

The Social and Environmental aspects of **URBAN PLANNING**



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Abstract

My specialty report focuses on the notion of space; human scaling and the use of sustainable transportation systems. The usages of the space between buildings helps putting the human need for intimacy in the center of our planning, it is a healthy approach for shaping our urban environment. Density is a tool to reinforce a vibrant atmosphere and promote a diverse social interaction. Density is also a more environmentally sustainable way of living. It is cheaper in natural resources, heating, electricity and transportation. After the Second World War the automobile has become the unit that determines the scale applied to our cities, neglecting the public realm. The deconstruction and rearrangement of our new urban areas after the Second World War happened because of new needs from the production apparatus and the freedom of movement we experienced with the automobile. Today's environmental issues and the depletion of oil are factors that need to be intermingled in our planning process. The oil depletion will force us to change the way we plan our cities. This report is meant for decision makers, politicians and people with the ability to propel the discussion of urban planning into a new context that includes the environment and the usage of our limited resources.

Introduction

I have given much thought to urban planning because it defines the circumstances of our everyday life; I have therefore chosen to deal with urban planning in my specialty report. I have decided to have two main fields of focus. The notion of space is dealing with the social interaction and perception, urban recreation; it is an experience of the senses. It is a matter that involves scaling and density. I will look into the urban model chosen after the Second World War where the car has become the unit that determines the scale applied to our cities. I will go in depth with the causes for the development of the Automobile City. I will try to shed light on the elements, including the transportation systems that have made this development possible. The transportation systems of today are depending on a constant supply of energy, oil. I have chosen to highlight the environmental issues with a focus on competitiveness/efficiency. It is a matter of sustainability; cities are sustainable but today's urban model is under pressure. Our urban model require excessive amount of energy, oil, for transportation due to our dependency on the automobile. My specialty report is meant as a document for decision makers, politicians and people with an interest in the issues of urban planning. Human scaling and density is an important factor in determining the sustainability of our cities. It is also two factors among others that can create a more vibrant urban atmosphere. In the next chapter I will look into the history of cities to get a greater understanding of the mechanisms and process that make a city.

The history of cities

1-The development

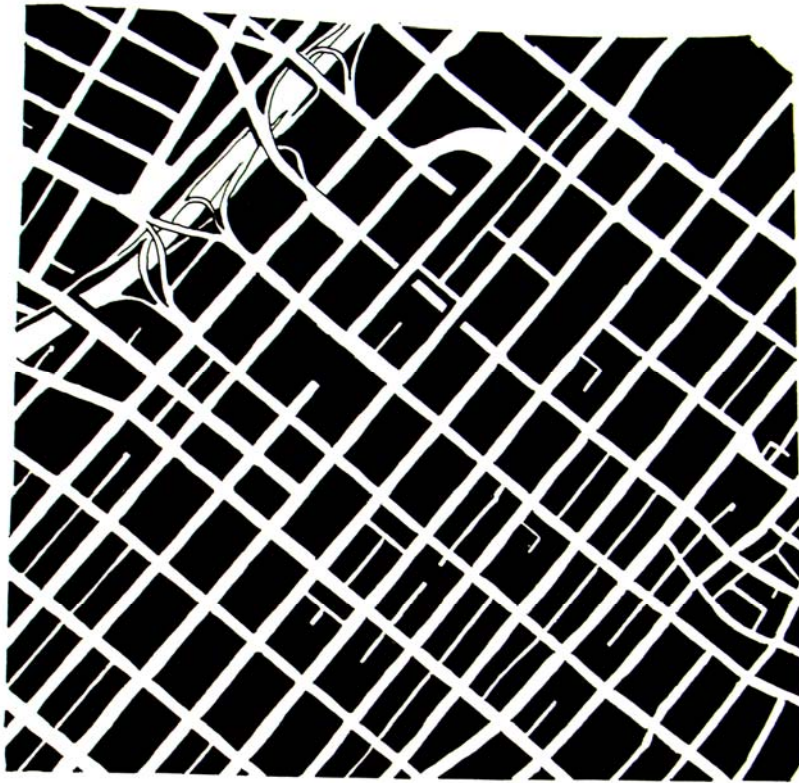
The evolution of cities is of a dynamic nature, the function of cities and the need of its citizens has been constantly shifting, ever since the first settlements of nomadic tribes (1p14). Looking at the historical evolution of cities and its evolutionary stages will help shed light on today's cities urban shape, clarifying the ever changing needs of the urban citizens. The first cities appeared more than 5500 years ago, it was very small settlements surrounded by an enormous rural population (5chap.1). Sociologists and ethnographers in the nineteenth century classified existing pre-industrial societies in a hierarchy of three evolutionary stages, denominated respectively "savagery", "barbarism" and "civilization". The hierarchy can be altered into a chronological framework to follow one another in the same order wherever they occur; it is an evolution that has occurred in all societies. Savagery and barbarism are recognized by the procurement of food. Savages live of wild food obtained by collecting, hunting and fishing. Barbarians supplement these natural resources by cultivating edible plants and breeding animals for food. Civilization begins with the settlement of cities; cities distinguish them selves by an organized, diverse division of labor and a complex social hierarchy (5chap.1).The urbanized societies of today have an agglomeration of a size never seen before. The majority of the western civilizations population is living in an urban society. The context of today's societies, where the majority of the population lives in an urban framework represents a new and fundamental change in our social evolution. (5 page 26) Before 1850 no society could be described as predominantly urbanized, and by 1900 only Great Britain could be regarded as predominantly urbanized. 65 years later all industrialized countries are highly urbanized. The urbanization process is accelerating through the whole world. It is a clear shift from a spread-out pattern of human settlements, villages, to one of concentration in urban centers. (5 page 36)

According to V. Gordon Childe, the notion of “city” is very hard to define. But if we look at the city in a historical perspective and as a result and symbol of a revolution, that has caused a dramatic increase in the population and initiating a new economic stage in the evolution of society, like the industrial revolution, cities become the symbol of a social evolution (5 chap.1).

From the middle of the nineteenth century and up until today we have experienced an urban mutation from the walking city to the Automobile City.

2-The City/Transport Form

Cities are shaped by transport systems due to “the travel time budget” of around 1 hour on average per person per day (11). Meaning, that people in cities on average travel no more than half an hour to work and half an hour home again. In the United Kingdom the travel time has been constant for 600 years (11).



