

## THE INFLUENCE OF INDUSTRIALIZATION IN THE FORMATION OF THE CITIES

### *A INFLUÊNCIA DA INDUSTRIALIZAÇÃO NA FORMAÇÃO DAS CIDADES*

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**ABSTRACT:** In the dynamics of the constitution and transformation of urban space throughout history, one of the factors that exerted enormous influence was the process of industrialization that manifested itself in different rhythms and periods between the different countries. The city has gone through several stages until it reaches the high degree of urbanization that we know today. The industrial process dynamizes life in cities and works to modernize them, although this is not the only responsible factor for this to occur. In addition, it displaces the productive and economic axis, expanding the attractive factors of the cities and attracting migrants coming from the countryside. The article will present a brief overview of the emergence of cities and changes in their profile from the urbanization process, to present some of the problems faced in this process of getaway from the countryside and the swelling of cities.

**KEYWORDS:** City. Countryside. Urbanization. Industrialization. Industrial Revolution.

**RESUMO:** Na dinâmica de constituição e transformação do espaço urbano ao longo da história, um dos fatores que exerceram enorme influência foi o processo de industrialização que se manifestou em diferentes ritmos e períodos entre os diversos países. A cidade passou por diversas etapas até alcançar o alto grau de urbanização que conhecemos na atualidade. O processo industrial dinamiza a vida nas cidades e atua no sentido de modernizá-las, embora esse não seja o único fator responsável para que isso ocorra. Além disso, desloca o eixo produtivo e econômico, ampliando os fatores atrativos das cidades e atraindo migrantes advindos do campo. O artigo apresentará um breve panorama relativo ao surgimento das cidades e alterações em seu perfil a partir do processo de urbanização, para ao final apresentar algumas das problemáticas enfrentadas nesse processo de fuga do campo e inchamento das cidades.

**PALAVRAS-CHAVE:** Cidade. Campo. Urbanização. Industrialização. Revolução Industrial.

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## Introduction

It can be said that the process of urbanization is quite old. The first cities have emerged in the Middle East approximately between 3500 and 3000 BC, but by the end of the eighteenth century this phenomenon remained limited to a small portion of the population and to some regions.

It was after the Industrial Revolution and railroad transport that the population moved from the countryside to the cities, in a process of urbanization that, in a pioneering way, went beyond the local and localized scale, to establish urbanization at a fast pace, tending to generalization.

### I. The origin of the cities

The first cities were constituted in the valley comprised of the Tigris and Euphrates rivers between 3500 and 3000 BC. Gideon Sjoberg (SJOBERG, 1972, p. 32) teaches that pre-urban society was the "society of people" or primitive society, consisting of small groups dedicated to the search for food.

There was no specialization of work and social stratification (SJOBERG, 1972, p. 32), these groups were nomadic. From this strictly familiar basis, the accumulation of food from agriculture has made the man sedentary, so that more complex societies have appeared, such as the 'fratria' for the Greeks and the curia for the Romans; then came the tribe and then the city.

Thus human society, in this race, did not grow as a circle, which would gradually extend, progressively overcoming. On the contrary, they are small groups, long constituted, that have joined each other. Several families formed the fratria, several fratrias formed the tribe, several tribes formed the city. Family, fratria, tribe and city are, therefore, exactly similar societies born of each other, by a series of federations" (COULANGES, 1975. p. 101, own translation)<sup>2</sup>.

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<sup>2</sup> "Assim a sociedade humana, nessa raça, não cresceu como um círculo, que se estenderia pouco a pouco, vencendo progressivamente. Pelo contrário, são pequenos grupos, há muito constituídos, que se agregaram uns aos outros. Várias famílias formaram a fratria, várias fratrias formaram a tribo, várias tribos formaram a cidade. Família, fratria, tribo e cidade são, portanto, sociedades exatamente semelhantes entre si, nascidas uma da outra, por uma série de federações".

