THE THEORY OF TOWNS

by Jiri Hruza
Senior Fellow
Center for Urban Studies
Wayne State University
THE THEORY OF TOWNS

The number and size of towns are increasing all over the world. While at the beginning of this century a town with a million inhabitants was an exception, today a number of towns - New York, Tokyo, London, Moscow, Shanghai, Paris and others - are approaching the margin of ten million or have even exceeded it. Residential agglomerations are growing and the number of towns with a population exceeding one million is surpassing a hundred.

The living conditions of such large towns are continuously deteriorating; the ever growing number of inhabitants giving rise to transport problems which are difficult to solve. The influx of people from the countryside complicates the solution of the housing problem which is a chronic disease of all big towns throughout the world. The old layouts of towns cannot satisfy the requirements of contemporary life, modern needs and transport.

In order to solve all these problems large material means are naturally required for new construction and for the even more complicated and exacting reconstruction of the old parts of towns. The realization of the intentions of society depends on the possibilities which it has at its disposal in, for example, the control of construction and adherence to physical plans and town-planning conceptions.

One of the fundamental problems of the construction and reconstruction of towns is the formation of an idea as to how future towns and settlements should look. Will big towns increase even further in size and gradually concentrate the whole of the popu-
lation? Or will they gradually disintegrate and become a dense network of smaller settlements? Will towns retain their central form or will they acquire the form of zones along communications passing through the country? How will the new forms of our settlement be influenced by increased automation and mechanization of production processes and the new possibilities of the building and transport techniques? Will the town become a complicated system of mechanisms, tall buildings, and transport means, or will they increasingly incorporate natural elements, thus gradually eliminating the present differences between the town and countryside?

These are the problems which confront us when considering the future development of our towns and which are by no means of an abstract or theoretical character. On the contrary, each decision regarding the location of a new residential district, a new factory or an important public building gradually helps to form a new picture and structure of the town of the future. We know the life expectancy of a building or means of communication, we know how long it takes a tree to grow - and it is just these factors that are the foundation stones of the future settlement system. On the other hand, however, we know that the town is not merely the sum of individual buildings and engineering structures, but a live, social organism whose needs must be satisfied by the moulding of a material environment.

The birth of contemporary ideas on the optimum pattern of towns is usually connected with the 20th century in the course of
which town-planning problems have reached their climax. Best known are the ideas of Le Corbusier and his concepts of towns with millions of inhabitants. Often quoted are also the linear theories of the Spanish engineer Soria Y Mata. Howard's idea of a garden city dating from the end of the 19th and the beginning of the 20th century is still applied today.

However, as in every branch of human activity, it is not always the originator of an idea with whom it will be connected. Nor are theoretical ideas always interpreted in the manner formulated by their authors. In the majority of cases conceptions and ideas have their own pre-histories reaching far back into the past.

Throughout its whole existence human society has formed ideas of the most suitable form of towns and settlements corresponding to its needs. The beginnings of contemporary town-planning conceptions can be traced back to Antiquity when, particularly in regions with a high cultural level, towns played a part of great importance. We know of geometrically regular towns which originated in that period. In the works of Greek philosophers and Vitruvius we also find principles governing the location of public buildings in the layout of towns and detailed instructions for the selection of the most suitable territories for new towns.

The most valuable contribution of Antiquity, however, is the concept of the rectilinear chessboard pattern of a town layout connected, on the basis of Aristotle's note in his Politics, with the name of Hippodamos of Miletos who "also invented the division of towns into sections, dividing Peiraiæus with regular streets".
However, archaeological excavations in Greek towns show that the regular chessboard pattern of streets existed even before the time of Hippodamos. Moreover, we know that the chessboard pattern was applied even earlier in India and China, a fact witnessed by the ancient architectural scripts of these countries. It is possible, therefore, that this town layout system was brought to Greece from India through the town cultures of Asia Minor.

Since that time the rational chessboard pattern has become one of the most popular and widely used town layouts, although every historical period has transformed it according to its own needs and given it its own special features.

The Renaissance enriched the town-planning theory with a detailed elaboration of the radial-concentric layout applied in numerous designs of ideal cities. Apart from this idea even Leonardo da Vinci thought of satellite towns and put forward new suggestions relating to the solution of transport on several levels. Filarete described the design of a 900 metre long zone intended to accommodate the craftsmen who were to build his dream town, also described in great detail in the same treatise, namely, the eight-pointed star-shaped Sforzinda. The Baroque and the Classical Revival periods merely developed and enriched the town-planning ideas of the Renaissance.

A very stimulating chapter in the history of town-planning theories includes the ideas of the utopians. In his book "Utopia", Thomas More described a system of cities each of which was forbidden to exceed an optimum size and was, therefore, surrounded
by a green belt. Thomas Campanella described a town decorated with mural paintings. The first utopian writers also described a city in which there was no private property and whose inhabitants utilized a richly developed network of social amenities - public dining rooms, assembly halls and schools.