LOS ANGELES
(downtown)



USA

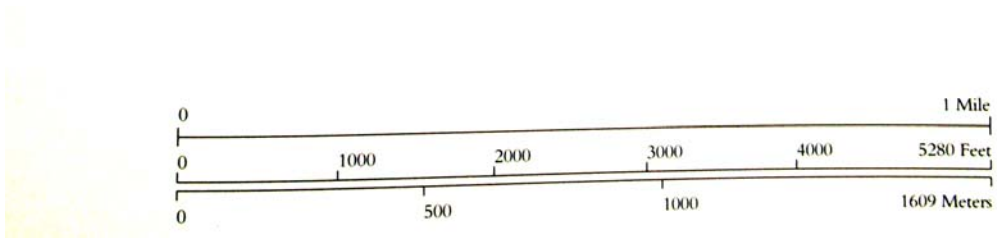


Illustration taken from Great streets by Allan B. Jacobs The MIT Press 1995 (17)



COPENHAGEN

DENMARK

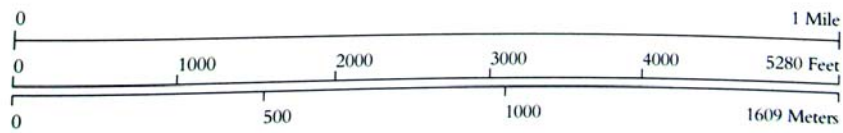
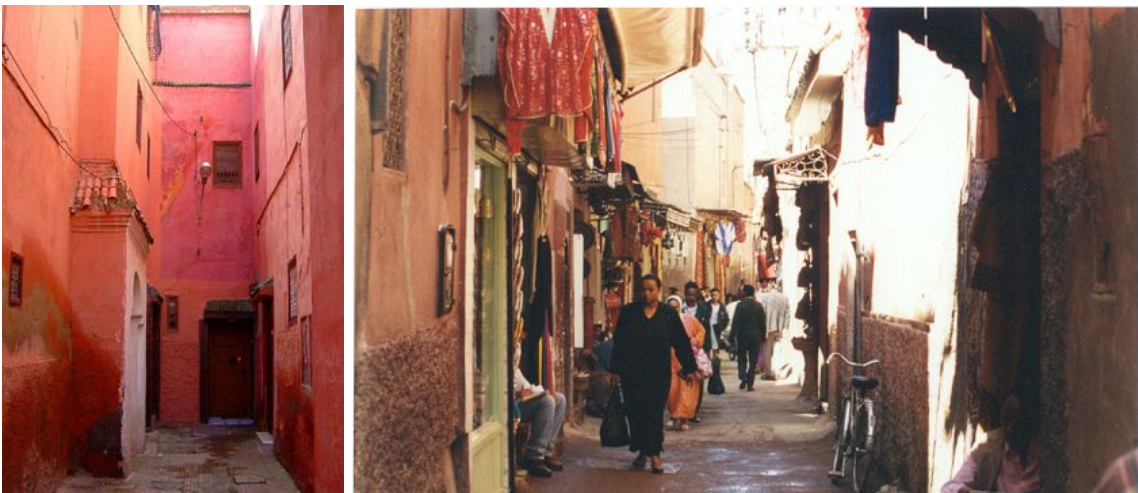


Illustration taken from Great streets by Allan B. Jacobs The MIT Press 1995 (17)

The illustrations show, one square mile of the center of Copenhagen and one square mile of downtown Los Angeles. The illustrations demonstrate the difference in scale. Los Angeles has a scale designed for the car, with a grid of wide straight boulevards. Los Angeles was originally built around the streetcar in the 1920s (12). Whereas, because of its historical perspective Copenhagen, have a scale that is more suited for walking. Copenhagen's streets have an organic shape.

3-The walking city

The form of cities everywhere was based on walking from the time when the first human settlements appeared up until the middle of the nineteenth century, the high density (100 to 200 people per hectare) characterizes the traditional walking city, the walking city is also characterized by the narrow streets in an organic form and the mixed land use that fits the landscape. It takes half an hour on average in walking cities to reach ones destination on foot, and as a result these cities are hardly ever more than 5 kilometers across (an average trip being 2.5 kilometers) many contemporary cities have parts that retain this historical walking characteristic-for example, the medieval core areas of many European and North African cities for example Marrakech. (6 p27, 28)



The medina of Marrakech, Morocco with its narrow and organic formed streets

4-The transit city

From the middle of the nineteenth century the traditional walking cities began to cave in under the pressure of population and industry. The transit city, the new city form permitted the accommodation of more people in the city at fairly reduced densities at the same time keeping to the half-hour average accessibility as a maximum. New transit technologies enable this new form. Cities pushed progressively more outward as the train (first steam and the electric) and tram (first horse drawn, then steam, then electric) permitted faster journey to occur. (6 p 28)

5-The Automobile City

The development of the Automobile City started before the Second World War, but truly picked up the pace after the Second World War, the automobile, the bus as a public transport mean, gradually became the transportation technology that determined the shape of the city. Cities developed in any direction, because it became possible to go out as far as fifty kilometers for an average half-hour journey (6 p29). The Automobile City led to the creation of the suburbs. Suburbs are commonly defined as residential areas on the outskirts of a city or large town. Most modern suburbs are commuter towns with many single-family homes. Most suburbs have lower population density than inner city neighborhoods. Mechanical transport, including automobiles and high speed trains, enabled the 20th century growth of suburbs. Unlike the Suburbs, Urban areas have an area of high density. Urban places are those that exceed a population size or density threshold as defined according to the census. (13)

6-The Reasons and their results

Today's shape and size of cities are the result of the industrial revolution. Nowhere else has the industrial revolution made such a remarkable imprint into our societies, it has determined the way we live today. It is a rather new phenomenon. Nowhere has mankind been farther removed from organic nature than under the conditions of life in cities. After the Second World War the effect of the industrial revolution became clearer, (1p92) as capitalism has entered a 'late' or 'advanced' stage (Mandel, 1975) (7 chap1).

Due to the great economical growth, the European cities witnessed a mutation in their urban composition. The development of the European cities has been of a deconstructive nature by fragmenting the cities away from dense centered and integrated multifunctional cities into large urbanized regions. These regions are made up of former urban centers, modern mono-functional housing areas, institutions or industry, recreational and leftover-landscapes, infrastructure, new industrial parks and transit hubs (4 p67). These changes created the urban sprawl. The European cities spilled over their natural borders as earlier mentioned in three phases from the walking city to the Automobile City, with the purpose to be able to fulfill the new needs of its modern citizens.

