legitimate owners according to the site and dimension of their former property. Redevelopment was taken care of by the public authority, which designed the street network and the overall subdivision of the area into blocks, before negotiating the allocation of the single parcels with the private owners. Only then were parcels sized according to request within a framework of temporary expropriation. Thus, we can conclude that parcels were deliberately left undivided so that there was room to maneuver in individual negotiations. This one-piece-at-a-time approach seems to be confirmed by insurance cadastral maps in which it is apparent that several years after the fires, lots still had not been assigned or at least built on. It seems it was the building itself that determined the size of its own parcel. The general parceling layout was the result of these individual processes.

The only time the parceling was decided at (or immediately after) the project stage, with the parceling of Salmatomruk, it still shows an irregular layout. Since no effort was made to recoup traces of the lost fabric this irregularity must have been generated by negotiations between the public authority and private owners. Negotiation is typical of parceling processes. Very few of them are based solely on regular street plans.[55] Even when regularity is strongly recommended, it presents several logistical problems calling for alternative solutions: one is the problem of connecting new with preexisting streets, which is solved by varying the modules of the new blocks. Even this solution is often insufficient, and some new roads temporarily end as *culs-de-sac*. The regular type seems to be the one preferred at the early stage, between approximately 1856 and 1866. It is also the one requiring the most skillful design in its articulation with the preexisting fabric, as exemplified by the work of Luigi Storari, where regularity is achieved by using the orthogonal grid. However, such uniformity still allows a certain flexibility through variations of the base modules. Regularity can also be achieved by straight axial roads, regardless of the existence of the orthogonal grid. In this case parceling occurs more by alignments then by restructuring routes. In this solution, variations of the modules and geometric irregularity provide a flexible system capable of changing to suit special conditions -- harsh terrain, difficult links with preexisting streets, preservation of existing urban elements. Isolated buildings impossible to destroy or move, such as mosques and churches, are, insofar as possible, enclosed within blocks in order not to jeopardize the regularity of the new street network. Nevertheless, it seems that this system was meant to replace preexisting fabric that already featured some degree of regularity (directional, for example) with an autonomous artificial uniformity.

Parceling Topography

The modernization process of Istanbul progressed at a regular pace, for the number of fires continued to increase until the beginning of the twentieth century. In the second half of the nineteenth century, fires occurred in various areas between Edirnekapi and Balat, in Unkapani, and in Hocapasa on the Golden Horn side, and in Mirahur, Koca Mustafa Pasa, Aksaray, and Kumkapi on the Marmara side. The great fire "from sea to sea" of 8 September 1865 provided the opportunity for opening broad avenues from Sirkeci to Divanyolu, as for example in the Aziziye Caddesi. All the neighborhoods close to the sea were certainly dense and prone to conflagrations. In contrast, fires at the beginning of the twentieth century broke out in central areas (aside from the one that broke out below the Hippodrome), from Fatih to Altimermer, or more punctually as in Zeyrek. The only safe neighborhoods were those located in large gardens along the inland walls.

The parceling that went on after a fire in the second half of the nineteenth century frequently involved neighborhoods inhabited by minorities (the Greeks in Edirnekapi, the Jews in Balat, the Armenians in Kumkapi). Was the redevelopment of these areas imposed on minority groups by the public authorities (which freely experimented with the transformation of urban space)? Or rather was it the minorities themselves, always in favor of Western culture, who requested modern redevelopment? The first hypothesis is hardly credible, since all neighborhoods were more or less mixed. But whatever the reason, the correspondence between "after-fire" parceling and minority neighborhoods is very consistent, as can be verified on the C. Stolpe map of 1863 representing the minority areas. The result was the juxtaposition of different grids radically transforming a good part of Stamboul, for neighborhoods were developed on too steep a terrain to be leveled and regularized.

On the other side at Galata and Pera, we can find more recent and common parceling types. The neighborhoods near those already developed -- the great public or private domains -- are parceled by real estate speculators. In the second half of the nineteenth century they concentrated in the Besiktas neighborhood, before spreading out toward Sisli, Nisantasi, and Ortaköy. We can also find them on the other side of the Bosporus, namely in Üsküdar and Kadikoy.

The Transformation of the City

The remarkable number of parceling types (of both the "after fire" and "development" types northeast of Pera) added up to a formidable urban transformation. At the end of the nineteenth century, a sudden urge to build seemed to have swept through the city: "In this irremediably dead country, lacking any honest activity, and where organized labor is a mere illusion, the little money still circulating is invested in land and

buildings."[56] But apparently, both in the central areas and peripheral developments, most of the new houses were still built of wood (a technique that later almost completely disappeared): "They all look alike, squeezed one in between the other, in cramped neighborhoods thrown together in a rush after the fire."[57] According to Bertrand Bareilles, this speculation, slightly disdainful towards all that is not European to be sure, had a modest financial success. The large spaces cleared by the fires and the already vacant areas were bought and quickly built up in wood with no regulation or control. Houses were then wrapped in white-iron sheets recycled from petrol drums after parcels were rented out. The success of these real estate speculations was limited, since "no one wanted to live in isolated neighborhoods."[58] But improvements slowly began to appear: "Some neighborhoods have already been successfully improved, the municipalities have started seriously taking care of the widening of the streets, their alignment, etc...", wrote Ch. Delmas in 1890.[59]
This radical change was described by Pierre Loti in the same year, when he returned to Istanbul: "I was wandering in the new neighborhoods, following the recently straightened boulevards, in the environs of St. Sofia and of the Sublime Porte, now lighted, alas! Gas lamps, cars, embassy officials taking adventurous travelers for a drive. It is towards old Stamboul that I now head, walking up the small, dark and mysterious streets I recalled." Except for the area around Sülimaniye, he no longer recognizes the city of Istanbul as he knew it.

From Parceling the City to the Parceled City

When parceling ceases to be a secondary form of urban development confined to some distant periphery to become a widespread urban process, we can start talking of the "parceled city." In Istanbul, most of the old town is composed by "after-fire" parceling, and the developments at the end of the nineteenth century and first half of the twentieth had been realized according to the same strategy. Restructuring routes appeared only later. Are comparisons possible? No other city has experienced so many fires -- at least in the nineteenth century -- and could have undertaken a comprehensive parceling strategy like Istanbul's. Fires, so frequent in the Ottoman Empire (where wooden construction had been the dominant technique for a long time), burned down entire neighborhoods, as in Afyon[60] and Edirne,[61] yet had never affected the whole town (note that, in those two cases, reconstruction took the form of a large grid parceling similar to the ones in Istanbul).
As far as development parceling is concerned, the phenomenon of the juxtaposition of different real estate interventions producing an irregular pattern is still going on. However, a parceling extension comparable to that of Istanbul exists in only three other cities[62] -- the capitals of London, Paris, and Berlin.[63]

Starting in the eighteenth century, London essentially developed in "estates" -- the parceling of aristocratic neighborhoods through the use of long-term leases.[64] They expanded until the middle of the nineteenth century, south and north of Hyde Park, and south/southeast of Regent's Park, becoming almost contiguous. Although the typical English layout organized around a central garden cannot be found in Istanbul, we can still argue that its parceling and row-house development were inspired by the London example. A confirmation of this hypothesis is in Rashid Pasa's proposal of 1839 to use the English single-family house as the model for modern housing in Muslim countries.

Paris is less known in terms of parceling operations, although they were widely used from the Middle Ages until the beginning of the twentieth century. Including every èpoque, procedure, and form, they can be estimated at more than a thousand (for example, a hundred in the 9th *arrondissement* and around fifty in the 12th). As in London, they were used to subdivide *grand hotels particuliers* (especially those of the sixteenth and eighteenth centuries), as well as ecclesiastical properties before and especially after the Revolution. Parceling operations were most common at the end of the eighteenth and the beginning and end of the nineteenth century (when they were often part of Haussmann's restructurings. They were sometimes contiguous, because the success of one parceling speculation encouraged others. Besides the original urban nucleus, and apart from the major restructuring of the street network (opening avenues or restructured routes), in London, in Paris, as in Istanbul, parceling had become the main mode for producing residential urban fabric.

Notes

1. With the exception of the chapter by S. E. Rasmussen "Terrain et speculation," in *Villes et Architectures* (original Danish edition, 1949; English edition, 1951; French edition, 1984).
2. On these and other parceling processes in Italy, see R. Fregna, *La pietrificazione del denaro. Studi sulla proprieta urbana tra XVI e XVII sec.* (Bologna, 1990).
3. H. von Moltke, *Lettres sur l'Orient* (Paris, 1872), p. 100.
4. The plan was published by E. H. Ayverdi in 1978.
5. *Voyage dans l'Empire Othoman, l'Egypte et la Perse, fait par ordre du Gouvernement, pendant les six premieres annees de la Republique* (Paris, Year 9 [1801]), 3:133.
6. The question is whether it was a coincidence or deliberate choice.
7. On parceling strategies after fires, see P. Pinon, "Les cadastres d'assurance," and "Les lotissements apres incendie: Istanbul aux XIXe et XXe siecle," in *La ville en feu, Cahiers* nos. 6 and 7 (Place: Laboratoire TMU [Theorie des mutations urbaines], 1993), pp. 37-44.
8. In our research on the westernization of Istanbul (with A. Borie and S. Yerasimos) we had access to only a few of the many extant documents.
9. The most useful maps are the ones by Fr. Kauffer (1786-1822), and by C. Stolpe (1863).
10. See P. Pinon and S. Yerasimos, "Releves apres incendie et plans

d'assurances: les precurseurs du cadastre stambouliote," in *Environmental Design*, nos. 1-2, edited by Attilio Petruccioli; "Urban Morphogenesis. Maps and Cadastral Plans," (1996), pp. 112-29.
11. On the Goad map, see G. Rowley, "An Introduction to British Insurance Plans," in *The Map Collector*, no. 29 (1984).
12. See the Yenikapi map no. 56 done by J. Pervititch at 1:500 scale in 1936.
13. Found in the map of 1882.
14. On Storari, see S. Yerasimos, "Quelques elements sur l'ingenieur Luigi Storari," in *Architettura e Architetti italiani ad Istanbul tra il XIX e il XX secolo* (Istanbul: Istituto Italiano di Cultura di Istanbul, 1997), pp. 117-23.
15. On the parceling of Aksaray, see Z. Celik, The Remaking of Istanbul (Seattle: University of Washington Press, 1986), pp. 52-55. Note that in his recent Istanbul: An Urban History (Istanbul, 1996), Dogan Kuban barely mentions the important phenomenon of the parceling of Istanbul (p. 387, regarding Aksaray, quoting Z. Celik).
16. Found in the Aksaray-Cerrah Pasa maps nos. 50, 55, and 57 made by J. Pervititch in 1936.
17. Found in the Sekban Bachi-Yakoub Agha map no. 17 made by J. Pervititch at 1.500 scale in 1922-1923; revised in 1924.
18. Found in the Fatih map n. 36 and Carsamba map n. 34 made by J. Pervititch at 1:1000 scale in 1933.
19. Found in the Fatih map no. 18 made by J. Pervititch at 1:1000 scale in 1933.
20. Map in the Municipal Archives of Istanbul.
21. This cut-planes system was frequently used in European urban developments at the beginning of the nineteenth century. See, for example, the plan of Geneva of 1825.
22. Map in the Municipal Archives of Istanbul. On this parceling, see Celik, Remaking of Istanbul, pp. 55-59.
23. See A. Borie, P. Pinon, S. Yerasimos, *L'occidentalisation d'Istanbul au XIXe siecle, Rapport no. 1* (Nanterre, 1989), document 23, pp. 85-87.
24. Ibid., document 21, pp. 88-96.
25. Map in the Municipal Archives of Istanbul.
26. Note that Kadirga Caddesi was also straightened.
27. Map in the Municipal Archives of Istanbul.
28. Map in the Municipal Archives of Istanbul.
29. Found in the Taksim maps nos.12 and 12a done by J. Pervititch at 1:1000 scale in 1925 and 1943.
30. Found in the Djihanghir-Foundoukli map n. 31 made by J. Pervititch at 1:1000 scale in 1926.
31. Found in the Bichiktache map no. 2 made by J. Pervititch at 1:600 scale in 1922.
32. On the parceling of Akaretler, see A. Batur, N. Fersan, A. Yucel, "Istanbul'da ondokuzuncu yuzyil sira evleri," in Mimarlik Fakultesi Dergisi, 2, 5 (1979): 190-91; and P. Tuglaci, *Osmanli mimarliginda batililasma dvnemi ve Balyan ailesi* (Istanbul, 1981), pp. 244-46.
33. Found in the Bichiktache maps nos. 7, 8, and 11 made by J. Pervititch at 1:1000 scale in 1922.
34. Found in the Bichiktache maps nos. 4 and 7 made by J. Pervititch at 1:600 scale in 1922.
35. Found in the Bichiktache map no. 10 made by J. Pervititch at 1:600 scale in 1925.
36. Found in the Bichiktache map no. 8 made by J. Pervititch at 1:600 scale in 1922.
37. Found in the Bichiktache map no. 6 made by J. Pervititch at 1:600 scale in 1922.
38. Found in the Bichiktache map no. 9 made by J. Pervititch at 1:600 scale in 1922.
39. Found in the Ortakeuy map no. 2 made by J. Pervititch at 1:1000 scale in 1927.
40. Found in the Ortakeuy map no. 2 made by J. Pervititch at 1:1000 scale in 1927.
41. Found in the Chichli maps nos. 1, 2, and 3 made by J. Pervititch at 1:1000 scale

in 1923.
42. Letter of Rashid Pasa written in London in October-November 1836, published in M. Cavid Baysun, "Mustafa Re~id Pa~ann siyasi yazlar", in Tarih Dergisi 11, 15 (1960): 124-27, trans. S. Yerasimos, in A. Borie, et al., L'Occidentalisation, document 1, pp. 27-28.
43. "Reglement" of 4-13 May 1848, in O. Nuri, *Mecelle-i Umuru Belediye* (Istanbul, 1922), 2, I, pp. 1098-1104, see Borie et al., L'Occidentalisation, document 4, p. 31.
44. "Reglement concernant l'achat de terrains et autres biens immeubles..." in *D | stur]*, lst ser. vol. 1, pp. 338-39, see Borie et al., L'Occidentalisation, document 7, pp. 45-46.
45. See Z. Celik, "The Italian Contribution to the Remaking of Istanbul" in *Environmental Design*, nos. 9/10, edited by Attilio Petruccioli (Rome, 1990), pp. 128-33.
46. See S. Yerasimos, "Reglementation urbaine et municipale (1839-1869)," in Borie et al., L'Occidentalisation, pp. 1-25.
47. Nuri, 2:86-100, trans. S. Yerasimos, in Borie et al., L'Occidentalisation, document 21, pp. 72-80.
48. Especially with regard to corner parcels.
49. See Borie, et al., L'Occidentalisation, document 22.
50. Ibid., document 23.
51. Ibid., document 24.
52. Our research on the traditional Ottoman urban fabric emphasized the importance of corner lots, which were often occupied by beautiful houses. The building code confirms this importance.
53. Found in the Nichantach map no. 5 made by J. Pervititch in 1934.
54. See Fr. Boudon, "Tissu urbain et architecture: l'analyse parcellaire comme base de l'histoire architecturee," in *Annales E.S.C.*, 1976, pp. 773-818.
55. On parceling typology, see Pinon and Yerasimos, "Releves apres incendie."
56. B. Bareilles, *Constantinople: Ses cites franques et levantines* (Pira-Galata-banlieue) (Paris, 1918), p. 255. Illustrated with engravings of drawings by Adolphe Thiers, an architect who had lived in Turkey.
57. Ibid., p. 256.
58. It certainly alludes to the location of these neighborhoods and to the fact that the street network must have followed (a *fortiori* not preceded) the redevelopment. It should refer to the neighborhoods beyond Taksim.
59. *L'hygiene publique, Constantinople: Assainissement des habitations et de la voirie publique* (Constantinople, 1890), p. 29.
60. See A. Borie, P. Pinon, S. Yerasimos, "Essays sur l'architecture domestique et la forme urbaine des villes anatoliennes; II. Afyon," in *Anatolia Moderna VI* (1996), pp. 226-29.
61. See A. Yerolympos, *Urban Transformation in the Balkans (1820-1920): Aspects of Balkan Town Planning and the Remaking of Thessaloniki* (Thessaloniki, 1996), pp. 84-85.
62. For example Lyon at the Croix-Rousse, in Brotteaux, or in La Guillautiere. See J. Barre, *La Colline de la Croix-Rousse* (Lyon, 1993).
63. See, for example, G. Fehl, J. Rodriguez-Lores, *Stadterweiterungen 1800-1875. Von den Anfangen des modernen Stadtebaues in Deutschland* (Hamburg, 1983); and E. Hausmann, Cl. Soltendiek, *Von der Wiesse zum Baublock. Zur Entwicklungsgeschichte der Kreuzberger Mischung* (Berlin, 1986).
64. See S. E. Rasmussen, *London: The Unique City* (London, 1948); W. Ashworth, *The Genesis of Modern British Town Planning* (London, 1954); J. Summerson, *Georgian London* (Baltimore, 1962); D. J. Olsen, *Town Planning in London: The Eighteenth and Nineteenth Centuries* (London, 1964); E. Jones, C. Woodward, *A Guide to the Architecture of London* (London, 1983).

Roy Strickland

Between Party Walls

Nineteenth-Century New York Residential Architecture and Urbanism

In 1900 New York City, the result of the 1898 consolidation of rival cities New York and Brooklyn, rose from its bay with tall buildings at Wall Street, piers, warehouses, and factories along its rivers, warrens of working-class neighborhoods behind the warehouses and factories, bustling entertainment districts at the convergence of trolleys and elevated trains, and elegant neighborhoods for the middle class and rich on bluffs and hills. In the course of a century, New York's population had grown more than 500-fold, from 60,000 to nearly 3,400,000 people.[1] Subways, which would distribute New Yorkers to outlying undeveloped land in the Bronx, Brooklyn, and Queens had yet to open. Horsedrawn carriages clogged the streets. Locomotives belched smoke and cinders from elevated lines. In neighborhoods like the Lower East Side in Manhattan and Williamsburg in Brooklyn foreign tongues filled street markets while in English-speaking Harlem and Brooklyn Heights the small rituals of middle-class life, the servant's sweeping of the sidewalk, the delivery of dry goods punctuated the day.

In a city of such contrasts, a subtle but important condition could easily go overlooked: Most New Yorkers inhabited a system of housing of inter-related building types that grew from a consistent set of physical dimensions. The housing consisted of row houses, tenements and "French flats." The dimensions were the 25-foot and 100-foot boundaries of the typical New York lot. Combined, dimensions and housing created a city in which people lived in tall, narrow dwellings erected between party walls and shared in an urban morphology common across neighborhoods rich and poor.

The Lot, the Block, and the Grid

The New York lot can be traced to the 1625 Dutch settlement of Nieuw Amsterdam at the foot of a Manhattan island then occupied by indigenous Americans. The Dutch parceled their small colony into 25-by-25-foot lots. A single or double lot could provide the site for a modest one- or two-story house; several lots could be combined for institutional purposes.[2] These dimensions were familiar to the Dutch, who built row houses that were approximately 25-feet wide in their own cities. Twenty-five feet was an economical breadth for a house and could be spanned by one or two wood

Row house, elevation. The row house's elevation of decorated entrance and cornice would be translated by New York and Brooklyn dwellings of all classes during the nineteenth century.

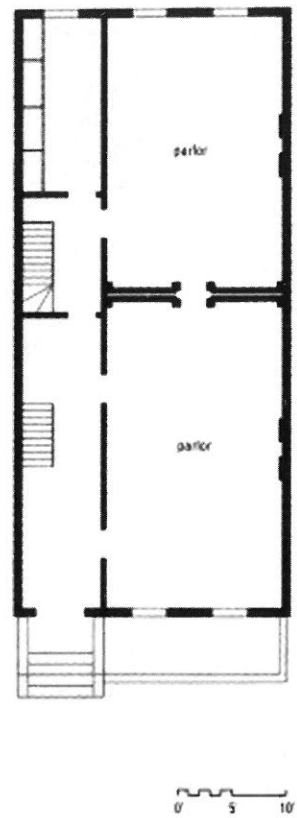
joists between masonry bearing walls - a technology used in both northern and southern Europe, and by New York's next colonists, the English. The 25-foot-wide lot persisted as Nieuw Amsterdam was converted by the English to New York in 1664 and was the basis for the post-Revolutionary War city plan, the famous street grid. Before the grid, property owners created blocks and streets for new row houses from farms and estates that fell to urban development and connected them by pre-existing through

roads. In 1811, New York established its comprehensive grid system. Brooklyn, then a separate city, followed in 1839. As the first of the municipally-instituted grids, Manhattan's set the precedent for its neighboring city's - and was clear in its relationship to the row house. "Straight-sided and right-angled houses are the most cheap to build," the grid's designers, Gouveneur Morris, Simeon DeWitt, and John Rutherford, are reported to have determined, and as "a city is to be composed principally of the habitations of men,"[3] their grid was practical in its match with the row house. In the plan, city blocks of 200 by 800 feet were proposed for all of Manhattan north of Houston Street, and within such blocks, contemporary row houses (generally 25-feet wide and 40 or 50-feet deep) were to enjoy backyards spacious enough and streets wide enough to both capture breezes from the East and Hudson Rivers and inhibit the spread of fire, the latter of great concern to earlynineteenth-century city dwellers.

The Row House

In the early-nineteenth century, the New York and Brooklyn row house was a simple brick and wood box raised above a basement floor and entered by way of a stoop. Inside the front door, a narrow stair hall opened to front and rear parlors which were connected by sliding doors. Above the parlor floor were family bedrooms located over one or two floors and an attic given over to servants' and storage rooms. In the basement, a kitchen was located at the rear of the house with access to the backyard's water well, while at the front, a low-ceilinged dining room faced an area-way along the street.[4]

Contractors and, occasionally, architects designed and built row houses. A small crew, consisting of excavators, masons, carpenters, and plasterers, built a house on contract or, usually, on speculation under the supervision of a builder-architect.[5] A contracted house could be built according to an agreement whose simplicity indicated the power of the row house as a building-type and the general understanding of nineteenth century middle-class housing standards. In two hand-written pages for a row house built in 1821, such an agreement gave the house's outside dimensions, materials, the thickness of walls, the heights of ceilings, the finish for stairs, floors, and fireplaces, and the number of windows and their panes, but little more, the contractor building according to custom and being paid in installments as each floor was laid. (In this case in amounts alternating between $1,000 and $500 and totalling $4,500.)[6] Professional architects were rare in the city, and distinctions among craftsmen and designers were less pronounced than they would become later in the century.[7] The elemental quality of row house construction and the replicability of the building-type's plan of side hall and front and rear rooms permitted small work crews and architect-builders to fashion residential neighborhoods. A house generally took one year to build, and



Row house, parlor floor. Early-nineteenth-century New York row houses were diagrammatically simple. Shallow dwellings, they were afforded adequate light and air from front and rear windows. (Source: Scribner's Magazine [June 1890])

only in the mid-nineteenth century, when plumbing and gas lighting become prevalent, did the small building crew expand for new trades.[8] If built speculatively, row houses were often erected in groups of three to five and then leased.

As the century progressed and New Yorkers and Brooklynites prospered during the industrial revolution, the row house grew elaborate with pipes, amenities such as bathrooms, and space for libraries, music rooms, and conservatories. It increased from two stories to four and more stories and stretched deep into the lot, so deep, in fact, that by the 1890's little backyard was left in the city's newer blocks. The pressure of land values also narrowed the lot in middle-class districts to as few as 16 feet, although on upper-class streets of Manhattan and Brooklyn, 25 feet remained the desirable minimum.[9] Constant, however, was the depth of lot, set by the 200-foot dimension of the city block. From city streets, the high walls of row houses, dressed with classical ornament at entrances and cornices, set the character of desirable neighborhoods. Entering their houses, middle-class and rich New Yorkers moved from the public spaces of their "parlor" floors to the more private spaces of their bedroom floors above, those rooms facing the street afforded the greatest light and view.

Controlling the Urban Environment: Design by Covenant

To assure an initial design quality and social stability for their neighborhoods during a century of rapid change, row-house residents depended on private agreements. In the *laissez-faire* atmosphere surrounding nineteenth-century private property, it was left to the buyer and seller of lots to determine the character of a row-house street. New York did have building codes, chiefly aimed at preventing fires. By 1860, no wood buildings could be built below 52nd Street and buildings higher than two stories were to be of brick or stone with slate roofs, but no controls were placed on building uses (other than controlling the storing of explosives).[10] On avenues and sidestreets, covenants such as the one drawn in 1831 between Samuel Ruggles and the buyers of lots around his proposed Gramercy Park at 20th Street helped determine both the physical and social character of middle and upper-class residential neighborhoods. For his part, Ruggles promised to provide the park with its "ornamental" enclosure or fence, walkways, carriage drives, and landscape. He also promised prospective buyers that only one family would be allowed to live on each lot, thus assuring an exclusive row house community for his property's 66 buyers. In return, buyers agreed not to build "...any other than brick or stone dwelling house at least three stories in height... and further [that neither buyers nor their heirs] at any time... erect or permit... any livery stable, slaughter house, smith shop, forge, furnace, steam engine, brass foundry, nail or iron factory, or any manufactory of gun powder, glue, varnish, vitriol, ink or turpentine, or for the tanning, dressing or preparing of skins, hides or leathers, or any brewery, distillery,

public museum, theater, circus, place for exhibition of animals, or any other trade or business dangerous or offensive" to the neighborhood's inhabitants.[11]

In 1868, nearly forty years later, another deed drawn for adjacent lots at 52nd Street and Sixth Avenue was even more explicit regarding the kind of row houses to be built, reflecting the increased affluence and complexity of the industrializing city. In this case, the buyer and his heirs had to promise to erect "...good and substantial first class buildings of at least *four stories* [italics added] in height above basement, constructed of brick or stone, and the fronts of which [would] be of the best quality stone or Philadelphia brick, with stone trimmings, the said buildings to be of at least twenty-five feet in width on front on Sixth Avenue, and [not] to build a house of any other description or character..." In addition to the standard prohibited uses found in the Ruggles agreement, this deed added "... lager beer establishment... drinking saloon or bar room, dance house or place of amusement... or any erection known as or used or employed for the purposes known as nuisances in the law."[12]

The relative consistency of row-house neighborhoods was testament to the power of the row house as a building type and the power of their developers. In Brooklyn Heights, for example, Hezekiah Beers Pierpont, who purchased sixty acres in the neighborhood in 1804, hearing of a factory planned for the vicinity, pressured the City of Brooklyn to break up the proposed site with streets to make its industrial use impractical,[13] the strength of the City map combining with the power of covenants to assure attractive residential development.

Accommodating Density: The Emergence of the Tenement

In the nineteenth century, private row houses were afforded by only a very small portion of New Yorkers. (In 1859, for example, only 14 percent of Manhattanites owned or leased a private house.[14]) Most people shared their housing, usually in tenements which, according to the legal definition, were dwellings that accomodated three or more unrelated families. Tenements could be converted row houses that had been abandoned by middle-class residents or they could be built new. Much of nineteenth-century New York's housing reform was directed at the tenement and the setting of requirements that would make the 25-by-100 foot lot palatable for multiple occupancy.[15]

In mid-nineteenth-century New York and Brooklyn, as older row house neighborhoods fell into disfavor and new ones developed, covenants were eroded under economic and social pressures as formerly exclusive dwellings were converted to low-income housing. During a genteel neighborhood's transition, stores and small businesses, anticipating the path of a commercial-district or the spread of an immigrant community, often located in the row house's first floors or basements while rooms upstairs became tenement apartments.[16] Such apartments could be horrible. What

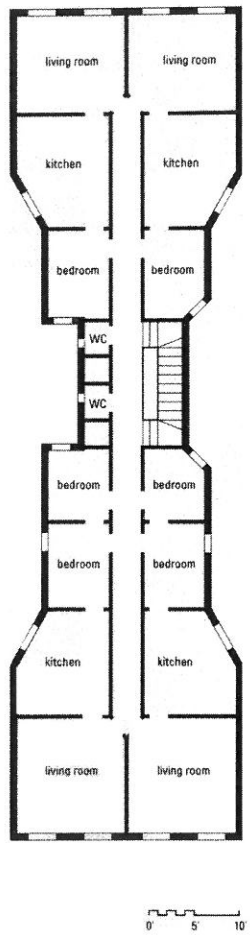
Dumbbell, elevation. The fire escape, mandated by law in 1867, reveals a working-class dwelling despite decorative allusions to the middle-class row house

was once a bedroom, 12-feet wide and 15-feet deep, became a single apartment. What were once windowless dressing rooms and closets became cell-like bedrooms. What had once been private backyards were often covered with a second tenement entered from the street by way of the row house's old hallway, now gutted and made a public corridor to a rear alley. Secondary rows of flimsily-built tenements, sometimes less than six feet from the rear walls of old houses, rapidly became the city's worst housing.[17]

In poor and working-class districts, new tenements were developed from a building-type as replicable as the row house; a 25-foot party-wall building that conformed to historic property divisions and extended deep into its lot to provide as many apartments as possible. Twenty-five feet was just wide enough to provide rooms for two parallel lines of apartments to either side of a central stair hall. By foregoing backyards, small-scale developers provided the high number of apartments to cover their building costs while keeping rents within the reach of the poor. [18] It was here where the lightless and airless "railroad flat" began, so named because each room was placed one after another in boxcar fashion. New tenements were often as bad as those converted from old buildings. They could cover virtually all of their lots, which made rooms and apartments at the center of the buildings windowless, and they could be built shoddily of recycled materials from New York's demolition sites to cut costs.[19]

At a time when New York's and Brooklyn's most desirable neighborhoods consisted of private houses, tenement cubicles were considered reprehensible; they were not only physically inadequate, but they were thought to threaten the structure of family life with their public stairs, communal toilets, and open rooms.[20] In addition, slums were considered problematic for the city as a whole; slums lowered property values in nearby, more prosperous neighborhoods; slum-bred illnesses lowered the working class's productivity; and the slum's high incidences of tuberculosis and cholera threatened the city with disease.[21] Eventually, New York and Brooklyn overcame their *laissez-faire* attitude toward private property and instituted a series of increasingly demanding laws to guide the building of multi-family housing.

By 1864, 15,309 tenements housed 480,000 New Yorkers.[22] In 1864, the Citizen's Association of New York was formed which advocated city-wide collection of housing and health statistics and methods of public health control. The results of its activity were New York's Metropolitan Board of Health and a local tenement housing law.[23] This 1867 legislation, affecting both New York and Brooklyn, placed minimum requirements on tenement construction including transoms between adjoining rooms to circulate air, fire escapes on the exteriors of the buildings, and at least one water closet per 20 occupants.[24] Now it was possible to go to a toilet inside the tenement instead of out back. Now there was a means of escaping a burning house. In 1869, the Board of Health made its transom requirement retroactive, and 46,000 interior windows were cut into tenement rooms.[25] Yet none of these regulations prevented new buildings from covering



Dumbbell, plan. The manipulation of the party wall after 1879 marked the advance of multiple-family housing for poor and working-class families. (Source: Ernest Flagg, "The Planning of Apartment Houses and Tenements," in The Architectural Review [New York, 1902])

virtually all of their lots and said nothing about providing exterior windows for all rooms. Such requirements waited until 1879, when a law posited a new building type for multifamily housing: the dumbbell tenement.

Building-type as Product of the Law: The Dumbbell

The basis for the dumbbell was an 1878 tenement competition sponsored by the trade journal *Plumber and Sanitary Engineer*.[26] The building's popular characterization was both derisive and accurate: pinched at its center to provide air shafts for center rooms and bulbous at its ends where its spread the width of the 25-foot lot, its plan looked like a hand-weight. It was also the reformer's great compromise. In making its award the to competition's winning architect, James E. Ware, the jury was resigned. "It is impossible," they wrote, "to secure the physical requirements of the physical and moral health within these narrow and arbitrary limits."[27] Nevertheless, Ware's submission was considered the best of 200 entries and it became the basis of New York's most demanding tenement law up to the time - and as pervasive a New York building type as the row house. In outline, the 1879 law was stringent by specifying window sizes (a minimum of twelve-square feet for a sleeping area), limiting building coverage to 65 percent for inside lots (corner lots were free of this limitation because it was assumed that street intersections provided adequate light and air), and reducing the building's occupancy to one person per 600 cubic feet.[28] In reality, the law's impact of tenement life was nominal. Airshafts that were to have marked the improvement of these buildings over earlier ones served as receptacles for garbage thrown from windows, channels for cooking odors, echo chambers for noise, and chimneys for fires that shot from floor to floor. Although the airshafts provided exterior windows, only front apartments faced a real source of light and air: the street. Rear rooms faced a yard that legally could be as narrow as ten feet, a source of light that was nevertheless superior to the airshafts, which were about two-and-a-half feet wide. Nor did dumbbells solve the tenement's crises in health and family privacy; their rooms were still open railroad-flat style and their toilets were still communal. And to make matters worse, the buildings were taller than typical pre-law tenements, which had been four stories high. To amortize their increased construction costs, developers built dumbbells that were five, six, even seven stories tall.[29] With an average of four apartments per floor, new tenements housed up to thirty families on a property suitable for just one in a row house district.

