THE EVOLUTION OF THE URBAN SPRAWL AND ITS REASONS

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Bibliography
This paper was written during my stay at The Johns Hopkins University - Center for Metropolitan Planning and Research in Baltimore where I spent one academic year as an international fellow.

The paper is in fact only a smaller part - precisely said, only the first chapter of the more detailed and broader written research that has been done in this period of time, thanks to the staff of the Metro Center and its very good library - and so should be seen.

As a whole, the study is about the appearance and spreading of a rural-urban fringe around the very end of our cities with the analysis of its structure and especially its newly formed visual qualities caused by the transformation of the morphology and physiognomy of the rural space as a result of the influence of the expanding "urban fields" that have brought the new way of life to the rural areas.

This paper is only about the evolution of the urban sprawl and its three main reasons.
1. THE CITY AS AN URBAN CENTER

Mumford says that "...mankind has formed cities of one kind or another for thousands of years. Civilization originated in the city and to a large degree remains centered there. The cities of the world have played an important role in shaping the course of human history and providing man with his higher standard of living and rising expectations." During history he says, they were "...one of two forms of human settlement that predominated in all but the most scarcely populated areas of the globe: the city and the rural village. The vast majority lived in the latter, and most of the world's work was done there. The villages were largely self-sufficient, not only in agricultural products, of course, but also in such manufactured products and services as they required."

Characterizing the essence of towns of that time and describing its relationship with surroundings Blumenfield says: "The latin word urbs is related to orbis, the circle. Like the English "town" and the Slavic "gorod" related to "yard" and "girdle", it denotes as the basic characteristic of the urban phenomenon the enclosure which separates it from the open country. This is the city as it has existed throughout recorded history: a static unit, confined and defined by its enclosing boundary, and with a definite pattern of its internal organization in which each part has a stable and defined relation to the whole."¹ During the Middle Ages there was a rather clear physical

separation of city and country. The walls divided urban territory from rural territory and even the fabourgs, situated close to but outside the city gates, were apt to be brought within the then extended walls as soon as they had proven their viability.

"Economically, however, the city was closely integrated with its surrounding areas," and "this state of symbiosis and yet also of clear physical separation changed only gradually when the more wealthy went to live - for at least part of the year - outside the walls and when small industries, based upon water power or upon wood as sources of energy, sprang up in the countryside or in small rural towns."¹

"The landscape lay there beyond the fortification walls and moats, green and fresh with its vineyards, vegetable gardens, fields and wooden lands. Or, perhaps the landscape was untouched - rocky, wild, and romantic. Or whatever it was, indeed, features comparable to present-day random railroad-yards, disorderly factory-grounds, and dilapidated areas of one kind or another did not exist to make the town surrounding unpleasant. ...The medieval town was like an ornamental pattern of man's art fitted into the majestic environment of nature's beauty. So to speak it was like a precious stone of the medieval time, in the precious setting of all time."²

This old pattern has begun to change radically only with what we "rather narrowly" called the Industrial Revolution, meaning the

application of scientific methods to the process of production and distribution. Thus, in history humans were surrounded by natural stimuli, but now such surroundings may require considerable effort to achieve. In evolution they were limited by technological capacity and so produced limited impact on the appearance of the environment. Today we have new situations in which people are often very far away from the city center, surrounded by "man-made" structures and "man-manipulated" landscape.
2. URBANIZATION - THE BEGINNING OF THE PROCESS

Cities before the Industrial Revolution contained only a small part of the total population.

Today we can see quite different relationships. Homer Hoyt in "World Urbanization - Expanding Population in a Shrinking World" says that: "In the 1960 world population of 2.96 billion, one billion persons were living in urban centers of 2,000 population or over, and 1.96 billion were living in villages or rural areas," it shows that the minority is in the rural areas. But furthermore, this relation of 33 percent to 66 percent is not the real picture of the situation because it is only averaged data. There are "tremendous variations in the degree of urbanization in different nations and continents. In older industrialized nations such as the United States, Great Britain and West Germany 75-90 percent of the total population live in cities, while we can see in underdeveloped countries the reverse relation, though we should say that "...the percentage of the population living in cities has increased in nearly every nation in the world in the past forty years" especially for the countries on the bottom of the urbanization ladder (See Table I and II).