The after-sprawl, the city of today

1-The welfare city

The relocation of the corporate activity to the suburbs has turned the suburbs into the workhorse of society while the center of the cities is a center of leisure and amusement; it is a scenario taking place in every major western city (1 p15). The trend is to be found even in China. Since China is beginning to have the

resources to suburbanize. Europe has experienced its own urban exodus and suburbanization *“the process of population movement from within towns and cities to the rural-urban fringe.”* It is the product of changing transportation systems, being able to move further within thirty minutes, and the resultant places these new systems of transport produce (1p92). How we get around determines the way we live. (1 p11) According to Alex Marshall, *“Copenhagen is a good place to see these changes because it is, on first glance, so lovely, well-ordered, and prosperous. Cities in the Netherlands and Scandinavia, from Amsterdam up to Stockholm, are probably the finest examples of well-ordered and alternative urbanism in Europe and possibly the world.”*(1) To understand this well ordered new arrangement of Copenhagen it is vital to understand the background which led to the expansion of the city.

The welfare city *“a city with focus on the quality of life of its citizens”* in Denmark introduced fundamental changes in the nature of urbanity. *“Urbanity refers to the characteristics, personality traits, and viewpoints associated with cities and urban areas.”* This may first and foremost be seen in a remarkable shift in structure and scale. From the Human scale *“the Walking City”* to the Automobile-scale *“the Automobile City”*. This shift is considered to be the determining factor in modern urbanism (1 p94). The development of the welfare city in the 1960s to the mid 1970s is linked to an integration of man into the welfare society. The labor force is important because it is an expensive commodity in the industrial production. The laborers are a crucial factor for the positive quality of industrial production processes. Welfare in work time and free time are both integrated in a modern welfare society (4 p 67-68).

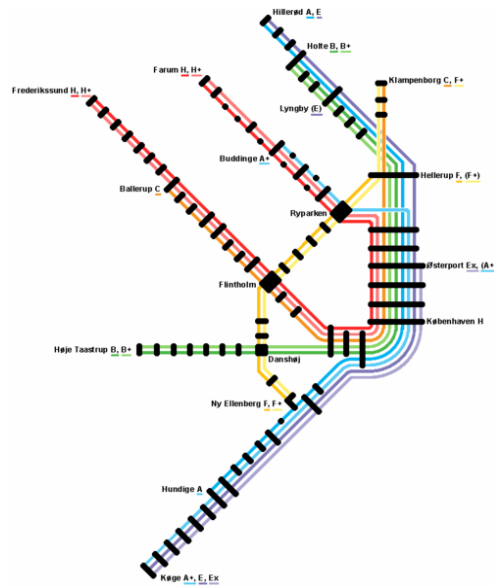
The tremendous growth in the standard of living from 1950 to 1970 *“with an increase of 100% over 20 years”* has led to a massive construction of public buildings and institutions such as schools, hospitals, offices and universities. This general development of welfare created the suburb and at the same time transformed the central core of the old city center.

Urban planning and public investment in buildings have defined the design of the new urban landscape, affecting the general economic expansion and the development of welfare. (4 p68)

In Copenhagen most middle class, particularly those with children have moved into the suburban area, the suburb is more populous than Copenhagen itself, with shopping malls, office parks and gas stations although with bike lanes and S train station stops or bus stops nearby.(1 p92)

2-The Linear City

The urban structure of the welfare suburb was established in the 1960s. Copenhagen was organized according to the principle of a linear city. The linear city was an attempt to create a sufficient basis for the facilities needed, such as schools and shopping. It was also considered as a sustainable plan for an economical transportation system for the urban area. By concentrating the urban expansion and traffic investment in the linear city, the linear city provided an alternative to the old city center for investment because of its ability to service the total urban area. The “Finger plan” from the 1940s determined the directions for the urban expansion. The plan pointed out five directions for the urban expansion. (4 p68)



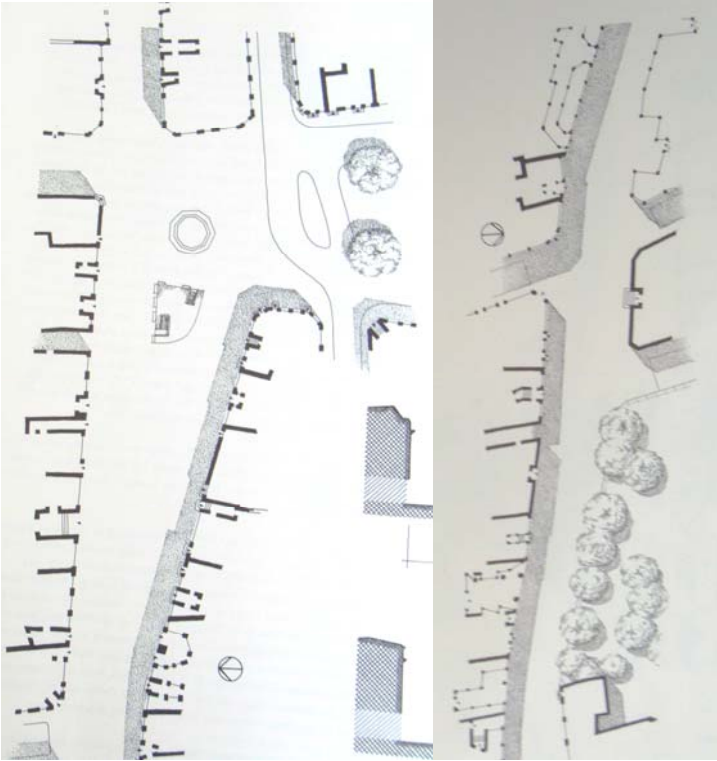
The poster illustrates the five finger plan of Copenhagen. The same shape as the S-train system.

