

DEVELOPMENT OF CENTRE SYSTEMS FOR TOWNS AND CONURBATIONS

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(Received May 3, 1971)

In recent years, construction and renewal of town centres have become a crucial problem of town development. The actuality of the problem has several causes. The extreme rapidity of urbanization — still accelerated by social transformations —, scientific-technical revolution, and — last but not least — demographic surge, all require, in addition to develop and extend existing towns for accommodating the increasing urban population, to construct ever more new towns. Elaboration and study of up-to-date principles and methods of development of towns and town centres become imperative. Besides, cores of existing towns are outdated both functionally and technically. 70 to 90 years have passed since the last town centre renewal in Europe, since the great movement of town centre reconstruction about the turn of the century. During the last half century, town development had nearly an extensive character, towns occupy ever greater areas, losing their closed character they are dissolved in the landscape. The town cores became outdated or in the best case, perpetuated. Thus, up-to-date outer districts are surrounding outdated cores, and this contradiction still gradually deepens. The agglomeration process entraining the development of giant cities, interlacing conurbations, urges to develop badly needed centre systems for these large-scale settlement units and agglomerations.

Elaboration of town planning principles is subject to requirements arising from important changes in the function of towns and from both actual and future demands. These demands are to be met now, and possibilities have to be provided for their continuous fulfilment. Though, our existing town centres fall short even of the actual demands. What is more, several of these centres keep precious historical and artistical monuments, which must be preserved by the society.

This study is intended to give some suggestions relating to the complex problem of the establishment (construction, development) of town centres or centre systems. This is by no means to contest that each problem is self-contained.

I. System of the town centre and its function in the settlement network

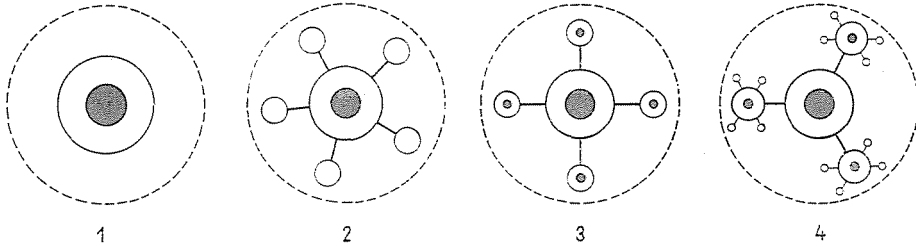
Contents and aspect of the town centre depend first of all on the features of the settlement network and of the town. Therefore, correlation between the settlement and the town centre will be treated first. Problems of the up-to-date structural development both of the settlement network and the settlement proper will be considered.

Primarily, the town centre has to fulfil functions resulting from the centrality of the town, thus, to accomplish some services for settlements within the range of the town. Function of the town centre is defined by the importance of the town within the settlement network of the country. Reasonably, duties arising from the centrality of the town can only be fulfilled in several steps, gradually, as provided for by the multistage system of the national regional division.

This national regional division is based on the region as principal organizing area unit that can be delimited by factors of physical and economic geography, a continuous area with its population, the production and labour conditions of which provide for the possibility of one or more significant economy functions. The region is generally a complex system: site of several production branches, without preventing its principal character — “profile” — from emerging. Smaller units, subregions, and especially districts are incomplex as a rule; their character is defined by one branch of the national economy. The unit and its — one or more — centres constitute an organic entity. Hence, the multistage, hierarchic regional structure involves a multistage settlement network of hierarchic built-up, composed of settlements of different sizes and characters.

Population of settlements can be determined on the basis of reasonable and economical operation of public institutions, public services, mass transport means and similar establishments and organizations providing up-to-date living conditions, with due regard to the possibility to develop an up-to-date settlement structure, so that the settlement can safeguard optimum conditions of production corresponding to its character. This number does not absolutely mean population located in a unique, continuous, closed built-in area but in an agglomeration of several smaller and greater settlements, coherent according to the requirements of supply and production. Settlements or agglomerations with a reasonable number of inhabitants are desirably built up of units or settlements of reasonable size, in single- or multistage systems. Lower limit of this size is defined by the primary, everyday supplies. These least settlements, settlement units depend on the existence of a settlement or unit providing for higher-level supply, completer service, the reasonable size of which largely depends on its character. For instance, a lower

population is admissible as reasonable settlement size or lower limit for an agglomeration of miner or farmer character, as against an industrial settlement or agglomeration.



Schemes for the relation between the town centre and adjacent settlements: no such relation is needed (1); town centre or centre system about fully supplies settlement residents with central functions (2); town centre supplies only high-grade functions for surrounding settlements (3); also environmental settlements constitute a hierarchic system (4)

An industrial settlement of a rational population number is advantageous by permitting to gather industrial plants harmful to the environment, safeguarding at the same time the advantages of a uniform industrial area from traffic, public services and economy aspects. Though the communication between residential and working areas requires to apply mass transport means, these will be exploited to the due degree. Demands of the inhabitants can be reasonably met on the spot, and in general, the population suffices to economically establish and operate institutions and services meeting ever more differentiated exigencies at a reasonable capacity. Advantages of a reasonable urban extension are still manifest. The residential area does not exceed that defined by the range of the superior public institutions centrally located hence easily accessible. There is less probability for the residential area to be divided by unfavourable natural features than in cities. Furthermore, there is a possibility to uniformly supply the area with public services as if it were in a "bay". Such towns have generally a single centre, but in case of a divided structure their centre may also be divided. That is, the centre will accomplish its functions in a single stage but at several places. In conformity with the actual conditions, these requirements are mostly met by towns of about 60,000 inhabitants either in this country or abroad.