Of the classical trio of Utopian socialists of the beginning of the 19th century it was only Saint-Simon who was not interested in the problems of settlements, while Owen and Fourier put forward numerous ideas and suggestions. Both of them wanted the basic element of a settlement to be a commune of about one to two thousand inhabitants. Owen's settlement was rectangular, while Fourier's "phalanstere" was a symmetric castle whose architecture was inspired by the aristocratic residences of the period of the Classical Revival.

Less known, however, is Fourier's description of an ideal city. The phalanstere was to be the form of settlement in the final era of the development of human society - harmony. In the transitory period between civilization and harmony, the so-called "garantism", towns were still to exist whose circular layout consisted of three zones.

The end of the 19th and the beginning of the 20th century saw the origin of a whole number of town-planning theories as a reaction to the unrestricted development of big capitalist towns and conurbation. This development was preceded by Haussmann's reconstruction of Paris and Baumeister's proposals for the construction of new districts on the outskirts of the town. Camillo Sitte put forward proposals regarding the aesthetic form of town,
while Otto Wagner suggested a purposeful formation of towns. At the end of the century Soria y Mata presented his theory of a linear town and E. Howard the idea of a garden city.

At the beginning of the 20th century Tony Garnier, the chief architect of Lyon, designed his ideal industrial city and in 1916 Sant'Elia, the Italian designer of a futurist city, was killed in the war. The twenties of this century saw the extraordinarily rich development of town-planning theories. It was in this period that Le Corbusier exhibited his Tower City for three million inhabitants at the Autumn Salon in 1922, and young German architects supported an opposing idea, namely, the liquidation of cities in general, best expressed in the book by Bruno Taut: "Die Auflosung der Stadte" published in 1920. Almost simultaneously different plans for relieving big towns by means of satellite towns or whole residential zones were designed in several places. It was the period in which every architect of value regarded it as his duty to form a new conception of human settlement.

The greatest clash of ideas, however, took place in the twenties in the USSR. In their works Soviet architects attempted to record and express the great social changes that were taking place and to create a new environment for the new life. It was a period whose importance for the development of modern town-planning have never been fully appreciated. A completely new concept of town-planning, which subsequently acquired the name of "zonal town" - was presented by N. A. Miljutin in his book "Socgorod" (Social Town) published in 1930.
The contemporary range of town-planning theories is very broad and consequently not very clear. In evaluating individual town-planning theories and generalizing the individual conceptions it must be stressed that they do not involve any abstract mathematical laws. Every theory is influenced not only by the progress of technology, but also - and above all - by concrete social conditions. In spite of the great number and diversity of theoretical conceptions, it is possible to divide them into a few basic groups.

One of these groups includes theories based on the existence of more or less compact towns of large size with efforts to master them from the town-planning point of view. Apart from the aforementioned theoreticians of the 19th century, the most outstanding representative of this group is Le Corbusier whose big towns feature tower buildings and multilevel transport. Undoubtedly he knew how to express his conception convincingly both in a literary and graphic form. However, with all respect to his merits, they are ideas which can also be found in the work of his predecessors, such as Eugene Henard, August Perret or Antonio Sant'Elia. During his visits to the USSR Le Corbusier became acquainted with Soviet town-planning conceptions which doubtlessly influenced both his "Radiant City" and his subsequent studies of zonal cities.

Le Corbusier's theory of a big town is still quoted as the basis of subsequent conceptions despite the fact that all problems have not been worked out in greater detail.

The name of Ebenezer Howard and his book published in 1898 are connected with the idea of a small garden city and the beginning
of the voicing of criticism of big towns. He, too, had his predecessors, whose number included for instance, J. S. Buckingham with his design of the ideal city of Victoria and a number of other architects of the 19th century whose ideas did not achieve such fame.

There is no doubt that the garden city idea had a positive influence on the solution of a number of town-planning problems, stressed the importance of greenery, and contributed to the search for the optimum size of towns, being at the same time a convincing expression of the criticism of the hygienic and operational deficiencies of big towns. However, it is a known fact that in a number of cases the term "garden city" has become an advertising name for suburbs and worker's colonies which have nothing in common with the original idea of Ebenezer Howard.

In the formation of the theory of the small town an important part was played by the design of an industrial town for 35,000 inhabitants prepared by Tony Garnier. It is characterized by the clear functional division of the individual areas, the purposeful location of the separate components of the town and the great care afforded not only to the design of residential districts, but also to the harbour, the transport system, and industry. The design of the individual buildings and the detailed solution of all components are very modern in character.