The pace of the urbanization that has picked up sharply all over the world in the past decade or two as we can see in the less developed countries especially, has two reasons:

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### Table I


<table>
<thead>
<tr>
<th>Country</th>
<th>100,000 and over</th>
<th>20,000-99,999</th>
<th>1,000-5,000 to 19,999</th>
<th>Rural Areas</th>
<th>Total Urban</th>
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<td>14.1</td>
<td>14.3</td>
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<td>10.1</td>
<td>19.2</td>
<td>80.0</td>
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<td>14.2</td>
<td>26.0</td>
<td>74.0</td>
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<tr>
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<td>20.1</td>
<td>7.4</td>
<td>30.0</td>
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<tr>
<td>The Netherlands</td>
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<td>30.0</td>
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<td>7.9</td>
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<td>81.0</td>
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<th>CONTINENT</th>
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<td>7.20</td>
<td>6.75</td>
<td>66.1</td>
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* Including USSR
** Excluding USSR

Source: Hoyt, Homer, 1962, op. cit., Table III, pp. 27.
Firstly, the improvement in health conditions has lowered death rates while birth rates have remained unchanged, thus leading to a rapid increase in total population so-called "population explosion". The process is called "demographic transition" (See Figure 1). The pattern found in European societies shows an approximate balance between birth and death rates in the early pre-industrial phase. With urban and industrial development the death rate falls, followed - after a characteristic lag - by the birth rate. After a relatively short period of substantial population gains the two rates arrive once more at an approximate equilibrium. The developing nations of the world show a much more alarming pattern. While the death rate has plunged precipitously, the birth rate has remained steadily high.

Secondly, economic and social opportunities in the rural areas have been or have seemed, less attractive than in the cities, and rural people have flocked to the cities (See Table III). "Man, as species is congregating himself into urban complexes at a rate and on a scale that leaves the ultimate results much in doubt today."3

Today in a very fast process of the urbanization that keeps all the world with higher or less intensity we can recognize ...two types of migrations. The first one is from the countryside into town, still very strong, and the second one, a new one, from the city, and somewhere even from the countryside directly, into suburban areas of the cities.

1 Mumford says that: "the contribution of soap to hygiene, when it turned from a courtly luxury to a household necessity, has done more to lower the death rate than any other single factor."


Figure 1  Birth and Death Rates in European Societies (left). Birth and
Death Rates in Developing Nations (right).

Source: GEOGRAPHY OF POPULATION, edited by Paul F.
<table>
<thead>
<tr>
<th></th>
<th>Urban Population</th>
<th>Percent Increase</th>
<th>Annual Percent Increase</th>
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<tr>
<td></td>
<td>1950</td>
<td>1950-1960</td>
<td>Nation</td>
</tr>
<tr>
<td>USA</td>
<td>88,030,076</td>
<td>111,303,468</td>
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</tr>
<tr>
<td>UNITED KINGDOM</td>
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<td>25,362,278</td>
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<td>JAPAN</td>
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<td>2,513,424</td>
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<td>BELGIUM (1946)</td>
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<td>NETHERLANDS (1947)</td>
<td>3,145,183</td>
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<td>FRANCE (1946)</td>
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<td>23,551,617</td>
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Source: Hoyt, Homer, 1962, op. cit., Table XIII, p. 45.
Hans Blumenfield in describing the U.S. urban model says: \(^1\) "While the original urban wave of the country to city migration continues in full force it is now met by a new outbound city to suburb wave. This wave of expansion, which started about a century ago is still gathering momentum. The result of the interaction of these two waves is a completely new form of human settlement which can no longer be understood in the traditional terms of town-and-country or city-and-suburb."


In the past one century and a half the world has reached the range of the urbanization that significantly changes the appearance of the cities and of the landscape in their surroundings. The transformation of the space is so strong and so widespread especially in the United States, that Beaujeau J.-Garnier and G. Chabot call "The urban phenomenon," ...without doubt, one of the most striking features of contemporary civilization."¹ The use of the expression "phenomenon", signifying an astonishing appearance, demonstrates something paradoxical in the development of cities. We don't, after all, speak of a rural phenomenon, "as it seems to us perfectly natural."²

This is a space expression of a recent tendency towards the phenomenon we call "suburbanization." "Between 1940 and 1950 it could be estimated roughly that the population in the urban fringes had increased two and a half times more rapidly than in the central areas,"³ and "five and a half more rapidly between 1950 and 1960."⁴