These are not to mean, however, that a higher population number has to be considered as unreasonable, but is justified by the fact alone that such towns exist, or even that the urban population has a tendency to grow rather than to stagnate, — besides of industry development aspects requiring to concentrate over 20,000 industrial workers (of course within the town but not within one area). Last but not least, there is a necessity to create industrial, cultural, commercial, etc. counterpoles to share national functions with

metropolises brought about during the capitalist development, overdimensioned with respect to the population and settlement conditions of the country.

Settlements with more inhabitants require a more differentiated division, problems related to traffic, public services, etc. are more serious, complex. A city may be composed of several residential or industrial areas or of complex urban units, constituting, however, a uniform organism with respect to spatial organization, traffic system, etc. The town centre and its subcentres constitute a complex, multistage town centre system.

The reasonable settlement population has a lower limit in view of the conditions of urban life development, admissible from the aspect of meeting different functions. Advantage of these "pedestrian towns" exempt of mass traffic needs is the possibility of a uniform town network. Thus, a realistic object may be to develop agricultural settlements to this lower limit of reasonable population (about 20,000 inhabitants) by concentrating agricultural production, establishing industries processing agricultural products.

Development of settlements adjacent to cities favourably sited, of a healthy climate and economical from construction aspects can be encouraged by making them so-called residential towns for about 20,000 inhabitants of the nearby industrial centres. These towns are typical one-centre towns.

These statements would not mean, however, that settlements with less population and unable to reach this limit are unfit for life and are sentenced to death. Several settlements organized into agglomeration can offer an acceptable living frame to their inhabitants. Each of these settlements has possibly a population sufficient to the economic supply of primary, daily services. Provided these settlements are so near to each other that their centre is accessible on foot or by some mass transport means, the agglomeration can be developed as a single-centre system. Evidently, the distance between these settlements varies both in space and in time, depending on the standard of road network and of available transport means. Where an agglomeration of smaller settlements has developed, this unit can be further divided, an agglomeration composed of settlements belonging to a three-stage system can be realized. Then the centre system is in any case to be developed in several stages. Undoubtedly, this is a compromise: a reasonably developed centre has to be renounced of in favour of easy access.

Thus, it can be concluded that towns constitute multistage, hierarchic settlement networks consisting of units — settlements, agglomerations — of reasonable size. Those with less population have in general single-stage centres, while those with more population are of the multistage type. Also agglomerations with reasonable population constitute single- or multistage, uniform or hierarchic settlement systems, with single- or multistage centres. This reasonable settlement series is topped by metropolises built up of so-called metropolitan units, with more complex, at least three-stage centre

systems. Such are settlements with several hundred thousand inhabitants and towns evolving to metropolises. In the settlement network of densely populated countries and provinces, city agglomerations, conurbations appear. Their purposeful planning or development may start from a town development conception likely to organize the layout area of the central city — or in case of a town system with several centres, of the central cities — into complex, so-called metropolitan units, surrounding the central city by one or two rings of settlements. The first ring consists of residential (or better dormitory) towns — essentially, settlements without industrial plants — especially for those engaged in the central town, while settlements of the second ring in the range of the central city would site industrial plants displaced from the city and house their employees (so-called satellite towns). Thereby the conurbation could avoid crowdedness and similar harmful phenomena to enjoy a purposeful, planned development. Such a conurbation requires a hierarchic, divided, multistage system of centres.

Let us point out again that this settlement network, built up in a hierarchic order of settlements of different sizes, presupposes and greatly influences a decentralized industry development. According to the reinterpretation of the relation between industrial development and town development, creation of a harmony within the settlement network and the settlement itself is a fundamental condition of the social-economic development. Let us deduce the following conclusions: Central function of the town is not absolutely dependent on its size, but may be defined as a regional correlation, dependent on the town's role within the settlement network. The town centre supplies not only the town itself, but also — corresponding to settlement network connections — a lesser or greater group of settlements with higher administrative, cultural, etc. services.

The centre of the settlements generally cannot meet all demands of the population on any level and in any field by itself, only in co-operation with other centres of the same kind in settlements assuming a higher level within the structure of the settlement network. Population enjoys services provided by the town centre through several interdependent settlement centres, rather than a single one. Dependence degree is higher in settlements with less population or lesser central importance.

Contents and size of the given town centre are determined partly by its function and partly by the extension, character and fabric of the town. The town centre is also dependent on the standard of the town network of the country or region and functions of central importance may account for a greater part of the sphere of responsibilities of the centre than local functions.

A hierarchic built-up is not to exclude sharing of "regional-town centre" functions horizontally between several settlements. This is especially true where the structure of the settlement is of the multi-centre type, or where features are better adapted and exigencies better coped with.