During the 1880s, 1,000 tenements were built each year.[30]The replicability of the dumbbell made their construction quick: one could be erected and occupied in six months by a developer who might spend $10,000 on a lot, $14,000 on construction, and expect rents of $12 to $16 per month for three-room apartments.[31] Housing reformers watched in dismay as tenements

grew taller and darkened the streets. Now the 25-foot lot was considered New York's "greatest evil, for from this [property] division has arisen the New York system of tenement houses - the worst curse which ever afflicted any great community."[32]

High-Density Urbanism

Tenements spread rapidly across New York. In 1865, 480,368 Manhattanites lived in tenements; in 1875, 1,0461,886; in 1890, 1,515,301; and in 1900, 2.3 million of the newly-formed Greater New York's 3,369,898 residents lived in 80,000 tenements.[33] In poor and working-class neighborhoods, some achieving densities of 1,000 people per acre, the buildings created a street life that was dense, indiscriminate, and rich. Unfettered by the restrictive covenants that characterized middle and upper-class row house districts, developers often included shops in their building's first floors, which paid higher rents than apartments and also satisfied the needs of low-income residents who could not afford to buy in bulk but had to make frequent, small purchase.[34] To shops were added the pushcarts of under-capitalized entrepreneurs who turned the street into a market - familiar to the Eastern and Southern European immigrants who had come to dominate the city's newcomers by 1900.[35] And because park space was largely omitted from the street grid, the street emerged as a social and recreational as well as a commercial facility. On the stoops, between the pushcarts, indeed, in the middle of the street, were found children playing, their paths mixing with horses, trucks, and pedestrian traffic from local pubs and saloons.[36]

The intensification of the use and experience of the tenement street represented an inversion of the original intentions for the grid. The grid had been predicated on a concept of private property in which row houses served individual families as discreet units that shared public territory only beyond the property line. The slum tenement brought many families and public circulation into the house while high population density pushed private life into the streets. Public space, dominating poor neighborhoods, helped define the slum.[37]

No architectural features better represented the grid's inversion than did the stoop and fire escape. If the row-house stoop defined the threshold of the private domain, that of the slum tenement served as an open bridge to public halls. In this high-traffic role, it was the nexus of poor New Yorker's domestic, commercial, and community life: the shopkeeper leaned his wares against it, housewives claimed it as their armchair on the street, and neighborhood children used it for their games of jack and stoop balls. Fire escapes suspended domestic life directly above the street. Extending from window sills, they were the logical extension of densely populated interior space and were where wash was hung to dry, children sat to watch the scene below, and the family brought mattresses to sleep during hot summer nights. If in neighborhoods like Gramercy Park an urban

French flat, elevation. French flats carefully translated the decoration of contemporary row houses, in this case using the brownstone that became popular in New York and Brooklyn by mid-nineteenth century.

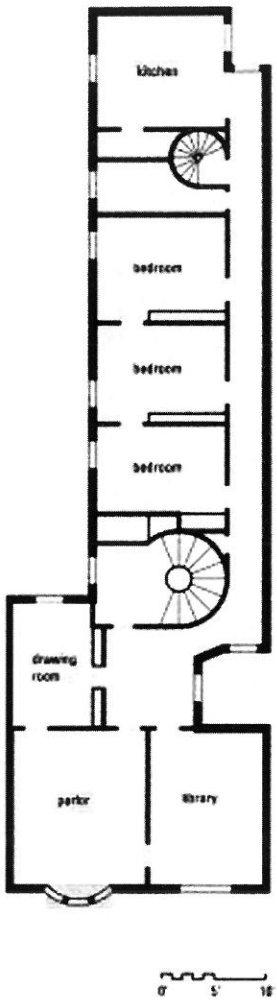
landscape of street trees and flowers graced the sidewalks, activity swept aside such amenity in areas of the Lower East Side and Brooklyn's Brownsville: Pushcarts descended on street corners; peddlers spread blankets on the curb to show their goods; and shop owners thrust display racks in front of their doors.[38] While row houses might be veiled by trees to deepen their privacy, tenements were thickened with signs that proclaimed their public and assimilationist functions. Signs for groceries, dry goods, and services (often immigrants' attorneys) were attached to walls, projected from fire escapes, and stenciled on glass. In tenement neighborhoods, the legibility of the street wall as much as its human activity underscored its difference from the row house neighborhood. It confessed its foreigness even when it was quiet, European names and Hebraic and Chinese alphabets cluttering - often overwhelming - the facades which lay underneath.

The French Flat

For those New Yorkers occupying a middle-ground between dumbbells and row houses, multiple-family dwellings were also built, often called "French flats" by their developers to differentiate them from their lower-class cousins. On the typical 25-foot lot, a five or six-story dwelling usually had one or two apartments per floor and, if built during the 1870s or later, sometimes an elevator. Given the relative spaciousness of their plans, apartments translated the hierarchies of public and private space of the row house on a single floor, with parlors facing the street, bedrooms occupying the center of the plan, and service (and servant) rooms at the rear. Subject to tenement law, they usually surpassed its requirements with bigger rooms, private bathrooms, and more ample courts.

The choice between living in a private row house or in a French flat was often economic. Between 1889 and 1902, for example, the average cost of erecting a private Manhattan house escalated from $15,000 to $66,000,[39] well beyond the means of people who might take a flat on the West Side for $75.00 per month.[40] There were other savings to living in a flat as well: A row house required a minimum of four to eight servants, a number that could be reduced by half and more among flat occupants whose building staff stoked the furnace, saw to the plumbing, and kept the building secure.[41] Such economy was attractive, even among people living in the best buildings where rents were between $2,000 and $4,000 per year.[42]

For the middle class, French flats offered carpeted hallways, speaking tubes to janitor and street door, and dumbwaiters for the delivery of groceries and the removal of waste. Although the French flat was generally similar in form and construction to the lower-class tenement, "the living habits of the middle-class tenants did not aggravate these conditions, those of the lower class did."[43] However, the buildings were not immune from criticism and tenant discontent, which led to unfavorable comparisons with the Parisian buildings that inspired their name. Critics noted that



French flat, plan. Middle-class tenements translated the row house's hierarchy of public, private, and service spaces in narrow, deep apartments. The contiguous side court helps establish the superiority of this plan over contemporary dumbbells. (Source: American Architect and Building News 3 [4 May, 1878])

their construction, based on the brick and wood technology of New York's row houses, easily transferred family noises from floor to floor, while pipes, dumbwaiters, and speaking tubes communicated sounds and cooking odors. Social tensions were also familiar to the buildings where families who limited their domestic life to the confines of their apartments were irritated by those who used stairhalls and stoops as extensions of their space. And whatever their allusions to private houses, these buildings were often transient environments in which marginally middle-class families sublet their apartments in order to afford vacation travel or simply moved after falling in arrears with the rent.[44]

As the middle-class tenement became more popular, it introduced the notion of the twentieth-century apartment house. The passenger elevator, used commercially for the first time in New York in 1858 at the Astor House hotel,[45] pushed middle-class buildings higher. By the 1880s, elevator tenements seven, eight, and nine stories were built,[46] and as they grew tall and covered larger sites, afforded a spaciousness and flexibility in layouts that rivaled row houses in additions to standards of service that were the product of pooling several families' resources.

French-flat Urbanism: The Intersection of Covenant and Law

Where middle-class buildings dominated the view, tenements often created an elegant urbanism. Grassy malls extended down Seventh Avenue and Broadway (or the Boulevard, as the upper part of Broadway was known until 1899). Regularly planted trees graced the sidewalks of the West Side and Brooklyn. Canvas awnings, spread to keep apartments cool, dotted well-composed facades.[47] In these middle-class blocks, there was not the indiscriminate mixture of shops and living as their was in the Lower East Side. There were commercial streets with expensive tenements above them, but there were also sidestreets which, by private agreement, were exclusively residential. There were fire escapes, but many buildings relegated them to rear walls out of view of the street, which was possible because many apartment stretched the entire depth of the floor. There was density, but there were also community organizations and middle-class values that encouraged cleanliness and order.[48]

During the early rise of the French flat, the 1880s, the tenement followed the spine of private houses up the center of Manhattan, with those in and around Madison Square at 23rd Street the most fashionable, those near Union Square at 14th Street considered "adequate," and those below Washington Square dismissed as "cheap."[49] By 1900, better buildings had spread considerably further. In Harlem, the "small family with refined tastes and no social ambitions [could] have an agreeable home."[50] On the West Side, where there was greater social prestige, buildings offered "much luxurious show in the way of tiled floors, marble wainscot in the public halls, carved over-mantels, stained glass and other fine appointments."[51] Building by building, tenements distinguished themselves by

subtle differences in rent: below $50.00 there was little in the way of a building staff; above that figure came "hall boys" in uniforms at the street door; while for about $80.00 per month, the New Yorker also enjoyed an elevator and operator.[52]

Along middle-class streets were tenements and row houses combined, tenements played subtle urban, social, economic, and architectural roles. On the first floors that faced commercial streets, they provided shops and services for the community. If erected on avenues with rapid transit, they shielded row house sidestreets from the worst clatter of elevated trains. And by filling their block's less desirable sites, they permitted developers to exploit the full potential of the city block. In their interpretations of domestic architecture, their fine stoops, turrets, and bay windows enabled the row house owner at the middle of the block to see an uninterrupted sweep of eclectic, middle-class domestic architecture that extended to the street corner, while the tenement resident could sense his building's continuity with the street's better housing to reinforce his sense of advantage in living in a desirable neighborhood. Given an overall impression of unity, such blocks also represented the increasingly finely spun socio-economic hierarchy of the late nineteenth century's middle class.[53]

Between Party Walls

By 1900, the 25-by-100-foot lot, the street grid, and the interrelated building types of row house, tenement, and French flat shaped New York residential neighborhoods that stretched from Manhattan to the outer boroughs of Brooklyn, Queens, and the Bronx. These neighborhoods achieved a common character from high, narrow, party-wall dwellings built of masonry bearing walls and wood joists and entered by way of stoops. Although neighborhoods might vary according to density, class, and ethnicity, aspects of the city's residential architecture and urbanism, rooted in the city's property divisions and street system, were constant enough to give residential districts similar morphology.

Whether rich or poor, those neighborhoods laid out according to the 1811 and 1839 street grids stretched with long avenues regularly intersected by cross streets. Because the grids offered few deviations and park space, the street was both the major public space and source of light and air in most neighborhoods, cutting through blocks of housing that often achieved a monolothic character. Given the primacy of the 25-foot lot in shaping the city block, housing dominated the street perspective in residential neighborhoods, the occasional institutional building - church, synagogue, club, library and school - imbedded in the street wall as a multiple of the lot. Given the lack of spatial variety and hierarchy between streets (other than differences in width among avenues, major cross streets, and cross streets), the type, condition, and density of housing was determinant in distinguishing them, the Fifth Avenue house and Second Avenue tenement

defining their respective streets.

On streets of all classes, the best rooms and apartments generally faced the street, whose dimensions were held constant, rather than the back, where yards and courts fluctuated in depth according to the pressure of development to darken the rooms of both rich and poor. The general invisibility of the yard and court from the street, coupled with their utilitarian and secondary functions, minimized their decoration and landscape, reinforcing the orientation of dwellings toward the street. From their front windows, residents of row houses, tenements, and French flats looked out upon views that were similarly proportioned and similarly rendered, the pervasiveness of masonry construction and classically-derived ornament producing a continuity of impression despite real differences in housing quality, street life, and, in poor and working-class neighborhoods, the imposition of fire escapes.

For the New Yorker living in a row house, tenement, or French flat in 1900, the arrival home consisted of turning between narrow cross streets and wide avenues, passing dwellings similar in type and status to her own, looking at parlor and bedroom windows that were no more distant from the sidewalk than the depth of the stoop, ascending her own stoop where she was afforded a view of the length of her street, and entering a vestibule and stair hall. Inside her dwelling she occupied narrow rooms that ran perpendicularly to the street, her class imparted by their size, number and the proportion of the dwelling they claimed. While these conditions were shared with other New Yorkers, distinguishing conditions of neighborhood density, ethnicity, and street life, and of dwelling amenity, maintenance, and privacy lent specificity to her experience of the city's residential urbanism.

EPILOGUE

By World War I, several factors converged to change New York housing. These were:

1. The passage of the 1901 tenement-house law whose requirements for large courts effectively broke the 25-foot lot as the shaper for multiple-family dwellings. Now such housing was less rigidly defined by a building type like the dumbbell and, combining lots, offered a variety of plan configurations and apartment plans.[54]
2. The building of the subway system, which spread the city's population to outlying, lower-density districts where the 1901 law was applied and developers also built single-and two-family, free-standing houses.[55]
3. The technology of steel frame and elevator buildings, which, coupled with increasing Manhattan and Brooklyn land values, introduced high-rise apartments to desirable neighborhoods such as the Upper East and West Sides and Brooklyn Heights.
4. The 1916 zoning law, the first such law in the country, which superseded deed restrictions and encouraged real estate speculation and high-rise

development in fashionable row-house neighborhoods.[56]

By 1928, when New York State passed the Multiple Dwelling Law, New York City's characteristic elevator apartment house, spread over several lots and rising between six and 12 stories and more, was the model for housing - not the row house or tenement. Nevertheless, this housing type, growing from the precedent of the French flat, conforming to the street grid that was derived from the 25-foot-by-100-foot lot. Usually erected as a party-wall building, it carried forward elements of New York's nineteenth century residential architecture and urbanism into the twentieth century.

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49. King, *King's Handbook*, p. 242-244.
50. King, *King's Handbook*, p. 243.
51. King, *King's Handbook*, p. 243.
52. King, *King's Handbook*, p. 243.
53. The compatibility between row houses and tenements is still very much in evidence in the environs of Columbus Avenue, where an elevated train ran until its demolition prior to World War II and where tenements along the avenue still open to blocks of row houses in the West 70s and 80s.
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Photographs by the author.

Attilio Petruccioli

Polarity and Antipolarity in the Formation of the XIXth Century City

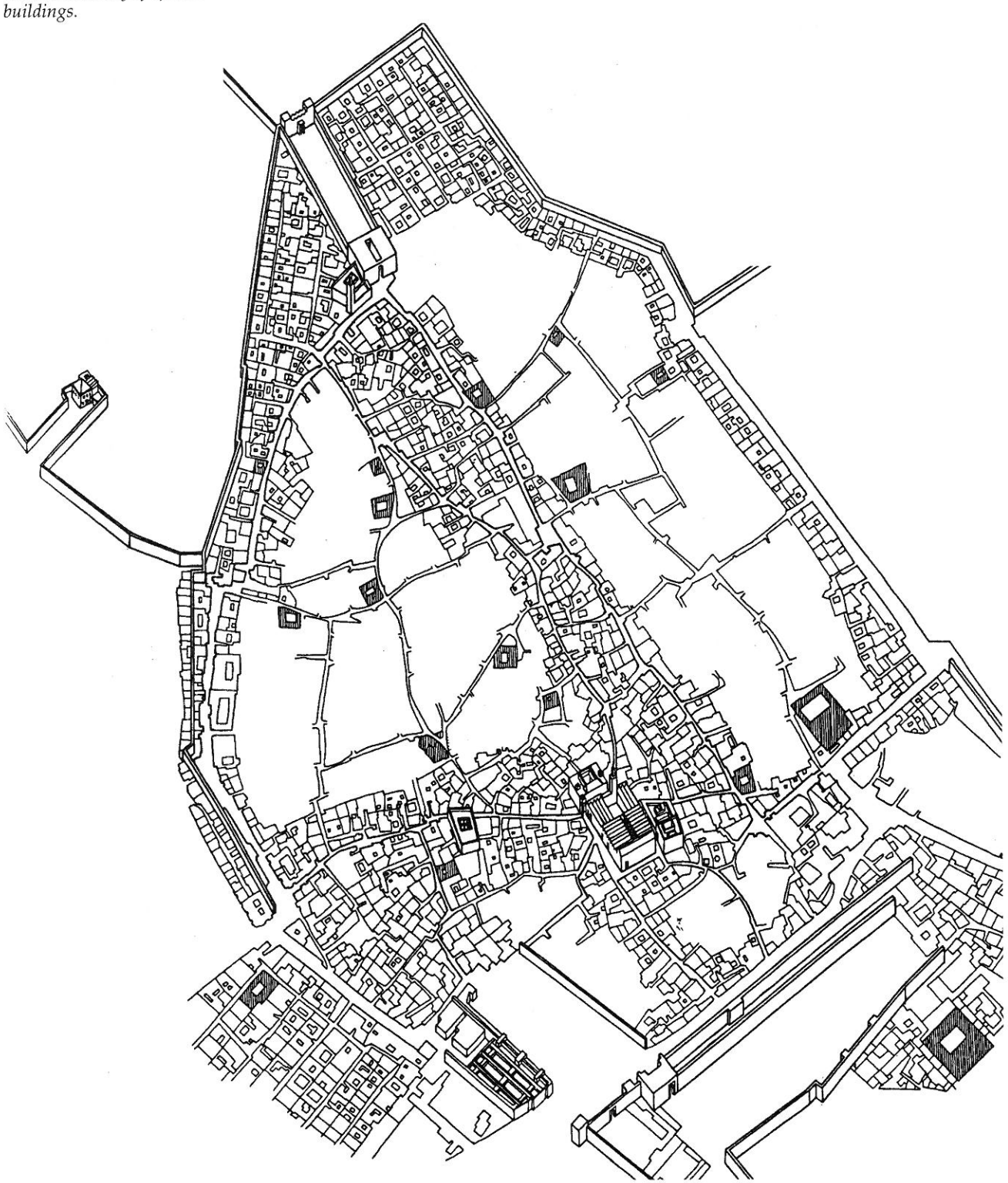
> *"On a chessboard two grids engage in a contest. In the space and time the game takes, each changes, both of its own accord and as a result of the changes in the other. The outcome is dependent upon a very complex mobility that is so fluid it is impossible to predict what will happen beyond the third play. . . . We can only say at least that it makes little difference which piece is moved first. As time passes the area of interpenetration between the two games becomes greater, and everything happens as if there were a progressive filling out of the concept of determination."*
> --Michel Serres

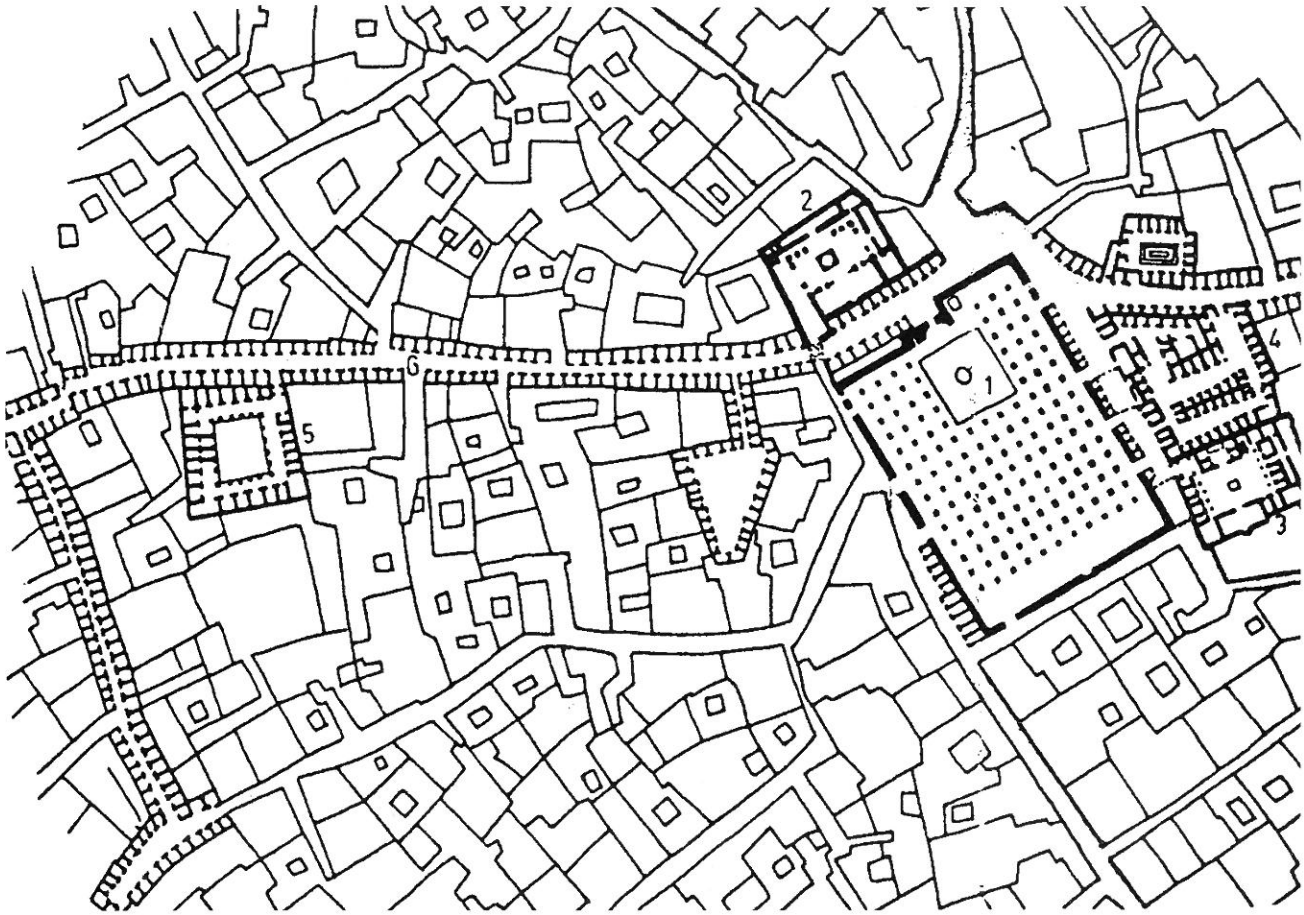
Scholarship on the city has only partially revealed the complexity of the process by which it grows and evolves. Michel Serres describes this process in his theory of knowledge,[1] and while his description should by no means be applied literally, just as the fantasy of Calvino's *Invisible Cities* is not meant to be an urban manual, it does suggest the idea that cities are shaped by the same web of forces that shapes societies, through a blend of time and space that produces a state of progressive coagulation.

The concepts of nodality and polarity are the guiding principles in reading city structure and its evolution. These concepts and their various dialectic opposites explain the growth of the nineteenth-century city and how it differs structurally from the premodern city. A node can be defined as a point of concentration in a continuity or a point of separation between two continua. The relationship between constructed spaces and the general shape of a city is not based on the ordering of simple figures, like items mechanically juxtaposed in a catalog. At the inevitable point where two urban nuclei collide, something much more determined and complex -- that is, the node -- is constructed. A node is not simply an addendum, but an organism capable of accomplishing a task that is greater in scope than just demarcating space; it is implicit in the concept of a building or urban organism. With Serres's imaginary chessboard in mind we can describe the nodes as the accumulation points of greatest power:

"We have a grid of multiple points connected to one another by a multiplicity of branches [the routes]. By definition, no one point is more important than another; the same is true for the routes. However, it is always possible to recut locally strong subsets on the grid as a whole so that their determining strength is greater than the sum of the strength of the individual elements. They are distinct from the grid and have the

1. Meknes, Morocco: the Urban Fabric and the principal nodes. A case of limited hierarchy of special buildings.





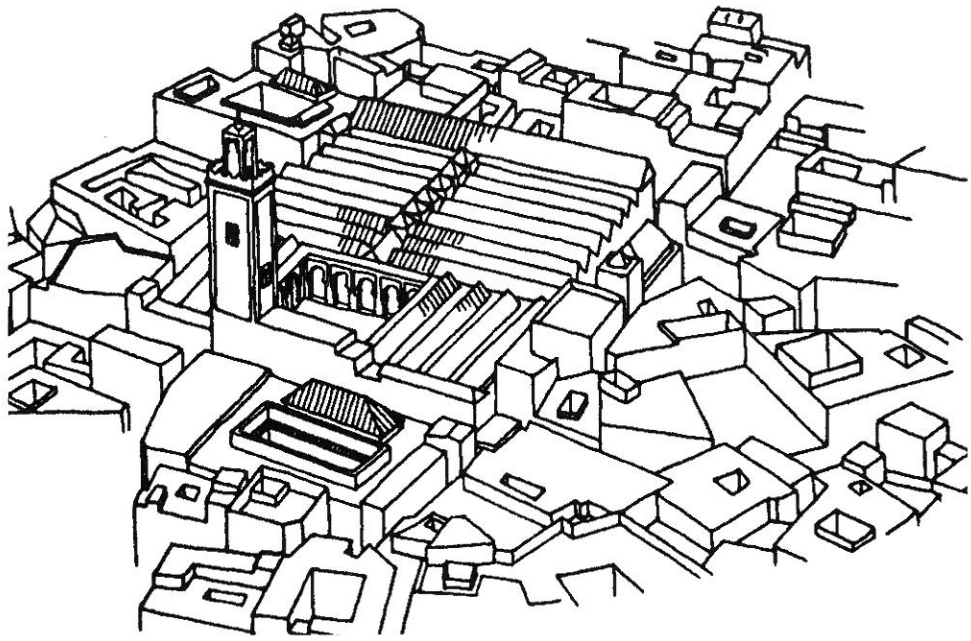
2a. Meknes, Morocco: The central polarity includes (1) Jama el-Kebir, (2) Medresa Bou Inania (14th. C), (3) Medresa Filalia (14th C), (4) Kissaria, (5) Fondouk el-Sepate, (6) Souq Sebat (13th. C).

capacity for more relationships than the primary elements do."[2]

On an architectural scale it can be expressed by the connection between two elements, such as a column and a beam, or by the virtual encounter of two axes, like the transept and the main nave of a church.

A node in an urban fabric can be either a discontinuity in a route -- a ford or opening, the intersection of two routes -- or a focal point of intersection where two geometric and compositional axes meet. Such is the case for the tetrapilon of Bosra and Palmyra, the four-sided arch in Tripoli (Libya), and the obelisks of a Baroque city. Nodes can also be special building complexes with defining power: think, for example, of the role played by the railway station in a nineteenth-century city. On a territorial scale, nodes are salient topographical exceptions: they can be the settlements themselves, a special locale, a detail of the infrastructure, or points of concentration of resources.

As a result, we expect more legible nodes in the connection of tectonically clear serial structures, that is, systems that are juxtaposed (two joists nailed together or two urban grids) or superimposed (a trilith) in contrast to systems that are continuous (arch and vault) or stratified (masonry constructions or a medieval fabric). In a serial urban fabric, as in a building, the nodes are salient exceptions, whereas in a more organic



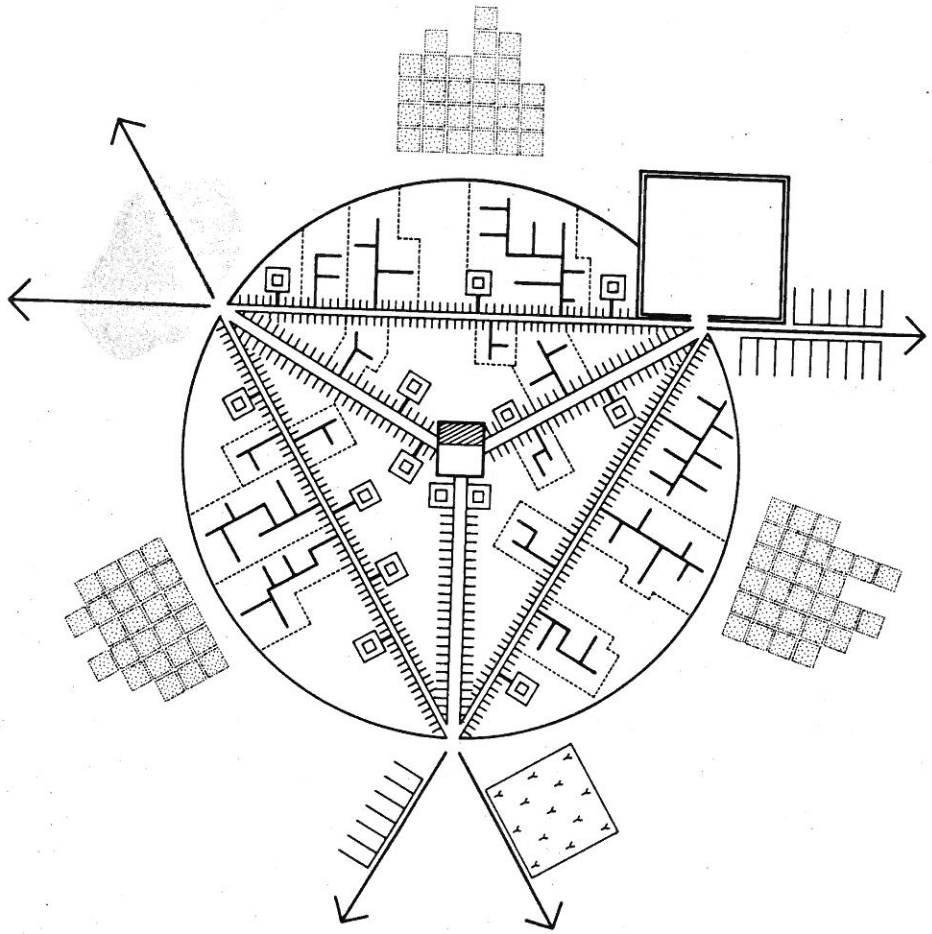
2b. Meknes, Morocco: Axonometric view of Jami' Masjid.

fabric nodes are concealed in a web of hierarchized relationships.

A pole is the progressive increment of the concept of node. It is a point at which there is a greater than average convergence of events, the influence of which reaches beyond the immediate surroundings. In a Saharan oasis all paths radiate in all directions from the oasis itself; the Arc de Triomphe in Paris has its convergent radial streets; and the Friday Mosque in Tunis, while not as geometrically obvious, is a pole of many doors all leading to the bazaar.

Nodality and polarity are concepts that define the quality and quantity of the determinative power of the nodes and poles.[3] However, the parallel concepts of anti-nodality and anti-polarity--the counterweights to nodality and polarity in any built object -- are not found in an absence of determination but are comparable to the positive and negative poles of a magnet.

If nodality includes the idea of centrality, its opposite, antinodality, suggests boundaries and limits, the best example being that of the *pomoerium* of the Roman city. This concept appears in the theoretical literature from the second part of the eighteenth century, but the distribution in town of the functional types of Francesco Milizia, in his *Principi di Architettura Civile* (1781) is still almost casual.[4] Although it was never realized for lack of funds, the Napoleonic plan for Imperial Rome conceived by the governor DeTournon in the first decade of the nineteenth century with the idea of getting over the Baroque city, is important, because it reinterprets the Roman genius loci in terms of polarity and antipolarity. The plan is a figurative structure with high formal density that prefigures the expansion of the city along the north-south axis of the Via Flaminia. The north is covered by the complex garden design of the

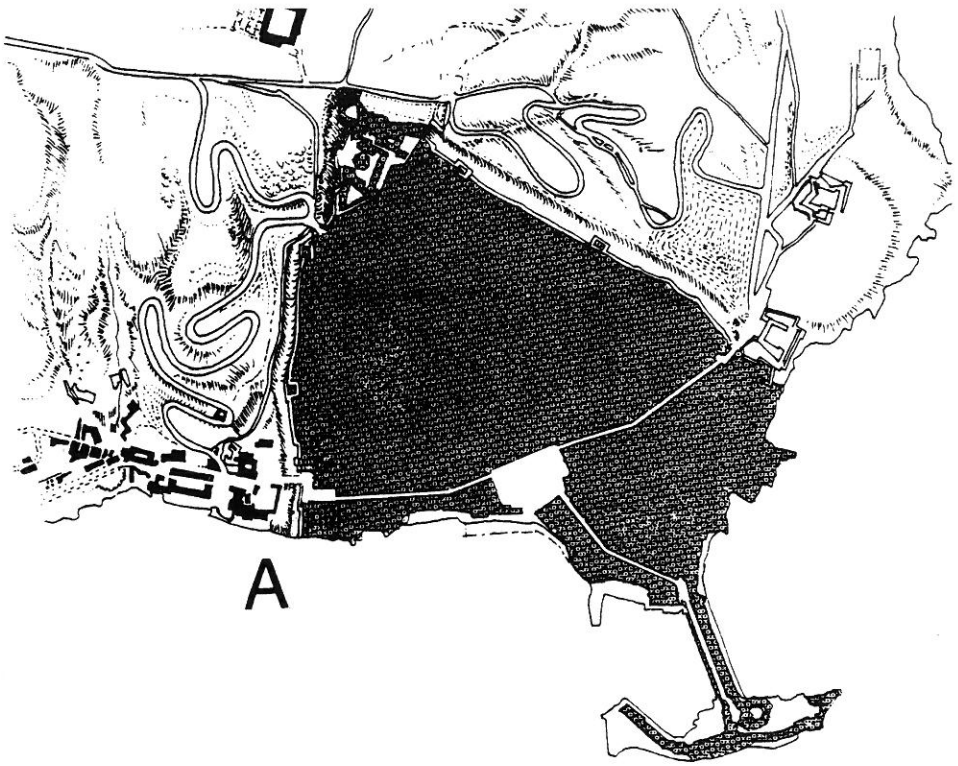


3. Diagram of an Arab city of the Maghreb according to Marçais. Marçais's idea of the city was based on the centrality of the Jami' Masjid and the antipolarity of the citadel, the cemeteries, and polluting activities. The main bazaars were considered generative elements of urban circulation. The centrality not necessarily coincide with the center of gravity of the figure. In port-cities like Algiers the center (including the Jami' Masjid) is at the edge of the harbor.