Coulanges warns, however, that at that time, despite the groups joining together, they did not lose their individuality:

It should be noted that, as these different groups were thus associated with each other, none of them, however, lost their individuality or independence. Although several families were united in a fracture, each one of them continued constituted as in the time in which they lived isolated; nothing was changed, neither worship, nor priesthood, nor property right, nor inner justice. The curias united later, but each maintained its own cult, its meetings, its celebrations, its chief. From the tribe they passed to the city, but they did not dissolve, and each of them continued to form a body apart, almost as if the city did not exist. In the religion subsisted a multitude of small cults, above which a common cult was established; in politics, a multitude of small governments continued to function, and above them rose a common government (COULANGES, 1975, p. 101, own translation)<sup>3</sup>.

Because of the maintenance of this individuality, Coulanges clarifies that the city is not a gathering of individuals, but a confederation of several groups, constituted before it, and that it leaves alive:

The city was a confederation. For this reason, it was obliged, at least for many centuries, to respect the religious and civil independence of tribes, curias and families; and so, at first, it had no right to intervene in the private affairs of those small entities. It had nothing to do with what went on inside a family; he was not the judge of what was happening; left the father the right to judge the wife, the child, the clients (COULANGES, 1975, p. 102, own translation)<sup>4</sup>.

Primitive society existed because of the need of the search for food. Next, it was characterized by food storage, with discrete class structure, fed by the instruments capable of multiplying the production - plow, wheel and irrigation system and the written word, which was limited to an idle elite, whose necessity was settled in the registration of laws, historical and

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<sup>3</sup> “Convém notar que, à medida que esses diferentes grupos se associavam assim entre si, nenhum deles, todavia, perdia sua individualidade ou independência. Embora várias famílias se unissem em uma frataria, cada uma delas continuava constituída como na época em que viviam isoladas; nada era mudado, nem o culto, nem o sacerdócio, nem o direito de propriedade, nem a justiça interior. As cúrias uniram-se depois, mas cada uma conservava seu próprio culto, suas reuniões, suas festas, seu chefe. Da tribo passou-se à cidade, mas nem por isso aquelas se dissolveram, e cada uma delas continuou a formar corpo à parte, quase como se a cidade não existisse. Na religião subsistia uma multidão de pequenos cultos, acima dos quais estabeleceu-se um culto comum; em política, uma multidão de pequenos governos continuava a funcionar, e acima deles levantou-se um governo comum”.

<sup>4</sup> “A cidade era uma confederação. Por essa razão foi obrigada, pelo menos durante muitos séculos, a respeitar a independência religiosa e civil das tribos, das cúrias e das famílias; e por isso, a princípio, não teve o direito de intervir nos negócios particulares dessas pequenas entidades. Ela nada tinha a ver com o que se passava no interior de uma família; não era juiz do que acontecia; deixava ao pai o direito de julgar a mulher, o filho, os clientes”.

religious facts and especially for accounting.

Mumford points out that the city is a complex structure prepared to serve as a shelter to the changing needs of a society and to transmit the goods of a civilization, such as the written record and the school:

From its origins, the city can be described as a structure specially equipped to store and transmit the goods of civilization and sufficiently condensed to admit the maximum amount of facilities in a minimum of space, but also capable of a structural enlargement that allows it to find a place that shelters the changing needs and more complex forms of a growing society and its accumulated social heritage. The invention of forms such as the written record, the library, the archive, the school, and the universities, is one of the oldest and most characteristic feats achievements of the city (MUMFORD, 2004, pp. 38-39, own translation)<sup>5</sup>.

The first cities have a very similar dynamic. The transformation of his feature is directly linked to written language. Written language causes transformation in the social order, insofar as there are numerical, administrative, legal, scientific systems created. The social structure starts to count on several specializations. And it was the written language that had marked the development of the so-called urban society.