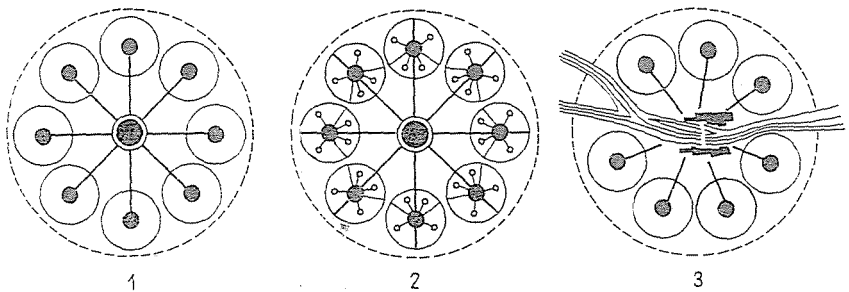
2. System of the town centre and its function in the town fabric

Without defining the concept of town, let us simply state that, first of all, town means a comprehensive *system*: planning and development have to result in a system with components interlaced from several partial systems (traffic system, green belt system, town centre system, etc.). Fabric of a town means this system adapted to actual exigencies and sites (understood dynamically).

Establishment of an up-to-date new town and its fabric, development, renewal of existing ones, are to be based on the principles of *openness*, *distribution*, *differentiation* and *homogeneity*.

Perhaps the most essential principle of town planning is to endow it with an open structure, both from territory and tracing aspects. Thus, also ground use and transport system are involved. In siting the entire town body and its different area parts, in developing transport and other infrastructure networks, systems, possibility of a continuous development has to be taken in mind. Care has to be taken that during expansion concomitant to development, area parts and networks can function uninterrupted, undisturbed, without hampering each other's development, and without intermingling functions that are necessarily separated in conformity with the demands of urban life.

Namely, the town needs a functional division according to its multilateral purposes. In general, it is advisable to allot definite functions to each zone of the town, granting it a peculiar character. (Functional division is e.g. to separate residential areas from working places injurious to their surroundings; providing special recreation areas, etc.)



Scheme varieties for the centre system of a city: two-stage centre system (1); three-stage centre system (2); two-stage centre system with parallel overall centre (3)

Besides, a marked spatial division of the town area, a more scattered siting of its zones, area units is advisable, necessary and permitted by the

important development of traffic, vehicles and especially of mass transport means; at the same time, this is a fundamental hygienic requirement.

When developing a town or district, the need for differentiation appears in almost every aspect of planning. (Such is the planning of traffic system as required by the trend of vehicle traffic, featured by the creation of separate lanes, tracings, levels for local and long-distance traffic, freight and passenger traffic, as well as for vehicle and pedestrian traffic. This undoubtedly expensive — and expansive — solution is the precondition of safe and rapid urban traffic; its delaying demands ever increasing sacrifices in human life and wealth.)

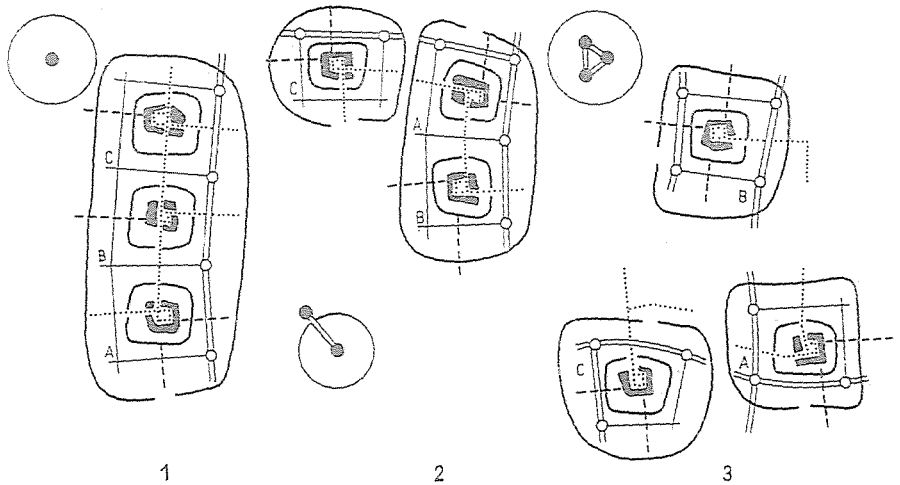
A town or district must constitute an *organic unity* both functionally and aesthetically. Siting of area parts in the town, their relation to each other and the landscape, affects the economy of industrial production and transports, rationality of traffic, and last but not least, healthy living conditions.

As it was stated earlier, town centre or centres are central areas of the town, easily accessible from any part of the agglomeration due to their relation to the traffic network and to the distribution of the population. Town centre accommodates rather important administrative, social, political, cultural, educational, commercial, etc. institutions of the town and its environment, or in a city for its districts, and for the country (district, subregion, region). Town centres are administrative, cultural and commercial foci, also architectural ones, forums enriched with a new purport, siting outstanding buildings and ensembles, surrounded by procession roads and squares, parks and gardens. Thus, constituents of the town centre are public buildings, parks and gardens, roads and squares, eventually, blocks of flats. Centre layout provides for their situation.