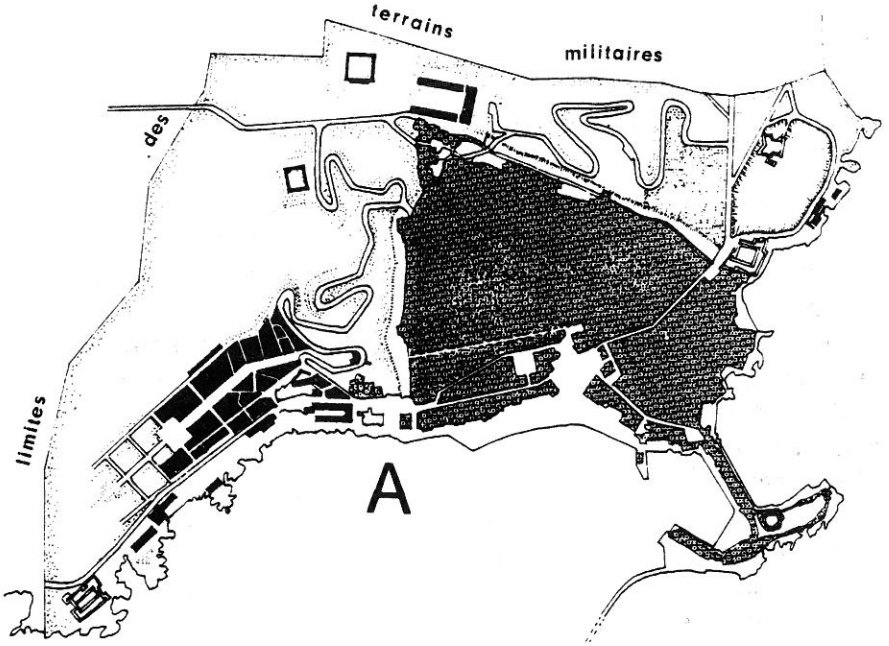
Ansa del Tevere, with a switch of polarity in the Piazza del Popolo; and the southern extension is again designed in the form of a park by L. M. Berthault, with a switch of polarity at the Piazza del Campidoglio.[5] This piazza has in fact always been the site of the municipality of Rome with its Palazzo Senatorio, but it always kept a character of antipolarity at the edges of the papal center. The solemn and rhetorical project of Scipione Perosini for an imperial palace for Napoleon I, which included the square and Michelangelo's work like a ruin, uses the palace as a hinge around which to revolve the urban plan.

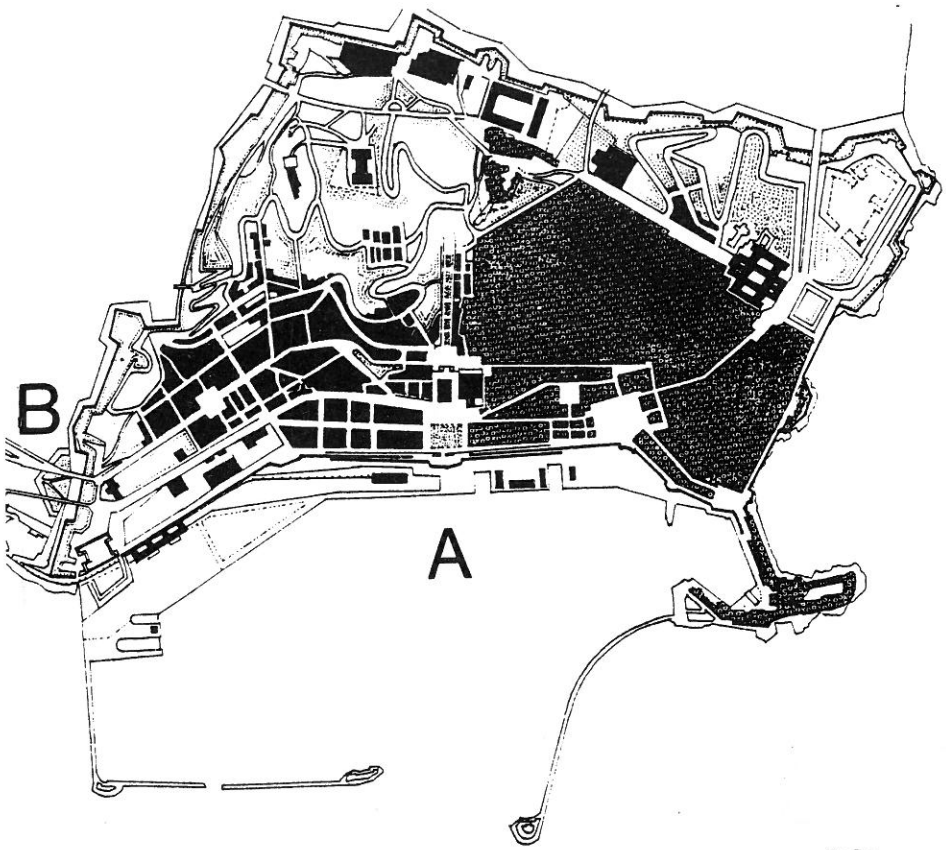
By simply observing urban phenomena we can confirm that the placement of central nodes involves not only the physical shapes of the volumes and the nature of the building types, but also their functions. Nodal functions and services automatically tend to occupy nodal areas, while essential services, many of which are irksome and unhygienic, are placed at the margin. In general, shops and businesses prefer the center of a city, and in some tissues they strategically aim for the corner site of a block, while parking lots and slaughterhouses keep to the fringes. In a Maghrebian city, the Friday Mosque occupies the geometric center when possible, or at least the center of the bazaar. It is surrounded by functions which do not clash

4. Algiers, Algeria in 1833. A - Bab Azzoun, the Turkish moat is still in place and some barracks face the gate.

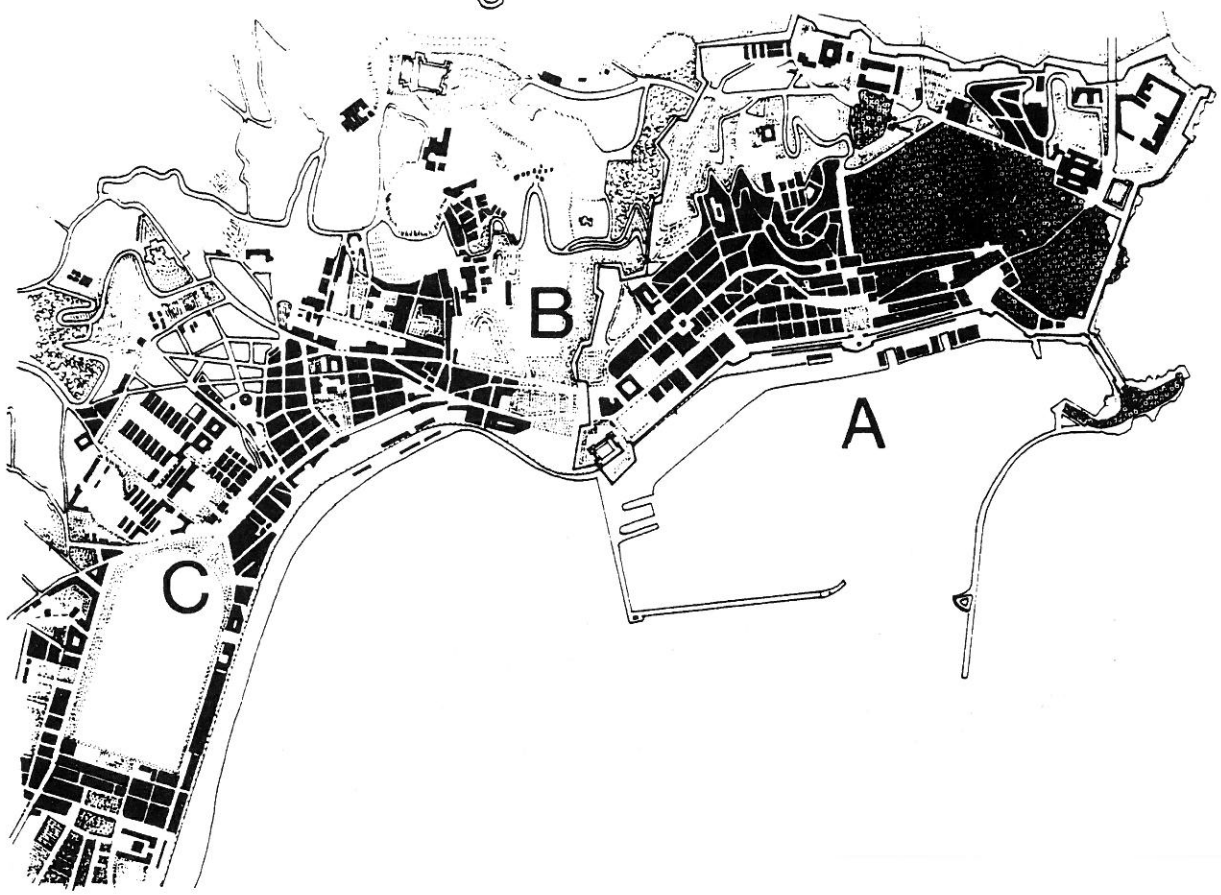


5. Algiers in 1846. A - the area of Bab Azzoun in transformation: the military structures are demolished and the quarter of Rue d'Isly is developing along the seashore.

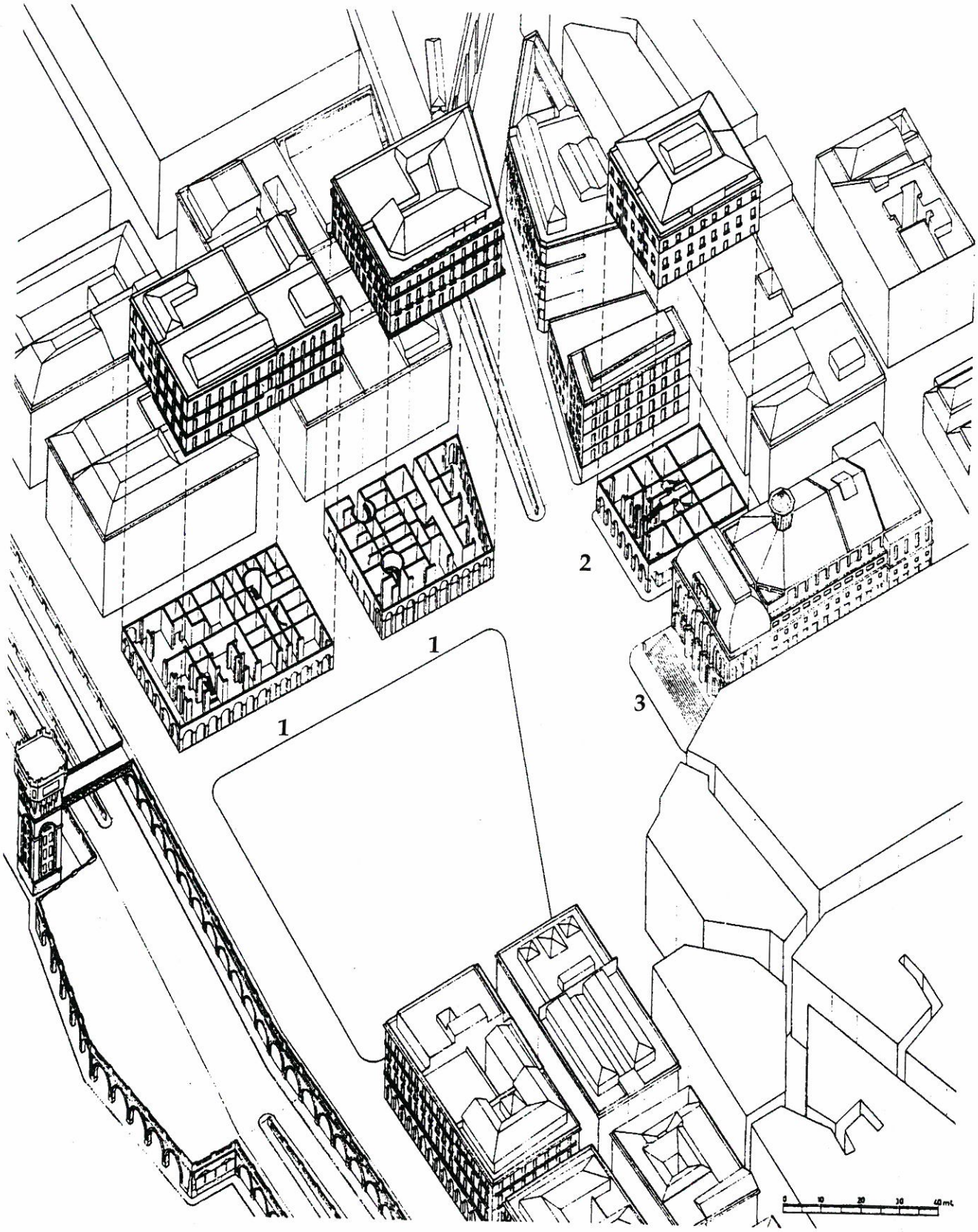




6. Algiers in 1880. A - the polarity of Bab Azzoun/Place de la Republique is complete with all the special buildings. The planned palace for Napoleon III is not realized. B - outside of the French walls the area has all the characters of antipolarity.



7. Algiers in 1895. A - the polarity of Place de la Republique. B - the wide leftover area as a hinge between the city and the new quarter of Mustapha. C - the "Champ des Maneuvres" is still an antipolarity.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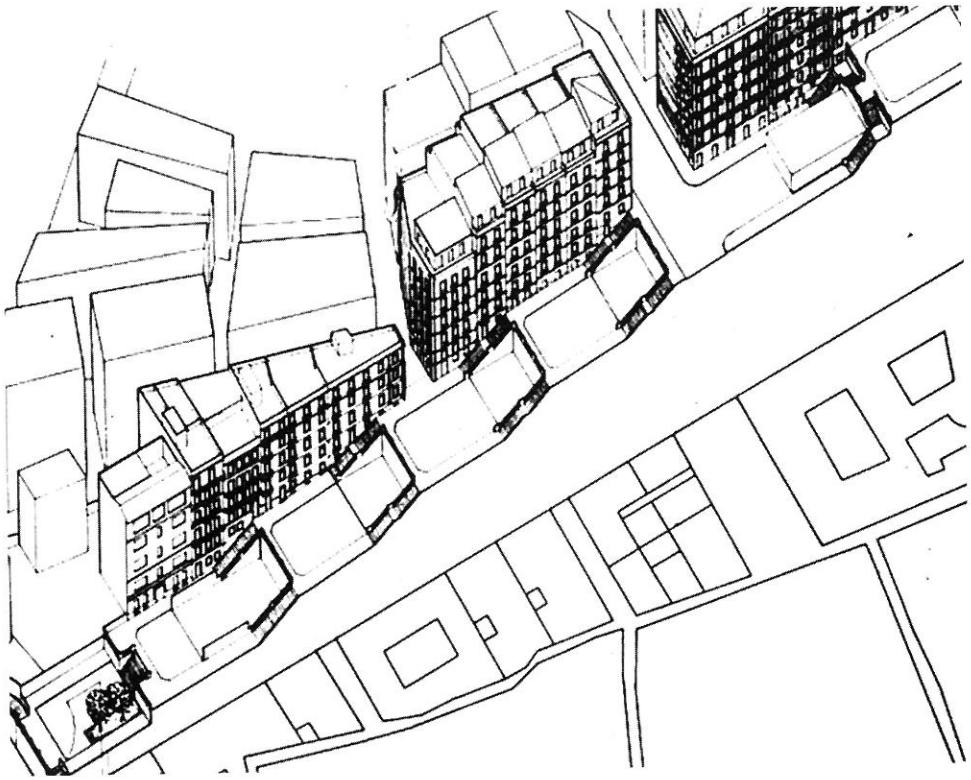


8. Algiers: Place des la Republique. 1 - hotels and apartment houses for the upper class. 2 - the mixed-use block discussed in the text. 3. National Theatre by F. Chasseriau.

9. Algiers, Boulevard Gambetta. The line of duplication of the French colonial city built on top of the Turkish moat of the Casbah.

with its sacred nature, disposed in progressively secularized circles that reinforce the sanctity of the center. Tanneries and dyeworks are pushed out of the inhabited center to a specialized area.

The determinations are not absolute; the concept of centrality has a subjective component. Kevin Lynch observes that those who inhabit the center of a city perceive it differently from those who live in its suburbs.[6] Claude Levi-Strauss demonstrates how the principle of centrality in primitive cultures is a function of an individual's position in the social structure.[7] What a dyer in Marrakesh, for example, regards as nodal--his dyeworks-- the collective regards as marginal. The concept of nodality/centrality is also objectively linked to the scale according to which an object or area is read. For example, a square in a neighborhood can be nodal/central with respect to the neighborhood and at the same time be anti-nodal/peripheral with respect to the city center. An urban center located in a valley may be a pole in the context of the immediate area, but reduced to a node by the greater context of the region.

These definitions are historically relative. In the dialectical process by which a city grows there is a continuous shifting of roles between node and antinode, pole and antipole. In the premodern city, two building tissues were generally juxtaposed by means of two borders of pertinent strips or two antinodal routes, the fusion of which transformed them into a central axis, the nodality, of a larger unit. The extreme ends maintained their peripheral character, but were poised to change this status in future

aggregations. Because of the shifting back and forth between node and antinode, pole and antipole, a developed tissue ultimately reveals an absolute center that, with topographical exceptions, confirms the original center, while the outskirts join to form a single outer limit, usually enclosed by a wall. In the ancient city this outer margin marked the beginning of the territory, considered the antipole. In the nineteenth century it was on this margin that the railway station was almost always located. This pole represented a new dimension of industrial progress, and often a city relocated its center to this area at the expense of the historic center.

Naturally, with every shift from pole to antipole the width of road sections, buildings, and open public spaces varied to adapt to the expanding size of the urban community, and the buildings were specialized to meet the changed needs of the larger system. According to this scheme, the area outside the gate of an Arab city like Tripoli (Libya), for example, could remain the point of exchange between the city and the territory for centuries. It served as a rest stop for caravans and the site of the weekly marketplace. Initially antipolar, as the urban fabric expanded the site functioned as a hinge for shifting back and forth between two states, by which time the area took on a new and polar role. A strong specialization of the surrounding buildings usually followed. In Tripoli, the castle, a former Turkish bastion, was restored and became the seat of colonial power.[8] Subsequently under colonial rule the Souk el-Kobra (Green Square) replaced the medina as the city center only to be replaced in its turn by the cathedral square during the expansion of the 1930s.

In Algiers[9] the phenomenon took place twice along the southern shores and is quite visible on a map. In 1830, the city south of Bab Azzoun along the Rue d'Isly grew, determined by the polarization of the ancient Turkish drainage ditch. Once filled in, the ditch became the monumental

10. Algiers. Mixed-use block in Place de la Republique.

Boulevard Gambetta and the irregular clearing outside the gate became the focal Place de la Republique, where hotels, a national theater, and police headquarters were soon located. At the end of the century, the walls that had been built by the French were taken down to allow the urban neighborhoods to be rejoined with the suburbs of Mustafa. This act created the polarization of the long strip of land formerly belonging to the army that ended in a monumental staircase and gardens facing the port. Before long, a host of special buildings such as the Grande Poste, the government palace of Jacques Guiauchain, and the National Library moved to this area. Boulevard Laferriere (today called Le Forum) is still the real center of the city.

The node of the Mustafa hospital represents a missed opportunity for a third exchange of antipolarity and polarity, probably because at that time the city's expansion had lost its vigor. The architectural solution created by Zerfuss in the fifties with its long slabs casually disposed betrays this uncertainty about the role of the place.

The phenomenon of polarity at the urban level has its parallel at the architectural level in the progressive specialization of residential buildings. A special building is a building whose prevalent function is not residential. In the nineteenth-century city, this tension is reflected by the architectures located in a transitional place. Most interesting are two buildings of Algiers of the 1860's in the Place de la Republique and rue d'Isly. Though their exteriors do not reveal this internal conflict, they both represent an effort at mediation rich in typological inventiveness. The first stands on top of a commercial basement that contains shops and the usual cafe. A single flight of steps leads to the superior level directly from the main entrance where the access to the lift and the stairs for the apartments are located. At this level of +18 feet are also the entrances to private residences and commercials units which do not require contact with the street. This

11. Algiers. Mixed-use block in rue d'Isly

space is dominated by an internal court covered by a skylight: the complex layout and the natural light from above suggests the idea of an urban tissue. This impression is reinforced by the windows and balconies that often open on this court.
The building in rue d'Isly has a similar structure, though the flight of steps stops at mid-level to serve a mezzanine, where the apartment of the concierge and arts and crafts activities are located. In this latter building, the architectural decor, with its columns, trabeations, and caryatids shows a stronger representation of a bourgeois ideal but the typological implant is the same.
In conclusion , the dialectical excange between polarity and antipolarity is an important phenomenon that dictates the rhythm of growth of the preindustrial city on all scales from architecture to territory.
In the typological process of fabric, as an aposteriori reconstruction, this exchange is easily readable. It is even more readable if it happens in a serial system that associates the concept of efficiency with the market, like the USA.
In our phylosophy which does not recognize the rupture of the Modern Movement with the past, this conceptual instrument has great potential for planning the extentions of the new city and correcting the distortions of the urban periphery.

NOTES

1. Michel Serres, *La Communication* (Paris, 1969).
2. Ibid.
3. Polarity is characteristic of all central-plan buildings, due to the rotation around a central vertical axis. The structural and virtual axes also converge on this central point. This general principal of polarity is especially pronounced in building consisting of domes constructed without shuttering. In the simplest version, such building systems involve tracing arches with string from a stake driven into the center of gravity of the plan. Eugenio Galdieri, during the restoration of the Friday mosque at Isfahan, discovered under the pavement of the prayer hall a masonry cube with a hole for such a stake. See Eugenio Galdieri, *Isfahan: Masjid-i Guma* (Rome, 1972). This system of tracing domes is also common in Central Asia, and given its simplicity and logic it may also have been extensively used in the Middle East.
4. Francesco Milizia, *Principi di architettura civile*, 1781
5. Attilio La Padula, *Roma napoleonica*, Roma, 1958
6. Kevin Lynch, *The Image of the City* (Cambridge, Mass., 1960), p. 49.
7. Claude Levi-Strauss, *Structural Anthropology* (New York, 1963), chapter 8.
8. It is more than a mere restoration. This transformation is made by the Italian architect Armando Brasini; in it all the composition is centered on the nodal position in the piano nobile of the office of governor Italo Balbo. See Claudia Conforti, "Armando Brasini's Architecture at Tripoli," in *Amate Sponde*, ed. Attilio Petruccioli, special issue of *Environmental Design* 1-2 (1990).
9. On Algiers see X. Malverti." Alger, Mediterranée, soleil et modernité", in *Architecture française d'Outremer* (Liege, 1992).

Giuseppe Strappa

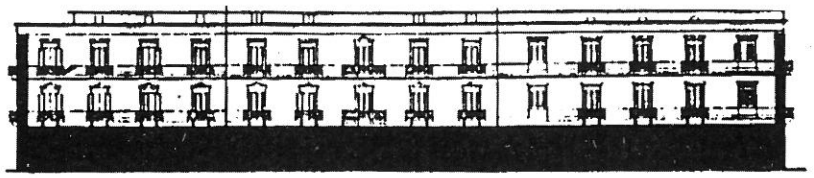
Continuity and Innovation in Building Types in Nineteenth-Century Apulian Town Fabrics

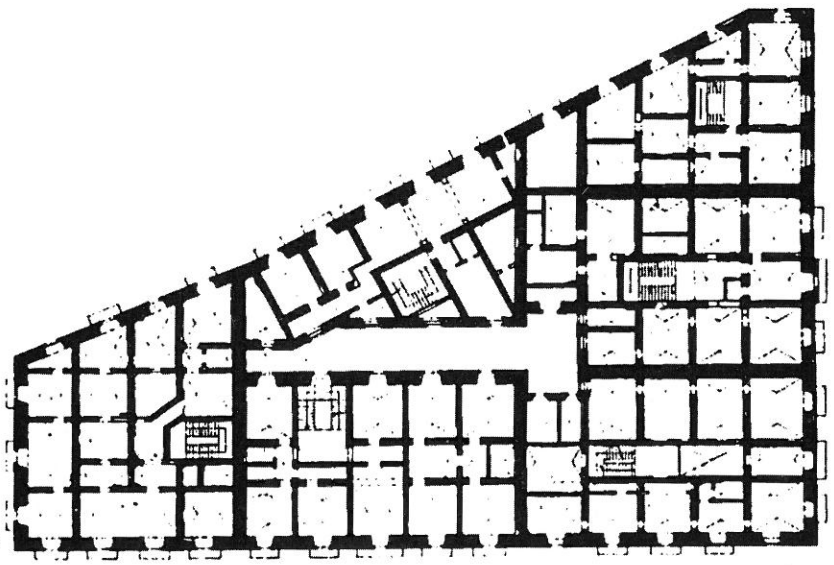
The expansions of Apulian towns, especially of medium or small size, represent, in many aspects, an exception in the XIXth century Italian urban landscape. Yet, the same peculiarity of conditions which has generated the expansions and determinate their development (the total lack of enlargements in the previous centuries, the radical opposition of urban grid and continuity in types between the so called "spontaneous town" and "planned town") give clear evidence about some urban characters which are common, even if in a less dichothomic form, in most of Italian XIXth century towns.
This paper is intended to propose some considerations about a research on characters of Apulian towns which is in progress in the courses of *Caratteri Tipologici dell'Architettura* at the Faculty of Architecture of the Polytechnic of Bari. I am convinced that modern architectural and urban historiography has heavily emphasized the rupture caused by innovations in fabric and building types in modern European towns, often forgetting another aspect of the problem: the continuity with the ancient town. Its carefully reading, I believe, can give us some tools for urban renewal. I believe that the study of relationships between types and fabric in the XIXth century Apulian town, when concluded, will constitute a contribution to better understanding continuity and innovation in a critical phase of transition in Italian traditional town towards modernity.
Before analysing specific characters of XIXth century transformations in the towns of Apulia (a region deep south in Italy), I will try to give a very short account about some general, common characters of the Italian XIXth century town related to problems of diachronicity between fabric and building type.

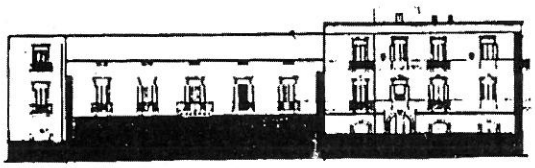
Common characteristics of XIXth century Italian expansions

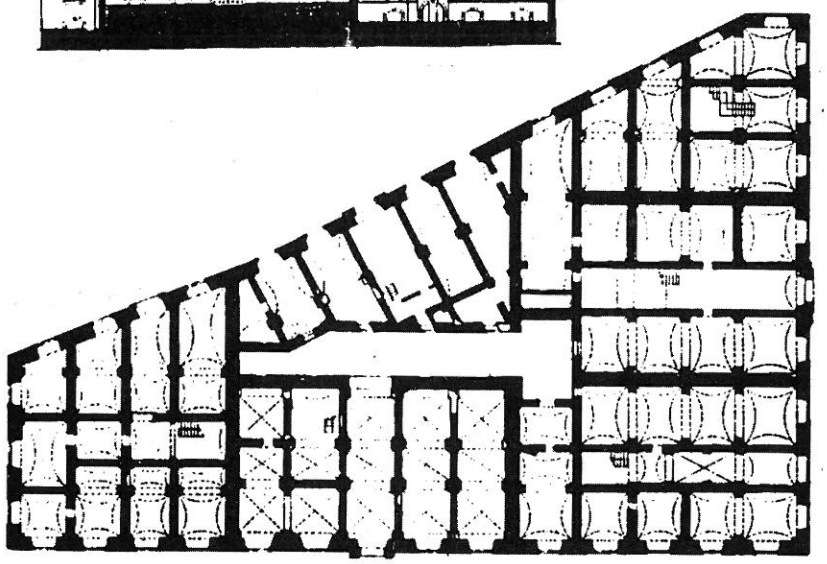
In most Italian town and cities (typical of Florence and Rome) the transition from traditional fabric to XIXth century expansions has represented a critical phase owing to the rapid building growth starting around 1870. This led to the need for new planning tools and new building types.
Two phenomenon are of particularly importance in this regard:

Molfetta, XIXth Century
Apartment houses.









- Owing to the diachronicity between fabric and building type, the renewal of fabric has been traumatic, resulting in the prevailing of planned routes on building types.
- The renewal of building types has been, much more gradual as new types have inherited the results of transformations operating through many centuries.

These points are fundamental to an understanding of the structural modifications which occurred in the Italian XIXth century town and the peculiarities of Apulian town condition.

From XIVth century, for about five centuries most Italian towns did not expand; the routes framework remained unaltered becoming obsolete but extensive changes occurred in their base building types, transforming houses from a single-family to multifamily types through a fast restructuring process (using a floor for each family in row-houses previously occupied by a single family), then forming, through fusion and substitutions, at the end of the process a new type of house, the so called "*casa in linea*" which will be widely employed in all XIXth century planned expansions.[1]

In brief the aggregate built on a block is substituted by critically planned buildings in which the character of the types is continued in the dwelling, while the aggregate is modified to imitate special building types, like the "palazzo", and the external legibility does not demonstrate the internal character of building organisms. The formative process of "*casa in linea*" (apartment house) starts from single cell house, then increasing in height, then ransformation in multifamily house obtaining just one flat for floor and ends with fusion process of two unities with distribution of four cells which will be typical in XIXth century "*case in linea.*"

An example is the XIXth century *casa in linea* at Esquilino where the distribution and masonry structure is derived from the experience of previous fusions and the aggregate is transformed in building with the problem of intentional external legibility. The legibility is derived from specialised building,introducing a hierarchisation of different floors which have no relation to the real serial structure of the building.[2]

As regard urban fabric, two main phases can be recognised in the XIXth century Italian town expansions. Before the extensive expansions of 1870, at the beginning of national unity, a certain relationship of congruence with traditional town still existed. An example is the Barbano expansion in Florence built till 1848 (plan 1690, plan 1855, Leopoldo period cadastral map)with an evidence of a congruence with ancient fabrics of the first XIXth century expansions; modules of traditional quarter; continuity in routes.[3]

After 1870 the route became autonomous from edification and the street grid is self organised with its own rules, with introduction of radial structures which sometimes organise urban poles, often with the lack of special building justifying the formation of a pole. These routes are only formal pretexts to introduce variants to the orthogonal grid. In the expansion of Rome at the beginning of the century we find the opposition

between the process of formation of pole and radial axis in piazza del Popolo and the planned pole of piazza d'Armi, were the forming of radial axis is independent from building type. In the map of piazza d'Armi the type is artificially obliged to follow an abstract idea of fabric generating an artificial low efficiency variant at the corner.[4]

XIXth Century Expansion in Apulian Towns

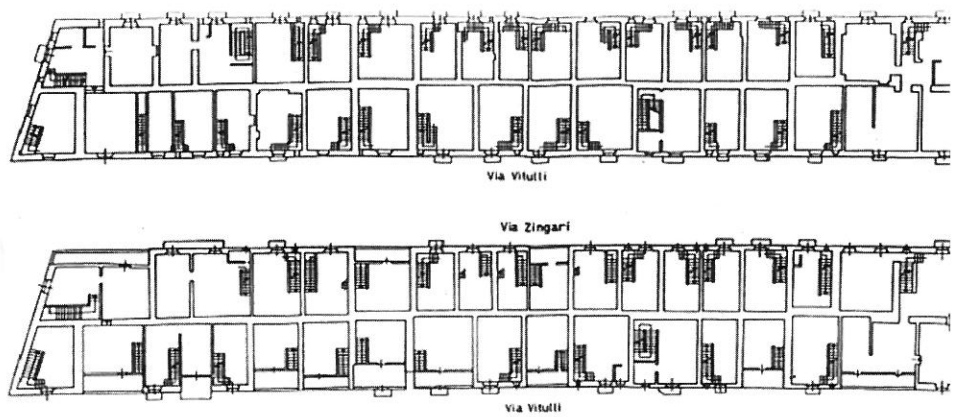
Even if in Apulian towns this process developed in a specific waycommon characters are still evident. This commonality highlights the contradictions already indicated.