MUMFORD recalls that the old components of the village were transported to the new plan and incorporated into the new urban unit that demanded a more complex and unstable pattern than that of the village:

The human composition of the new unit has also become more complex; besides the hunter, the peasant, and the shepherd, other primitive types were introduced into the city and lent their contribution to their existence: the miner, the woodcutter, the fisherman, each carrying with them the instruments, skills and habits of life formed under other pressures. The engineer, the boatman, the sailor, emerge from this primitive background more generalized, at one or another point in the section of the valley: from all these original types, other occupational groups, the soldier, the banker, the merchant, the priest. (MUMFORD, 2004, p. 39, own translation)<sup>6</sup>

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<sup>5</sup> “A partir das suas origens, a cidade pode ser descrita como uma estrutura especialmente equipada para armazenar e transmitir os bens da civilização e suficientemente condensada para admitir a quantidade máxima de facilidades num mínimo de espaço, mas também capaz de um alargamento estrutural que lhe permite encontrar um lugar que sirva de abrigo as necessidades mutáveis e as formas mais complexas de uma sociedade crescente e de sua herança social acumulada. A invenção de formas tais como o registro escrito, a biblioteca, o arquivo, a escola, e as universidades, constitui um dos feitos mais antigos e mais característicos da cidade”.

<sup>6</sup> “A composição humana da nova unidade tornou-se igualmente mais complexa; além do caçador, do camponês e do pastor, outros tipos primitivos introduziram-se na cidade e emprestaram sua contribuição a sua existência: o mineiro, o lenhador, o pescador, cada qual levando consigo os instrumentos, habilidades e hábitos de vida formados

Society has come up against numerous social changes as result of its own mechanical and agricultural improvement. The industrialization assumed vital importance in the process of urbanization of cities, as it shifted the axis of the countryside to the city, which became characterized by technological advances, using energy sources, mass education, class system and social organization with political power.

## 2. The industrialization in the urbanization process

The period before the Industrial Revolution was marked by the development of the mechanical arts, the increase of the use of the animal to produce the energy and the greater diffusion of the populations; the wind was an important source of energy materialized in the near zero cost of the mills.

The complex of water and wood, together with the force of the winds, constituted a historical landmark in the technique, from the breadth of navigation. Also, worthy of note is the development of the art of mining, the glass and chemical industry, the clock and the enlargement of vision with inventions such as the microscope and the telescope, radically changing the conception of space with scientific development.

The paleotechnical era, marks the Industrial Revolution based on the complex of coal and iron, transforming the ways of thinking, living and producing. Mumford emphasizes that paleotechnology has radically transformed technique, never seen in the history of civilization. For the author, it is not a relapse into barbarism, due to the decadence of civilization, but an overrun of barbarism, supported by the same forces and interests that had originally been applied to the conquest of the environment and to the perfection of human culture (CARVALHO, 2014, p. 112).

The experience of greatness marks the industrialized period with the creation of larger machines as demand increases; construction of giant factories and blast furnaces; and enormous mines of exploitation: the greater one replaced the smaller one, in a sense of progress in the eyes of the contemporaries, considering merely the quantitative point of view. In this

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sob outras pressões. O engenheiro, o barqueiro, o marinheiro, surgem a partir desse fundo primitivo mais generalizado, em um ou outro ponto da seção do vale: de todos esses tipos originais, desenvolvem-se ainda outros grupos ocupacionais, o soldado, o banqueiro, o mercador, o sacerdote”.

perspective, an ideology of progress - or the great myth of paleotechnology - is consolidated, considering the qualitative aspects and the human conditions of experience and work (CARVALHO, 2014, p. 114).

From the Industrial Revolution onwards, the process of city growth accelerated, basically due to two reasons: the need for labor in industries and the reduction of the number of workers in the countryside. Industrialization promoted simultaneously the two events: one of attraction for the city, another of expulsion from the field.

The truth is that the dirt roads, the energy obtained by the windmills, the animal traction had, to some extent, favored a certain dispersion of population within a region, however, "the relative deficiency of the steam locomotive, which could not easily reach a slope with an angle greater than two feet per hundred, tended to concentrate the new industrial centers in the coal deposits" (MUMFORD, 2004, p. 495).