Functional composition of the town centre primarily depends on whether the size, character, structure of the town require the centre to be single- or multistaged, compact or distributed in space. In towns where no higher residential area units or complex metropolitan units are required, a town centre developed as single-stage may be realized. Cities with several residential quarters and those with complex metropolitan units require two-stage and three-stage town centres, respectively. This latter type has the following centre stages: residential quarter centre, centre of the complex metropolitan unit, city centre.

These three centres differ by contents, as is seen by the nomenclature of the respective public institutions, especially for administrative, security and social-policy institutions. From among these institutions, those of regional and of overall town level are to be placed in the town centre. In the centres of the area units they are only justified if these are at the same time administrative units, town districts. From among cultural, educational, children welfare, health, sports and social establishments, those are belonging to

area centres which can be decentralized with a capacity sufficient to a reasonable operation, in view of an optimum range of accessibility, proximity to supply areas. Such public institutions are cultural hall, cinema, secondary school, health centre, sports ground, cultural park. Most of them are not justified to be placed in the town centre if the indicated factors prevail. Supply and commercial establishments are to be proportionally realized for any stage of centres.



Schemes for the centralized (1) and divided (2 and 3) solutions of town centre zones
A) administrative, B) commercial and C) cultural zones

Multistage centre systems may practically involve two interconnected stages. For instance, in a two-stage centre system, one residential quarter centre may join the town centre; for a three-stage system, one residential quarter centre is connected to the metropolitan unit centre, and one of the latter to the city centre, etc. If the settlement area is divided into several residential quarters or metropolitan units, then it is advisable to complete them by an extended, coherent green area consisting of district parks or housing estate gardens to join the centre of the residential quarter or of the metropolitan unit.

Area of town centres, especially of metropolitan centres, can be divided into three zones corresponding to the complex (administrative, cultural and commercial) function. The first zone will accommodate administrative security and social-political institutions. The second zone may be reserved

for cultural and educational establishments, including teaching, children welfare, health, social and sports institutions. The third one is the zone for commercial and supply establishments.

Let us recall that the town centre must be easily accessible for the entire town area and the environment. Unhindered passenger traffic to and from the centre and freight traffic to supply the centre establishments have to be provided for. These two kinds of traffic must not disturb, spatially or timely cross each other. Separate road network for these two types of traffic would, however, involve inhibitive costs. It is more expedient, though at cost excess, to provide a special lane on some roads for freight transport. Therefore often (especially for small town centres) it is sufficient to separate the traffic by time: centre-bound transport is restricted to night hours.

Passenger traffic in town centres consists of variable components such as pedestrian, passenger car traffic and mass transport. The town centre is exposed to an intensive pedestrian traffic requiring broad lanes and squares. In the most frequented parts of the town centre, on shopping roads and squares, in front of large commercial establishments, administrative and cultural, etc. institutions of a big capacity, broad pedestrian lanes and extended meeting areas have to be provided for. Access to the most frequented parts of the town centre requires large parking areas. For lesser town centres, mass transport means may just touch their area from several directions and at several sides, without crossing it. In cities tracings of mass transport means, desirable proximity of stations and intensive traffic make, however, unavoidable to cross the city centre area. In such cases it is advisable to separate the transit traffic level from the internal pedestrian and vehicle traffic level of the centre, or at least, to provide a special traffic lane. This requirement concerns also other than rail-bound vehicles.

On busy thoroughfares of city centres, level crossings between pedestrian and vehicle traffic should be avoided. This is possible by designing the centre with multiple levels, or, for one-level centres, by means of pedestrian subways or flyovers, pedestrian subway systems. At road junctions, under squares, subway systems are to be constructed. Escalators and speedwalks may relieve level differences. In case of intensive pedestrian traffic, part of motor road may be led under or over the centre level. This latter solution — though more economical — requires a comprehensive townscape analysis. Terrain features may favour this multilevel traffic, where the centre area can be divided into terraces.

Division of the centre decomposed into zones is facilitated by extended green areas, parks and gardens or water surfaces. In general, extended coherent green areas are to be wedged in just to the town centre, so that this latter, or at least a part, is sited in the green. This is especially true to the zone of cultural institutions, with premises best located in park areas.

In cities these three zones may be spatially separated; instead of being the divisions of an area, thus, they form three centres. Neither in that case has the functional and compositional connection of the three zones (or better centres) be omitted.

In addition to the above, a further viewpoint may contribute to the marked spatial division of the town centre. As it has been mentioned, all central functions met by the town (administrative, cultural, health, etc.) pertain to lesser or greater areas, i.e. to their inhabitants. Planning of the town structure, of its traffic and green belt system has to involve the environment of the town. All these have to warrant connections not only between vicinity and town but also vicinity and town centre. Remind that the town centre more or less acts also as centre for the peripheral settlements. Also, provided convenient natural features exist, vicinity may relieve the town centre by assuming some of its functions (e.g. accommodating secondary and high schools, hospitals, hotels, etc.). Therefore good relations, among them traffic and mass transport relations, should be provided between town centre and vicinity. Summarizing it can be stated for centres in big cities that they are relieved, their functions are partly assumed by centres of area units: centres of residential units, of metropolitan units, etc. This may essentially help to relieve the commercial functions of the town centre. Under favourable circumstances, part of the town centre functions (especially those related with cultural, educational, children's welfare, health, social, sports establishments) may be assumed by the vicinity, especially its recreation area. According to its destinations the town centre can be divided into administrative, cultural and commercial zones, likely to lead to a marked spatial division forming a system of "self-contained" town centres. Just as in the settlement hierarchy all settlements depend on a settlement of higher rank, obtaining from it certain services, also town centres constitute a hierarchic system. All these lead to the conclusion that the centre of modern metropolises is multi-stage, spatially divided but forms a co-ordinated, uniform system.