The pre-roman urban settlements in Apulia (the first territorial structure formations) were born from a typical grid of routes in comparison to all the other Adriatic settlements, rising on secondary ridge routes starting from the main "Italic ridge" of the Apennines chain. In a different way from the "promontory settlements" of the Adriatic north coast, the general lack of strong ridges has generated a system of routes orthogonal to the coastal line leading to inland settlements. These inland settlements have formed a triangular structure of routes connecting external colonisation coastal settlements. The roman viability has then connected the most important territorial routes, like theTraiana or Appia. Thus most of the actual towns are poles of a system of radial routes which has conditioned the development of urban fabric.

In the area of Terra di Bari urban settlements which develop a role of important commercial node, Altamura, Bari, Barletta, Bisceglie, Molfetta, Monopoli and Trani, were also to play an administrative role in XIXth century in relation to boundary territory.

The research has been based on chronological, written sources, surveys, historical and actual maps. Cadastral maps in Apulia were unified and systematically organised since 1870, but unfortunately they were continuously updated on the original drawings in such a way that often it is not possible to read the progression of events. Modifications in territorial structure (paths, routes, railways, amount of expansions etc.) appear very clearly in I.G.M. maps published by National Military Geographic Institute since 1875, with the constant graphic method and continuously updated, allowing an easy comparison. A common feature of Apulian urban settlements at the end of XVIIIth century is a remarkable concentration of population in large urban settlements, with rare spread population in the countryside.

Planned aggregates of twin cell row houses with rear pertinent area, based on the type common in central-northern Italy, can be found only in very rare cases of foundation town as Manfredonia, founded in XIIIth century. In constant evidence are the single cell, single facing, elementary types aggregated through three common walls, with direct entrance from the route (the so called "*pseudoschiere*", or pseudo-row houses), and variants of double cells.



Typical structure of a single cell, singlefacing Apulian pseudo-rowhouses

The basic housing type is composed of a cell partially underground serving as a warehouse, first floor accessible from "*profferlo*" (external stairs) or internal stairs and, eventually, a second floor. The block aggregate is thus two cells deep, mostly developed along two routes, with scarce importance given to the short fronts on connecting routes. Totally absent are pertinent areas which in central-northern Italian areas generate, by fusion, the internal common courtyard of "*in linea*" apartment perimeter houses.

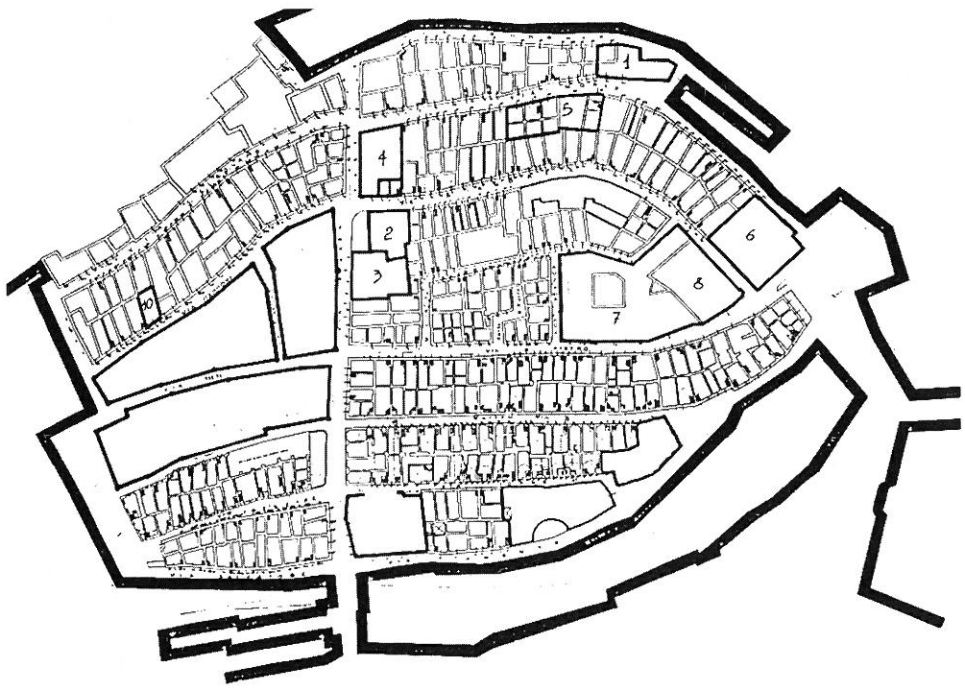
Synchronic variants by position or due to increased deepness of single cell are common, as are variants by fusion of two cells parallel to route axis. Less frequent are variants by fusion of opposite cells, for the obvious reason that the route is the centralizing axis forming the notion of "*contrada*", space of common organization.

More specially, the transformation in multifamily houses by fusion of four cells on the same plane seem to constitute, if not the matrix type (as it is not so frequent in aggregates) at least the forerunner of the type of dwelling widely employed in XIXth century apartment building. A true regular rectangular shape of plan is rarely found in spontaneous fabric, but is common to planned fabric directly derived from them (Casalnuovo in Conversano, XVI-XVIIth century; S.Ferdinando, very beginning of XIXth century) anticipating the XIXth century type of building derived from traditional fabric.

In the XIXth century a large crisis developed in the traditional Apulian town, owing to the following reasons:

1. Population in the region in the century is doubled, with an increase of about one million inhabitants. As is statistically demonstrated, all this population is concentrated in the existing settlements and, most of them, in the old walled towns. There are some remarkable exceptions like Molfetta.
2. Owing to the new war techniques introduced at the end of XVIIIth century, walls and fortifications, which had formed a dividing line between town and countryside, were demolished and substituted by annular routes. This phenomenon, common to a number of Italian cities,

has a specific character in transformation of Apulian towns, as the dividing line do not turn into new centralising anises. Often, on the contrary, the new annular routes of modern expansions form a new division between traditional and XIXth century "borgo" for the lack of connections between new road system and ancient routes.
3. The new fabric is developed through "radials axises" which act, for their role of territorial connection, as matrix route, and "counter radials", which acts as secondary matrix routes, from which is generated the squared grid of new planned building routes.
4. The building of railways stations form new urban poles, thus hierarchaising the formation of new axises.
5. The railroads became new dividing lines from the countryside conditioning the urban grid, sometime rotating the grid itself as in Monopoli. A role, in a certain way, played by ancient wall boundaries.
6. Restructuring routes are planned, to connect new expansions to old centres, but only marginally executed.
7. Prevailing of urban grid on building type: intentional planning, based on grid, has substituted the spontaneous, organic developing of building type, aggregate, urban routes. This fact is specially evident in large planned expansions (Monopoli, Bari, Trani). Only in the rare cases of ancient planned urban settlements, as in Manfredonia, the new expansions follows spontaneously existing grid.
We can consider the example of Altamura, a large hill town formed in pre-roman age on the secondary ridge route which connected Murge low chain to the sea coast. The territorial route is still legible as a matrix of edification in the ancient town (often based on domus type houses), with specialized



Molfetta, Ground floors in the Old Town

buildings concentrated partially in the node of piazza del Duomo and partially, many of them monasteries, in antipodes in periferial positions, becoming new potential nodes for future expansions. The XIXth century expansions do not adopt this organic process, but close the ancient fabric in a annular route in substitution of ancient walls, form new axises polarised by the ancient doors and modern doors (as the railways station which make the grid rotate), orienting mechanically the new grid on them. A new specialised fabric is formed corresponding to the poles of porta Bari and porta Matera. Often, the building types are often just a revision of the traditional ones, like the aggregate in the via dei Martiri quarter, were single family rural pseudo row houses types are employed.

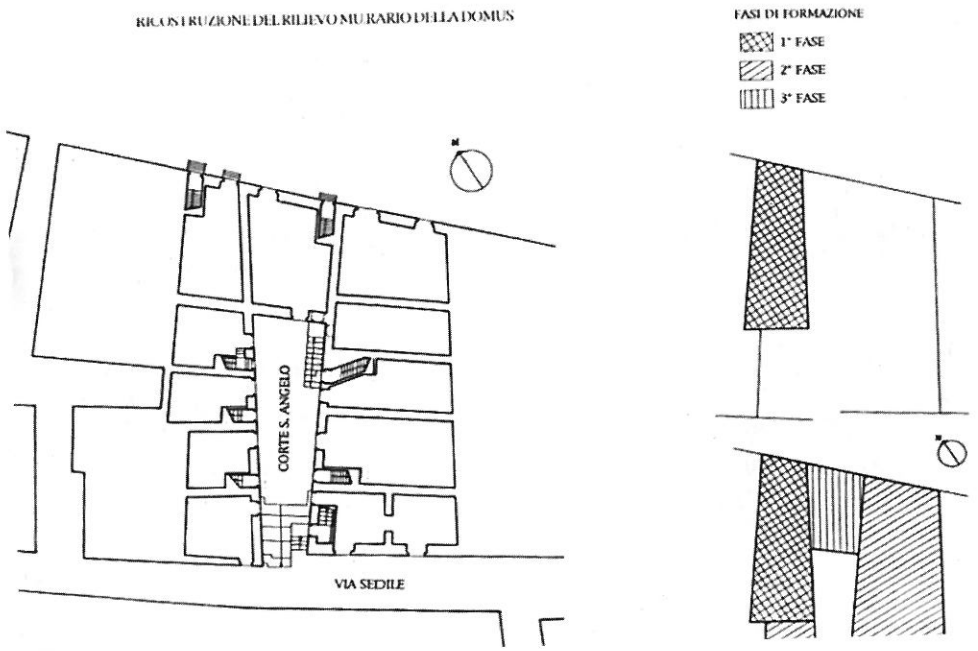
The law which obliged local administrations, in towns with more than 10,000 inhabitants, to program a general urban planning was approved only in 1865.[5] The law provided for immediate expropriation of property to build new roads but only administration of Bari, Trani and Foggia got their plan approved by the authorities of the newly established Italian government. The plan of Bari can be considered the most clear example of opposition between new and ancient town, probably resulting from the contact with urban planning experiences of other areas than Apulian ones (Naples, Trieste).

In 1819 city walls were demolished and in 1821 Giuseppe Gimma started a new plan, based on a square grid, to enlarge the city outside the ancient walls. The so called "Murattian Statutes" defined then the rules on a general block layout based on an orthogonal, square grid, with the size of an obliged open area inside the buildings stated in advance, case by case, by the director architect. Innovative courtyard types were thus produced, soon imitated in some other large Apulian towns.

In the expansions planned at a smaller scale, specially due to private enterprise, the rigid urban design of the grid internal to each part (also for the diachronicity of different plans) show an evident discontinuity in the relationship between parts themselves and the old town. These expansions are, more closely related to the traditional fabrics and follow, for their limited size, the traces of ancient routes outgoing from ancient city wall doors.

In general, urban grids has no common typical orientation due to solar exposition, but are generally oriented from demolished city wall perimeters. As the urban routes grid is innovative, the building type is conservative. The new types derives through a process from the ancient ones. The single cell unit continues, till the first decades of XXth century, to form the base for minimum size elementary houses, with variations obtained specialising internal spaces by partitions or adding at ground floor the space of half cell as entrance atrium

Regarding the new fabric, it is relevant to consider that the traditional aggregate of pseudo-row houses type constitute the matrix of new, fundamental serial types, based on planned aggregation of the housing unity (monocellular, but also bicellular), unified to form a building with a three parallel masonry wall structure. The matrix of this pseudo row-



Domus developed in Pseudo Row houses.

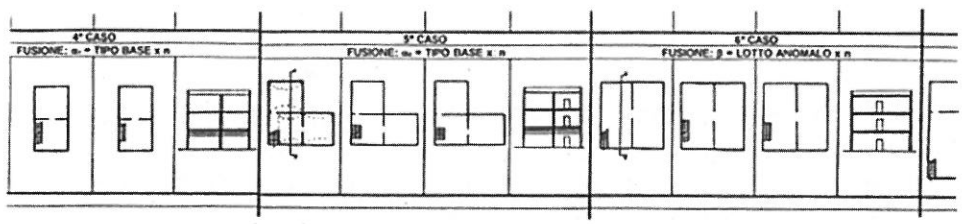
houses type can be easily found in most of the old town centres, as in the example of ancient Molfetta.

As far as the original genesis of the type, surely complex, a deep influence has been exercised by the "consumption" of underlying "domus" type houses, from single family courtyard houses to monocellular row house facing externally on one side. Gianfranco Caniggia has studied domus fabric underlying the actual houses of Polignano, but other urban settlements have the same character in their aggregate, as in Altamura or Bitonto, where even the toponymy indicates their origin from the latin term "curtis."

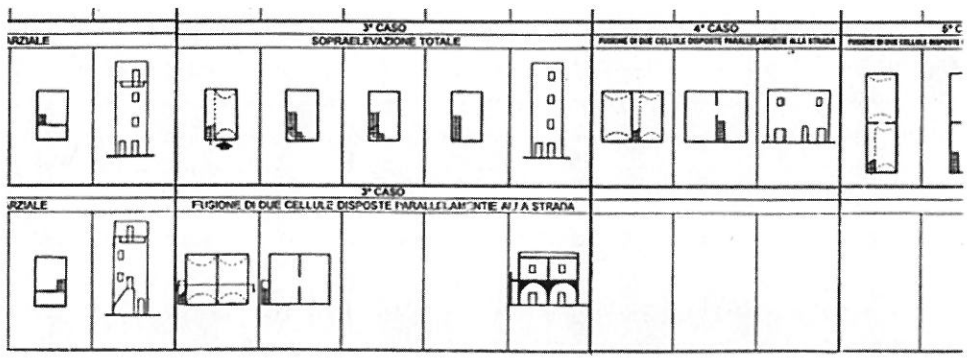
The transition from spontaneous types to critical ones, is clearly testified by the not frequent cases of middle age or renaissance expansions, were the new types tend to unify and standardise the previous ones.

One example is the relationship between type, lot and block in Conversano, in the middle age "burgus" of Casalvecchio, or "old settlement", (1300-1400) and the more recent north-west expansion of Casalnuovo, or "new settlement", (1500-1600). The first one is spontaneously founded with routes orthogonal to the territorial road connecting Putignano, following a typical pattern of the formation of European "burgus". The medium length of blocks is around 80m and thickness 12/14, corresponding to two single family cells (less or more increased from the basic ones), facing on two parallel routes. The second one employs the same structure in a planned, more rigid serial way, with the same medium size of blocks but evident planned regularity in alignments and cells size. It already contains one of the character of modern expansions; continuity in types and opposition in planned urban grid. The

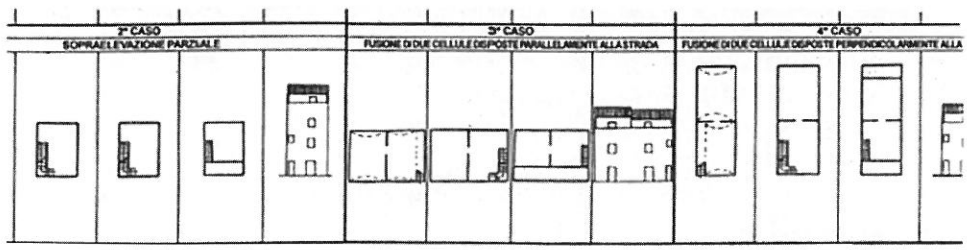
comparison between single building type demonstrate an evident continuity in characters.
This type will be developed and largely employed in multifamily XIXth century houses through the experience, as we have seen, of fusion of single or double cells housing unity. The first immediate transformation from fabric into building is the increase in depth; initially from two to three cells in the basic types, the series of central cells being employed as staircases, distribution or services.
An apartment type is in fact obtained. The basic type is composed of staircases with a flat per floor, leading into two or more flats per floor. Also the number of cells will increase in depth, with variants due to the block size, conditioned by the urban plan pattern. In Trani the first line edification of XIXth century expansion is composed of three cell deep buildings, and depth increase in the succeeding blocks. XlXth century apartment houses still behaving as fabric, facing and entering on connecting route.
In the synchronical variants generated from irregularity in size or orientation of new routes grid, in the absence of a courtyard tradition the number of cells is increased in depth until the area of the block is completly infilled, often to produce series of four cells with only the first one facing



Ancient aggregate of Old Town

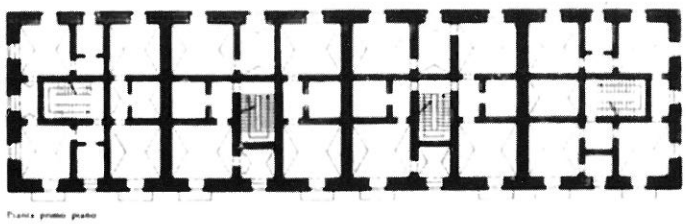


Aggregate of Casalvecchio (1300-1400)

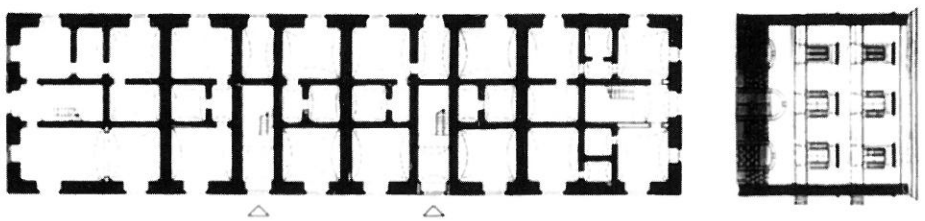


Aggregate of Casalnuovo (1500-1600)

XIXth century apartment still behaving as fabric, with faced and entrances on connecting route



XIXth century apartment houses like buildings, facing only on the main route.



outside. The entrance atrium is developed in depth with only small space remaining for minimum size cloisters. Often still, in triangular blocks formed by diagonal or radial routes, the serial aggregation of single units is established by the main orthogonal axises, with rotation only of central cells. It is clear here, more than in other Italian areas, the formations of variants of poor efficiency caused from the scarce congruity between typology of buildings and form of the town.

The intention of architects and builders was to transform the external legibility of those multifamily housing, with a strong serial and masonry-plastic character, into a more "noble" legibility, like a specialised building, imitating the palazzo type. Single family palazzos and apartment houses often show evident affinities in their facades. These affinities are listed below.

- The building base imitate in stucco rusticated masonry;
- The windows adopt a regular, rhythmic span; the tectonic nodes are clearly indicated (quoins *coins or spigoli*, string courses indicating the position of floor or window sill);
- a continuous string unifying a low architrave and cornice conclude the facade.

In comparison with the contemporary multifamily Italian houses a more direct relation with the inherited notion of aggregate must be noted:

A greater coherence between rhythmic wall and building organism caused by the strong seriality of the rooms. A stronger relationship between facade and position of group of flats unified by staircases through position of windows and hierarchization of doors.

In Trani the conflict with the traditional town is evident, as well the critical increasing depth of urban blocks from first to late edification. Here the new urban frame has a relative organicity; the new poles generated the new main axises of the expansion: the axis of via Cavour, linking the Villa

Comunale to railroad station; the axis of corso Vittorio Emanuele parallel to ancient city wall forming, at the intersection with via Cavour the new pole of piazza del Borgo; the XIXth century expansions utilised some alignments of the part of town developed between XIIth and XVIIIth century and took into account the line of ancient walled boundaries.

Conclusions

Some general consideration can be made from the "urban evidence" collected from our analysis, even if the research is not yet concluded. With the XIXth century a process of separation[6] in the components of our towns intended as urban organisms started a separation between ancient and new settlements which is concluded with the notion, in the thirties, of "historical centre" considered as an autonomous part of urban fabric. A separation also of developing process of types autonomous from fabric, the type becoming territory of architecture and fabric of urban planning. In my opinion the lesson which we can get from reading XIXth century Apulian town is, in essence, that the process of fragmentation of our towns, which can fascinate contemporary painters and philosophers, is in fact devastating and produces only ruins in the life of the urban organism. This is not an abstract consideration. In Bari, just a few meters from the richest and most elegant street, via Sparano, after crossing corso Vittorio (typical XIXth century route which forms a boundary to historical centre) one finds the old town, an abandoned no-man-land.
We need to operate on urban renewal with a new idea of modernity and new tools. An idea of modernity as new cultural unity, as continuation, without nostalgia for the past, of a process of always working transformation. New tools which can produce urban plans and buildings as part of the same synthesis process.

NOTES

1. See G. Caniggia, G. L. Maffei, eds., *Il progetto nell'edilizia di base*, Marsilio (Venice: 1984) p. 245 and following.
2. See previous text and also Gianfranco Caniggia, Gian Luigi Maffei, *Lettura dell'edilizia di base*, Marsilio, ed. (Venice: 1979).
3. Ibid.
4. See Giuseppe Strappa, *Tradizione e innovazione nell'architettura di Roma capitale, 1870-1930*, Kappa, ed. (Rome: 1989), [in particular the introduction by Gianfranco Caniggia].
5. Art. 86 of the national law 2359/1865.
6. General considerations about the matter are contained in Giuseppe Strappa, ed., *Unita dell'organismo architettonico* (Bari: Dedalo, 1995).

N. John Habraken

The Power of the Conventional

Nineteenth-century urban renewals and extensions reveal the impressive energies and creative forces of that time. We marvel at the apparent ease and conviction with which massive projects were undertaken and brought to a succesful conclusion. We tend to look at interventions like those of Nash in London and Haussmann in Paris as the beginning of modern times. No doubt, to a large extent they do belong to our own times perhaps more than to those preceding them, if not for their architectural and urban properties, then certainly for the processes which made them possible. Haussmann's innovations relative to the financing of large projects have been commented on already by Julian Beinart. Nash's entrepreneurship in his daring Regent Street and Regent Park proposal is still a model for contemporary ambitions.

I would like to point to the other side of the coin and argue that these projects, like others of the same period, could be succesful because they were carried out in a context where consensus on urban and architectural form was still strong and coherent. Many subjects concerning urban space, building typology, and architectural patterns, which we now have very different opinions about and which today may give rise to a wide variety of possible solutions for any large project at hand, were in those days still taken for granted and hence not subject to discussion or a search for alternatives. I would also suggest that this implicit understanding among the actors involved was very efficient, precisely because it made discussion unnecessary and allowed all available energies to be pointed in the same direction.

Nash in London

The design of Regents Park and Regent Street in London demonstrates the power of conventional form. John Nash's scheme gave structure to central London. He introduced the idea of the wide urban park bound by monumental crescents, applying it with admirable ease and grandeur at the end of a long and productive life.

Most elements marshaled in Nash's grand scheme were borrowed; they had first been developed elsewhere by others. The Georgian terraced house first emerged in the late seventeenth century and its use had been widespread for over a century prior to Regents Park. Wood, Adams, and others had already employed the unified façade shared by a row of houses to shape new urban spaces. Similar façades appear around the squares of the Bedford estate in London. Neoclassicism was quite familiar to professionals and laymen alike, although Nash's interpreta-tion of it was decidedly new.

Nash's achievement is neither diminished nor denied by observing his borrowings. He employed the familiar device of the monumental façade across a number of terraced houses to create giant screens. It was a given that state-of-the-art screens could be built to receive houses following a familiar typology. Employing them allowed him to focus on urban space and the façades that formed it.

Familiarity of style and typology made it possible for citizens to invest with confidence in the scheme, knowing that their houses, shops, and offices could be properly and functionally built behind the monumental façades. The same familiarity allowed contemporaries to appreciate the qualities of his particular vision and also to criticize occasionally hasty or haphazard detailing.

Nash's design of sweeping grandeur and dexterous structuring of the urban environment created a form not seen before. This was achieved, not in spite of home-grown typology and heavily systematized form, but because of it. This was no avant-garde invention rejecting the past and blazing a new path to the future, but an apotheosis of the familiar, utilizing potential developed over a long time, within forms and types well known to the citizens of London, albeit not in so grand a manner.

Nash's work achieved the ultimate expression of the customary. In both cases, the monumental and explicit act of design was made possible by the powerful presence of the traditional and the implicit.

Nash owed his opportunity to personal status and reputation and favorable circumstances. Wealth, power, and traditional craftsmanship conjoined with royal patronage allowed a single individual to lift an established architectural system to the level of urban infrastructure, then play with it. An old man by the time he was given this opportunity, Nash did not produce more than the principal sketches, confident that they could be developed, detailed, and coordinated within state-of-the-art understanding by others with more energy, patience, and remaining time. A general can marshal thousands of troops and machines because training and discipline imprint the rules of the game on every player. Just so could this seasoned, talented, and well-placed designer marshal the skill and industry of a city, transforming it almost overnight. Such is the power that type, style, and pattern lend the professional designer who is able to harness them. We also cannot fail to appreciate the architectural profession's ultimate dependence on the conventional, how society's collective environmental knowledge establishes both context and limits of design.

Haussmann in Paris

In Paris, urban mansions for nobles featured *cours d'honneur* accessible from the street. The main house sat between that court and the formal garden. Its wings housed quarters for servants, staff, artisans, stables and storage. Eventually, this form was adapted to a more democratic society, providing apartments around a common courtyard. The transition is described by Marcel Proust:

"It was one of those old town houses, a few of which for all I know may still be found, in which the main courtyard was flanked - alluvial deposits washed there by the rising tide of democracy, perhaps, or a legacy from a more primitive time when the different trades were clustered round the overlord - by little shops and workrooms, a shoemaker's, for instance, or a tailor's, such as we see nestling between the buttresses of those cathedrals which the aesthetic zeal of the restorer has not swept clear of such accretions, and a porter who also did cobbling, kept hens, grew flowers - and, at the far end, in the main house, a "countess" who, when she drove out in her old carriage and pair, flaunting on her hat a few nasturtiums which seemed to have escaped from the plot by the lodge.....dispensed smiles and little waves of the hand impartially to the porter's children and to any bourgeois tenants who might happen to be passing and whom, in her disdainful affability and her egalitarian arrogance, she found indistinguishable from one another. Remnants of this earlier type can still be seen on the Left Bank and in the Marais, in older parts of the urban tissue."[1]

Eventually, buildings around a courtyard accessible from the street were specifically built as apartments. They frequently retained work places and shops on the ground floor, surmounted by five or six floors of residential space. The vigilant concierge stationed at the entrance to the courtyard henceforth became a Parisian institution.

The model is extremely efficient in terms of public/private land use. The mass of built space behind the street façades is dense enough to support continuous ground-floor commercial activity along the streets. Pedestrian traffic turns the boulevards into social spaces, rather than massive traffic arteries. Such communal living was already a highly compatible part of French urban culture.

Integral to the type was the entresol, a narrow floor suspended between ground floor and the first residential floor above. The entresol forms a vertical margin between two zones. It is used as an extension for shop and work spaces below, often providing a place for offices or storage. But it can also be connected to the apartment above. Or it can even constitute a separate apartment floor. The combined height of ground floor and entresol provides a continuous one-and-a-half story façade independent of the floors above. This effectively relates to the pedestrian space and scale of the street (and hence of the urban fabric). The pedestrian space is reinforced by sidewalk trees, the lower branches of which are at about entresol height.

Behind the façade, shop height is sometimes increased by pulling the entresol back from the street to become a mezzanine balcony with full height space. Courtyard entry gates are often executed in full combined height, even when the entresol floor remains visible inside the gate.

Continuous use of this pattern on the building level contributed substantially to urban structure. The courtyard building and associated patterns were firmly in place when, under the prefecture of Baron Haussmann, the monumental restructuring of central Paris began. The recent cutting of

Regent Street into London's urban fabric had been a modest enterprise in comparison. Haussmann's urban intervention on a grand scale effected profound and radical changes in the historical urban structure, innovative both in form and in financing.

Yet the urban fabric level was allowed to retain continuity of types, patterns, and materials. Haussmann's engineers and architects did not try to invent, but rather to built from the collective image; use of the courtyard building, including the entresol pattern, continued. Optimized for speed and efficiency, its construction was institutionalized and standardized. Floor heights became standardized, almost uniform. Windows with their wrought iron balconies were mass produced. Interplay of the ground-floor façade with the entresol injected variety and life into the zone of pedestrian experience, saving the boulevards from utter monotony.

Haussmann's use of levels was both rational and successful. It was easiest to experiment or innovate on one level only. To rebuild a city by changing the configuration of the urban structure, while simultaneously reinventing urban fabric on the level of the building, would have been too difficult and disruptive. Limiting innovation to the urban structure and systematically adapting from precedent whatever had to be done on the building level made the transformation of central Paris possible. Of course, these choices were not made consciously. We can safely assume that the possibility of an alternative never occurred to him.

The success of Haussmann's ambitious scheme was therefore due to the marriage of innovation (financial and managerial) with tradition (typological). Forms built to shape the new boulevards were, to a large extent, based upon a shared image. Exactly what was to be built was known by all the players, from construction worker to developer and bureaucrat. Many discussions, explanations and deliberations which we would now consider essential to implementation of a project on that scale were simply dispensed with. Self-evident forms evincing shared values required little planning and allowed immediate action. The design process, on the level of the building, was accordingly short and simple. Common understanding greatly facilitated coordination between all parties involved in its execution.

The transformation of Paris demonstrates the tremendous power of the shared image to an extent which cannot be fully appreciated unless we consider what the process would be if it were undertaken today. Throughout all of the stages of feasibility studies; traffic, environmental impact, and engineering studies, pre-programming, programming, and then again at each successive phase of design, different proposals by a variety of design teams would have to be solicited, then evaluated. Each might well articulate a vastly different conception; to stand out in a crowded field, the winning design scheme would certainly not just expand on the existing typology. Nor would it merely reinvent at the urban scale. It would also intervene on other levels of the form in innovative ways, reinterpreting or reinventing, seeking to engage the existing fabric in a memorable dialectic at every opportunity.

By comparison, Haussmann virtually designed Paris by imperial decree. Not that the absence of alternative proposals was not a result of heavy-handed top-down decision-making; the idea that radically different proposals for the urban environment can be entertained, that the urban form appropriate to a people can be debated, or that environment constitutes a commodity to be selected from among available options or styles is a (post-)modern one. In nineteenth-century Europe, it was unthinkable.

Haussmann's interventions for renewing the city of Paris were immune neither to architectural nor to social criticism; both were at times quite fierce. But from our current perspective, we must marvel at the degree to which questions were not even raised. Convention and consensus were harnessed to glorious effect, ultimately recreating Paris in one mighty (and efficient) intervention.

Closing Comments

In a time when the original and the new dominate all thinking, it may be worth considering the power of the conventional. Shared typology and patterns as well as shared systemics bring efficiency and speed to complex projects because what is already shared need not be discussed nor specified in great detail. Shared forms also result in coherent environments. There is no reason to assume that a context of commonly accepted principles of form inhibits creativity or innovation. On the contrary, it can be argued that the one needs the other and that the truly creative is best measured against qualities already achieved and proved, while the exceptional needs an established coherence to be appreciated at all. Study of historic precedent shows that shared forms can result in environments of undisputedly high quality. A discourse on the quality of the common - what its constituent parts are and how it came about - may be more beneficial to environmental quality today than a sustained focus on the new and the exceptional.

NOTES

1. Marcel Proust, *The Guermantes Way*, trans. Moncrieff and Kilmartin, (New York: Random House, 1st ed.) p. 22.

K. S. Kropf

Plot Types and Housing in Nineteenth-Century Westminster

The plot is a central notion in building typology and urban morphology. One of the distinguishing features of typomorphological studies is a view of type that sees built structures in combination with their associated open spaces. Along with this view comes the recognition of the lot as a unit or component of urban fabric. This conception has helped to clarify the relation between individual buildings and the town as a whole. It also provides an effective tool for detailed studies of the formation and transformation of towns.

On scrutiny, however, this view of type raises certain questions. What kind of entity is the plot? Is it a physical form? Is it a unit of property? What is the difference between a building and a plot? To address these questions is to examine both the idea of building type and urban tissue. The nineteenth-century city provides a good subject for exploring these issues, in large part because of the profusion of new kinds of building that emerged in that period. The city of Westminster provides a particularly good example because it underwent extensive development and redevelopment over the course of the century.