Today we don't need too much to prove the very obvious fact, that suburban areas are in the first place a main expression of today's metropolitan regions (Weber, E.M., 1899). The suburban phenomenon,

that began as a socially exclusive one and then extended to the upper
and middle-income families that could afford the cost of moving away
from the crowded areas of the city center, has taken widespread shift.
In the period between 1940 and 1950, suburban growth that took place
around big cities was 2.5 times bigger than that of the corresponding
central cities.\footnote{Bogue, Donald J., URBANISM IN THE UNITED STATES 1950, The American
Journal of Sociology, LX, March 1955, p. 481.} Even more, in the period between 1950 and 1960 the
growth was 5.5 times higher.\footnote{Beaujeau, J.-Garnier and G. Chabot, 1971, op. cit., p. 9.} Or, for example, New York where the
total population of the "core" (New York City's four major boroughs
and Hudson county) in 1985 has been estimated by Vernon Raymond to be
7,810,000, a decline of almost a half-million from the 1955 population.
But the population of the outer ring (from 90 minutes from Manhattan
up to 30 miles beyond that) has been estimated to be some 7,809,000,
an increase of over 300%.\footnote{Raymond, Vernon, METROPOLIS: 1985, Cambridge, Massachusetts,
Harvard University Press, 1960, p. 221.}

The suburbs of the concentrated European cities or the United
States of the nineteenth and early twentieth century are quite different
from the over-spill of the American urban areas occurring in the last
three decades. "Suburbanization," "North American pattern" or
"suburban sprawl," still is far more common in the United States than in
Europe. Such sprawl consists of a real ring of settlements around the
city and it enjoys a lower density of population than the city it
surrounds, and its population density tends to decrease the further one
moves from the city core. Taking into account its range and today's form, Mumford describes them as "...the production of a new kind of urban tissue in the open pattern of the suburbs." But others don't think in the same way. Friedman and Miller say that: "Derogatory slogans, such as sprawl and scatteration, bandied about in ideological campaigns will have to be discarded in any search from what it means to live on the new scale." But, anyway, we think that Gutkind was right when he said that such development means that "the unity between the individual scale and the totality of the environment has been broken down." William White, writing about suburbs, says: "With the great postwar expansion of suburbia in the forties and fifties, we carried this to the point of caricature. We were using five acres to do the work of one, and the result was not only bad economics but bad aesthetics. People began to feel that if things looked this awful, something had gone wrong." Decrease of urban density reflects a widespread ability to afford greater amenities of space and nature. But some of the decrease simply reflects waste of land, and waste of public outlays to service a pattern of random development scattered around cities. G.A. Wissink suggests that only a portion of suburban development is the result of


an effective, stabilize pursuit of better living conditions. Other suburban development lacks the planning which will maintain a stable environment.

Cities have become metropolitan areas. The rural space on their outskirts and between them unaffected by urbanization will continue to disappear. In the vast urban regions now formed and expanding, all land will respond to forces emanating from the city. "America has now entered the era when metropolitan regions are losing their traditional ability to expand outward: their boundaries are beginning to touch and merge."¹

Various concepts have been put forward in the endeavor to capture the expanding scale of urban life. The simultaneous growth of several of such metropolitan cities within a small radius often caused them to merge into the polynuclear metropolis or what Patrick Geddes has termed "conurbation"², the growing together of several important independent cities. This has already occurred in places such as the English midlands, the Rhine-Ruhr area of Germany and in the northern region of the United States from Washington Boston called "Megalopolis"³.

"Beyond the edge of the city where today's suburbs trail off into fitful countryside, there is another city larger than any that has been built before. You cannot see it even if you drive off into the cornfields. But it is there, breathing in the silence all around you. It is there in the forces that are already loosed, in the rules you have established, in the adjustments you will make."⁴

² Geddes, Patrick, Cities in Evolution, Oxford University Press, 1950.
4. THE FACTORS OF THE SHIFT

Although technology had revolutionized long-distance transportation that made it possible to assemble at one point the food and raw materials required to support the life and work of millions of people, "...well before the middle of the nineteenth century" 1, goods, persons, and messages within these huge agglomerations still moved almost exclusively by foot or by hoof. The horse-drawn omnibus "...was the earliest form of public internal transportation in American cities," 2 and "...by the end of the 1960's the horse railway was the principal form of internal transportation in most cities" 3. This, of course, limited their size of about "...one hour's walking time or four miles. Within this narrow perimeter houses, factories, docks, and railroad yards crowded together," 4 making still sharp distinction between the city and its surroundings.