3. Renewal of town centres

Theoretically, two kinds of town centres worth of renewal can generally be distinguished: in one case the town centre has outdated fabric, layout, neither is it of value from town history, urbanistic aspects, a restriction is imposed, however, by the value differences between buildings, establishments; in the other case, historic town centres, urban cores contain monuments, complexes, townscapes totally or partly under preservation act.

Rather than to be treated in the present study, this problem merits a special paper.

The first two items have treated in detail the correlation and affinities of landscape, settlement and town centre. The same correlations rule the reconstruction of town centres, inseparable of that of the entire town, just as the reconstruction of the individual town is an integer part of that of the settlement network. Before considering the renewal of the strictly meant town centre, let the problem of reconstructing entire towns and its relations to that of the town centre be recapitulated.

As it was mentioned in the introduction, the actual organization of the settlement network, the town and the town centre does not meet the requirements; the social-economic progress absolutely demands them to be reconstructed. Notice that this situation, i.e. the demand for a change, is perpetual: modern today—outdated tomorrow. Acceleration of the social and technical development much increased, however, the interval between material and technical depreciation. Obsolescence may arrive earlier. Since the rate of town development lags much behind the social-economic and scientific-technical development, the tension is at its peak; to relieve it requires a faster action than ever.

The first item was concerned with correlations within the settlement network, functional and aesthetic planning of the up-to-date town and town centre. Reorganization has the final aim to realize these objects affecting the settlement network, the town and the town centre. This is, however, doomed to frustration by actual restrictions. The object can only stepwise be approached. Conditions of a brand new town cannot be achieved by town redevelopment. The actual situation can be less or more improved instead of a perfect healing for the sick urban organism, hence a compromise arises between the actual and the ideal conditions, as close to the latter as possible.

Reconstruction of the settlement network, of the town system may be called for primarily by the population increase, the fundamental changes in the national economic development, entraining a variation in the distribution of activity of the population. Renewal of a town has to be subordinated to and induced by the development of economy and settlement network. Thus, principal objects of town renewal are determined by the production character and importance of the town; especially industrial concentration or decentralization, as well as increase or decrease of the central character of the town.

Other factors imposing town renewal are:

— Intermingling of housing, industrial plants and transport establishments harmful to the environment, impairing living conditions and hampering up-to-date industrial production.

— Poor and insufficient housing stock, falling short of requirements, disproportionality and outdated condition of the existing stock.

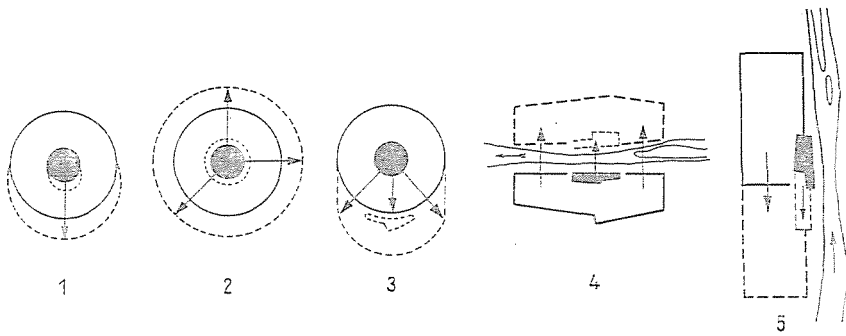
— Underdevelopment, low standard and uneven distribution of the network of public institutions, difficulty of making up the supply of residents to the due niveau.

— Low-standard, deficient public services, hence, lack of supply (partial supply, risk to safety due to aged systems).

— Compact, dense layout of the whole town or a great part of the residential area, insufficiency of the green belt, lack of industrial protective zones, air pollution due to outdated heating systems.

— Traffic: inability of mass transport network (from the aspects of network density, speed and capacity of vehicles, etc.) and of motor traffic facilities (roads, etc.) to meet increasing demands.

— Inorganized, chaotic, spontaneous construction of disproportional building blocks, devoid of scale, by and after the turn of century, offsetting the prevalence of historic and monumental values in the townscape.