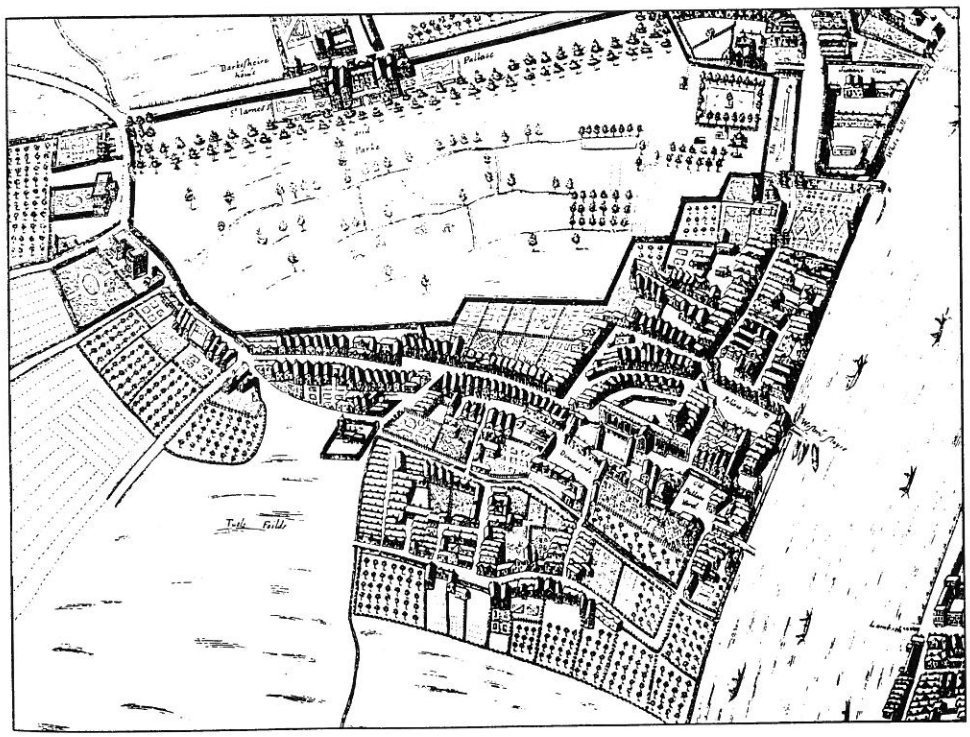
Westminster and the Slum

Westminster is a borough of Greater London and lies to the west and southwest of the older City of London. A Saxon foundation of around 900, Westminster grew up around the Benedictine Abbey of St. Peter's, now Westminster Abbey. One of the more prominent additions in the growth of the settlement was the royal palace of Westminster. By the eleventh century it had become the principal seat of the court and government of England. The palace was the birthplace of Parliament and the present Houses of Parliament occupy the same site, built after the old palace was destroyed by fire in the early nineteenth century.

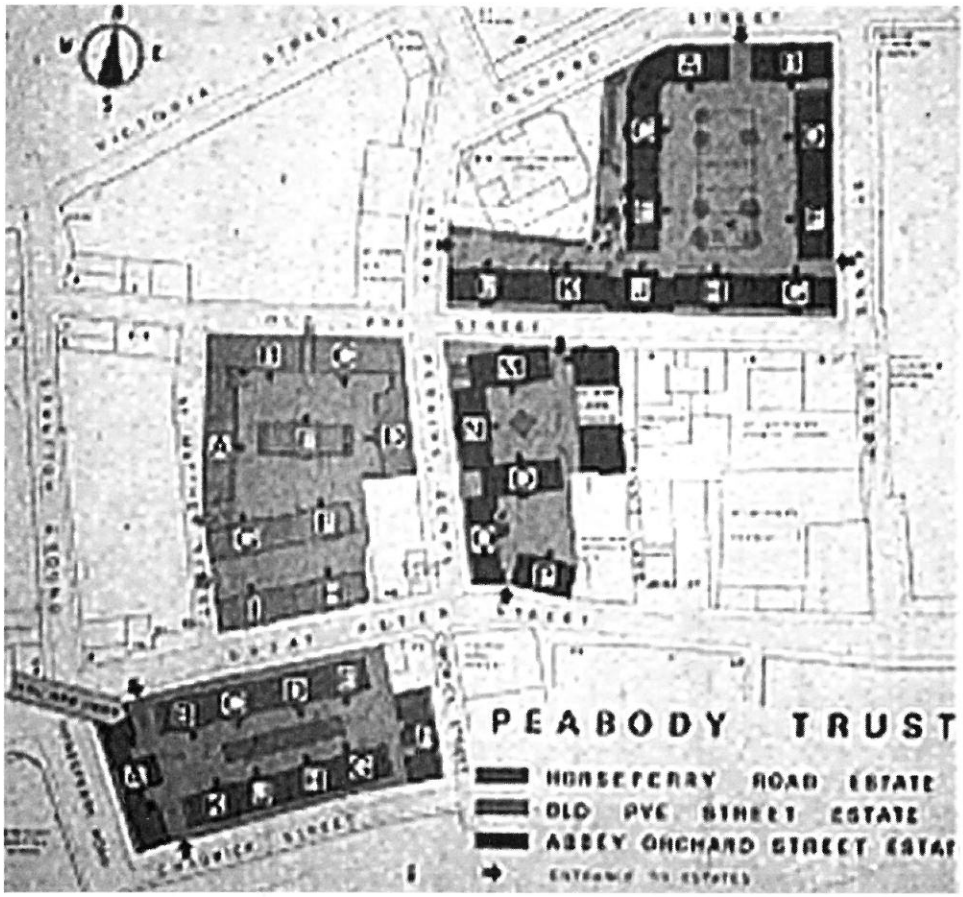
Bounded by the River Thames to the east, St. James Park to the north and, originally, the marshy Tothill Fields to the south and west, Westminster remained a small settlement through the eighteenth century (see figure 1). Lying outside the walled settlement of the City of London, the growth and transformation of Westminster has been characteristic of peripheral or fringe-belt development. It attracted a mix of large space users including grand houses with extensive grounds, hospitals, factories, breweries, work houses, and prisons. These were intermixed with, and in time often

replaced by, small row houses. By the mid-nineteenth century the settlement had expanded considerably, mainly to the southwest over Tothill Fields. By that time also, one of the older central parts had become notorious as an area afflicted by poverty and crime. The word "slum" in its modern sense is attributed to a Cardinal Wiseman who used it to describe this part of Westminster. It was, as he put it, made up of "congealed labyrinths of lanes and courts, of alley and slums." Charles Dickens referred to the area as the Devil's Acre (Watson 1993; p. 82)

In 1845 Parliament attempted to solve the problem by approving the construction of a street cutting through the heart of the district, a measure that proved unsuccessful. About this time the issues of health and housing for the poor had become more general concerns, giving rise to a number of charitable groups. One among them was founded by Mr. George Peabody, an American merchant banker based in London (Peabody, also known for his philanthropic work in the United States, came from a Boston family, though he worked principally out of Baltimore). The Peabody Donation Fund, later the Peabody Trust, was initiated in 1862 and was charged to buy land and construct housing for "artisans" and laborers throughout Greater London. Some of the earliest buildings were put up in the Devil's Acre and proved a more successful solution to its problems than cutting through new streets. The buildings also provide a starting point for examining the issue of the plot.



1. The city of Westminster, circa 1650.



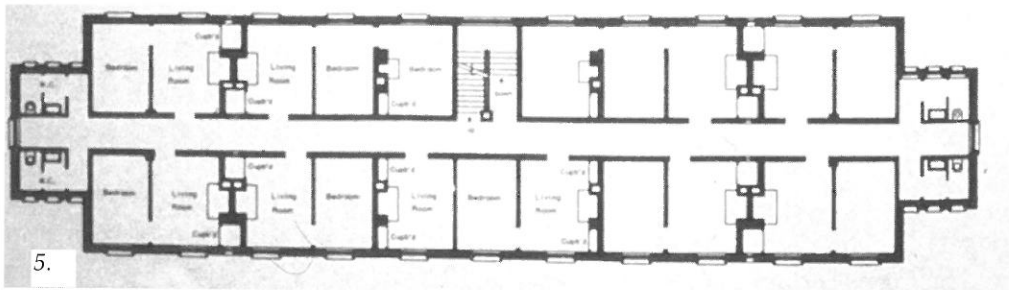
3. *A recent plan of the Peabody Trust's Horseferry road, Old Pye Street and Abbey Orchard Street Estates, Westminster.*

2. *The Peabody buldings at Palmers Passage, Westminster, built between 1862 and 1867*

New Buildings and Levels of Order

The range of plot types found in Westminster for residential use by 1860 included the row house and terraced house with back gardens, and back-to-back and blind-back houses along lanes or courts (*culs de sac*). The row or terraced house remains one of the dominant house types in London. In this context the buildings introduced by the Peabody Trust were very different (see figure 2). The Abbey Orchard Street Estate, for example, built in the 1870s, includes a number of large buildings, each relatively simple in outline and rectangular in plan with six stories. They have regular fenestration with off-street entrances — the door in the center of a symmetrical module repeated over the length of the building. The material is London stock brick with a few classical details. The Horseferry Road Estate not far from the Abbey Orchard Street buildings and built around the turn of the century are, in outline, fenestration and orientation of access, similar to Abbey Orchard Street though they have one less story and different materials and details.

According to the site plans (figure 3), the buildings have a similar depth but vary in length. The Abbey Orchard Street Estate and the Horseferry Road Estate are similar in terms of the arrangement of the buildings on the



4. Internal arrangement and view, characteristic of early Peabody buildings, 1862 and 1867.

site. The buildings are parallel to the street and on or near the street line. More generally, the buildings occupy an area that is part of a block, and each area contains an arrangement of several buildings. Now, if a type is defined as the building with its associated open spaces, what in this case constitutes the type? Is it formed by all the buildings and the open spaces taken together? Or is it just one of the buildings, and, if so, what is its share of the associated space? If it is an individual building, what is the larger entity of which it is a part? What I would like to suggest as a means of addressing these questions is that there are two distinct levels of order involved, each of which is important if we are to get a clear view of the "building type".

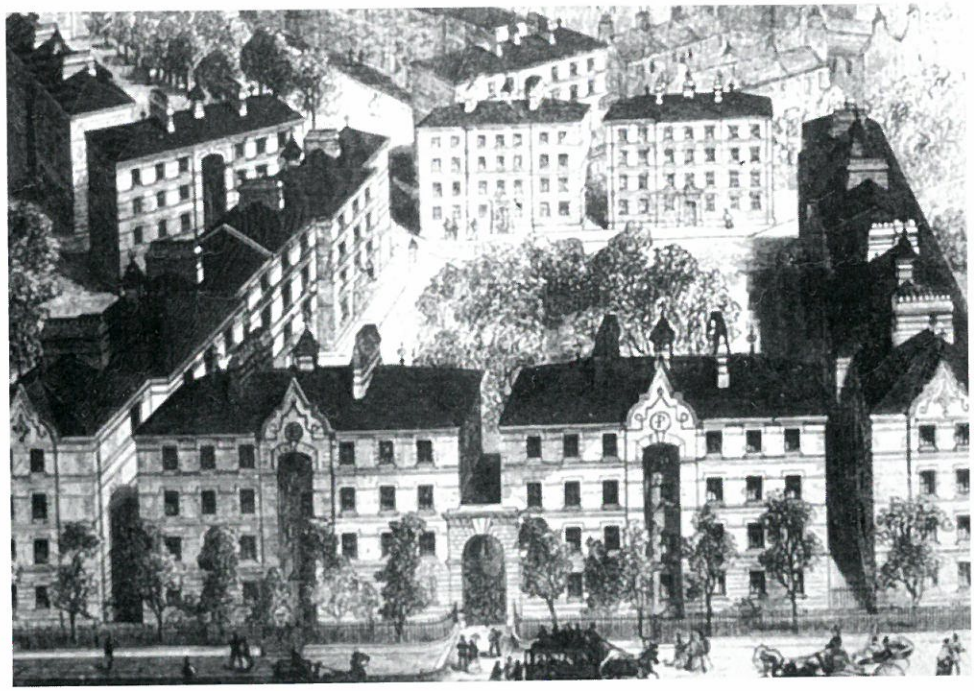
First, an essential aspect that we have yet to consider is the internal arrangement of the buildings. However similar the component buildings may be in outline, the internal differences might not be trivial. That is, we might want to distinguish different types of buildings in terms of their internal arrangement. In fact, the Peabody Trust experimented with several different plan arrangements. In the first estates built by the Trust, the buildings have a central corridor serving ten dwelling units per floor with shared washing facilities at either end (figure 4). In later buildings there is a shared space with washing facilities around a staircase serving four dwelling units per floor (figure 5). In the latter case, the module was often repeated horizontally to form a double or multiple module building. Such differences are essential to consider in identifying building types. The outline of a building, while it is interdependent with internal arrangement and a useful shorthand for identifying buildings, does not adequately specify internal differences.

Yet, as the Peabody Estates show, several of the same type of building in terms of internal arrangement can be arranged to create another level of order. Returning to the Devil's Acre, there are distinct arrangements of the buildings. The Abbey Orchard Street Estate and the Horseferry Road Estate each form single quadrangles while the Old Pye Street Estate has buildings both on the perimeter and within the resulting open space (see figure 3). As a hypothesis, we might identify three general types of arrangement: the quad, the quad with internal building, and the multiple quad. In the Peabody Estates of this time, the quadrangle was perhaps the most frequently used arrangement, using both the corridor and stair-well buildings types. Thus, the same site arrangement was formed with

different building types.
The Old Pye Street Estate presents an arrangement that does not entirely fit the three hypothesized arrangements, but points to a fourth. On the south side it has two buildings parallel to each other with the intervening space perpendicular to the street. A similar arrangement is found in other housing estates in Westminster. The Grosvenor Estate, not far from the Devil's Acre, was built by the Westminster City Council and finished in 1905. The building is similar in outline to the Peabody buildings (rectangular in plan, six stories), though with different details and a half-basement level with area ways on the street front. In plan, there are three similar buildings arranged to form two long courtyards running through the block perpendicular to the street. A fourth building was built not long afterwards to form another courtyard. A similar arrangement is found in the Millbank Estate, designed in 1897, with buildings that have a different outline and different details.
Again, in examining these buildings with their associated open spaces, it would seem that there are two levels of order. There is the internal arrangement of the buildings and the arrangement of the buildings on the site. To fully account for these levels, I would suggest that it is important to make a general distinction between an arrangement and the component parts of the arrangement. Each is a distinct but interdependent aspect of form. The arrangement is the structure or set of positions related to one another in specific ways. The component parts are the entities that might occupy a given position in the arrangement. Thus, the long courtyard arrangement is, generically, two or more parallel rectangular buildings with a rectangular open space between them. Different specific buildings might occupy the generic position of building and different specific courtyards (in terms of their internal arrangement of elements such as pavement, planting, seating, etc.) might occupy the position of open space. Each specific combination would be an example of the same generic arrangement.

Plot Types

Are the different arrangements such as the quadrangle and long courtyard types of plot? Looming in this question are several large issues. First and foremost are semantic questions raised by the word "plot." What do we mean by plot? One of the primary interpretations of 'plot' or 'lot' is "a unit of property." Does this interpretation exclude others? Rather than suggest any answers, perhaps it is better to ask further questions.
What kind of arrangements are made up of buildings? I have suggested an answer to this question by showing that it is possible to identify different distinct arrangements of buildings in the same way that we distinguish different arrangements of rooms in identifying building types. There are, at the least, a *posteriori* types of building arrangement.
Equally, we might ask, what kind of entities constitute the parts of a block?



6. A courtyard arrangement, Peabody Square, Blackfriar's, 1871

One of the things pointed out in the examples from Devil's Acre is that the different arrangements of buildings, seen as entities, were each part of a block. In general, arrangements of buildings as entities form part of or occupy an entire block.

From the perspective of an overall view of urban fabric, it would seem that in many cases there is a level of order and a range of identifiable entities between the building and the block. Given those entities, what is the correspondence between their outline and property boundaries? This is a subject in itself and one that will necessarily be skated over rather quickly. In many cases there is a correspondence, at least in plan at the ground level, and it is this tendency for correspondence that leads to the ambiguity of the term plot. Is a plot an identifiable arrangement of parts or is it abstract property, that is, an area or volume under the control of someone? The problem is, the boundaries do not always correspond. We cannot necessarily identify one with the other. That being so, a more productive question might be, what are the interactions between property boundaries and identifiable arrangements of buildings? How does one affect the other in the growth and transformation of urban fabric?

Another issue looming in the notion of a "plot type" is the question of culture. The notion of type implies the existence of a generating idea within some set of human habits and values. For what reasons or intentions is a given arrangement of buildings produced? Under what conditions and limitations? By what process?

Within what cultural context did the quadrangle arrangement used by the Peabody Trust emerge? The Peabody buildings were built as affordable housing under what was then termed five-percent philanthropy. They

were intended for the industrious poor, and the rents covered the cost of development plus five percent profit. The profit was used to keep the Trust going and to allow it to buy more property and build more housing. At the time the main alternative was essentially speculative housing at market rates, a situation that resulted in the overcrowding that was one of the problems the Trust sought to alleviate. Local municipal government did not begin to provide housing until later in the century. Contemporary opinion of the Trust split between those who saw it offering "a premium for hereditary and continuing poverty" and those who criticized the designs as too small and crude (Tarn 1973:48). In general, as the Trust gained experience it tended to provide larger rooms and more facilities as illustrated by the change from the corridor plan buildings to the staircase plan. Aside from overcrowding, the principal concerns in the design of housing were a sanitary water supply and drainage and access to light and air. The quadrangle arrangement was used to provide ample light and air to all the rooms. The central courtyard was also intended as a semi-private area for the residents and a safe play area for children. In most cases the openings to the courtyards between buildings were railed and gated as can be seen in contemporary illustrations(see figure 6). The courtyard was thus conceived as an area distinct from the public space of the street. This suggests that the quadrangle arrangement was a cultural entity developed to accommodate specific human needs and activities and satisfy a range of specific values.

The fact that there is no unequivocal generic term to refer to such things as a quadrangle arrangement or long courtyard has helped to obscure them. Yet, if we make the distinction between arrangements and component parts and ask such questions as, what kind of arrangements are made up of buildings and what kind of objects make up blocks, it would seem that there are things there to be identified. Identifying them opens the way to both a richer and more detailed view of urban fabric and a further exploration of human culture.

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J. W. R. Whitehand

Continuity and Discontinuity in the Urban Landscape

A Geographer's View

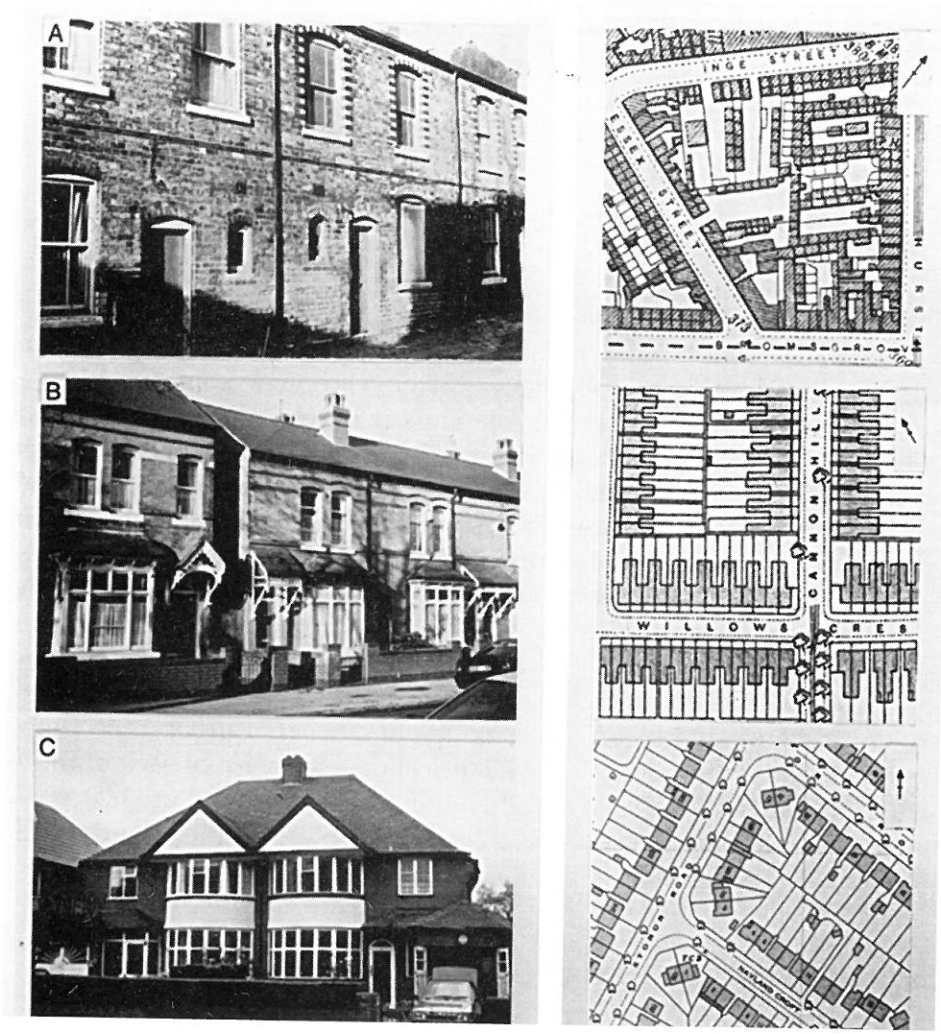
It is an axiom of the urban morphogenetic approach in geography that a sense of place and time is obtained by studying the way the urban landscape has developed. This historical development is in this view a source of experience (Conzen, 1975). Thus it is relevant to current and future decision making, not least about future urban landscapes. Although similar views exist in other fields, including architecture, the geographical view is not only distinct in some ways but also unfamiliar to architects. It is appropriate, therefore, to describe some of its features here.

The urban morphogenetic approach in geography was strongly shaped by the work in England of M. R. G. Conzen, although it had its origins in Central Europe (Whitehand, 1981a). It will be discussed in this paper by focusing on two important phenomena in English cities: first, working-class house types; and second, those parts of cities that urban morphologists refer to as "fringe belts." The historical development of each of these phenomena will be discussed and then the implications of these historical developments for understanding cities and managing their landscapes will be briefly considered.

Working-Class House Types

In much of Europe north of the Alps, the basic urban property unit in pre-industrial times was the burgage. In England it took the physical form of an elongated plot with a building at its street frontage and a garden or yard behind. In the course of time, particularly from the late eighteenth century onward, these burgages became filled with structures, especially dwellings, workshops, and ancillary buildings.

This process was studied in detail by Conzen (1960, 1962) in the city center of Newcastle upon Tyne and the market town of Alnwick (fig. 1). Access to the burgage was generally obtained by means of an archway beneath part of the upper story of the building that fronted the street. Subsequent buildings were constructed, usually piecemeal, along the length of the burgage. This process of filling in the plot with buildings, sometimes eventually resulting in about 80 percent of the plot being covered by buildings, tended to be more prevalent where there was access to the rear of the plot through a back lane. The process was essentially a reflection of pressure on land, which became increasingly acute over the course of the Industrial Revolution.

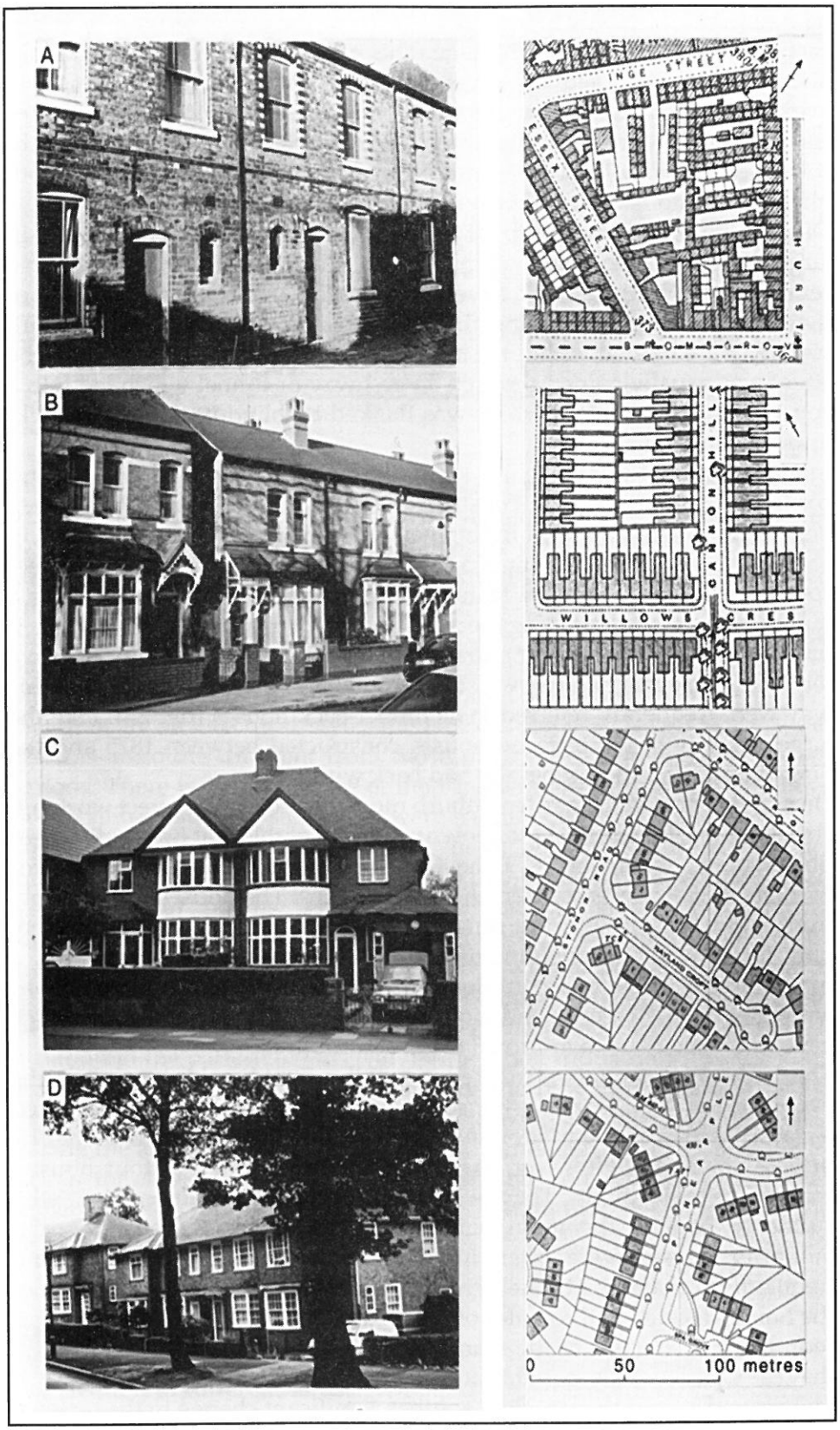


Teasdale's yard, fenkle street, Alnwick, 1774 to 1956. Reproduced from Conzen (1960), p 68.

The arrangement of buildings and their physical characteristics were strongly conditioned by the original burgage shape. The buildings that were added along the length of the plot were a single room in depth and had no windows, or access, to the rear. The term "blind back" is sometimes used to describe them. Even where rear windows were not precluded by buildings being back-to-back with those in another burgage, there were legal deterrents to construction overlooking an adjacent plot.

Blind-back and back-to-back houses had, by the end of the eighteenth century, become a widely used means of increasing domestic space within existing plots. During the nineteenth century they were to become an even more prevalent form of infill. However, it was in conditions unrestricted physically by the presence of burgages, on previously undeveloped sites, that the same basic structural types now became far more significant than in their original burgage environment.

Largely unconstrained by an existing plot pattern, back-to-back and blind-back houses were used in a variety of layouts. In Leeds back-to-back



Victorian and inter-war house types and associated town plans in Birmingham.

(A) Mid- Victorian court dwellings. (photograph by permission of Jennifer Tann; plan reproduced from Ordnance Survey 25 Inch plan, revised 1902)

(B) Late Victorian Tunnel-back house (photograph 1995; plan reproduced from the Ordnance Survey 25 Inch Plan, revised 1914)

(C) Inter-war semi-detached houses built by private enterprise(photograph 1990; plan reproduced from Ordanance Survey 1:2500 Plan, revised 1954).

(D) Inter-war, neo-Georgian, cottage-style terraced houses built by the local authority (photograph 1992:plan reproduced from the Ordnance Survey 1:2500 plan, revised 1955).

houses were commonly set out in a rectilinear pattern of terraces in which each dwelling had a street frontage. This meant that a very large amount of space was occupied by streets, a disadvantage that was generally avoided in Birmingham by arranging the dwellings along the sides of courts created within the interiors of the street blocks. In the nineteenth-century extensions to London and Newcastle upon Tyne, however, both blind-black and back-to-back houses were virtually eschewed.

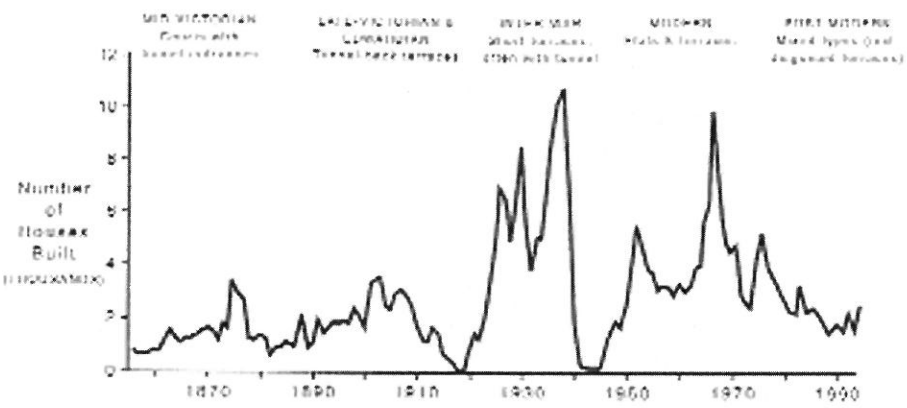
Of the largest English cities to have blind-black and back-to-back houses in large numbers, the plans employed in Birmingham were the most reminiscent of burgage-yard developments (fig. 2A). There the majority of dwellings constructed during the first three-quarters of the nineteenth century were located within the interiors of street blocks. Access from the street was usually gained through an archway or tunnel which led into a court, usually elongated, which was flanked by blind-back and/or back-to-back houses.

In 1875, national public-health legislation gave local authorities greater control over housing. The construction of back-to-back and blind-back houses soon became illegal in the majority of English cities. However, in some cities, notably Birmingham, the tunnel access from the street continued to be a common feature of new housing, but no longer as a means of access to dwellings located in the interior of a street block. It usually gave access to a rear entrance, or occasionally a side entrance, to a terraced house that had its own street frontage. Houses constructed in this way were frequently referred to as tunnel-back houses (fig. 2B). Like the large majority of the terraced houses constructed between 1875 and the First World War, they generally had back wings.

During this period the garden-suburb movement began to affect working-class housing. One of the best known examples of this is at Bournville, near Birmingham, where in 1879 the Cadburys began building houses for workers in their decentralized chocolate factory. The houses had not only front and back gardens, but semi-detached houses and short terraces of only four dwellings predominated. In the case of the short terraces, a tunnel access to the rear continued to be used. In 1918, this feature was embodied in the recommendations of the Tudor Walters Report, which gave the official seal of approval to garden suburbs.

The Tudor Walters Report marked one of the great breaking points in the evolution of the English house. Semi-detached houses superseded terraced houses as the predominant type of new housing constructed by private enterprise. However, many short terraces, often of four houses, continued to be built. They were favored by local authorities, who suddenly became the main builders of working-class houses. Local-authority houses were often in a neo-Georgian "cottage" style and frequently contained a tunnel, giving access from the street to the rear of the houses located at the center of the terrace (fig. 2D). Such a feature was redundant in the case of the many semi-detached houses, since access to the rear was generally possible at the sides of the houses (fig. 2C).