Street railways that followed the horse-drawn omnibus were the first step in encouraging suburban development. "The electric street railway, in the half century of its predominance, produced lines and nodes of high-density residential and commercial development; it also facilitated the spread of urbanization into the surrounding countryside. "...but the electric street railway was essentially a local facility to serve the city themselves." 5 Almost half a century after the technology had

3 Blumenfield, Hans, 1964, op. cit.
5 Murphy, E. Raymond, 1974, op. cit., p. 233.
revolutionized long-distance transportation, new technologies revolutionized transportation and communication between the city and its suburban areas. It was "the steam railroads that generally were the passenger carriers for the outer suburbs, where much of the urban expansion was taking place."\(^1\)

It was a relief, but "...most industry however, was still concentrated in the large cities, where the economies of steam power could be best realized."\(^2\) They were "...still growing more rapidly than the smaller places, chiefly through migration...and most urban places beyond 10 or 15 miles remained largely independent of their center."\(^3\)

Within that zone, however, interurban railways were gradually able to provide more regular service, and more and more people working in the city found it possible to live outside its formal boundaries. These early suburbanites lived in new residential developments within walking distance of the railway commuter stations.

And while electric street cars and later the motor bus enabled urban residents to live further and further away from the urban center, it did not allow them to break their ties with the core. The street car tracks radiated out from the CBD "like spokes on a wheel." (Figure 4) Lateral or cross-town services were usually very poor. "If you wanted to go somewhere, you went by mass transit, ...and if you went by mass transit, you went downtown."\(^4\)

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\(^1\) Murphy, E. Raymond, 1974, op. cit., p. 234.


FIGURE 2. Chicago Area Growth Pattern.


<table>
<thead>
<tr>
<th>Year</th>
<th>Railroad Trackage (miles)</th>
<th>Surfaced Highways (miles)</th>
<th>Railroad Locomotives (No.)</th>
<th>Motor Vehicles (No.)</th>
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</thead>
<tbody>
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<td>128,500</td>
<td>37,663</td>
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<tr>
<td>1910</td>
<td>240,293</td>
<td>204,000</td>
<td>60,019</td>
<td>468,500</td>
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<tr>
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<td>252,845</td>
<td>369,000</td>
<td>68,942</td>
<td>9,239,161</td>
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<td>249,052</td>
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<td>223,779</td>
<td>1,714,000</td>
<td>42,951</td>
<td>48,566,984</td>
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</table>

FIGURE 5. Estimated Passenger Miles of Travel in the United States, 1900 to 1974.

In 1902 Wells wrote "So far the only additions to the foot or horse ...are the suburban railways...The star-shaped contour of the modern Great City, thrusting out...knotted arms of which every knot marks a station, (See Figure 2) testify...to the relief of pressure thus afforded. Great Towns before this century presented rounded contours and grew as puff-ball swells; the modern Great City looks like something has burst an intolerable envelope and splashed...the mere first rough expedient of far more convenient and rapid developments (pp. 50-51)" and "We are...in the early phase of a great development of centrifugal possibilities...A city of pedestrians is inexorably limited by a radius of about four miles...a horse-using city may grow out to seven or eight...Is it too much...to expect that the available area for even the common daily toilers of the great city of the year 2000 will have a radius of over one hundred miles?" (pp. 51-52)  

The first of decentralization we can see in the 20's was when they began the significant aspect of the growth of many smaller cities. Both industry and population were scattering as a response to the development of the motor vehicle. Immediately after the first world war we can see the rise of the motor vehicle (Table IV and Figure 5) and hard-surfaced roads began to crisscross the areas surrounding the largest cities. Many of the techniques of modern mass production - later adopted in almost sector of the economy - were first developed in the automobile industry. "Spatial changes followed these trends and some of the larger subcenters

underwent a significant transition. They lost their high degree of independence and fell under the dominating influence of the metropolis. 

But the whole pre-Second World War development was, in spite of all, very limited in its range. However, we were able to see all characteristics of the future process, that occurred with mass-migration toward suburban areas during the 50's, and especially the 60's. "When private individual transportation has become the most powerful instrument for changing the urban and rural landscape and for changing the way of life of city and countryside residents." 

Unlike the fixed street tracks of the public transportation system that had dominated until recently, that almost always, as we saw, led downtown and thus encouraged transit patrons to maintain their social and economic ties to the core, the private car could go instantly almost any where where there was a road.