Another important group of town-planning conceptions comprises those relating to linear and zoned towns. In his conceptions of a linear town the Spanish engineer Arturo Soria y Mata was obviously
influenced by the growing importance of municipal mass transport and imagined the most suitable form of settlement to be that following the lines of tramways or other means of public transport, dreaming that in the future all existing towns might be connected by such bands.

The zoned town of N. A. Miljutin is based on quite a different conception. Its main idea consists in the functional relationship between the home, the place of work and places of recreation which are ranged in parallel zones separated by greenery.

An outline of the main town-planning theories would be incomplete without those which negate the town altogether. The dispersal of the settlement is the basic idea, for instance, of Bruno Taut, the sub-title of whose book, "Die Erde - eine gute Wohnung", (The earth - a good home) became the motto of disurbanization theories for some time. Taut fostered Fourier's and Owen's ideas of small working communes, considering the number of 500 to 600 inhabitants to be the optimum. About 1935 Frank Lloyd Wright formulated the "Broadacre City" theory which was based on the idea of a zoned anti-city with one acre of land per one inhabitant, whose main occupation was agriculture, and in which the principal means of intercommunication was the motor car.

Neither central nor zoned or garden cities, however, can provide a complete answer in themselves to the question of the further development of our settlements. It is impossible to solve the problem of one town or one settlement only, because it can never be considered as a completely independent, isolated unit.
It is obvious that further development will follow the path of further strengthening of the relationship of whole settlement systems which will consist of towns and settlements of various sizes. In the course of this development, we shall not be interested in the further growth of urban agglomerations whose problems are difficult and expensive to solve. Similarly, it can be expected that small village settlements will gradually be concentrated, as they do not offer - despite the advances made in transport, power transmission, radio and television - the standard of technical and cultural amenities demanded today. In the future, the society will thus form organic settlement systems whose individual units will be purposefully interconnected.

Even if we assume that development will tend towards whole settlement systems, there still remains the problem of how their individual units - towns and villages - should look. It is obvious that it will not be possible merely to apply one form of settlement and one layout, even though certain common tendencies will prevail in the whole of future development.

The structure of towns will obviously be further differentiated, specifying and simultaneously more logically connecting the individual functional components - living, production, recreation and transport. The scale as well as the absolute dimensions of these components will increase, as can be seen in new residential districts, industrial works and communications even at present.

In the layout both concentric and zoned forms will be applied
in accordance with the given local conditions, landscape, existing settlement and technical possibilities. The structure of large towns will obviously remain the biggest problem, as they will require a certain blending of the individual functional elements due to the large distances entailed.

The function of future settlement systems will be fundamentally influenced by transport which must guarantee speedy and comfortable communication both with a major town and among the individual towns and settlements, centres of work and recreation areas forming the system. Transport means will, therefore, include particularly high-speed railways which will also influence the layout of the towns and settlement systems, their stations and lines becoming nuclei attracting both concentrated living and other important components. At the same time the application of high-speed railways will be fostered by increasing concentration.

The future development of the settlements is also closely connected with the problem of the living environment. The intoxication with new techniques often leads to the idea of a giant machine, similar to that which can be felt in the projects of giant towns featuring maximum concentration. They are towns with exceedingly tall buildings, multi-level transport, jet cars and helicopters, escalators, and air-conditioning of the whole atmosphere.

The question remains, however, of whether such development is necessary and, what is more important, whether it is desirable. The future idea of a settlement should be based rather on a more marked application of greenery and other natural elements situated in particular between the individual components of the respective
settlement system and inside the residential area. In the same way transport should be planned in green belts penetrating the social centres and places of work. On the other hand, compact buildings of uniform height cannot be considered as the ideal solution, either.

Marked development will also be registered in the common amenities of towns. Residential districts will be increasingly supplemented with clubs, gymnasiums, playgrounds, swimming pools and other cultural and social amenities built as their integral parts. Technical universities and research institutes will tend to be built in the vicinity of industrial works, which will correspond to the trend of bringing production processes to a higher, scientific level and the idea of their gradual automation, thus stressing the ever closer connection between work and education.

The whole process of the formation of future settlement systems will result from a complicated reconstruction of existing towns and villages formed by rich and original historical development. The contribution and inspiration resulting from the preceding development of town-planning theories will be applied rather as a whole. It will be impossible to depart from a single partial point, whether it be the formal conception of composition or the overestimation of certain transport relations. The town-planning theory will be based to an ever increasing degree on the trends of the social and natural sciences and the latest successes of technology.

A scientific solution of the complicated relations and the structure of towns will in no way hinder, but, on the contrary,
will foster the reaching of a new level in the solving of the social and aesthetic problems of the contemporary town and settlement and in the creation of a really harmonious living environment in the formation of which architecture and town-planning play an important part.

Extract of the book Theory of Towns by Jiri Hruza
Publisher: Czechoslovak Academy of Sciences, Prague, 1965