The Second World War marked another significant change in the types of



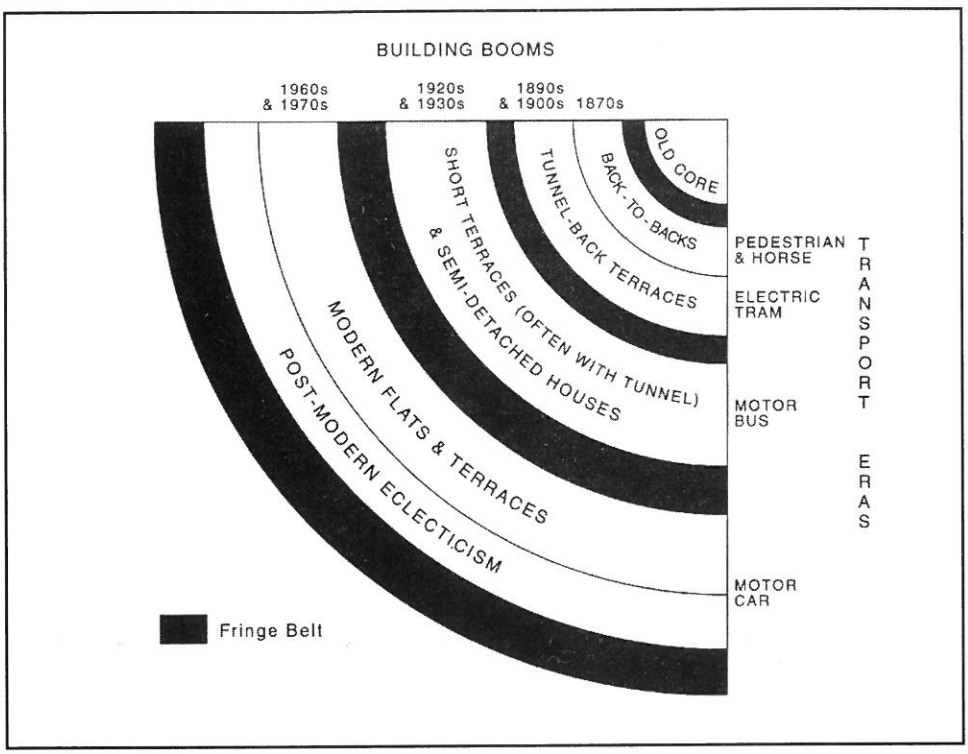
House- building fluctuations and predominant working-class house types in Birmingham, 1856-1994. Sources:Broaderwick, 1981.

dwellings that were constructed, as English working-class housing was belatedly affected by the Modern Movement. In housing estates constructed by local authorities in the larger cities, terraced houses were now inter-mixed with flats, a form of housing that had previously been uncommon in England, though not in Scotland. However, most recently it is clear that the break with the past has not been complete. Post-Modernism has involved a return to an overwhelming predominance of single-family houses. These are often terraced but, though sometimes neo-Victorian in architectural style, their block plans and associated street systems are quite different from those of the Victorian and Edwardian periods. There is little evidence of the back wings, uniform building lines and rectilinear street systems that were hallmarks of those periods.

The evolution of working-class house types may be related broadly to fluctuations in house building (fig. 3). Particular types have been associated with particular booms. This historical pattern has its geographical correlate. Different phases in the evolution of house types tended to be manifested in different geographical zones within the city, as shown in figure 4 (see Adams, 1970, for a broadly comparable diagram for cities in the American Midwest). However, there has also been geographical variation in the pattern of survival. In the larger industrial cities the zone of working-class housing created during the first three-quarters of the nineteenth century has survived poorly in comparison with later zones. During the ascendancy of the Modern Movement, in the 1950s and 1960s, it was the subject of a policy of demolition and redevelopment that depleted its stock of original houses much more than the air raids of the Luftwaffe had done.

Fringe Belts

The creation of different house types and the extent of their replacement are only part of the process that shapes urban landscapes. Between the



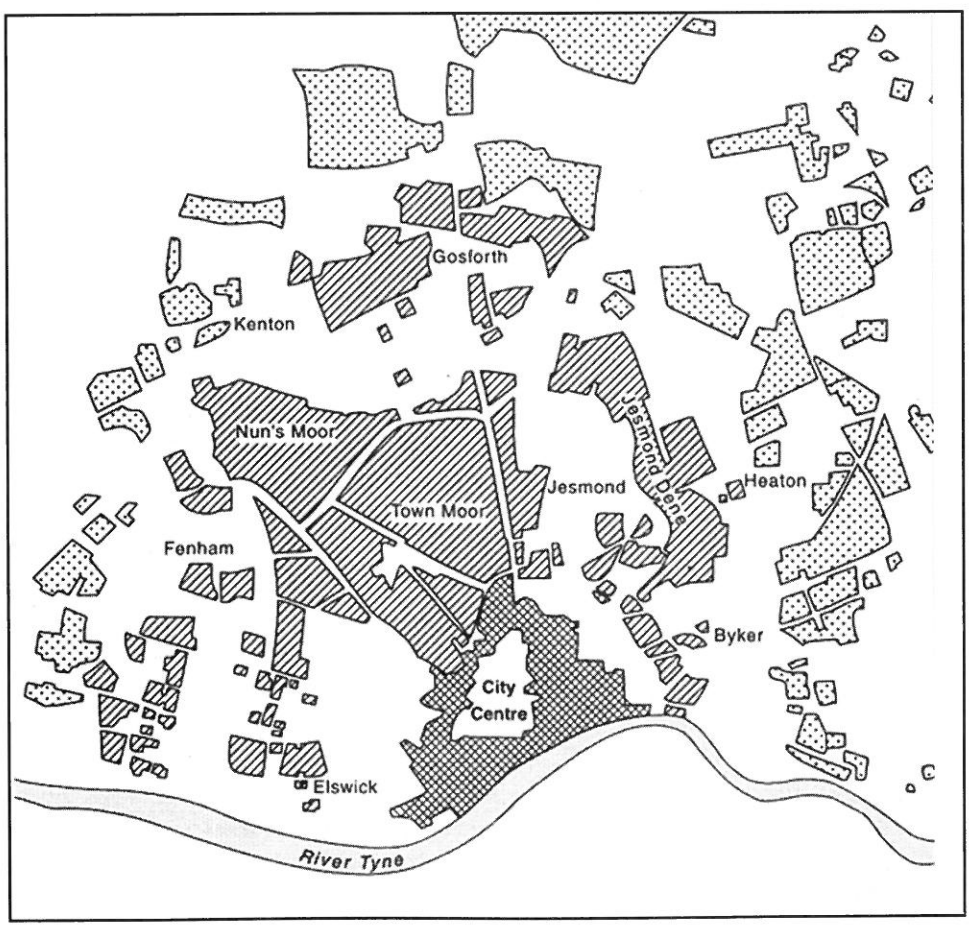
Development cycles, working-class house types and fringe belts in an English City.

house-building booms during which new residential growth zones were created, other types of land use made a relatively large contribution to the emerging land-use pattern. If the conversion of rural land to urban use is recorded over time, it is apparent that many urban or quasi-urban land uses have had an incidence quite different from that of housing. For example, the number of public parks and golf courses created in England and Wales has if anything been greater in house-building slumps than in house-building booms. And conversions of rural land to many other urban uses during house-building slumps, even though they may have fallen in absolute terms, have tended to rise relative to conversions to housing (Whitehand, 1981b). This has been especially true of land used for low-intensity development - many types of institution, for example. As a consequence, lengthy and pronounced slumps in house building tend to be associated with the development of fringe belts of a variety of low-intensity land uses (Conzen, 1960, p. 58-65; Whitehand, 1988). These fringe belts are apt to be most evident where a long slump in house building is combined with reaching some geographical limitation to the growth of the residential area. Examples are fortification zones, green belts, and the presence of land ill-suited to house building. Fringe belts tend to be most distinct in conditions where the normal expansion of the residential area has been fairly compact.

The tendency for urban areas to extend outward into a series of pulsations has been associated with long-term fluctuations in the value of land (Whitehand, 1987; 39-49). A fall in land values during house-building

slumps facilitates the acquisition of urban-fringe sites for land-extensive uses. Once acquired, however, a rise in land values during a subsequent house-building boom has not generally resulted in the resale of these sites for house building. This means that fringe belts have not been ephemeral features but have tended to be perpetuated, embedded in the built-up area, long after the main zone of house building has moved farther out (Whitehand, 1972).

The reasons for this are numerous. Many institutions occupying fringe-belt sites have gradually developed those sites more intensively, so that a discrepancy between current-use value and market value has either not arisen or has been eliminated or reduced. Sites that have remained in low-intensity use, such as public parks and certain types of sports grounds, have often been zoned in local planning documents to be retained in land use similar to the existing one. Some land users, once established on a site, have over long periods become insensitive to changes in land values, perhaps because of a lack of alternative sites for the - perhaps non-profit-making function, for a specific part of the urban area. Thus phases in house-type evolution have tended to remain physically separated from one another on the ground by fringe belts. Three such zones of separation, or fringe belts, have been recognized in Newcastle upon Tyne.(fig. 5)



The Fringe belts of Newcastle upon Tyne in 1965. Reproduced from Whitehand (1987), p 80.

Reflections

The building up of burgages emphasized lineaments and created entities that were rooted in the early history of the English town. For the occupants of a particular burgage, social life at practically its most local scale became identified with this long-established physical form. The burgage yard provided an environment where people felt a degree of self-containment within the larger unit of the street block and, ultimately, the whole town.
Unfortunately the poor hygiene in nineteenth-century cities, especially the lack of effective sewage disposal, created conditions in which disease was rife, leading ultimately to the banning of the construction of not only the types of dwellings that were built along the length of burgages but also back-to-back and blind-back houses more generally. In retrospect it is apparent that the health problems had little to do with the actual house types, but at the time, part of the remedy for the slums that existed in so many burgage yards and areas of back-to-back houses was thought to be the garden suburb with its much more spacious setting.
The garden suburb movement was, however, not just about creating a new type of landscape; it was also about increasing the privacy and self-containment of the individual household. It led to the connections with historical roots becoming increasingly stretched. This break with tradition was not only a product of garden suburbs however; the greatest break with the past was brought about by the Modern Movement, which was actually opposed to the garden suburb. The comprehensive redevelopments associated with the Modern Movement produced profound disorientation among communities that had grown up in the intimate atmosphere of burgage yards, courts, and tunnel-back houses. The severance of historically rooted ties to home and community and the destruction of the objectivations of these ties in the landscape are widely acknowledged to have had major social consequences.
More recently the tradition of blind-back and back-to-back houses has been revived. In the *milieu* in which the tradition began - the burgage yard - newly built blind-back houses have provided appropriate accommodation for single and two-person households in the core of historic towns. However, as a means of filling in originally low-density residential plots in the middle and outer zones of large cities they are liable to appear anachronistic, being diminutive alongside of the large detached houses in whose gardens they have been inserted.
Like housing areas, fringe belts often maintain direct visible connections with the past. These often take the form of individual structures surviving from the period when the fringe belt was at the edge of the city. But arguably more important, though virtually unrecognized by officialdom as a ground for conservation, are fringe belts as entities, as a means of articulating the historical development and meaning of a place. They provide markers in the landscape that aid orientation, not just in a practical sense, by aiding the construction of mental maps, but also by helping to relate those maps to the city's past development. They provide interruptions in

the built-up area that can be connected to the phases in the historical development of the city, enabling the present existence to be connected to the past. Tangible records in the landscape of previous margins of the built-up area clarify the city as a historical phenomenon. The city can be seen to have a past, a present, and a future. And this can be appreciated in the most powerful way of all, namely through the visual stimuli that urban landscapes provide in daily life.

For this reason proposals for development or redevelopment should not be merely about whether features in the landscape are individually of architectural or historical interest. Often more important is the historical and geographical context of those features. Demolition of a building that has no claims in itself to architectural merit may affect people's experience of a much wider area by impairing its intelligibility. This is also true of other parts of the urban area, but it is particularly true of fringe belts.

The two landscape features that have been discussed in this paper have been used to convey a more general message concerning the way in which cultural landscapes develop and how they contribute to the reservoir of cultural experience into which we can dip for all kinds of purposes, including city planning.

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Jean Castex

The Typological Character of the Buildings around Garnier's Opéra in Paris, 1861-1913

The area around Garnier's Opéra was planned by Haussmann to be the business and pleasure center of Paris. It would cater to visitors from England, Belgium, Germany, and - through the seaport of Le Havre and the western railroad - America. It was transformed between 1861, when the square was designed, and 1875, day the Opéra was inaugurated. In the period after Haussmann the area would be improved further, with its gathering of banks, hotels, department stores, and headquarters for internationally known societies. Sometimes progress was slow - the Credit Lyonnais took thirty-seven years (1876-1913) to grow from a modest bank to cover an entire block - sometimes rapid; it took only two years (1911-12) to finish the Rue des Italiens.

In the business center of the great capital city large buildings were constructed to fulfill a great variety of functions. In 1852, when discussions started on how best to connect the railroad station of St-Lazare with the Rue de Rivoli, a large triangular block of nearly 2.5 acres was designed. Ten years later it was filled by the Grand Hôtel (1861-62). In 1873, Blondel designed the headquarters for La Société de Dépôts et de Comptes Courants, which fit into another triangular block of 0.6 acres, only a quarter the size of the Grand Hôtel. The building was given a rotunda to enliven the composition of the square, making two buildings in a single block.

In the neighborhood we can count ten of these large buildings. Most of them housed institutions that started as small ventures and later grew to fill the entire block. When the Credit Lyonnais was founded in 1876, it occupied no more than 13,000 sq. feet; a passage or arcade allowed traffic to flow into its heart. The Credit Lyonnais finally filled its block in 1910, when André Narjoux and Victor Laloux (who won the Prix de Rome) designed a new façade on its southern end. The department store Le Printemps was founded in 1864 by Jules Jaluzot in the ground floor of a house, which was divided up into middle-class apartments in its upper stories. The area was a mixture of old- city fabric (although not for long; the Rue de Provence was soon to be widened) and a newly laid Haussmann pattern on the Rue du Havre, from where one entered the department store and the Boulevard Haussmann. The prosperity of the business pushed Jaluzot to extend vertically and horizontally, rapidly annexing the entire block and extending further east into the next.

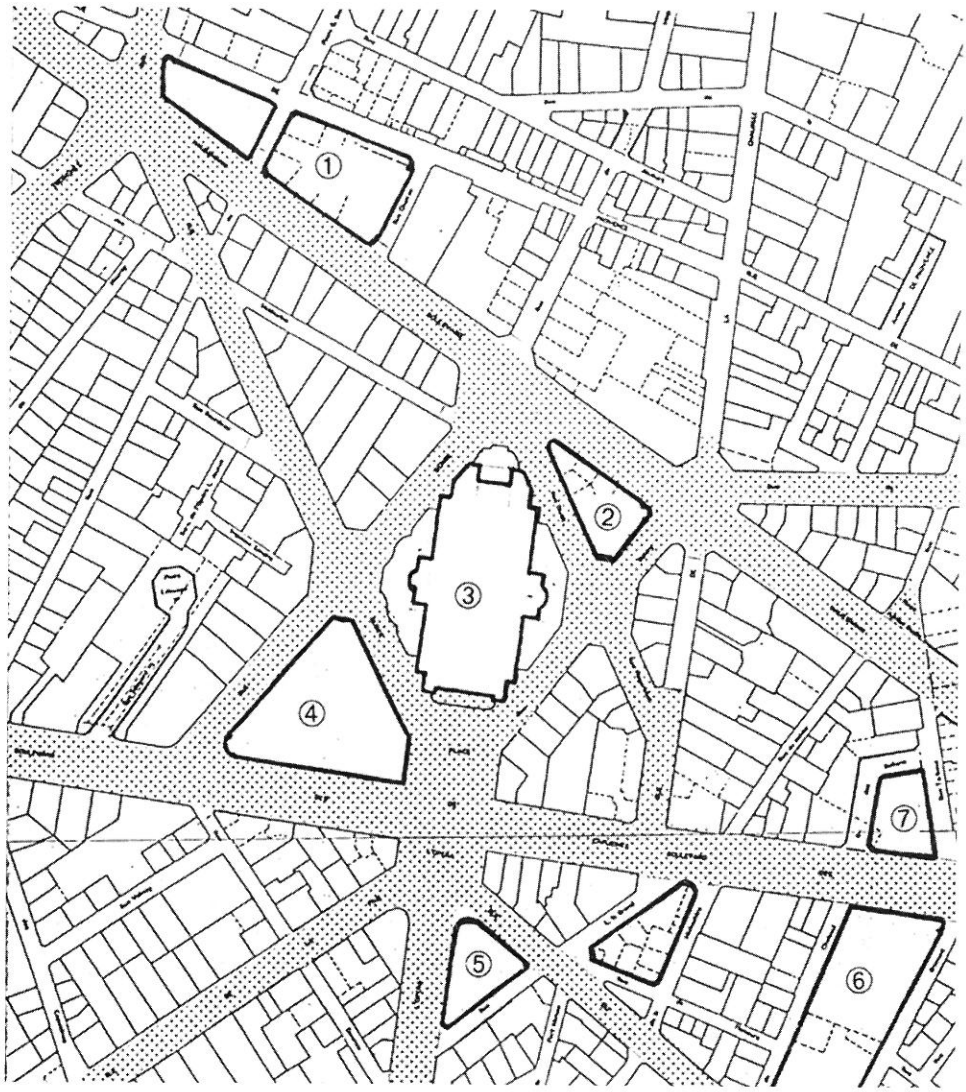
Le Printemps was damaged by fire in 1881, but immediately rebuilt on a unitarian plan by Sédille between 1881 and 1883 (and again in 1889). The new building was built in sections so that business could continue uninterrupted. Its main span was 7 meters, equal to the span of the bearing walls in the old construction. The same phenomenon can be observed in the Credit Lyonnais where the span was 6 meters. The process of substitution was slow, but the old city was eventually absorbed by the new one and forced into the ideal mold of modernity.

A third way to make a building block was simple renewal, providing the lot was big enough to allow the addition of a new structure. This is what was done in the case of the insurance company Urbaine Vie in 1911 when the new Rue des Italiens was opened. After the Boulevard Haussmann was finished by connecting it with the Boulevard Montmartre in 1927 (it was decided in 1913 but took fourteen more years to accomplish), two new buildings were created in the Art Deco style as the Banque Nationale pour le Commerce et l'Industrie, designed between 1931 and 1933 by Marrast and Le Trosne.

A dozen buildings were built between 1861 and 1913. The oldest are Haussmannian. The majority are post-Haussmannian (1876-1885). The last of them date from the immediate pre-World War I period (1904-12). We have a good idea of their dimensions; they covered areas of from one-quarter of an acre to two and a half acres. All of them have one side, or all sides on avenues or boulevards of 60 feet or more. These Haussmannian avenues criss-cross at Garnier's Opéra with a density unknown elsewhere in Paris. The district was planned for the convenience of rapid movement. When, in 1911, Edouard Arnauld planned the Rue des Italiens, he intended to give it the same width as the Haussmannian avenues, but he had to reduce it to 56 feet and ultimately to 43, for economic reasons.

To give a fair description of these buildings, it seems useful to compare them with what was going on in large American cities, where the division of a block into parcels was slowly being abolished in downtown areas by the end of the nineteenth century. A block could be divided in quarters or in half, or not at all. Half-block or block sites around 1880 were used for warehouses, department stores, or skyscrapers, which had begun to appear in New York and Chicago. How should the skyscraper be defined? The definition by Winston Weisman (1970) deals solely with the exterior and is too aesthetical. The one in Giedion's *Space, Time and Architecture* (1941) and Condit's *Rise of the Skyscraper* (1952) are no more helpful.

I finally settled on the one in the fourth chapter, called "A City under One Roof, the Skyscraper 1880-1895," of Daniel Bluestone's 1991 *Constructing Chicago* as being the most enlightening. He was not interested in the mythology of the skyscraper, but in the way contemporaries understood it. He describes it as a monument profuse with ornament, a place to express advanced technologies, opposing itself to the city to built an urban utopia for the middle class; and, of course, a tall building. French architectural magazines of the same period – *Revue Générale d'Architecture* of César Daly, *Construction Moderne, Architecture and Architecte* – published papers



Map of large buildings around Garnier's Opéra
1 Le Printemps (department store)
2 La Société Générale (bank)
3 L'Opéra
4 Le Grand Hôtel
5 La Société de Dépôts et de Comptes Courants
6 Le Crédit Lyonnais (bank)
7 La rue des Italiens
Plan of avenues or streets more than 60 feet wide.

by architects and essayists that use precisely these same characteristics for Parisian buildings of the time. Perhaps ideas did change a little, in 1861, *Paris in its Splendour* provided the rules that America had to follow, but after 1890, French authors acknowledged the splendid existence of the American skyscraper. In November and December 1911, Paul Nelson published two papers. "Letters from the States," in *L'Architecture,* and Will Darvllé published three features in *Construction Moderne* on "high American houses." Both express opinions that could easily have been advanced by the Modern Movement.

I am going to describe the parisian type by dividing them into four sections:

A monument profuse with ornament.
A high degree of comfort.
Rapidity of construction.
A city contained in one block.

A Monument Profuse with Ornament

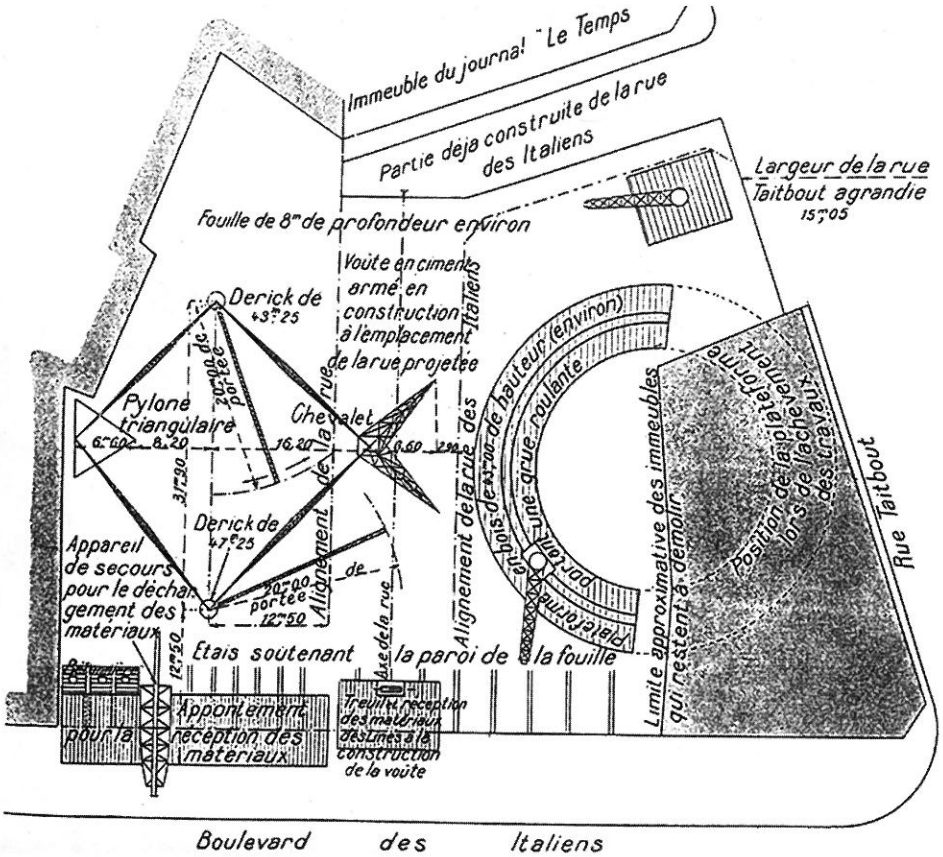
The dozen buildings I am going to describe – two hotels, three department stores, five banks, two company headquarters – are monumental. This monumentality was meant to express the success of capitalism, for all capitalist cities seem touched by monumentality. If one excludes buildings constructed after World War I, all the buildings are flanked by rotundas. Those built after the building code was changed in 1902 are grander, to increase the city's picturesqueness. The rotunda is included in the design of Garnier's Opéra, which towers above the area in all its grandeur. Van der Boyen pays hommage to its master Labrouste by reproducing at the corner of the Crédit Lyonnais the rotunda of the National Library. Both Printemps buildings were flanked by rotundas; two of them are landmarks halfway between the church of La Madeleine and the railroad station of St-Lazare.

These monumental buildings relied on ornamentation to attract attention and enhance the status of the company. In 1861 the Grand Hôtel was famous for its forecourt of "rich Corinthian columns, reminiscent of the courtyard of an Italian palazzo." Separated from it by a reading room, a double staircase, and a hydraulic elevator, the dining room could accommodate six hundred guests: "Its semi-circular shape, its glazed cupola, its multiple decorative attributes, its artistic mantelpiece, the procession of cariatids astonish the mind and dazzle the sight" (Guide Joanne, 1870).

The Printemps contrasts with the gray stone of the Haussmannian boulevard with its ornamental polychromy, a symbol for the department store named "The Spring." The rotundas are made of white stone and are revealed throughout the colored lightness of the metal frame. Binet designed the second store in 1907. He, like Owen Jones, was attracted to Muslim and Oriental ornament, but also to the beauty the microscope reveals in elementary beings. His approach was that of the Impressionist painters. He hollowed out the building to provide for the two seven-story-high hallways covered by a glass dome. The light was dispersed in fragments, broken by the protruding balconies, and caught back in its unity by an incredible number of electric candles. Ornamentation and scientific discovery were for him the only ways to express the natural world.

A High Degree of Comfort

Le Printemps was in 1883 a building ahead of its time. Its reputation rested on technical facilities that a chaotic and archaic city could not provide. Its water supply came from two wells. It had a steam heat system and automatic ventilation. Like the American skyscraper, it was lit by electricity after Edison invented the incandescent bulb in 1878, but long before electricity was came into common use in the early 1890s. Electricity



Rue des Italiens, the derrick (left) and the trestle (right). Construction Moderne, 1912.

required an enormous machine for its production. The furnace provided steam by day and ran two dynamos at night. The machines were exhibited to the public in the basement to show the power of industry and how far the building was ahead of the city. The building looked like a steamer, filled with all the desirable facilities.

The first Le Printemps store had elaborate staircases and seven lifts. In 1905, Binet added eight more lifts. When he designed the second store (1907-8), he did not push the stairs from the hall higher than the second floor, but provided 29 lifts instead; three of them were in the major hall where he designed them for display. These lifts were electric and showed a different approach to progress between France and the States. In a paper published in 1911 by *Construction Moderne*, A. Poitout explained that the French engineers never trusted the American system of elevators in which weight was compensated for by a counterweight. The machinery was too elaborate and needed constant attention. In the form it was used in the coal mines of northern France, it was "not absolutely safe, even providing you equipped it with the best parachute and very powerful brakes." The electric elevator was safer and did not need any control. The two cables and guideline that raised and lowered it were visible; inside it one could see the huge hall through a canopy of elaborate grillwork. The people going up and down in it were charmed and overwhelmed by the vision

they had through the elevator windows of the fantastic variety of goods and the beauty of the entire store. At this point, in 1911, France had understood and was trying to catch up with American technical advances.

Rapidity of Construction

In a paper presented on 3 December 1911, Will Darvllé showed a picture of the skeleton of the Singer Building, and remarked how difficult it was to find workers; only men like acrobats, with no tendency to vertigo, could be used for work on the building. The skeleton carried the load of the skyscraper. It stood on a deep foundation that sometimes accounted for half the cost of the entire tower. To reach solid ground, floating foundations were essential. The façades were just infills, coverings like a curtain wall to protect the steel skeleton and most of the time generously provided with delicate ornamentation. Construction took little time: five and a half months for the twelve-story-high Baltimore American; six months for the 450-foot-high Farmers Building in Pittsburg.

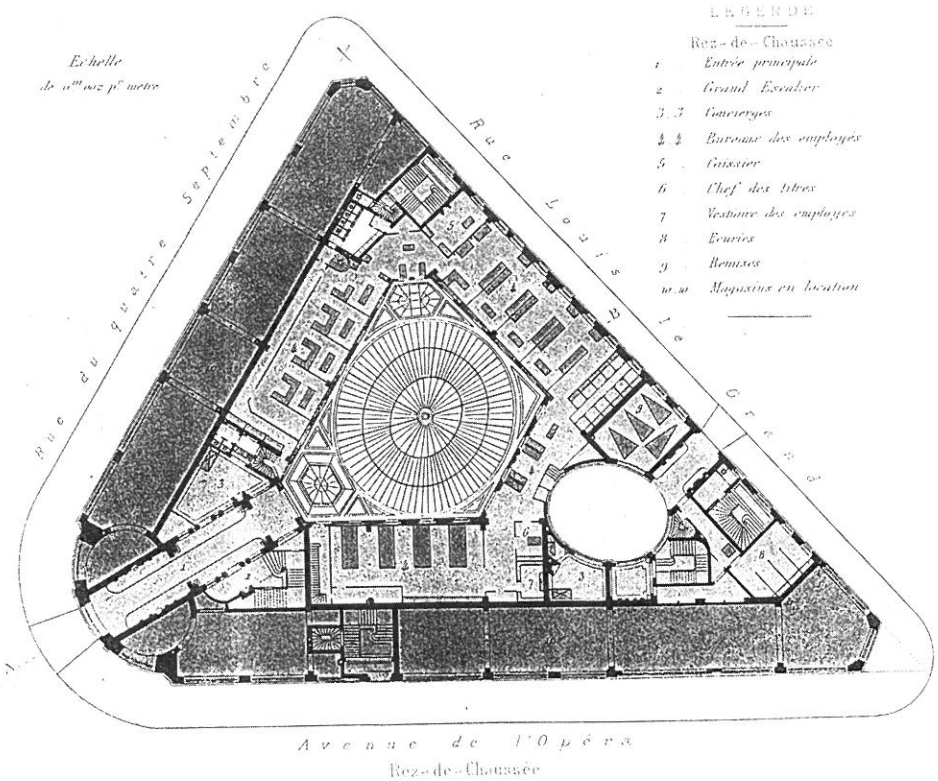
The buildings around the Opéra were also built "with an astonishing rapidity," as César Daly wrote of the Grand Hôtel, which was finished in 15 months (April 1861 to June 30, 1862). After the fire of 1881, Le Printemps was rebuilt in stages to keep some areas open for business; the first one was finished in seven months, the second in ten, the entire building was reopened in two years. Its foundations were modeled on the techniques of bridge building; to reach the limestone bedrock in a rather poor area, compressed air was used to reach floating foundations. The steel skeleton left the plan free and expressed a new sense of architecture without walls, all devoted to space, diaphanous and unified. The main central nave exemplified what Hitchcock believes to be the most successful approach to the idea of the department store. In fact the comparison to a skeleton was complete, since the ducts for steam, heating, electricity, ventilation, and water were built into the hollow steel columns, beams, and girders.

Opening up the new street, the Rue des Italiens, in 1911-12, was a convincing approach to the idea of rapidity. Not only was time saved in the overall process of building, but the time-wasting adaptation of space to people was secured through an elaborate system of division of floors. The steel skeleton was prefabricated. The industrial components were delivered by truck to the edge of the boulevard. Huge structures were erected, towering above the surrounding buildings, that could reach any part of the half-acre site. To the left, two derricks 120 and 150 feet high were maintained by two triangular piles to form a rigid square of huge dimension. Each derrick carried a crane that reached 60 feet. On the other side was an enormous wooden trestle tower 140 feet above ground. It had a circular shape one hundred feet in diameter. With such equipment, only five months were needed from the laying of the first column to the positioning of the last element of the roof. The skeleton inside has the qualities we discovered in Le Printemps. One could start to enclose any

area, work on it and finish it long before the adjoining structure was completed. The capacity of division aimed at 350 possibilities. It saved the positioning of offices from confusion. The private street at ground level contained all the horizontal ducts to which anything necessary could be attached. It looked much like the model of the "street split in different levels" that Eugène Hénard had proposed for his "City of the Future," published in November 1910 in the journal *L'Architecture.* The underground level contained "all the various channels and places to dump garbage and ashes." No distance remained between theoretical approach and design.

A City Contained in One Block

The success of Haussmann's urban policies was greatly helped around Garnier's Opéra by further improvements that continued until 1914. The area was devoted to business and pleasure; it was where the middle classes worked in offices and banks and shopped in department stores. The big buildings provided a new type adapted to a middle class that demanded clarity, light, comfort, prestige. They found them in this new category of building set apart from what was available only with difficulty in the old city. A sort of urban utopia was born, a city within a single block. In this new world, light and transparency were a perequisite. As John W. Root put it in 1890: "The first radical question to suggest itself is that of



Societe de Depots et de Comptes Courants (R.G.A., XXX, 1973). Banking in the center (note the glazed courtyard), shops around, apartments above and a few more offices.

light." Let us say that the confused obscurity of Chicago equaled Parisian darkness. Most Parisian buildings expressed their lightness by the quality of the work done inside. The main façades of the department stores once had the openness that the side façades of the Credit Lyonnais still display. All were opened to light by glassed-in courtyards or punctuated by iron galleries. Even the small ones had glazed courtyards, as, for example, La Société des Dépôts after 1873. The Grand Hôtel received its light from four courts, one of them flooding the famous dining room with light. The Printemps developed striking lightness; the old store had the shape of a nave or a glazed arcade, and the new one contained two halls six stories high, on top of which were two unreal eight-sided glass domes that expanded in the sky as the new regulations of 1902 permitted. The Crédit Lyonnais showed the same translucidity supplied by one, and later by two, glazed courtyards that also serving as banking halls, then by the grand staircase inspired by Chambord, 75 feet high and covered by a double glass dome of conical shape. Its architect van der Boyen intuitively provided a central arcade which became the nexus for future adaptations. After 1905-8, A. Narjoux added a new eight-sided dome designed in a kind of Art Nouveau style to give the bank a second access to the south. The building had a visual clarity that defined the type, but that was also not entirely unknown in the city in the early nineteenth century, organized around courtyards that were geometrized, glazed, and arcaded. This continuity of type showed how the old could be incorporated into the new without difficulty.