3-The city center of today

The city center of Copenhagen has been for the most part left to the young, the old, the students, the artists and the tourists. The central part of Copenhagen has a declining population. The population of the central part of Copenhagen is poor compared to the population living in the suburbs; it is made up of working class, and immigrants. Jens de Nielsun assistant urban planning director said *"We have the oldest and poorest housing. We have the students, the poor and the unemployed, the suburbs have the rich. We have the problems"*. The unemployment in the city is twice as high as in the metropolitan area (1 p93). The number of jobs in the city has dropped from 460.000 to 310.000 since 1960. This de-densification of Copenhagen's center is due to the creation of the welfare city. As earlier mentioned the welfare city is responsible for the urban exodus. In 1950, de Nielsun said, 770.000 of the regions 1.4 million people lived in the central part of Copenhagen. By 1994, the city's population has dropped to 470.000 while the regions population had risen to 1.7million.

All these changes are not noticeable when one is walking Strøget, Copenhagen's main shopping street. This all-pedestrian street, stretching from the nineteenth-century brick City Hall to the royal theater, is crowded with tourists and overheated luxury shops (1 p94). Copenhagen's Strøget carfree milieu, the world's longest pedestrian shopping area, is first and foremost the result of Jan Gehl's work. Jan Gehl's major focus of study and work has been the life between buildings. Building design becomes a mean to an end when the focus is the public life and the areas in which it takes place. Gehl stresses that the life between buildings is a aspect of architecture that ought to have a more careful treatment. The city is where the social interaction and perception, urban recreation, take place in the city life. It is an experience of the senses. Life between buildings includes the entire range of human activities. The necessary, the optional and the social types of behaviors in the public space is Gehl's main focus. According to Jan Gehl the process must begin with the understanding of places between buildings. (14).

"In a Society becoming steadily more privatized with private homes, cars, computers, offices and shopping centers, the public component of our lives is disappearing. It is more and more important to make the cities inviting, so we can meet our fellow citizens face to face and experience directly through our senses. Public life in good quality public spaces is an important part of a democratic life and a full life." (Jan Gehl)



Strøget has open stopping places,

squares along its route. They are places to stop, to sit, places where there is lighter and where there are breaks on the narrow path. People gather at them, local people, not just visitors. The squares are the setting for formal and informal entertainments. Each is different from the next.
(17)

Outside Copenhagen's immediate ring of hipness, an area where we can experience a degree of human contact straight through our senses (14) (1 p94) one comes to long rows of warehouse like brick apartment buildings. This is the tendency in many European cities. The city center will compact the attractions for the tourist and the locals seeking leisure/amusement, generally an elegant walking street, museums and a cathedral. But outside the immediate area of leisure and bright lights are trivial neighborhoods that remain invisible to the average visitor.

The suburban revolution has struck, but the center still holds. The investment in mass transit and trains has helped the center of Copenhagen redefine its role as a trading/leisure center for the urban area.



"Leisure center for the urban area"

The surrounding suburb with its homes and businesses is fragmented and deconstructed; it is mainly due to the mono-functional characteristic of these areas. That is the nature of the modern city. (4 p95)



“Mono-functional suburb area Albertslund”

How to create a better environment

After clarifying the state of our cities and urban areas, I will take a closer look at the effect of the fragmented mono-functional planning policy on our cities. These policies determine our present day environment. In this chapter I will examine what can be done to create a better urban fabric. Is it ideal to deconstruct and fragment urban areas into the three elements determining our use of the city, working living and playing? What are the consequences of such a policy?

1-Human scaling and density

“Places matter much more than either individual buildings or vehicular traffic. Yet, all over the world, our planning activities seem to concentrate almost exclusively on the latter considerations. We seem to be losing the ability to stand back and look at what we are producing as a whole. Most of us can think of collections of roads and buildings that simply do not add up to anything at all. We need to stop worrying quite so much about individual buildings and other individual physical artifacts and think instead about places in their entirety. We need to forget the spaced-out buildings of the past few decades, separated from each other by highways and left-over tracts of land. These unthinking, tired solutions to development have not served us well. We must concentrate on attractive, intricate places related to the scale of people walking, not driving.” (“Places’ matter most by Francis Tibbalds “1992”) (7)

Francis Tibbalds description of the city landscape focuses on the needs and deficits of today’s planning methods.

According to Roy Draiby, a planner from the 50s and 60s, the earlier mentioned scattered urban development which he also referred to as urban landscape because of its low density and obsessive focus on recreational interests was very expensive in urban development cost. It resulted, due to its low density development, in insufficient public transport and increased private motor traffic. Roy Draiby stated that “the city landscape” is a model for spreading the city, not because of rational demands but solely due to recreational purposes. He claimed it would be difficult to invent an urban system more hostile to public transport and that it is extremely demanding in consumption of areas and m² of landscape. Therefore, the recreational benefits are not easy to obtain in the long run. In conclusion, he made the wish that this modern style in urban planning will fade away, and that urban development will be based on functional, architectural and recreational interests. (4 p71)

The above mention approaches have had an devastating impact on the public realm and can now be seen in almost every town and city in Europe and in many

other countries too. In Great Britain, today, there is a strong rejection emerging against this thinking. Once again the main concern is the scale of people walking “the walking city”, creating attractive multi functional areas with a high level of activity. *“The purpose has now become the public realm – the space between buildings – rather than the buildings themselves.”* (‘Places’ matter most by Francis Tibbalds “1992” (7). The aim is to create urban areas with their own identities, deep-rooted in a local and historical context. (7 p 7)

Regrettably the trend or fashion of “city landscape” in the Danish urban planning has not disappeared; it lays the foundation for the development of Danish cities up until today. The Danish welfare city of today seems to be equal to low density with recreational green areas and city landscape, it is an intermixing of two categories the city and the landscape. The welfare city has given priority to green areas and a scattered urban organization, instead of given priority to high-density urban areas with a compact public transport system. Making private transportation a necessity, leading to a very high economic investment in the transportation networks such as roads, land investment, traffic regulations (4 p72). If the city landscape model is an unsustainable model of planning, requiring high economical investments due to the fragmented, mono-functional and low density nature of the model, why aren't we trying to redefine our landscape by looking at a more desirable level of density?