Mumford states that before the Industrial Revolution there was no country where the urban population predominated. The urbanization situation, however, changed drastically, with the strong presence of the railroad, considered one of the generator agents of the city by the author, together with coal mines and factories:

In that new scheme, the city itself consisted of scattered fragments of land, with strange shapes and incoherent streets and avenues, left by chance between factories, railroads, boarding yards, and mounds of remains. Instead of any sort of regulation or generalized municipal planning, it was the railroad itself called to define character and project the boundaries of the city (MUMFORD, 2004, p. 498, own translation)<sup>7</sup>.

For Mumford, the period was marked by the abandonment of the field and the strong population density in the coal areas and also near the railway lines.

Population growth during the paleotechnical regime thus showed two characteristic patterns: a generalized heap in the coal-producing areas where new heavy industries flourished, coal and iron mining, smelting, cutlery, the manufacture of hardware, manufacturing of glass and machine manufacturing. And, in addition, a population-based density, along the new railway lines,

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<sup>7</sup> "Naquele novo esquema, a própria cidade consistia de fragmentos dispersos de terra, com formas estranhas e ruas e avenidas incoerentes, deixadas por acaso entre as fabricas, as ferrovias, os pátios de embarque e os montes de restos. Em lugar de qualquer sorte de regulamentação ou de planejamento municipal generalizado, era a própria ferrovia chamada a definir o caráter e projetar os limites da cidade".

with a clear concentration in the new industrial centers, along the great trunk lines and a concentration even in the bigger cities located in the junctions and the export terminals. At the same time, there was a thinning of the population and a reduction in activities in the countryside: the abandonment of mines, quarries and local furnaces, and the diminishing use of roads, canals, small factories and local mills (MUMFORD, 2004, p. 495).

The accumulation of people along the railroads and near the industries brought about quite precarious alternatives in what concerns the houses: the emergence of the tenements where whole families crowded in a single room, without ventilation:

Such filth and such embarrassment, bad in themselves, brought other misfortunes: the mice that led to the bubonic plague, the bedbugs that infuriated the beds and tormented sleep, the lice that spread the typhus, the flies that impartially visited the cellar's basement and children's milk. Moreover, the combination of dark rooms and wet pairs formed a nearly ideal culture medium for bacteria, especially because congested rooms provided the maximum possibilities of transmission through respiration and contact (MUMFORD, 2004, p. 500, own translation)<sup>8</sup>.

Industrialization made the very appearance of the city also take on new contours. For Carvalho, the great symbol of industrialization was materialized in the intense process of urbanization and its unfolding, resulting in the formation of a type of city typical of the period: the coal city, the dirty city:

The paleotechnical phase is astounding at its characteristic mark on destruction, waste and filth. In a more intense degree, the worker ends up being reduced to the mere piece of machinery, marking degeneration of the human condition and offense to dignity (CARVALHO, 2014, p. 115, own translation)<sup>9</sup>.

The Industrial Revolution also redirected the functions of the countryside and the city in an overwhelming way. The growing urban population pressured the countryside to increase the production of food and raw materials, which would be used in the nascent factories.

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<sup>8</sup> “Tal imundície e tal constrangimento, maus por si mesmos, trouxeram outras desgraças: os ratos que conduziam a peste bubônica, os percevejos que enfestavam as camas e atormentavam o sono, os piolhos que propagavam o tifo, as moscas que visitavam imparcialmente a privada do porão e o leite das crianças. Mais ainda, a combinação de quartos escuros e pares úmidas formava um meio de cultura quase ideal para as bactérias, especialmente porque os quartos congestionados proporcionavam as possibilidades máximas de transmissão, através da respiração e do contato”.

<sup>9</sup> “A fase paleotécnica causa espanto pela sua marca característica em destruição, desperdício e sujeira. Em grau mais intenso, o trabalhador acaba sendo reduzido à mera peça do maquinismo, marcando degeneração da condição humana e ofensa à dignidade”.

The countryside, therefore, began to be regulated by the needs of the urban zones, by its industrial and commercial activities, characterizing new spatial relations. The rural area became a producer of raw materials, and the cities developed industrial activities, commerce and services in general.