Relation between the town development direction and the centre locations. Direction of the town centre expansion is about the same as that of the town (1). Town centre and town expand concentrically (2). Important, eccentric development of the town requires town centre to be established or completed in another site (3). The extreme development of town and town centre encounters difficulties to be surmounted by means of a spatially divided town fabric and centre system (4). Development of town and centre as controlled by natural features (5)

These reasons for a renewal may appear either in themselves or combined, and may affect either the entire town or some district. Mostly, however, in their correlations they attain the town. Traffic, public services, public institutions of town centres are problems to be examined and solved alongside with those of the whole town. The same is true to the road system, mass transports and public services of the town centre. Nature and capacity of public institutions to be accommodated in the town centre are an integer part of the multistage system of the town. Loosening of the town centre area, eventual reduction of the population density (if necessary) are related to the reconstruction of the urban residential area. Scale and schedule of reconstruction are determined by the preparation of premises for the population to be resettled, namely the overall housing stock must not be reduced, on the contrary, it has to be increased intensively. Neither is the problem of urban green belts a self-contained one, those of the town and the town centre are in strict corre-

lation. Last but not least, morphology and townscape problems of the town centre reconstruction must be solved in harmony with the entire town.

Remind that the town centre renewal is far from being an independent operation but a component of the town and even settlement network development. Alongside with considering the relevant problems in themselves, allusions will be made to the correlations, else serious mistakes could be committed.

From the aspect of reconstruction, the area of town centre can be classified as follows, with due regard to the condition of premises and features:

— *Entirely outdated area*: expenditures to maintain (upkeep, update) buildings are inhibitive, public services are undeveloped or beyond useful life, in need of immediate change, road network is unable to transmit traffic.

— *Partly outdated area*: majority of buildings worth of demolition are flanked by buildings of acceptable condition, recently built, updated or economically updatable, roads present some bottlenecks hence partly need reconstruction, public services are to be completed (needing some new ducts and partial replacements).

— *Non-outdated area*: most buildings are convenient, roads and junctions are up-to-date, public services relatively new and of due capacity.

— *Historical and monumental area*: partly or totally outdated layout, with buildings technically outdated as a rule but precious from historical or monumental aspects, original roads too narrow for vehicle traffic, mostly outdated public services, etc.

Renewal of areas with different features requires different reconstruction methods. In the first case, planning is almost independent of existing features, total rehabilitation is justified. In the subsequent two cases, adaptation of the features is governed by economy considerations. The fourth case is a rather delicate one because of the complexity of problems. Economy considerations must not prevail in the decisions.

Renewal of a town centre may be motivated by

— the necessity to locate more public institutions arising from the function allotted to the town centre;

— partly by recent demands and partly by the changed central function;

— the unavoidability to update traffic by developing the town centre-bound mass transport, by providing parking areas, by differentiating between road networks for vehicle and pedestrian traffic;

— development and updating of public services;

— replacement of derelict building stock uneconomical to renew so as to provide up-to-date living conditions without increasing or even by decreasing the residential character of the town centre;

— the requirement to displace industrial and storage establishments disturbing the function of the town centre;

— preservation, rescue from destruction of historical and monumental values.

These motivations of town centre renewal may appear either individually or combined.

Aims and modalities of the renewal of town centres depend on their features, so as to constitute peculiar problems. Nevertheless, in what follows, some fundamentals, likely to be of general validity, will be outlined.

Remind that one cause to renew a town centre is to meet functional requirements coherent with its new purport. Fabric of the town centre is formed by the actual functions of the town and the town centre. Variations by purport and by volume cause fabric and function of the town centre to counteract each other, making a lesser or greater reconstruction a must. To avoid spontaneous transformations, it is advisable to encourage zoning providing for the purposeful development of the town centre so as to meet recent exigencies, thus, to earmark centre areas most convenient for a given purpose. Zoning may be according to administrative-political, cultural-sports and commercial functions. These three zones may constitute either a coherent area or may be separated in space, even apart of each other, to form two or three centres. The actual solution depends on the features of the existing centre: first of all, whether sufficient area or possibility of extension is available. Multi-centre systems are encountered chiefly in cities where neighbourhood unit centres are assisting central functions. This contributes to the evolution of multistage centre systems.

The problem of town centre reconstruction is connected to that of traffic updating. Recently, life rhythm of the entire town, hence of the town centre, changed: the human flow, the rush of cars, or cars parking in and buses crowding squares and connected streets almost burst the town centre. Not only vehicle traffic, but often pedestrian traffic encounters increasing obstacles. This fact poses the problem how to exempt the centre from the immense car traffic and the related parking area needs; how to provide rapid and comfortable transport for people tending to the town centre and its establishments, and to facilitate pedestrian traffic within the centre area.

Centre-bound traffic, passenger and load transport within the centre is to be planned without interference between. Urbanistic means, i.e. separate road systems or at least tracks, are to be applied. This is rather difficult for existing town centres, requiring organizational measures, e.g. to exclude load transport except for some parts of the centre during the night hours, and to strictly prohibit it during rush hours. Level separation of vehicle and pedestrian traffic requires important demolitions, road widenings and breakthroughs. Provided it is undesirable to much change the townscape or the fabric, on one or both sides of the street arcades may be built. Even organizational measures may be of help: some streets in the most densely built-in and

crowded parts of the town centre may be exempted from vehicle traffic or declared one-way routes. In areas surrounding the core, valueless, outdated buildings or blocks (or interiors only) may be demolished to provide parking areas. Cities may have underground traffic (though costly) and multilevel underground or elevation parking garages.