2-The positive aspect of density

On January the 28th 2003, the Kennedy School's Rappaport Institute for Greater Boston with the cooperation of the Boston Society of Architects (BSA) held a seminar at Harvard University entitled *“The 'D' Word: What it Takes to Build Dense Communities in Greater Boston.”* to debate the concept of density and look at means to implement the theory. The main idea is that greater density leads to greater diversity and therefore a wider range of services for the citizen. That is a point of view shared by many architects, urban designers, and planners (9). The planner Roy Draiby used the term “the city landscape” 1961 to describe

what he saw as the highly inefficient scattered low-density urban development form/model of Greater Copenhagen's development (4 chap4). The belief is that density is the secret to creating healthier urban environments with better schools, more vibrant cultural and commercial activity, more efficient public transport system and a less degraded environment (9), whereas low density demands very large infrastructure costs (water, sewerage, roads etc.), congestion costs (1 p59). It is a debate between density and sprawl, the debate has been going on for the past 50 years. Like in Copenhagen, there has been a struggle in America to reinforce the city core without increasing the urban density. But some planner, architects and developers believe that in order to reinforce the city core, Euchner believes *"The more people you bring in, the more vibrant the city will become,"* (9). According to the pro-density argument, urban institutions require a certain threshold population to support them. If not enough people want to shop or eat out, there won't be many good stores or restaurants. If the audience for music, theater, or art is small, these activities will not flourish. If the tax base is insufficient, schools and municipal services will be of a poor quality. Even parks need people to use them, and if the parks are deserted, they will not receive the upkeep they need to remain attractive (9). Density is also considered good for the environment because it is easier and cheaper to provide heating, electricity, sewerage, and other services to people living in concentrated groups than to those in single-family homes in suburban areas (1 p59) (9). As a result, the impact of dense populations on the surrounding environment is less harmful. If density is such a good thing, why are people negative to the notion of living closer? According to David Parrish, an architect and now a senior vice president at the Federal Home Loan Bank of Boston, it is all a matter of whether people want to take advantage of the social and cultural advantages of the city or seek the sprawling suburbs. It all depends on where one is in the life cycle. *"A wise old man once told me, if you're looking for someone to have sex with; you live in the city; if you've got someone to have sex with you live in the suburbs. Sometimes I think it may be as simple as that."* David Dixon the President of BSA said *"Density used to be associated with poverty; we are part of that baby*

boom generation whose parents moved away from poverty by moving away from the city. The core reason for the stigma is a historical artifact." Hubert Murray, a Boston-based architect and urban planner, sees the visual images that the word "density" brings to several people's minds. "It is the turn-of-the-century photographs that Jacob Riis took of the slums on the Lower East Side it is the Pruitt-Igoe housing project in St. Louis that had to be torn down in the 1970s. It's the image of the huddled masses, of disease, crime, congestion (9).



Jacob August Riis an American photographer of Danish birth, the son of a school-teacher and editor, he was well-educated when he came to the USA in 1870. He was a self-taught photographer and worked at a variety of jobs before becoming a journalist, and he understood the power of the written and illustrated word. "www.answers.com"



"Public Housing: Pruitt-Igoe, St. Louis, 1974. The high-rise Pruitt Igoe towers soon became the symbol for modern urban ills. Less than twenty five years after construction, most of this housing project for the urban poor was abandoned, destroyed, and labeled an architectural and planning disaster" St. Louis Post Dispatch (August 25, 1974)

According to the statistics density is not a major cause for these circumstances. For example, the Tuberculosis statistics show that the key elements are new immigrants and poverty. Likewise, it's poverty and the lack of job opportunities that creates crime and not density." Alfred Wojciechowski, a principal in a Boston design firm, argues that for density to work, people have to feel at ease moving out into the public realm. "It's very much about walkability. Goods and services have to be immediately available. You have to be able to walk to them." (9)

How can the rethinking of urban planning top the public policy agenda?

Stephanie Pollock of the Conservation Law Foundation said that the debate over density needed to be reframed "Public policy is the art of solving problems, but density is not a problem that anyone wants to solve. In order to inject density into the public policy debate, we must propose it as a solution to other problems." (9) I will look closer at the possibility of reframing the matter of density with a special focus on Copenhagen. Nevertheless Copenhagen is not an exceptional example it is a situation that concerns all developed and developing cities.

Copenhagen and its low density and deconstructive development might not be a sustainable city plan due to the low density and deconstructive mono-functional planning leading to long distances between various facilities. The long distances between various facilities create a dependency on private transport. (4 p71) In order to inject density as part of urban planning into the public policy debate we must shed light on the impact of our cities on the environment. There is an increasing interest in our environment and focus on the damage we are causing to the environment it is therefore my belief that by reframing the discussion of density into a context focusing on the environment it would be possible to push density into the public policy debate. Density can be the solution to many of our problems today, but I have chosen to focus on the environmental aspect of density because environmental issues are much debated in the recent years and very much on the agenda of the media, politician and the public.

1-The Urban Ecosystem

One of the very common views in urban sustainability is that to solve our environmental problems we need to view the city as an ecosystem. Like all ecosystems, the city is a system; this means there is an input of energy and materials. The main environmental problems are associated to the growth of these inputs and therefore an increase in the outputs.

If we are to deal with the sustainability of cities, we need to understand the forces that form them. According to Professor Peter Newman *“The structure of a city rests on a three-legged stool of politics, economics, and transportation.”* The transportation system is probably the most visible and dynamic in shaping a place. It is a simple rule: how we get around determines how we live.