The Grand Hôtel, known as the "monstrous hotel," tried to equal the luxury of the royal palaces of the seventeenth and eighteenth century, but it was also a "reconstituted city." It contained 700 rooms; its kitchen could deliver all the food of the world; and the city itself was reflected in the many facilities it offered, not only a reading-room, but a tobacco and cigar shop, a change desk, a post office, a place to find interpreters or buy theater tickets. Le Printemps was added to the shopping area, tearooms, exhibition halls, reading rooms, buffets, waiting rooms. All this aimed at giving the clients the best. The headquarters of a large company, the Société des Dépôts (1873), mixed banking with shops on the ground floor and put three lavishly designed apartments around the president's office on the third floor. The upper floors were rented out to various companies. Each building multiplied its functions, brought a clear way of planning to them, proposed a modern conception of the city. They also provided enclaves reserved for the middle and upper classes in the vast system of Haussmannian Paris.

The parallel between the Parisian urban block and the American skyscraper does not really hold. Daniel Bluestone named his fourth chapter "A City under One Roof." The large building of Paris was more like a monument. As the magazine *L'Architecture* commented in 1902, the Crédit Lyonnais was for its architect, van der Boyen, "a success di primo cartello" that reflected the status and prosperity of the banking company. It provided for a comfort unknown elsewhere in the city and functional

diversity; it could adapt to the mentality of the middle class. All this we find in the American skyscraper - plus height. The Parisian block building is not a skyscraper but a steamer, with all its advanced facilities, its transparency, its openness to modernity, its sense of space. In the city it marks a sudden change. Simply by modifying the process of dividing a block into lots, it showed its connection to the Modern Movement.

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3. The buildings around Garnier's Opéra: on the area see, F. Loyer and A.-M. Chatelet, *Autour de l'Opéra: naissance de la ville moderne* (Paris: 1995) see esp. J. Castex, "Les Origines du Quartier," p. 42-50; L. Irurzun, "Les Grands Hôtels," p. 178-89; Soriano, "Les Grands Magasins du Printemps," p. 227-43. On particular buildings see, *Le Crédit Lyonnais: Revue Générale de l'architecture et des Travaux Publics* (henceforth cited as RGA), 38 (1881), pls. 7-13, cols. 202-7; 41 (1884), pls. 6-12, cols. 152-56; *La Construction Moderne* (henceforth cited as CM), 30 May 1891, p. 404-7; 2 December 1905, p. 101 and pl. 23; 23 March 1907, p. 293 and pls. 61-62; *L'Architecture*, 1897, p. 84-87; 28 June 1902, p. 213-14. On the Grand Hotel see, L. Irurzun, "Les Grands Hôtels," in *Chatelet, Autour de l'Opéra. Le Printemps;* H. Soriano, "Les Grands Magasins du Printemps," in ibid. On Rue des Italiens see, P. Couturaud, "La rue des Italiens," *CM*, 11 February 1912, p. 233-37; *L'Architecte*, April 1913, p. 25-32; "Société des Dépôts et Comptes Courants," *RGA* 30 (1873) pls. 47-49, cols. 199-200.

Sylvain Malfroy

The Modern Completion of the Nineteenth-Century Fabric Based on the Grid and Blocks

Case Studies from Industrial Towns in Switzerland

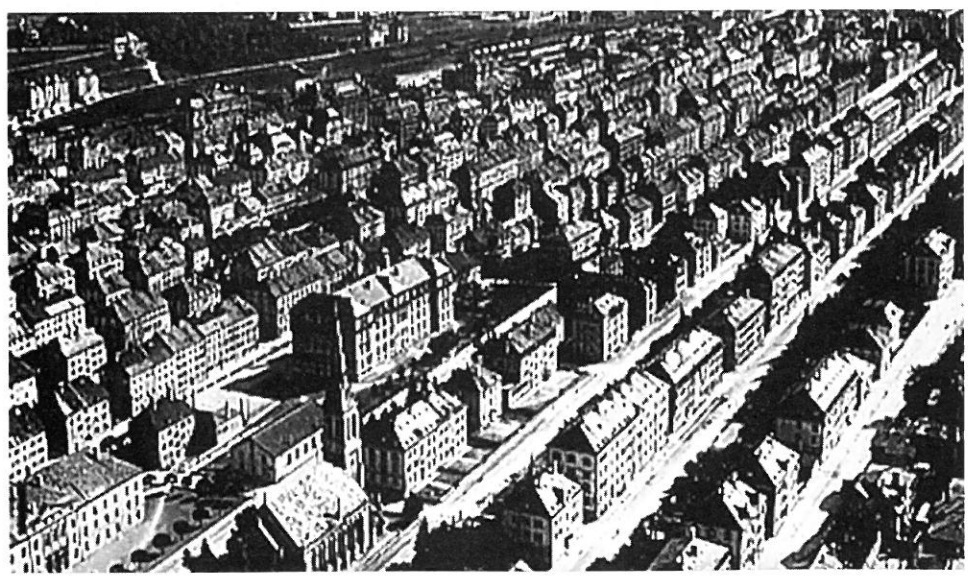
The most industrialized cities today are periodically confronted with the problem of so-called industrial blight in central urban areas. The high cost of the land in the dense center of the city forces old factories, when they expand, to find a new location into the suburban belt. This process of dislocation creates in the urban fabric areas for redevelopment with functional changes. The task can be described as a work of completion, because in most important cases the surroundings are still well formed and the various activities generally work well. The case of Fiat in Turin and Pirelli in Milan illustrates the point.[1]

I will show you some aspects of this design task taking as a case study the town of Bienne (Biel) in Switzerland.[2] This small city of only fifty thousand habitants is well known around the world as the center of production of the famous Swatch. In the thirties, General Motors built an assembly plant in this town, but it was not a success, and the principal industrial activity remained watch-making. At the beginning of the nineties, various industrial areas becomes free for redevelopment around the old municipal gasworks, where mixed private and public property amounted to more than eight hectares. The exceptional availability of so much space near the city center led the planning authorities to organize a competition between six Swiss architects in order to collect the elements of a coherent urban project.

Morphologically, Bienne belongs to a family of industrial cities which were all built or rebuilt after fires in the nineteenth century. They include La Chaux-de-Fonds (the birthplace of Le Corbusier), Le Locle, Saint-Imier, and Tavannes, among others. All are located in the folds of the Jura mountains, and their form is very closely bound with the topography.

The Jura moutains differ from the Alps in height and in geological age. The Jura is a very old and eroded chain with parallel rounded folds. La Chaux-de-Fonds lies at thousand meters above sea level. The settlement is organized along routes that run parallel to the contour lines. Bienne lies at the foot of the Jura, near a lake of the same name. Watchmaking was introduced into the region in the late sevententh century by French emigrants. In the pre-industrial period, most of the work was done by the peasants at home in the winter, when they were free from their work in the fields.

The character of the cities is shaped by the vernacular form of building, but the development of industry in these small mountain towns was also responsible for a series of devastating fires. This explains why the region was from very early on concerned with planning regulations.
The plans for the reconstruction of destroyed districts were made by engineers educated in France. In Napoleonic times, this part of Switzerland had become a French protectorate. A cartographic survey of the region had been undertaken, which gave local engineers access to the expertise of the famous Ecole des Ponts et Chaussees. After the Congress of Vienna, the region around Neuchatel became a Prussian principality. Cultural exchanges were also flowing between Neuchatel and Berlin. We could say that the grid systems, which were first designed for Le Locle in 1837 and La Chaux-de-Fonds arround 1820, were influenced by the technical rationality of the statist administration, including input from the philosophy of the Enlightenment ("Sonnenbau", Doctor Faustus). Only after the middle of the nineteenth century, after the world exposition at Philadelphia, can we can speak of an influence of industrialization on the shaping of urban expansion. The first worker houses in Le Locle, which were built with a philanthropic purpose, were erected beginning around 1850. Some home production continued, but production in factories was increasingly taking over.
These industrial complexes display a typical process of organic expansion. We find in a linear addition the house of the firm owner, than the first factory, than more recent workshops and worker houses, and so on. If one looks at Le Locle or La Chaux de Fonds from the air, one has the impression of flying over a marshalling yard. The buildings look like wagons attached in infinite rows. It is certainly too general and vague to speak of the urban pattern as an orthogonal grid, because we see clearly that the blocks form a series of parallel stripes with one dominating orientation.



La Chaux-de-Fonds, aerial view around 1920 (Photo, Walter Mittelholzer, from Inventaire Suisse d' Architecture 1850-1920, vol 3. Berne 1982).

Bienne, aerial view around 1960. Detail of fabric between marshalling yard (right) and station (left).

The gasworks at Bienne ceased production in 1967, freeing an area of more than 50,000 square meters between the main railway station and the industrial belt which lies to the east of the freight terminal. The planning process for this fallow industrial area began in the early nineties when a neighboring owner asked for a construction permit. The local authorities would only authorize this permit on the basis of a master plan for the entire area. To establish this foundation, they organized a competition. Six Swiss planning studios were invited to give their advice on the potential of the site. Their propositions were used by the authorities to develop the final planning scheme. Each of those projects gave an interpretation of the traditional row-house grid pattern that had characterized the growth of the city from industrialization in the middle of the nineteenth century until the end of World War II.

Why should it be necessary to organize a competition to fill the existing gaps in an urban fabric? Why do something else than what has always been done, and why proceed in another way than the one that had always been followed? The industrial area bordered an urban context set upon an orthogonal grid. The aspect of the surrounding neighborhoods is typical of a time when the work of the land planner was no different from that of a surveyor. The buildings are ruled by a number of geometrical parameters such as alignment, height, depth, distance, and so on. Why not transform these fallow lands according to these rules and complete the existing street grid by defining blocks, while adapting the building regulations to the new needs?

There were at least three main reasons for not proceeding in that way. The first one is that a change of scale in the size of the development allowed new opportunities. The main argument against the repetition of the neighboring morphology lay in the size of the area being developed. The eight hectares that included the gasworks and its surroundings may seem

small compared to developments in other European cities, but in a local context the surface was comparable to that of the historical center, and larger than any of the traditional neighborhoods. At this threshold of scale, one faces the question of whether it is a matter of filling a gap in a uniform whole, or if it is an occasion for designing an entirely new city area. Such a new district could host in an adequate structure the growth and the changes that scattered renovation in the existing city would be unable to absorb. One should not waste the opportunity to set in concrete form the qualitative evolution of the city. This may be the reason why the authorities were ready to consider the problem in a new way (the unity of the new station district planned in the thirties provided a precedent).

Other more technical arguments could be drawn from the lessons of past experience. If we consider the way in which the urban grids of the nineteeth century were progressively filled, we observe that the order generated by the geometry is only apparent or superficial. If we consider urban growth until the appearance of the contemporary suburbs, we realize that the orthogonal grid is not a very efficient tool. We can first observe that there is a critical size after which the structuring power of the grid is no longer efficient if the means of filling the grid are not there at the time when the pattern is set. If a modular system is extended too far without anticipating the necessary emergence of new poles, fronts, hierarchies and spatial articulations, it will suffer from a negative feedback generated by these phenomena. A look at the city plan shows that the built concentrations are not uniformly laid on the main pattern. We might also say that the logic of distribution of social activities no longer corresponds to the geometrical uniformity of the grid. The serial order of a regular grid is neutralized after a certain size is exceeded; it just becomes a constellation of fragments. These fragments become more coherent in themselves than the whole pattern, the latter being perceived as a formal relic of an intention denied by the facts.

The second reason for the inefficiency we have just mentioned appears when we consider the evolution of urban patterns through time. We see that the closer we come to contemporary times, the wider the mesh becomes. The number of connecting streets by the hectare diminishes. This fact can be explained by the size of modern interventions in the suburban area and by the presence of more numerous recreational spaces. But it is more likely that the morphological changes follow from an intentional purpose: that would be the concern of correcting the superabundance of roads.

On top of these technico-economical reasons, we can add esthetic considerations. The orthogonal grid is poor in spatial quality; corridor-streets are often monotonous, the perspective perception of spaces is very static. When it becomes obvious that more can be done with less, no other arguments are needed to alter one's behavior. But things are not that easy, for the modern realizations in the suburban areas have their own flaws. In comparison, the orthogonal grid gains new value.

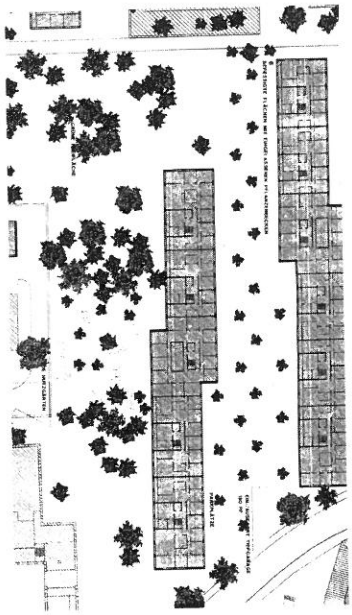
There are other advantages to the urban grids of the nineteenth century

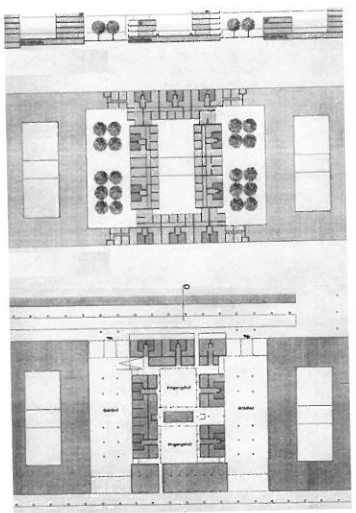
which are worth being conserved. One of them is the capacity to integrate aleatory processes into relatively stable frames. The grid sets a basic scheme for the definition of public space; it also sets rules for division into lots and the implantation of buildings, without determining the functional characteristics of the objects that will fill the spaces. Thus the most varied of programs can coexist within the same block without it becoming chaotic. In Bienne it is amazing to see the succession of lodgings, workshops, churches, warehouses, schools, restaurants and shops, without any segregation between them. There is no hierarchy between monuments and common buildings, between the singular and the repetitive, the primary elements, as Aldo Rossi would say, and the residential areas. This incredible mixture of the urban fabric allows the immediate correction of any cases of obsolescence.

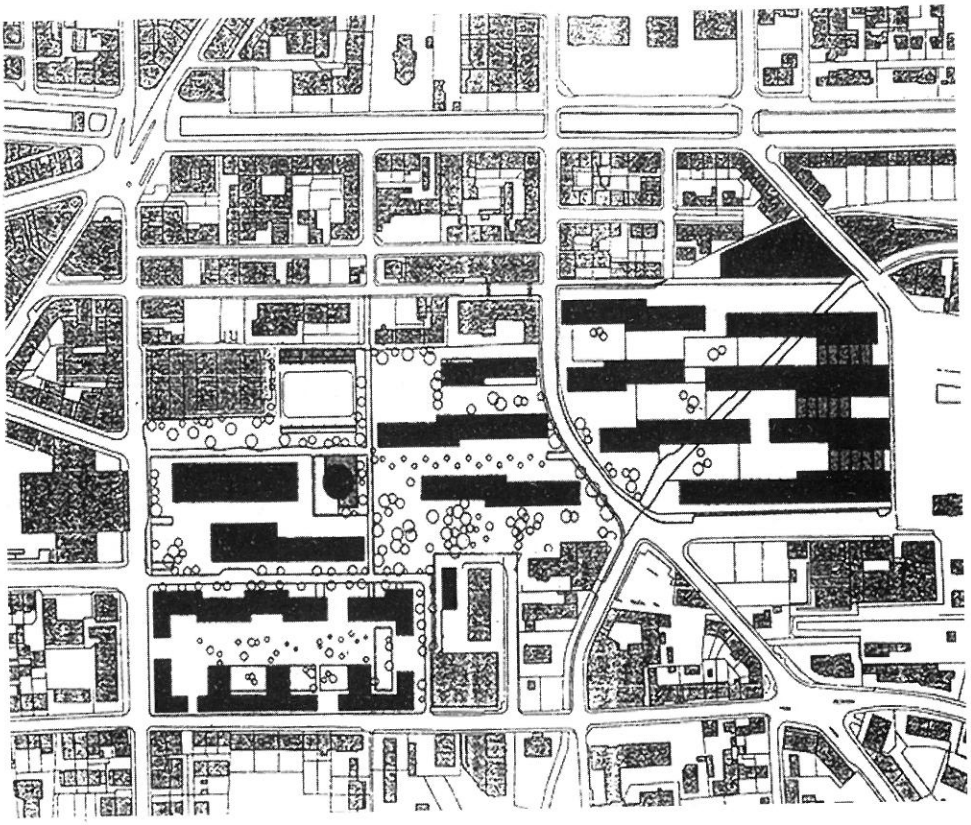
The presence of varied users on the site keep a pressure of demand that allows the re-assigning of new functions to free buildings, or the construction of new ones without big problems of programing. We could quickly list the positive aspects of the districts concerned; the simultaneous presence of the multiple, functional flexibility, evolution within continuity, conciliation of order and hazard.

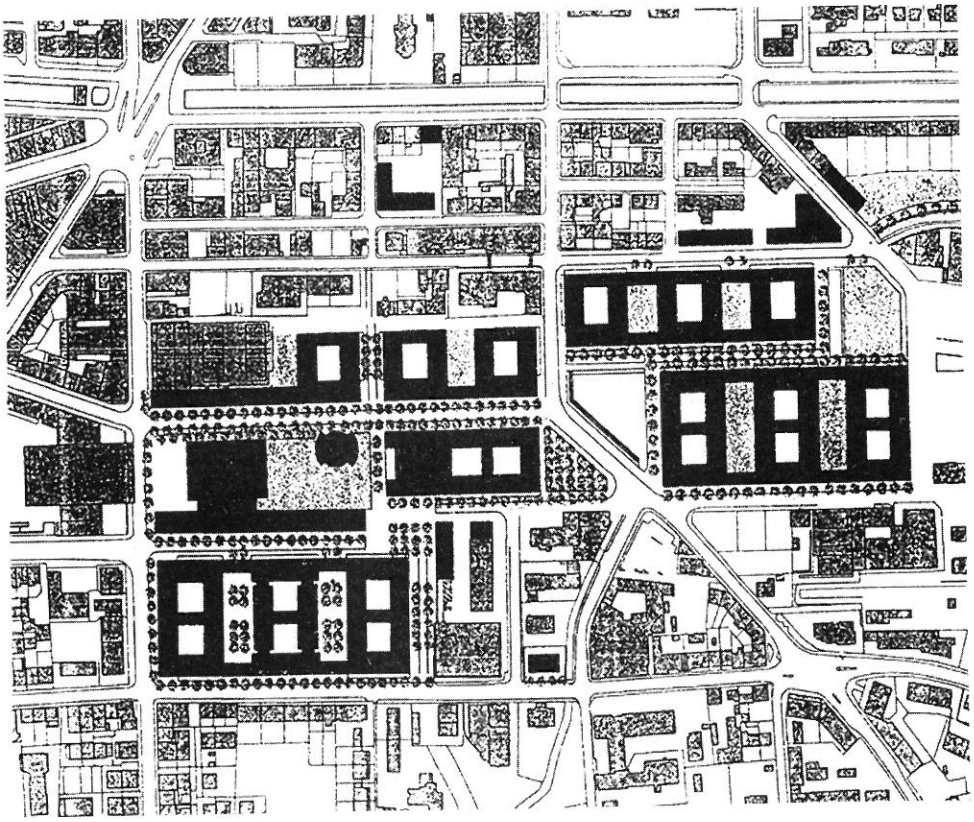
Although the traditional orthogonal grid has some disadvantages some of the post-war experiences that attempted to improve these defects are no longer satisfactory either. The recent efforts to reintroduce the block system should not be seen as merely an attempt to adapt new developments to the surrounding environment - what we could call contextualization - but as an effort to reconcile the advantages of both systems. I hope that the reflections developed up to this point will help us better to understand the urban projects submitted in the competition.

The first project I will present was made by Roger Diener in collaboration with Gilles Barbey, an architect and architectural historian, who has undertaken important studies of industrial settlements in the Jura mountains. Their plan is based on two principles; the linear addition of all buildings without regard to the various functions or various building depths, and the same orientation for all the buildings according to the topography of the valley. These minimal rules allow the generation of various external spaces, which are not precisely defined, but open to a variety of uses. The traffic roads and the open spaces between the rows are clearly separated. This project has nothing to do with the abstract slabs that urban planning generalized after the war. The rationalist attempt to conciliate high density and hygienic conditions is not abandoned, but improved upon by giving consideration to the quality of urban space and to a certain level of functional complexity. There is a clear distinction, in this master plan, between what should be regulated and what should not be determined, because it is a matter of historical process. This reduction of the means in the making of the urban space encounters certain positions of contemporary American sculpture. Time will not allow a typological analysis; I have limited myself to showing details that illustrate the attention given to the characteristics of the context.



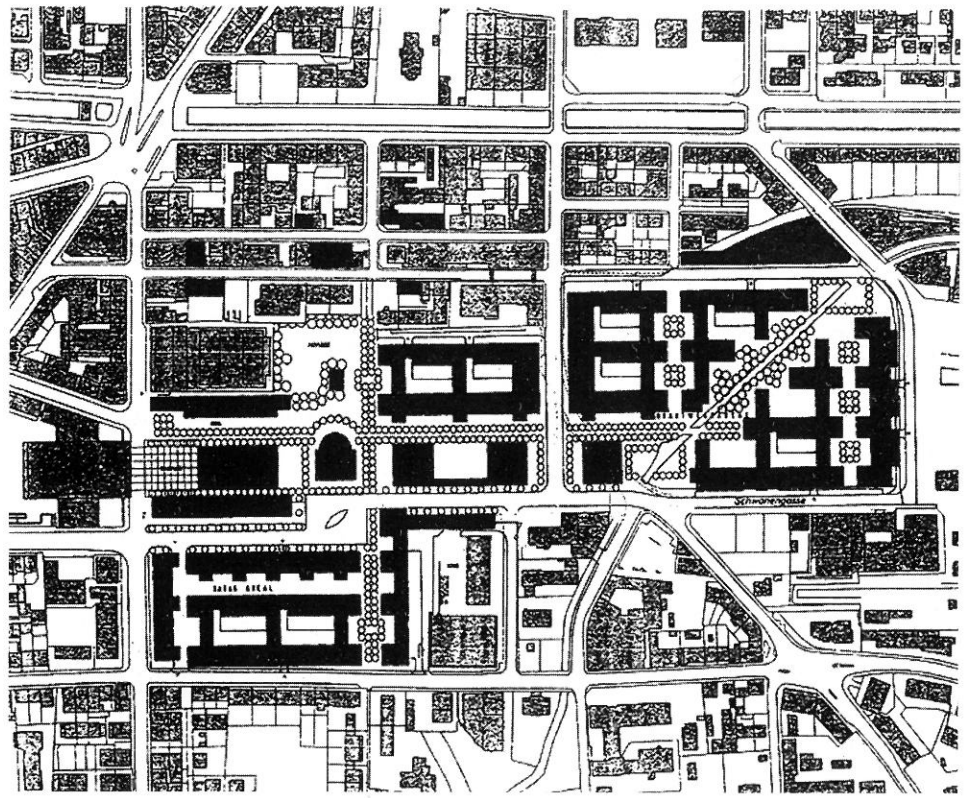


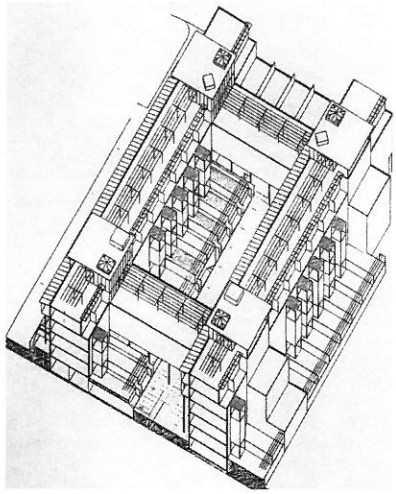




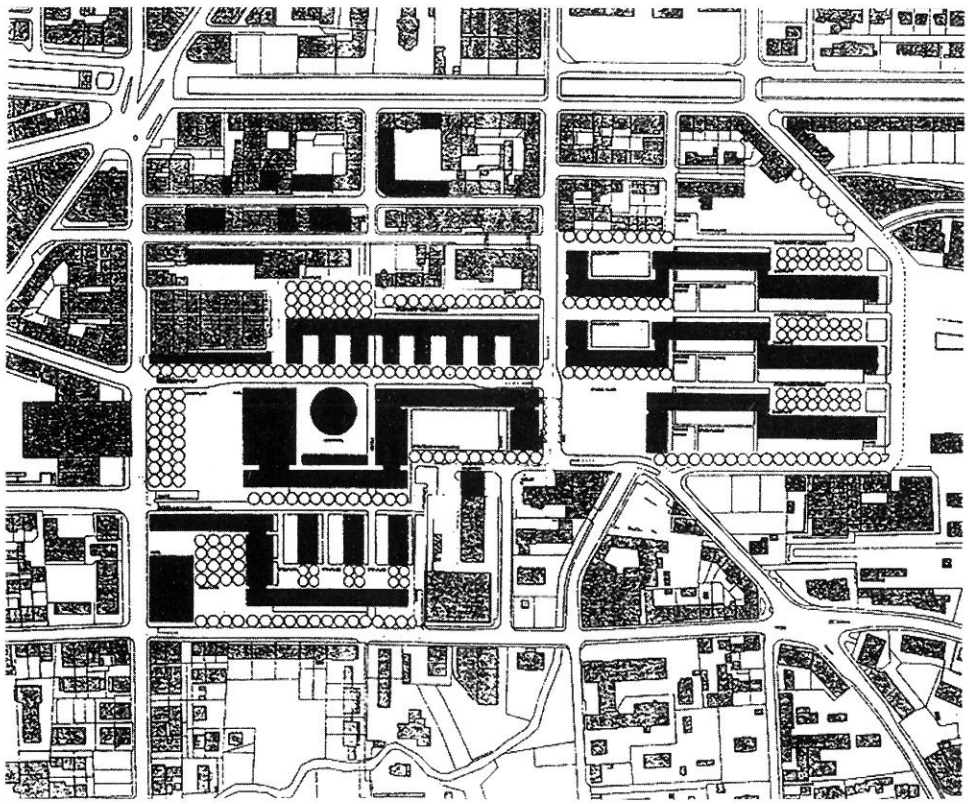
Diener &Diener, Basel, Gilles Barbey, Lausanne, architects: Bienne, master plan and detail for the redevelopment of the area of the old municipal gas factory, Bienne 1992.

Atelier 5, Architects, Berne: gas factory redevelopment scheme, Bienne, 1992.

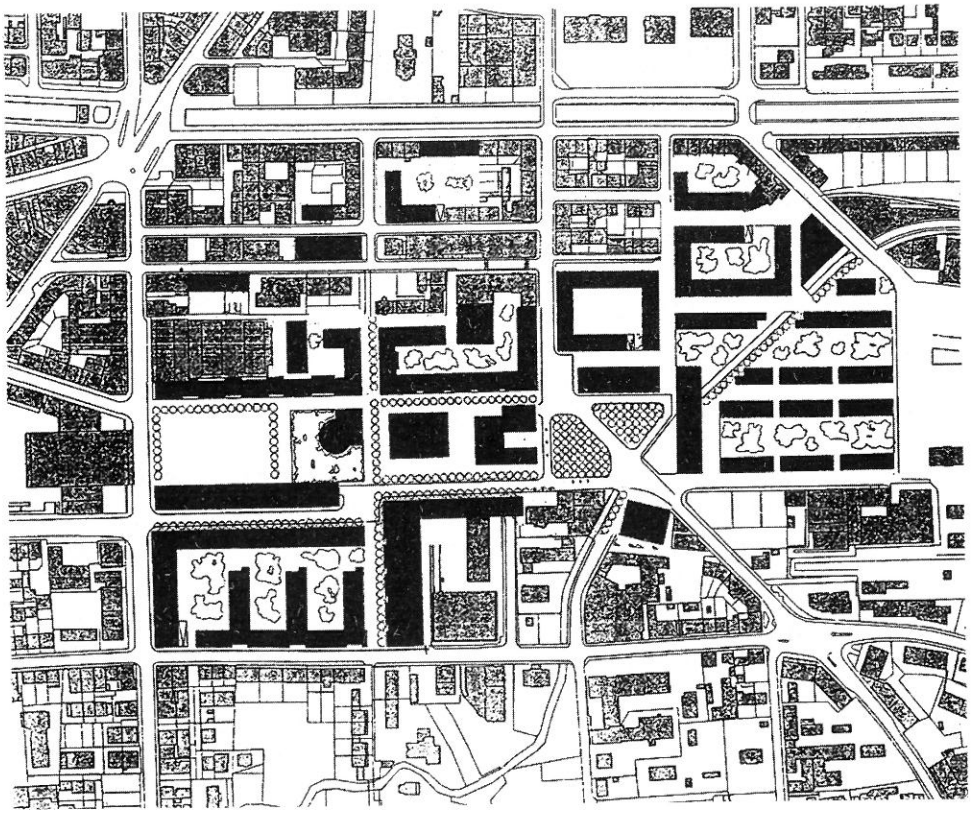




M & Y Hausamann, Bienne, Feddersen & Klostermann, Zurich: Gas factory redevelopment scheme with detail, 1992



Silvia Kistler & Rudolf Vogt, Bienne: Gas factory redevelopment scheme, 1992



Schnebli, Ammann, Ruchat-Roncati, Zurich: Gas factory redevelopment scheme, 1992

The project made by the Atelier Five seems to me the most historical of all. They have identified the grid pattern which underlies the district with the period of the nineteenth century, and than the nineteenth century with the type of Mietskaserne, built around a courtyard. By doing so, this project is connected to a historical period but not concretely to the building tradition. This way of typifying the urban pattern has many aspects in common with the understanding of building which, for example, Viollet-le-Duc had in the nineteenth century. We could observe in this proposal a way of improving the pattern of the flat block surrounded by streets. The courtyards are defined as collective green spaces or as a central open space in relation to craft activities.

Another firm, Hausamann, Federsen and Klostermann, have tried to improve the type of the Mietskaserne with a courtyard. In this solution, there is an effort to introduce a gradation of public, semi-public, and private open spaces into the block. The typology of the flats is very complex; there are duplex and triplex houses on the ground floor and large flats or offices on the upper floors.

Silvia Kistler and Rudolf Vogt has tried to respect the alignments given, but to express the more centrality or marginality of each zone using various building types. The proposal of Dolf Schnebli, Flora Ruchat, and Tobias Ammann is based on the principle of a pragmatic completion of all voids, according to the local conditions of each block. In doing so, they recognize that the general pattern, which has been realized in the original,

was only a scheme, which various events have successively differentiated. If we pay attention to the details, we can see that the various interventions reinforce the transparency of the grid in the north-south direction and increase the architectural definition of the public space in the east-west direction. This behavior seems to recall certain lessons of town planning at the beginning of this century (Parker and Unwin, Camillo Sitte). The proposed housing types are modern throughout.

I will conclude by listing some of the questions which it seems to me all the projects had to deal with. If we accept the modern principle of segregating traffic, have we automatically to give up all idea of seriality or modularity? What other considerations can be recommended for the conservation of grid patterns? If we accept the modern criticisms of the street corridor and closed courtyards, but if we are also aware of the weakness of the open spaces in the functionalist model, what kind of open spaces are we able to imagine? If we agree with the modern critic about the monotony of certain urban compositions of the nineteenth century, but if we become aware too of the loss of originality from which modern free-composition neighborhoods suffer today, what possibilities remain to achieve order without monotony? More generally, what can we learn from past experience?

NOTES

1. Gae Aulenti, ed., *Venti progetti per il futuro del Lingotto,* catalogue of the exhibition (Milano: Etas-Libri Fabbri, 1984); Gae Aulenti, ed., *Progetto Bicocca* (Milano: Electa, 1986).

2. For a more detailed presentation of this case study and further bibliographical notes, see my contribution, "Ni îlot ni barre: à propos de deux friches industrielles actuellement en cours de restructuration à Bienne et à Vienne" in *Werk* (Bauen+Wohnen 4/1994) p. 8-17.

Brenda C. Scheer and David R. Scheer

Typology and Urban Design Guidelines

Preserving the City without Dictating Design

In this paper we will describe an application of typomorphological analysis to the solution of a problem that besets most American cities and which we frequently encounter in our design practice. The ugly condition of the American urban environment has spawned a growth industry in aesthetic controls. Town officials often come to us seeking some kind of design guidelines to combat visual blight and to rekindle the urban life of their towns' declining areas. What they usually have in mind is the regulation of colors, signage, sreetscape and the like. They tend to believe that the problem is essentially cosmetic and that a coordinated color palette and a few street trees will cure all ills. In response, we propose the idea that the problem is caused by the neglect of basic typological patterns which gave the town its underlying coherence. We believe that guidelines aimed at restoring these typological patterns are more effective than cosmetic controls at addressing the problems of urban deterioration. They have the additional benefit of permitting both the diversity of visual expression which lends a town vitality and the flexibility needed to meet the changing demands placed on it.