To eliminate pedestrian traffic junctions, mass transport means advisably contact the centre area from several directions and at several sides. If the centre area is too extended to keep away these lines from crossing the centre innermost, rail-bound vehicles are to be guided at several underground levels rather than at ground level to separate them from the inner traffic of the centre, e.g. by roads in cuts, underground railways or tubes, even all three, as a multilevel system. If level traffic is unavoidable (passenger, mass transport or both), pedestrian subways or flyovers may help safe traffic at crowded junctions.

Establishments of long distance traffic: freight yards, in case of water traffic freight ports are undesirable in the town centre, in any case their resettlement has to be encouraged. Long distance bus terminals are to be located so as to be connected to the main access and exit roads of the town centre and of the town. Instead of relocating railway passenger stations in or adjacent to town centres, tracks may be elevated or recessed, eliminating dirt and noise. These elevated or recessed tracks may serve at the same time for urban or suburban railway network or for special communication to airports.

Renewal of town centres is generally connected with the modernization of public services. Supply with public services as a factor of reconstruction may emerge either as the component for the town centre of an operation affecting the town as a whole or may be a problem independent of this latter. It may consist either of the change of the network to meet increased quantity demands, or by the need to establish new pressure intensifiers, transformers, etc. The motivation may be identical in both cases: insufficient cross-section of mains of network pressure because of changing rise of building-in. Reconstruction of public services may be called for by the technical obsolescence of network and equipment and the requirement to updating: to replace oven heating by district heating, coal firing by electrical or gas heating, etc. It must not be left out of mind that, in final account, public services are factors of town hygiene, especially in densely built-in areas such as a town centre. Along roads, under squares or other areas where several conduits are to be laid or changed simultaneously, galleries may be advisable, to be constructed possibly alongside with updating roads or traffic junctions.

Rehabilitation may be justified by the outdated building stock. Existing town centres are town parts with a high population density, tending, however, to decrease. Dense building-in, shortage of green area, heavy traffic make the town centre unfit to a lasting satisfaction of housing demands. Outdated

town centres are densely inhabited not because of their comfortable housing facilities but because of housing shortage in other districts, and partly since the life in the town centre has its attractions for some layers of the population. It is not by mere chance that as early as after the turn of the century, many of those who could afford it escaped from old districts to garden suburbs. This process entrained the nearly total depopulation of some city centres. Nevertheless, to reduce the density in town cores is mostly an important social and economic problem.

Attempts can and have to be made to provide healthier housing conditions in town centres. This is possible by clearance of block interiors and planting trees into the resulting inner courtyards; or by increasing dwellings and modernizing their equipment. Remind, however, that in the town centre difficulties may hamper the establishment of the fundamental public institution network: schools, nurseries, kindergartens require more green area than offered by old town centres; location of commercial establishments is difficult because of the lack of the mentioned (access, transport, parking) facilities and also because existing buildings are rather inconvenient to transform into shops, business establishments. Therefore a regrouping of the town centre population has to be accounted for. Most existing office buildings in city centres cannot be applied for administrative, social-political and economical establishments without significant reconstructions. Office buildings with a great number of employees and visitors require vast free areas, primarily for parking purposes. Some improvement may be possible by some loosening of the compact building-in, maybe by transforming the ground floors of existing buildings into arcades (if safe and economically possible). Otherwise, no underground parking and replacement of some buildings can be dispensed with. If part of the existing public office buildings are suitable as representative offices for a moderate number of employees and visitors, these should be completed by either building arcades or new office buildings and underground garages and parking areas, possibly multilevel ones.

Town centre renewal involves to displace establishments of functions distinct of and even troublesome for those of the town centre. Within the town centre area, often industrial or storage plants, premises are inserted between or even within the living and public buildings, occupying valuable town centre land. Though some of them may be integer parts of the public establishments, e.g. wholesale storage facilities, market halls, workshops for the upkeep of buildings and installations, etc., these should be relocated in other parts of the town, possibly comprising industrial, storage, public service establishments. Though this is a rather difficult problem, it needs no special justification. Anyhow, means to start and control the relocation process are to be introduced as soon as possible. Problems encountered by the town centre protection require a special discussion.

Simultaneous renewal of the entire town centre mostly encounters difficulties, so it has to be scheduled. Magnitude and duration of each stage depend on several factors, primarily on the actual economic situation, housing policy targets, finally, the available building capacity, this operation being a rather voluminous one. Besides, this schedule has to be co-ordinated with the reconstruction of other districts, especially of some residential districts, to permit re-housing, creating a so-called turnover housing stock to forward continuity of the reconstruction.

After the grandiose reconstruction of the centre of Paris and of several European metropolises in the second half of the 19th century, the first half of the 20th century was, in this respect, a period of stagnation, actually an immense surge of urbanization accelerated the outdating of already reconstructed town centres. Not sooner than after World War II, partly as a consequence of war destructions, could the reconstruction of town centres be reassumed, of course without established principles.