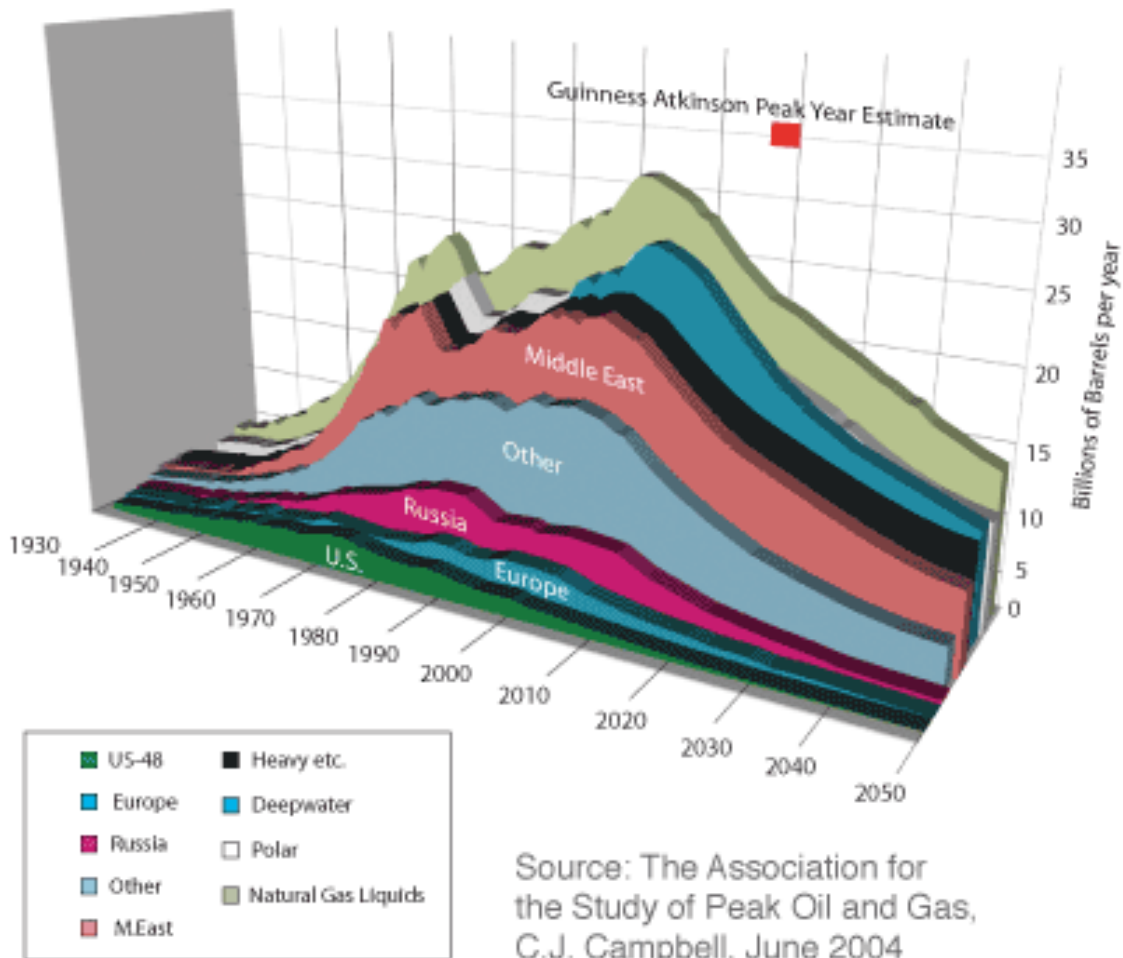
Transportation determines the form of our places. Different transportation systems produce different types of cities (1 p11). *“One characteristic people have shown that has been important in shaping the nature of our cities is that they do not like to commute, on average more than half an hour to major urban destinations.”* (6) It is likely why we are witnessing cities comprising of three types/styles of cities, the Walking City, the Transit City and the Automobile City as transportation technologies have evolved toward greater speed and freedom.

2-Oil Depletion, Greenhouse Gases, and the Auto City

Possibly the most significant reason for cities to re-examine the transportation systems that shape their urban form are the worldwide limitation of energy that are emerging. The worldwide environmental issues, such as oil depletion and greenhouse gases, are enough in themselves to call for a structural re-examination. The major force driving the concept of sustainability is competitiveness/efficiency (6 p14). Therefore I have chosen to highlight the environmental issues with a focus on competitiveness/efficiency. The definition of sustainable is as follows: *an action or process that is sustainable can continue or last for a long time.* (Longman Dictionary of contemporary English 1995 Longman Group)

*“Oil is the fundamental energy resource of modern cities and civilization. It is the most concentrated of our energy forms (apart from nuclear power); it has been the most easily extracted, processed, and transported of all our fossil fuels; and we have become highly dependent on it for the majority of our transport needs. Moreover, we built our cities in the past fifty years as though cheap, easily available oil would last through the next fifty years in the same way it had in the past, It will not (6 p48).”*The oil problematic was initially questioned by M. King Hubbert in the 1950s and 1960s but it was not taken seriously by the decision maker and the public. But when his prediction about the U.S oil production peaking in 1970 became a reality, his views were taken seriously (15). According to Hubbert’s scenario the world’s global oil production would peak around the year 2000 or soon thereafter. The Hubbert projections backed up by several major studies such as (Campbell, 1991; Campbell and Laherrere, Fleay, 1995). Campbell demonstrates that between 1950 and 2050 we will have consumed 80 percent of the world’s oil. This “golden age of oil” as he suggests, will change quite dramatically as we find ourselves having to use less and less oil each year instead of more and more oil as it has been the tradition for most of the past half-century (15). He concludes his comments by suggesting that: *“ the world is indeed approaching the midpoint in the depletion of its oil resources: the epoch of increasing production is almost over, and the epoch of declining is about to begin... future generations will likely look back and see this inflection point as one of the great turning points in history.”* (15)

Hubbert Curve Projection of Global Oil and Natural Gas Liquids Production



“Increasing acceptance of oil approaching production peak has occurred by bodies such as the International Energy Agency and even major oil companies like BP and Shell.”(6 p50)

3-Greenhouse Gases

Considerable reductions in greenhouse gases are possible in all sectors. But almost all research on the matter shows that urban transportation is a really difficult area in which to make reductions. How come it is so difficult to reduce the greenhouse gases emitted by the urban transportation systems? Regardless of three oil crises and great technological progress only few cities have reduced car use. With expansion so in-built, how difficult will it be to make reductions in transportation greenhouse gases, let alone stop the expansion? (6 p51)

The end of Auto Cities

The car appeared to offer freedom in distance and time it has enabled us to live anywhere in an urban area and get rapidly to all urban destinations regardless of the location. The Auto City model focuses on the car as a scale for the design of the necessary infrastructure to provide for this new kind of freedom (1 p65). No land use planning was needed; housing and business could be located nearly anywhere with people having the liberty to transport themselves as long as they had a car. *“Unfortunately for the engineers and those who felt transportation utopia had arrived, it was never possible to truly achieve this freedom. Road and parking requirements became a bottomless pit that seemed to absorb any traffic solution and replace it with a new set of congestion constraints. The reality is that individual desires for mobility in a city where individualized locations are not subject to constraint will inevitably mean that traffic rises at super-exponential rates”* (6 p51). It is a rather simple mechanism if it is possible to travel faster, people would just travel farther in their average half-hour work journey (11). So the city spreads and traffic grows. New roads are now recognized by major transportation authorities to attract more traffic (11). The literature seems to be rather definite on the matter. The freedom of the Auto City “dream” has become a “nightmare” of traffic. The agenda of sustainability is a reaction to the end of the thinking that allowed such a dream to be created. It is possible to imagine the

end of the Auto City. The freedom and power that cars have given us comes at a high cost. It is simple to see some of the environmental costs in the polluted air, noisy environments, and kilometers of asphalt for parking and roads. But some problems such as urban sprawl with its fragmented low density are also essentially due to an overemphasis on cars. Cars have facilitated the dispersed, low-density suburbs (4 p71)

The car is not the problem but the overuse of the car and dependence makes it problematical. The problem is when cities are developing an automobile dependency problem. Hart and Spivak (1993) have written a book, the Elephant in the bedroom: Automobile dependence and denial, *“the title refers to a phrase used in Alcoholics Anonymous for human denial”* that suggests that many American cities have this problem.