Aesthetic controls have become ubiquitous in American cities and towns over the past fifteen years. Responding to a perceived need to control the design of the built environment, public planners in more than 78% of local governments have instituted systems of design control, compared to less than 28% of jurisdictions in 1980.[1] This control takes the form of legislated guidelines or a design review procedure or both.

The intended purpose of aesthetic controls is to combat visual blight, to maintain property values and protect public investment, and to provide a measure of coherence in the environment. Design controls apply to many different types of urban environments - everything from valued historic districts to ordinary mixed use or residential districts to new commercial office parks and planned development projects.

Despite its widespread adoption, design control has been controversial. The major controversy stems from the traditional American reluctance to restrict private property rights. That control has been instituted anyway is an indication of how concerned citizens and politicians are with the visual chaos of their cities.

When zoning was widely adopted in the 1920's, most cities used model legislation written at the national level. In design review, there have been no such models or standard controls which could easily translate from one

jurisdiction to another. Because of this, communities have almost always assembled a unique set of guidelines and there is a wide disparity in their quality, and thus their effectiveness.

Design review is usually accompanied by a set of design guidelines, which may be actual laws or simply recommendations. The purpose of these guidelines is to set forth acceptable limits for would-be developers and builders. The typical design guidelines that accompany design review are massively detailed with do's and don't's, and cover a wide range of possible transgressions from misplaced signs to disallowed materials to violations of "context". Guidelines frequently address landscaping, signs, fences and screening, acceptable building materials and details, roof lines and massing, window size and shape and, less frequently, building style. (See Table 1)

There are three settings where guidelines are most commonly used: to support valued historic buildings and historic districts; within existing environments that are subject to renovation, infill and redevelopment; and in the development of new environments, especially sizeable planned projects. In the typical historic or redevelopment area, design review is based on a set of rather specific guidelines, or when these are absent, a reliance on the professional discretion of an architectural authority such as a design review board. In all cases, attention is focussed primarily on the specifics of architecture or site. Several examples will illustrate this point.

Most cities offer site plan review guidelines which address parking lot landscaping, commonly calling for landscaping buffers. If you are to build a new K-mart, for example, the most stringent guidelines will call for a generously landscaped parking lot, the use of an appropriate sign placed in an appropriate place, and perhaps even specific materials, colors and signs on the building facade (some jurisdictions call for a mimicry of specific historic styles or details, although this is rare). What is less frequently questioned is the basic typology of the big box retailer, the massive horizontal bulk of the building, its placement on the site with a huge parking lot in front, its orientation to the street, or its affect on the character of the street that it occupies.

For design controls in existing environments, there is a similar lack of recognition of building typologies, although there is a often greater sensitivity to the morphology of the context. For example, new buildings are usually required to adhere to an established setback line. At this point, however, design policy proceeds to emphasize the control of materials, fenestration and style of buildings. There may or may not be any sensitivity to other typological patterns which are established; a rhythm of entrances, for example. On the other hand, there is often great concern for the particularities of brick size and color, window sizes, and small details. This concentrated focus is a legacy of design review's genesis in this country; historic preservation. It is often necessary for preservationists to dwell on the importance of details in order to save the integrity of an existing historic building. Guidelines that grew from this process are concerned with preserving architectural details, and in most places, such

guidelines have served as the model for design guidelines in areas or for buildings which are not historic.

Table 1 lists the building design elements that are most frequently reviewed in local jurisdictions, in order of the percentage of jurisdictions which review these elements.[2] Many of these have typological implications, but typology has not normally been used as a way of systematizing the review process or organizing the guidelines. Table 2 lists the most frequently reviewed site elements.

A Critique of Established Design Review Practice

There are many major issues with the application of design guidelines to improve the aesthetic of the American city. These have been catalogued by us[3] and others elsewhere. Two important issues can be addressed here: The first is that design control runs contrary to a strong tradition of private property rights. One result is that design regulation is applied quite superficially, judging the color of awnings, for example. The second result is that design review is seen as very irritating and petty by owners and their architects, mostly because it is nitpicky and highly discretionary. Most design controls are aimed at obvious rules which any reasonable architect does not need. More sophisticated design control is at best second guessing and at worst, meddling.

Design control also works awkwardly, or is not coordinated, with the most accepted form of planning control, zoning. It is either administratively added to the zoning code, or is an entirely separate operation. Zoning is designed to control land use, which is (usually) a-formal.

The second major issue is that design review doesn't really have the effect that it is intended to have. Design guidelines are applied across a wide variety of urban typologies, using very simple premises, without regard to the dissimilarities of places. Guidelines tend to focus on determining simple transgressions rather than working from principles of good design. Most design judgements are made with the following central ideas: does the design of the building follow guidelines that control maximum height, acceptable materials, details and signs? does the design of the site include landscape buffers and the screening of loading and trash areas?

Thus, a new building might be reviewed for the color of its awnings, the size of the brick, and the depth of the landscape buffer. Often the stylistic details or the materials and fenestration of the building must be reminiscent of nearby buildings. This imposes an irritating amount of control and tends to create bland, merely acceptable buildings which lack the happy accidents and individual quirks that are part of a vital urban environment.

Many planners instinctively understand, however, that the patterns of buildings and open spaces comprising an existing environment are fundamental to the creation and preservation of the context. In other words, the basis of the coherence they seek to restore (or preserve) with

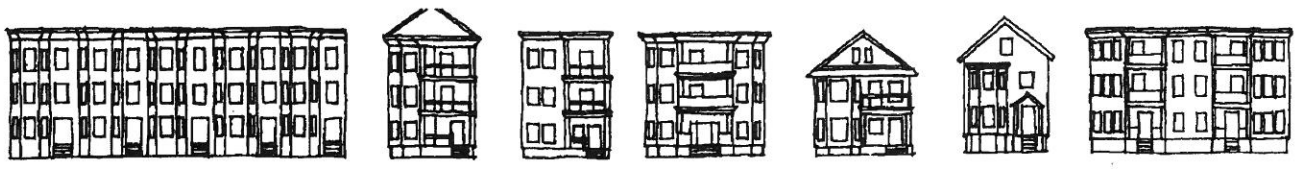


Fig. 1: Traditional Types in Boston, from A Pattern Book of Boston Houses.

aesthetic controls is typological. Aesthetic control as commonly practiced fails to address the real reasons for the visual blight it is meant to remedy. Unfortunately, there have been no examples and very little literature accessible to planners to indicate how a typologically-based control system might work.

The application of typology to urban controls

There are many definitions of type used by American architects today.[4] The most common is associated with generic building programs (e.g. a "library type"). In our work we have arrived at a working definition of type tailored to the solution of the problems described above. Our definition has these components:

- A type is characterized by a certain morphological configuration governing its internal organization and its relationship to adjacent structures and spaces. For example, whether a house has a porch, how it sits on its lot, and how much space exists between adjacent houses could be defining characteristics of a type (see Figure 1).
- The elements of a given type usually have "global" functions associated with them such as circulation, entry, public space, private space and so on. Specific functions such as sales, reading, learning, etc. are not considered aspects of a type. A building designed for a specific use may change its function over time without undergoing a typological transformation.
- Types exist at a variety of scales. Individual buildings (even rooms) may belong to a type; so may streets, blocks and entire urban districts. The typologies found at the urban scale are of course much different than those found at the scale of individual buildings.
- The typology at a given scale is partially determined by those at smaller scales which are present in the same environment. A given type of two-family house, for example, tends to create certain street types which in turn tend to create certain block and district types.
- There may be critical scale relationships among the elements of a given type which must be respected. This is sometimes necessary if the exemplars of the type are to insert themselves properly in the typological hierarchy of their urban environment. For example, the proportion between the solid base of a storefront and the glass above it cannot vary too much from building to building if a street type requiring a row of such storefronts is to be created.

Urban coherence depends much more on typological consistency defined

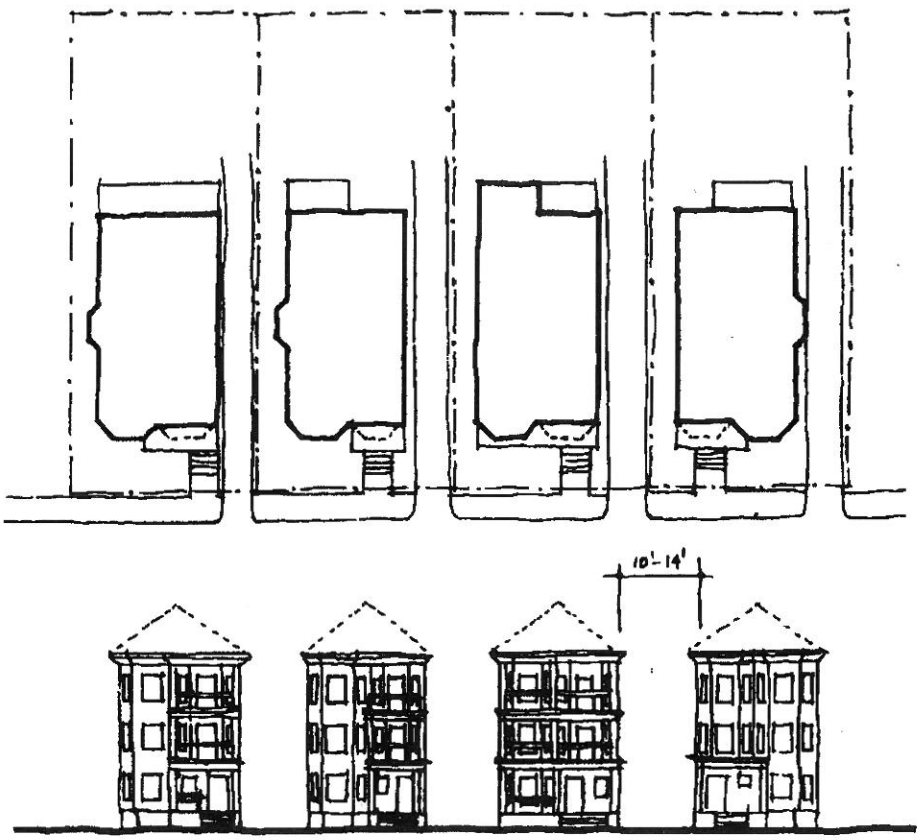


Fig. 2 Triple deckers on a street, from A Pattern Book of Boston Houses.

in this way than on uniformity of architectural style, signage, materials or colors. It is easy to see why this is so often overlooked. Historically, a certain type evolves in association with particular styles and construction techniques based on certain materials. When people visit a well-preserved historic town, they see both typological and stylistic/material consistency. If a community's goal is to create a coherent physical environment capable of adapting to changing conditions (rather than to recreate a "vintage" atmosphere), it is much better served to look at its typological structure than the details of its building architecture.

By basing design controls on typology, the legitimate goals of design guidelines can be achieved while eliminating most of the problems with routine design guidelines practice. The result is a flexible and responsive system which respects the historical continuity of the city without embalming the architecture. Since typology reflects the complex, organic relationships among such urban factors as economics, function and social structure, basing design controls on typology tends to reflect ongoing processes of change and growth within the city.

Preparing an urban plan based on typology: a case study

The case illustrated here is typical of projects our practice encounters; a small town's historic business district suffering from decline and disuse.

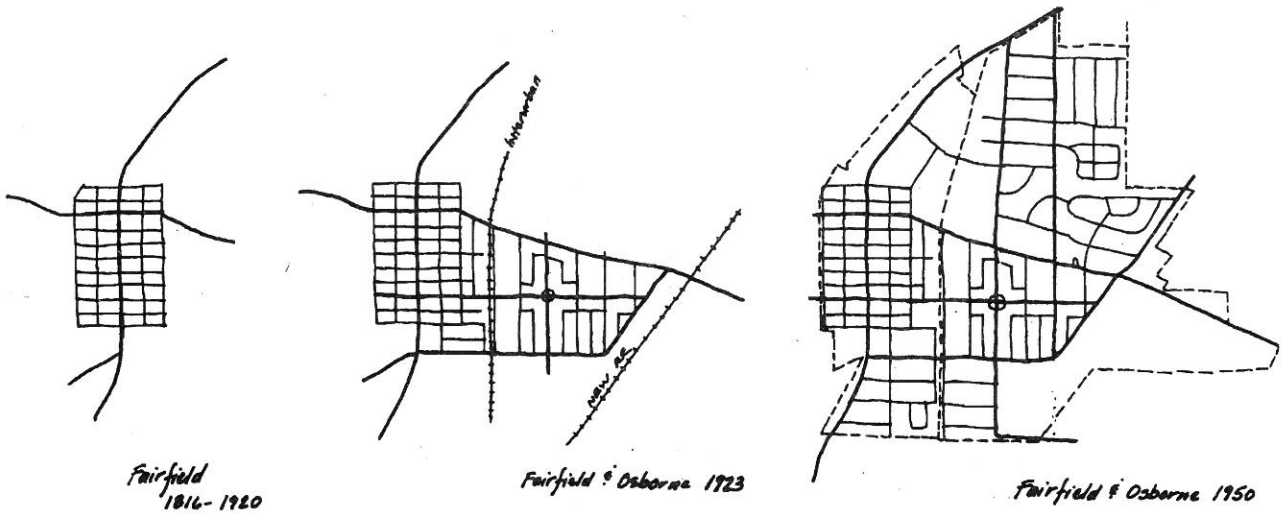


Fig. 3: Evolution of Fairborn, Ohio. Street network.

The town planners determined that an urban design plan and design controls might help make the downtown look better and thus recover. The first task for us was to diagnose the problems from a physical perspective, to determine what the urban design issues were. Through an analysis of the morphogenesis of this area, we were able to determine that historic pathways that had "fed" downtown had been completely changed over time, so that Main Street was off the beaten path and difficult to find if you did not know it was there. A second visual problem, identified as "hodge podge" development by the residents, was actually the result of several historic operations on Main Street, resulting in a clear series of typology patterns which had been corrupted by insensitive development.

The town has a very interesting history, being formed out of the joining of two separate towns, but not in the usual way. The earlier town, Fairfield, was an optimistically laid out grid serving the flat land nearby. Its Main Street ran north and south, connecting to Dayton, Ohio, some 15 miles southeast. The grid was small, the houses were quite modest, and there was no need to expand the grid for more than 100 years.(Figure 3)

About four miles away, the town of Osborn ("Old Osborn") was similarly arrayed. It prospered somewhat better than its neighbor, until a catastrophic flood nearly destroyed Dayton in the 1920's. The Army Corps of Engineers subsequently built a flood control project and determined that Osborn's land would be needed for the floodway. The townspeople of Osborn, at first dejected, rallied around a bold plan to buy back their homes from the government and move them to a new plot of land, as it happens, situated only a few hundred feet from Fairfield. Moreover, the town was laid out with the elegant gesture of a wide median, and widely spaced lots, contrasting sharply with Fairfield. The moving of several hundred houses by truck brought the national newsreels to the backwater location.

In a secondary insult, the Main Street of "New Osborn" was placed perpendicular to the Main Street of Fairfield, and connected along a

residential street. An interurban line and its right-of-way served as a virtual demilitarized zone between the feuding towns. Soon after "new" Osborn was established, Wright Patterson Air Force Base opened and its Main gate was laid on the axis of Osborn's Main Street. Between a railroad terminal at one end, the interurban station and the Base, Osborn's Main Street flourished, while Fairfield's Main Street (now called Broad Street) declined. Eventually the two towns buried the hatchet and merged to form the town of Fairborn.

This curious history of the downtown area can be easily read in the building and urban types that survive. Several distinct subareas emerge, characterized by certain types and resulting from a different phase of the town's evolution. We call these subareas of Main Street and Broad Street "beads on a string", to give a visual image to the plans we have suggested. Our plan calls for improving Main Street by recognizing these typological distinctions and reinforcing them through streetscape and design guidelines that limit the controls to reinforcing the type rather than restricting specific building architecture. This strategy both enshrines the town's history and gives it the flexibility needed to accomodate its changing conditions.

In the figure these subareas are seen moving from the left: (1) newer highway-oriented commercial buildings; (2) a district of 1940's commercial buildings; (3) a small remnant of once-elegant homes now used for offices and services; (4) the central Orborn commercial area, built around 1925; (5) another area of houses that are now mixed uses; (6) a very

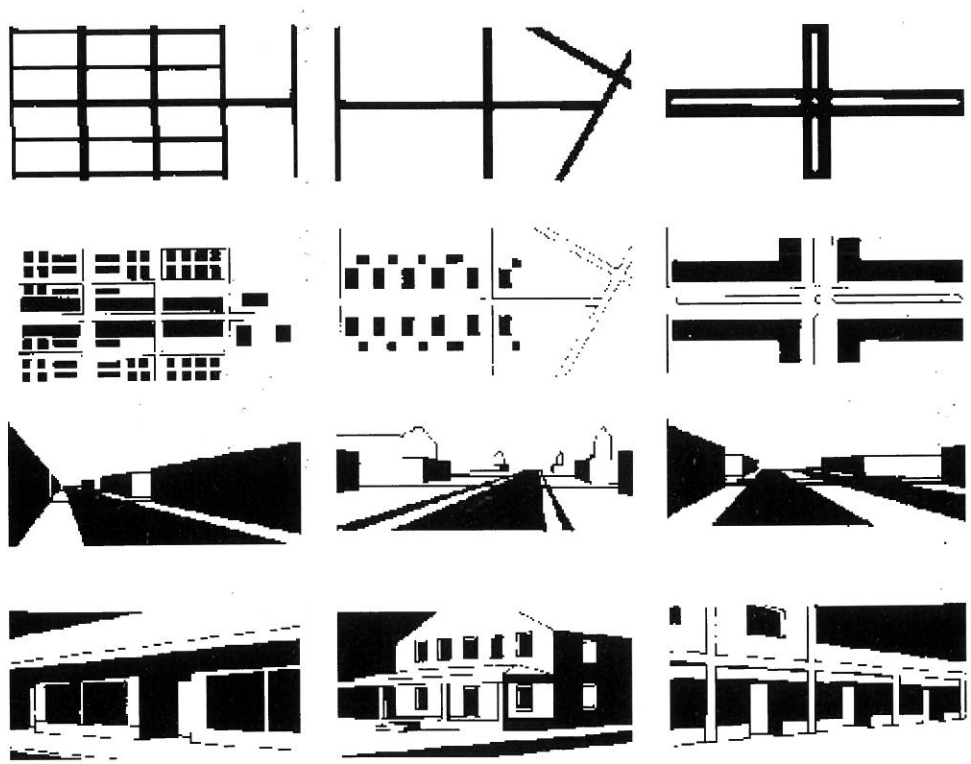


Fig. 4: An anylisis of main street types, Fairborn, Ohio.

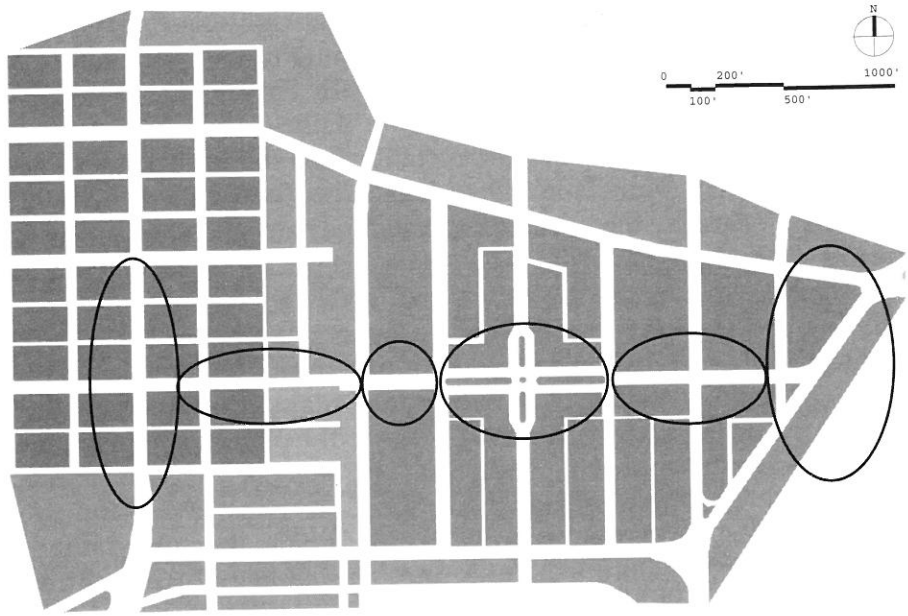


Fig. 5: Sub-areas defined by building type.

mixed area of industrial uses and housing.

For example, the building type guidelines for subarea 2 are shown in Figure 6. This type developed later than more traditional commercial types and has been nicely adapted over time. Resisting the town's initial desire to approach this area thematically or quasi-historically, we wrote and illustrated simple guidelines that pointed out the strong typological elements of the existing buildings and called for new building and renovations to respect that typology. Thus, we avoid guidelines for "old timey" signs or other inappropriate restrictions on a commercial block. The chart below summarizes the elements that are covered by the guidelines.

An excerpt from the introduction to the Guidelines explains the idea to the building owners and shopkeepers who must follow the guidelines:

These design guidelines for downtown Fairborn are intended to give owners maximum freedom in a building project while assuring the overall coherence of the area where the project is located. Building a vital city requires both freedom and coherence. Freedom is needed to allow development to meet changing needs and to give owners the freedom of expression they rightfully expect in building on their property. Coherence is needed to maintain an identity which gives the city its unique character and reflects the communities which live there.

In Fairborn, the buildings built during the same time periods have many of the same characteristics. Usually, these similar buildings (called a TYPE) are found grouped in areas, such as the similar buildings located in the commercial district at Main and Central. Another group of similar buildings is found between Wright and 2nd Street. Although at first glance these two types of buildings may seem the same (they both contain retail stores), a careful examination will reveal the many differences.

The concept of type is different from style or use. For an example, look at the two commercial types again. These buildings have a variety of appropriate uses and these uses may change over time. They may be detailed with different style characteristics: classical, modern, and so on. While these aspects of design are important for the individual building, in the context of the whole community it is the adherence to the type that builds consistency. Buildings of different styles and uses can sit very comfortably side by side if they have certain elements in common. Types help define fundamental relationships between a building and its neighbors; how it sits on its site and how it relates to the street and the sidewalk.

At the level of the whole town, we suggested altering the course of a highway so that it would feed directly into downtown. Although the highway has been here since the founding of Fairfield, until recent years large elegant homes flourished on it. Unfortunately, two events outside this area conspired to increase traffic on it; the base's gate was moved to coincide with the highway, and the highway became the town's main link to the interstate loop around Dayton. Already the effects of the traffic are putting a strain on the homes, and without strong zoning controls, these would have already transformed to commercial property. Our solution reroute this traffic onto Main Street, to restore the traffic lost when the base gate moved north.

On the level of Main Street, we came to realize that less area needed to be devoted to commercial retail activity, in order to concentrate what little retail area remained and thus get some synergistic pedestrian effects. Again, we used building types as a way of directing appropriate functions into the different "beads".

The urban design guidelines, the urban design plan and even the implementation strategies were thus all tied together through our understanding of the typomorphology of the area. Using typology and morphology as both analytical and design tools allowed us to offer a very flexible plan which responded to the current requirements. At the same time, the plan is uniquely responsive and reflective of the town's history.

The advantages of typologically-based design guidelines

The following summarizes the advantages of using typomorphological analyses as the bases for urban design guidelines:

1. Analysis helps establish why things look and operate the way they do. Simply observing a "hodge podge" is not definitive enough a diagnosis to begin treatment. In sorting out the aesthetic problems, for example, one often finds that the underlying typological order of the area is quite sound, while the aesthetic problems are really problems of maintenance, economic obsolescence, subtle transformations in progress, or (as in Fairborn) conditions of morphological change outside the study area.
2. Although the analysis and the subsequent urban design guidelines are

unique and precisely developed for a particular area, many types are common to towns and cities through the region. It is valuable to have a store of comparative experience with typomorphology to aid the diagnosis of urban design problems. In Fairborn, we identified seven distinct types. Not surprisingly, two of these types were very similar to types in another city more than 200 miles away. They were not precisely identical, however, necessitating some changes in the guidelines.

Especially in newer areas where normally one would not expect such an analysis to yield interesting results, say in suburban shopping centers, we have found that an understanding of the general morphogenesis of such centers is useful for specific understanding and even prediction of a particular center.

3. Approaching the urban design problem from this perspective decreases the importance of specific building design or style and allows the planner to be effective without being dictatorial. In existing environments which are not valued historic districts, it is important to allow great flexibility in building design or redevelopment, for two reasons. One, it is not appropriate or beneficial to the public for local government planners to be specifying awning colors, sign typefaces, or even material choices. Second, urban areas need the chance to change, to transform over time. Original, even startling, interpretations of building types and the subtle transformations of these types over time is vital to the evolving relevance of city form.

4. Design guidelines or controls which use typology as a basis are relatively easy to translate into regulation, even with a typical zoning code. Zoning codes already regulate setbacks and height. By rethinking the code as describing typomorphologies rather than land uses, town planning may be implemented with a minimum of discretionary decision making. The systematic classification of types is legally defensible, where more abstract rules (such as "use appropriate materials") are sometimes struck down for being overly vague.

5. Preparation of guidelines based on typomorphology is a way of imbedding planning and urban design decisions within the context of the existing city in a systematic and flexible way. Working within the existing typologies also makes the process of urban improvement work faster. Within Fairborn's downtown, only a few buildings violated the typology and these could be targeted for immediate change. Other buildings only required minor cosmetic changes, which could be accomplished over time with limited resources. Contrast this approach with typical urban design plans that call for significant redevelopment and sweeping urban gestures.

There are some disadvantages of using typomorphology as well:

1. Using this method requires a high degree of specific area analyses that preparation of typical design guidelines and zoning maps do not require. For example, our project in Fairborn called out seven distinct sub-areas within a relatively small downtown. Each sub-area needed one or two pages of specific description and guidelines.

2. Restricting design review to the review of typological elements means a

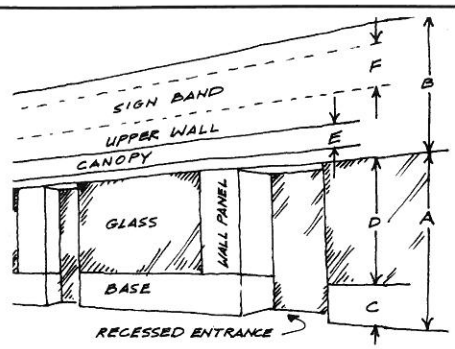


Fig. 6: Example of guidelines for a single type.

General
This type of commercial building was very commonly constructed in the era between 1940 and 1960. It is usually built of brick or glazed block and one of main features is the continuous canopy.

Site Plan
Buildings are always placed along the front property line - this is referred to as the "set-to" line. Projections such as the canopy and signs may protrude upto 36" into the public right-of-way if they are located more than ten feet from the sidewalk.

Parking when available on-site, is located at the rear of the building. For this reason, rear facades need to be maintained, kept clean. Some business-esmay have second entrances on the back but, the main entrance should be on the main street. The sidewalk extends from the facade to the curb. Planting may occur in the planting wells, but the sidewalkis too narrow in this area for continuous planting strips.

Overall Form
Buildings in this type are a simple, single story box with a horizental roof line. Modifications to the roof line should maintain the overall horizontal roofline. Several stories are contained in one building with a continuous canopy along entire front. Facades are in a single plane, that is, they are usually flat, except for recesses at the entrance (see below) and the canopy.

Windows
A glass store front should occupy the entire height between the base and the canopy (see diagram). Different stores within the same buildings should use similary sized and shaped windows and doors and where there is an existing building . It should be followed. Window glass may be butt-jointed. Providing a clear view into the store with illuminated displays should be a concern of the merchant.

Entrances
All door should single or double swing, fully glazed, either with metal frames or just sold glass types. Entrances should be recessed a few feet from the facade. So the doors can open outwards without hindering the sidewalk.

Canopy
Since canopys are such an important part of this type, they should be kept. For buildings without one, they should be added. It should be continuous across the entire width of the facade. Awnings are not necessary for this type.

Signs
Signs should be placed within the sign band shown in the diagram. Locate the sign so that it is centered over the windows, or lined up with other elements on the facade. Signs must be either flush against the wall or may be mounted perpendicular to the wall face. Signs should be lit my external sources, not internally.

certain amount of "letting go". For some design reviewers, this is especially difficult. They see poor design decisions about materials or signs or other non-type elements and do not understand the need to allow such flexibility. While we were concerned with minimizing controls, other planners may not share this concern or be able to defend it as an ideal.

3. Judgements about which elements are essential to the definition of a building or street type can be difficult to make. In our case, we had a running battle about whether the proportions of a storefront were "typological". Other examples include whether traditional sign placement, or the use of materials in specific locations (e.g. the same material on upper and lower floors) could be considered important to the urban continuity.

Postscript: Typomorphology and Trends in Contemporary Planning Policy

The validity of the traditional procedures of city planning, laying out streets and lots, grew from an understanding of the particular types that would be built there. The main planning controls in use today (zoning, infrastructure standards, minimum lot sizes and design guidelines) are only useful in creating coherent and legible urban environments if there is a concomitant typological structure. Current regulations of setbacks and minimum side yards are physically meaningless without an orderly system of lots and blocks. In suburban areas where the lots can be more than five acres, such mechanisms yield no physical order.

More recently, the movement in neo-traditional town planning, which started out with a clear typological component, has run aground on the issue of style. Its most important lessons about type, density and the street have been obscured by an emphasis on nostalgic imagery. Most neo-traditional plans can be implemented only in large planned developments where a single owner controls private land development. Local regulation is needed to provide the same level of control on large tracts with many owners. In growing suburban regions, the development of this regulation will need to grow from an understanding of the role of typomorphology in producing a coherent environment. In these areas, too, we need to recognize the types that have developed organically, and not indulge in nostalgia. It is tempting to make little villages, but the realities of regional settlement patterns contradict this form of urbanization. Our study of the morphogenesis of suburban areas presently being carried out is an excellent start towards working with the world as it is.

NOTES

1. Lightner, Brenda Case, "Survey of Design Review Practices," *American Planning Association Memo* (January 1993) p. 1.
2. Ibid., p. 2-3.
3. Scheer, Brenda and Preiser, Wolfgang, eds., *Design Review: Challenging Aesthetic Control* (New York: Chapman & Hall, 1994).
4. See Moudon, Anne Vernez. "Getting to know the Built Landscape: Typomorphology" in Franck, K. and Schneekloth, L. eds., *Ordering Space: Types in Architecture and Design* (New York:Van Nostrand Reinhold, 1994).

***Table 1**: Building Design Elements Most Frequently Reviewed by Cities*

	Building Element	*% of Cities reviewing*
1.	*Building height*	94
2.	*On premise signs*	92
3.	*Building bulk*	87
4.	*Mech. equipment screening*	86
5.	*Materials*	84
6.	*Building dimensions*	82
7.	*Services area*	81
8.	*Facade articulation*	76
9.	*Location of entrances*	71
10.	*Color of materials*	71
11.	*Roof profile*	70
12.	*Details*	67
13.	*Horizontal or Vertical proportions*	64
14.	*Window size, shape*	62
15.	*Style or character*	60

***Table 2**: Site Plan Elements Most Frequently Reviewed by Cities*

	Site elements	*% of cities reviewing*
1.	*Fences & buffers*	95
2.	*Parking lot landscaping*	94
3.	*Screening of loading, trash*	93
4.	*Distance from the street*	93
5.	*Location of parking lots*	92
6.	*Exterior lighting*	88
7.	*Disturbance of natural landscape*	79
8.	*Pedestrian amenities*	76
9.	*Conservation of vegetation*	75
10.	*Utilities*	74
11.	*Public open spaces*	71
12.	*Off premise signs*	71
13.	*Obstruction of views*	63
14.	*Visual privacy*	62

***Table 3**: Elements of Type Considered Appropriate for Design Guidelines*

Site plan

- *Elements between the building and curb such as walks, planting areas, porches and overall setback from the street.*
- *Parking, whether on-site or on the street. If on-site, where is it located with respect to the street and the building?*
- *Building: position on lot, relative size, pedestrian and vehicular.*

Building facades

- *How many stories? What differences are there between the ground floor and upper floors visible on the facade?*
- *Transparency: how much glass relative to the entire wall area?*
- *Entry: where is it, how is it marked on the facade?*
- *Subdivisions: if the building houses more than one occupant, how are the separations marked on the facade?*
- *Proportions of key components of the facade;*
- *Integrity of the building - have additions and changes been integrated with the original building type.*

Typical building elements

- *Roof line*
- *Canopies and awnings*
- *Porches*
- *Openings: isolated vs. continuous, internal proportions*
- *Signs: location on the facade*