The space has become "unlimited", and easy of access. Not only for citizens, but even for the residents of rural areas (Figure 3).

There are three main factors that have simultaneously enabled process of the city disintegration and the forming of suburban areas to such an extent, that Mumford called them a "new kind of urban tissue."

In 1899 Weber had noticed "the rise of suburbs" of which he expected much as a remedy for the evils of city life. Concentration of population in his opinion seemed destined to continue, but as a modified concentration. In that concentration he thought four goals to be of fundamental importance: 1. a shorter working day, which (would) permit

1 Schnore, Leo, METROPOLITAN GROWTH AND DECENTRALIZATION, op. cit.
the working man to live at a distance from the factory, 2. associations for promoting the ownership of suburban homes by working men, 3. cheap transit, and 4. rapid transit. ¹

Time has proven the lucidity of Weber's views. Relative concentration of population has indeed continued and has even further gained in strength. "Moreover the urban way of life and many of its material tokens have increasingly penetrated the countryside." ²

Andrews, 1942, mentioned three reasons for suburban growth, too: "Working with what have been termed "basic forces" in creation of the urban-fringe are at least three forces which may be called "catalytic forces". Perhaps the leading catalyst is the auto and, paved highway which has given a flexible form of escape to the city-bound resident and per contra, ready accessibility to the city for the fringe resident. Under the influence of this means of transportation the location of the "fringe home" is not tied to transit line routes and schedules but enjoys the independence of the broadcast highway network. A second catalyst which operates most effectively among the high and middle income classes is that of the "fashion trend" which tends to stimulate movement out of the city and the development of the "planned community type" subdivision. Closely allied to and working in conjunction with the "fashion factor" is that of the "speculation factor" which is evidenced in the pressure selling of land and homes to city and rural residences. Speculative sales

¹ Weber, Adna Ferrin, THE GROWTH OF CITIES IN THE NINETEENTH CENTURY, A STUDY IN STATISTICS.
methods usually capitalize on the existence of high land values, rents, taxes, and incipient fashion trends within the city to push a rapid turnover of lots and homes. Uncurbed by local regulation large real estate promotions can become highly potent stimulants to fringe growth.¹

Twenty years later Friedman and Miller wrote "The main reason is the increasing attractiveness of the periphery to metropolitan populations. It has space, it has scenery, and it contains communities that remain from earlier periods of settlement and preserve a measure of historical integrity and interest. Demand for these resources will be generated by three main trends: increasing real income, increasing leisure, and increasing mobility."² Mumford describes the same in his way: First the change in the mode of human settlement brought about by fast transportation and instantaneous means of communications. As a result, physical congestion is no longer the sole possible way of bringing a large population into intimate contact and cooperation. From this has come another change: a change, wherever sufficient land is available at reasonable prices, in the whole layout of the city: for in the suburbs that have been growing so rapidly around the great centers the buildings exist, ideally, as free-standing structures in a parklike landscape. Too often the trees and gardens vanish under further pressure of population, yet the sprawling, open, individualistic structure, almost anti-social in its dispersal and its random pattern, remains. The third great change is the

general reduction of working hours, along with an increasing shift of work itself from industrial occupations to services and professional vocations."¹

Finally, we can assume from what has been said that in the first place we have to put the implementation of new technologies, particularly in the field of mass and individual transportation that made our world small. The second reason is the possibility for nearly everybody to use a private car in everyday commuting. It is the result of a higher and higher standard of living (Table V). And a higher standard of living means such things as a house in the suburbs, car, eight-hour day, five-day week, holidays with pay, substantial retirement pension and more education. People have wished to live in new homes out of the cities in clean air with plenty of space around them. And as the third reason we can mention a cultural and social impulse that has pushed people to low populated suburban regions. Collin Clark says "There are two possibilities for development if the population is increasing. Either transport costs are reduced, enabling the city to spread out, or they cannot be reduced, in which case the density has to increase at all points."²

All these have been producing widespread effects in man's relations to the land, countryside and its landscape.

<table>
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Source: Hoyt, Homer, op. cit., Table VII, p. 38.

FIGURE 7. Shift of locations of fashionable residential areas in six American cities, 1900 to 1936. Fashionable residential areas are indicated by solid black.

Source: Murphy, Raymond E., 1974, op. cit., p. 300.
FIGURE 8. Changes in Travel Time from Tokyo to Other Cities in Japan — Via National Railway —

Bibliography


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