The problem of automobile dependence can be regarded as an urban sickness facing cities the world over. Automobile dependence refers to a transportation and land use patterns that favor automobile travel and provide relatively inferior transportation alternatives (16).

“For all but the last fifty years, land use and transportation have been closely connected; first in the dense mixed-use walking city, whose limited transportation options and travel speeds ensured that urban land use remained closely integrated, and later in the Transit city, with its fixed train and tram systems, which also ensured that development was closely tied to quite narrow transportation corridors. The advent of the automobile, however, and to a lesser extent the diesel bus, meant that for the first time in history, houses and businesses could be located almost anywhere, because personalized transportation could be used to join them together.” (6 p59) Because of the introduction of the automobile, the transportation-land use connection was broken; and the dependence became established. But, as cities realized, it came at a great cost. It is seen as a fundamental cause of un-sustainability. The cost involved in building an almost open-ended supply of transportation infrastructure has led to an exponential growth in demand for travel (4 p67)

The future “sustainable city”

This section suggests how the Auto City needs to change to become the future “Sustainable” City in which automobile dependence is overcome. Sustainability as outlined earlier is always going to be something for which a city strives. The key characteristics of how land-use patterns need to be changed in a highly automobile-dependent city so they become more sustainable and less auto-dependent. I will review the four steps required to transform such city from an Auto City to a “sustainable city”.

1-revitalize the inner city

In the inner city due to its history, there is a transit-oriented and walking-oriented characteristic, with a higher density; it is a multi functional urban design encouraging the face to face activity. It is a composition that allows making short trips without the help of a car it promotes the walkable communities. By reurbanizing these areas, a city gives the opportunity for people to live independent of the automobile-lifestyle. Many cities have experienced a reurbanization of their inner city, such successful revitalization is closely associated with community processes that have developed a new vision for an area; it is a process associated with the preservation of historic buildings and streetscape, the creation of street festivals and other community arts events, low-income housing to retain a mix of incomes, and the investment by innovative entrepreneurs in new businesses. To find the right mix for the regeneration of these inner cities requires for some areas creativity and commitment by urban managers, but it always involves major community participation. There is today a strong market force willing to push the reurbanization process, because of the commercial potential value of the inner cities (6 p186). Probably one of the most central policies for attracting investment, and creating a better environment, promoting a more vibrant community in the urban center is traffic calming and a

greater focus on pedestrian with reduced parking. It is a process that helps the upgrading of an area that has experienced a sense of decline, because it gives people who live and work in the area a more positive approach to their own neighborhoods. *“If traffic calming and street improvements are imposed on a demoralized community, they will achieve little, but once a community has a new sense of its regeneration potential, then improving the public environment can be the signal for broader revitalization processes.”*(6 p184) The most evident places to implement traffic calming are where intensive urban activity is present. It is where the automobile traffic needs to be managed. The reurbanization is a political process because the motorists do not like any resistance but it is decisive if these areas are to get a new life. Therefore there is no alternative other than to make traffic calming a community process to reclaim the city’s streets.” *It is also necessary to make traffic calming area wide and to make it part of a general approach to reducing travel and shifting to other modes. Regeneration will proceed only if people begin to invest in houses and businesses in the area. This process can occur quite rapidly once it starts, but such market approaches require the necessary social infrastructure for an area to be considered safe for investment. Once the inner city is regenerating, a city can then begin to take its “inner city” qualities to the suburbs.”*(6 p186)

This step of revitalizing the old urban center has taken place in Copenhagen, by the for example the remodeling of Strøget.



Strøget before it was reshaped into a walking street.



Strøget as an all pedestrian street

It is a process in which a new function for the inner city has to be determined. In the Case of Copenhagen and many of the European cities the revitalizing process has created a commercial, shopping and leisure area which has led to an “opened aired mall” (1 p94)

2-Focus development around the present rail system

“If an Auto City has a rail system, it is quite possible that it has done nothing to facilitate the market for higher-density, mixed-use development around its station areas wherever they are. This is a common failing in Auto Cities, where zoning, inappropriate government land uses, and lack of creativity are often preventing such development. Joint development between public and private interests is the best way to optimize the use of land within a short walk of stations. Park-and-ride areas are not a good use of station environments and were deliberately prohibited in order to maximize development potential. Park-and-rides do not promote better land use and can be dangerous environments for transit customers at night.” These Park-and-ride areas can be converted to urban villages, so they can become an short-term solution as a transit system is developing. Bike-and-ride facilities are more well-matched with stations; making the radius of those who can easily reach the train extend from 800meters on foot to 5 kilometers, the bicycle facilities do not obstruct with the pedestrian qualities of the station area. There is space for a bus transit at a station. *“If bus timetables are integrated with rail services and feed in from both sides of a corridor, it is possible to provide cross-suburb transit.”*(6 p186-187) This cross-suburb transit activity makes an attractive walking environment with mixed uses even more important by the station sub-center or urban village.

The practice of developing the areas around the rail system has been an integrated part of the planning in Copenhagen. The finger plan with its linear cities is the result of such practices (4 p68). Copenhagen’s urban sprawl has been kept in check by the help of the finger plan creating somewhat of an alternative to the car.