These new relationships eventually transformed the cultural, social relations that had existed in the countryside. The idea of the market, production directed to a specific consumer market and the social division of labor developed and spread from that period. Cities started to accumulate wealth to control a great part of the resources coming from the urban zones marked by the presence of the factories.

The industrial city was voracious in terms of space, expanding beyond the borders of small towns and surrounding towns and creating vast areas of turmoil and lack of planning and control.

The needs created by the immense urban clusters sometimes escape any capacity for service. Housing, transportation, basic sanitation, hygiene, along with so many other services are deteriorated as a result of the disorderly occupation of the territory.

Undoubtedly, industrialization produces the enrichment of the country, but, concomitantly with all the growth generated, also produces environmental degradation and a high social cost for future generations.

The city has undergone numerous modifications and many more are about to occur. The true revival of the spirit of the city imposes upon the interests of man and nature - so seconded in the process of urbanization. In Mumford's teachings, the city must be an environment of love, and the best it can protect is the care and men's culture:

As we have seen, the city has undergone numerous modifications during the last five thousand years; and there is no doubt that other modifications are waiting. But the innovations that are urgently advertised are not in the extent and perfection of physical equipment, let alone in the multiplication of automatic electronic instruments to disperse the remaining organs of culture into a suburban dust. Quite the opposite, significant improvements will come only through the application of art and thought to the central human interests of the city, with a new dedication to the cosmic and ecological processes that span the whole of existence. We must restore to the city the motherly, nourishing functions of life, the autonomous activities, the symbiotic associations which have long been omitted or forgotten. In fact, the city must be an organ of love; and the best economy of cities is the care and culture of



men (MUMFORD, 2004, p. 620, own translation)<sup>10</sup>.

## Conclusion

The twentieth century was undoubtedly the century of urbanization, as it accentuated the predominance of the city over the countryside, constituting the apogee of a process that began in the eighteenth and nineteenth centuries. Except for regions that are lagging behind, which remain distinctly rural, the urbanization process continues on a global and accelerated scale.

The city is a complex productive unit, producing a wide variety of goods and services and being permanently in search of economies of scale, and always exerting strong attraction on the human beings.

The Industrial Revolution was undoubtedly a determining factor in the process of urbanization of cities while shifting the economic and housing axis to the neighborhood of factories and railways.

People have been - and still are - going to the urban environment in search of opportunities to improve life, employment, school, things not always found in small rural villages.

Because of the Industrial Revolution, the silhouette of the city is defined. In the contemporary world, the city moves to another stage concerning its evolution: the end of the city as an antagonist of the countryside and becomes an organization in a given territory, a consequence of the diffusion of services and technology, constituting an urban-rural continuity, valley the so-called post-industrial city, where service delivery takes precedence over the production and processing of food and utensils.

However, it cannot be forgotten that the fact that the urbanization process has not been induced by any governmental policy in an orderly manner causes urbanization to proceed

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<sup>10</sup> “Como vimos, a cidade sofreu numerosas modificações durante os últimos cinco mil anos; e não há dúvida de que outras modificações estão à espera. Mas as inovações que urgentemente se anunciam não são na extensão e perfeição do equipamento físico: menos ainda, na multiplicação de instrumentos eletrônicos automáticos para dispersar, em desformo poeira suburbana, os órgãos remanescentes da cultura. Muito ao contrario, os melhoramentos significativos só virão pela aplicação da arte e do pensamento aos interesses humanos centrais da cidade, com uma nova dedicação aos processos cósmicos e ecológicos que abrangem toda a existência. Devemos restituir à cidade as funções maternas, nutridoras da vida, as atividades autônomas, as associações simbióticas que por muito tempo têm estado omitidas ou esquecidas. Com efeito, deve a cidade ser um órgão de amor; e a melhor economia das cidades é o cuidado e a cultura dos homens”.

in an uncontrolled way, forcing cities to house a number of people greater than their capacity, resulting in substandard housing, violence, pollution, peripheries, saturation of water supply systems, high travel time imposed on workers, problems of supply caused by traffic difficulties, difficulty in solving the problem of urban waste, among other factors.

These are some of the challenges urban clusters have to face.

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