3-Discourage further urban sprawl

“Stopping sprawl requires a simultaneous process of changing the investment in highways that take people out of the city to Greenfield sites, and changing zoning processes to protect rural land on the urban fringe. Both steps are necessary. It is almost impossible to stop new sprawl through zoning alone if high-speed roads are still being built. They are like a loaded gun pointed at rural land in their vicinity. At the same time, people need to know the strategic goals for a city and to have them expressed on zoning ordinances. The goal of managing growth at the urban fringe can become acceptable to people if it is seen to be both a goal of sustainability and to be a market-based process. The market for development of land in the inner city and around transit stations needs to be under way if the third step of stopping sprawl is to be managed. Cities such as Vancouver and Portland, with active growth management greenbelt strategies, could not hope to achieve their goals without a program of reurbanization around transit stations. The same is the case in European cities.”(6 p187-188)

Because of the low density of the urban planning in Copenhagen with large recreational green areas and city landscape, Copenhagen has given priority to green areas and a scattered urban organization, instead of given priority to high-density urban areas with a compact public transport system. Making private transportation a necessity, leading to a very high economic investment in the transportation networks such as roads, land investment, traffic regulations.
(4 p 72)

4-extend the transit system into poorly served suburbs.

“There are large areas of suburban development with no real transit service in most Auto Cities. It is possible (particularly with joint development) to build state-of-the-art electric rail transit systems into these areas at reasonable cost-but, as

a rule, only if it can involve land development at stations to help pay for it. In this way, not only is it possible to develop the transit service, but also becomes more feasible to create the subcenters or urban villages that these residential-only suburbs generally lack. It ensures that many more local services can be provided, and it becomes possible to reach other cross-city destinations by good transit directly from the subcenter, eliminating the need for a car.”(6 p188)

Copenhagen is well served with transit lines reaching the remote areas. But once again due to the low density it is very difficult to establish a sustainable system of transportation that is able to compete against the private mode of transport.

Peter Newman’s four-step process is an attempt to create a solution to our dependence on the automobile and a way to reclaim the street. The process can be seen as a solution allowing many low density suburbs to exist in their present shape and form. We do not have to rebuild the areas but solely give them a less automobile-dependent form or structure.

Discussion

The evolution of cities is a natural aspect of progress; the changes we have experienced over the last 150 years are very noticeable. The mutation in our urban fabric is caused by the advances our societies have made in new transportation technologies. The cities have developed from being Walking Cities to Transit Cities and finally over the last fifty years deconstructing the urban fabric and creating the Automobile Cities. Our pattern nevertheless of time spent on transportation from A to B has not changed over the last 600 years. This means that our technologies have not changed our time investment in transportation. In other words the implementations of new transportation technologies are not depending on our time spent on transportation. Because of the increased speed and freedom of transport we were able, over the past fifty years, to deconstruct our new urban areas and create three mono-functional

areas: living, working and playing. It would not have been possible without the automobile as a form of transportation. I believe that the reasons for this development are the integration of modern technologies into our daily lives, the new modes of transport and a bigger industrial scale of production led to the creation of the mono-functional city or welfare city.

These mono-functional cities create important transportation problems. It requires transportation from one area to another whereas in the walking city for instance these functions are intermingled shaping a multi-functional urban area. In Copenhagen, the linear city has been an attempt to create a sufficient basis for the facilities needed, such as schools and shopping. Even though the finger plan in Copenhagen was an attempt to control the development of the suburban areas facilitating the public transport by rail, the low density and mono-functional aspect of those areas is questionable. There are social and environmental/economical issues attached to the way we live that I believe needs to be re-examined by the public and the decision makers.

Our social issue can be answered in an architectural context. It is the space between the buildings that matter most. Accommodating the usages of the space between buildings for a greater human interaction, with multi functional areas, will put the human need for intimacy in the center of our planning, it is a solution for shaping a healthier urban environment. The practiced approach to the development of our cities where the car gets the priority has damaged the public realm. Some critics claim that the Automobile City has produced a deficit of human contact. The scattered urban development which is also referred to as urban landscape because of its low density and obsessive focus on recreational interests has been very expensive in urban development cost. It resulted, due to its low density development, in insufficient public transport and increased private motor traffic.

Our environmental and economical problems are caused by the transportation systems that shape our cities; the suburb is the product of changing transportation systems and the freedom the Automobile gave us. The sustainability of cities is to some degree under pressure. Our cities over the past

fifty years have experienced an urban mutation which led to an urban exodus. This urban exodus has created a scattered mono-functional low density urban form. Because of the low density and mono-functional shape of our cities we are witnessing an excessive use of energy, oil, in transportation from A to B. This mode of transport causes pollution by emitting greenhouse gases, besides the pollution there is the fact that our energy resources are becoming more and more scarce, we are experiencing oil depletion and that means that the price on energy is on the rise. This affects our modes of transport, making the freedom of movement more expensive.

The transport systems have shaped the cities of today. To gain a more environmentally friendly and vibrant urban milieu it is important to shift our focus away from the automobile and reclaim the street. The cause of the deconstruction of our cities is the automobile. The automobile is not the problem but rather our dependency on the automobile. We have been scaling our cities around the automobile.

This dynamic is very hard to change because of the convenience involved in our present mode of transport. We have acquired a freedom of mobility that no other form of energy has been able to provide us. It is a mode of transport requiring a large amount of energy, oil, making the suburb dependent on oil. To change the tendency we must focus on the creation of alternative mass transit systems.

The reinforcement of public transport systems as an alternative to the private transport and re-urbanizing the suburb; by focusing on the human scale with multi-functional subcenter/hub areas with higher density creating more vibrant and pleasant spaces are some of the solutions to our problem. Because cities throughout history have been the imprint of our ability to adapt I believe that the shape of our cities will change to a more efficient model.

Conclusion

My two fields of focus in my specialty report, the notion of space, human scaling and the use of sustainable transportation systems are intermingled. The usages of the space between buildings, accommodating these areas for a greater human interaction, with multi functional areas, putting the human need for intimacy in the center of our planning, is a healthy approach for shaping our urban environment. Density is a tool to reinforce a vibrant atmosphere facilitating the diversity of the supply and thereby diversifying the demand. Density is also a tool to promote a diverse social interaction. Besides the positive social aspects of density, density is also a more environmentally sustainable way of living. It is cheaper in natural resources, heating, electricity and transportation. By living more dense we will not need to use as much oil as today. After the Second World War the automobile has become the unit that determines the scale applied to our cities. This method of planning has been developed on the detriment of the public realm. The deconstruction and rearrangement of our new urban areas after the Second World War happened because of new needs from the production apparatus and the freedom of movement we experienced with the automobile. I believe that today's environmental issues and the shortage of oil are factors we no longer can underestimate. They will force us to change the way we plan our cities. This report was meant for decision makers, politicians and people with the ability to propel the discussion of urban planning into a new context that includes the environment and the usage of our limited resources.

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