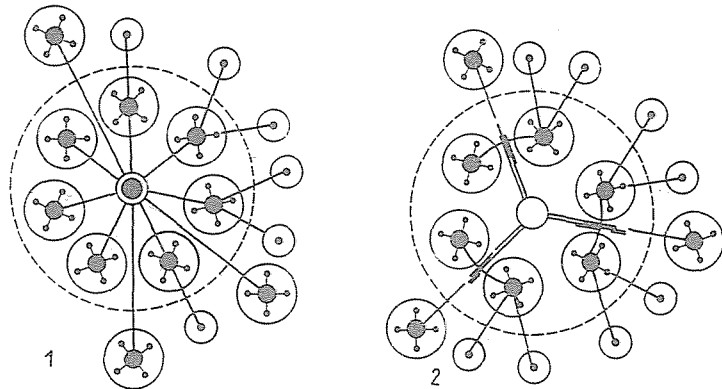
4. Development of centre systems for metropolises and conurbations

In the settlement network of our era, special importance is due to the ever increasing number of cities with population of the million order and to settlements fusing into town systems, settlement groups, conurbations.

Part of these metropolises are relatively dense, coherent settlements with inner cores that evolved slowly, often during centuries, and outer districts due to the urbanization rush in the recent decades. Earlier town cores are mostly of dense layout, rather vertical, with mixed functions. These central town cores are changing into financial, economic centres to the detriment of their residential character. A major part in Europe has been reconstructed as early as in the 19th century, since that time, however, both the road system and the layout have become outdated. After this renewal, in the 20th century, reconstruction was understood as demolition or replacement of a few buildings. In general, this building activity was uncontrolled, this "development" often resulted in chaotic layout. In spite of the renewal in the 19th century, these central town cores keep precious historical and architectural monuments, what is more, ingenious reconstructions from the 19th century may merit preservation. In another category of metropolises, there are several town cores in different areas of a number depending on how many settlements fused to a metropolis, with actually several centres, foci. Central town cores are surrounded by districts dating from different times, inhomogeneous by type and age of their components. These districts are autonomous, self-contained to a degree varying for each country. Within a metropolis, those centres keep a more or less independent urban life that were once independent settlements,

have a continuous history and a central core with certain historical or sometimes monumental value.

Renewal of metropolises means essentially an endeavour to create a spatial system linking functionally and aesthetically the town centre and the district centres. Thus, the system is composed of centres of residential quarters and metropolitan units, and of an overall city centre built to satisfy the quoted three functions (business, culture, administration). Remind that the overall city centre may be situated either in one or in several sites, but a central location is desirable. Existing features are decisive of the planning



Composition schemes for conurbation centre systems. The conurbation has a hierarchic, multistage centre system. The main centre may be such that the overall town centre of the central settlement is at the same time the centre of the conurbation as a whole (1), or the main centre of the conurbation constitutes a spatially divided system (2)

and irrespective of the fact that unit centres assume some functions of the overall city centre, some zones of this latter may be sited outside the central town core. Thus, new town centres may be developed eccentrically, constructed simultaneously or adjacent to new districts. Centres may be created near favourable natural features: woodlands, water surfaces, etc. An important problem in planning and development is to create traffic connections between centres.

A third type of metropolises exhibits no kind of unity, neither administrative nor aesthetic; a spontaneous grouping as a rule, agglomeration of settlements around mostly one, or sometimes several central settlements. These settlements are attracted to the central settlement by some functions: job, services, shopping, selling, etc. The agglomeration is of no homogeneous character: it is composed of settlements with different features: industrial suburbs, rural or semi-rural settlements or so-called dormitory towns. Settlements within the agglomeration are normally concentrated along roads and railways. Settlements in a multicentred agglomeration adhere to central settlements

and to connecting roads. They do not necessarily constitute fully built-in areas.

Centre system of an agglomeration consists partly of the town centre or town centre system of the central settlement and of the system of single or multistage subcentres depending on the town size, and partly of the centres of suburbs and communities.

One fundamental task of the agglomeration renewal is to develop the multistage town centre system, necessitating in turn to transform the spontaneous settlement bulk into a rational settlement system. All these do not mean absolutely to transform the agglomeration into an integer city, to renounce of the relative independence of the settlements. The planned development of the agglomeration tending to develop a multistage supply system determines the tendency of development of a settlement within the entire system, with due consideration to its features and to the development forecast.

An agglomeration may be planned with different sizes. Though underlining that every case is a special case, two principles of creating the system may be distinguished:

1. The central settlement is so extended that its area can be divided into units: residential quarters or metropolitan units. The outer ring of settlements may be divided into settlement groups with as many residents as suit a rational development of complete urban services and working places.

2. Size and features of the central settlement justify to divide its area partly to metropolitan units and partly to residential and industrial areas. Scattered and low number of population and jobs, etc. in peripheral settlements makes them unsuitable, even if grouped, for a rational development of complete self-contained urban functions. They cannot constitute an area unit if not together with the industrial and residential areas of the central settlement.

Though central systems of single or multicentred agglomerations will certainly differ, the former principles are also valid for the coexistence of several central settlements; evidently, however, features and development tendencies will affect the actual solution.

Thus, the agglomeration will have a multistage centre system consisting of the centres of residential areas and metropolitan units, and of the agglomeration centre. Size of the central settlement(s) and of the surrounding settlement ring may justify the subsistence of a multifocal centrum transformed to cope with its new function and to develop the system to relieve or complete the existing centre.

In an agglomeration of several central settlements, upkeep and development of a multicentre system may be justified, just as to share the centre functions between centres, or to create a new agglomeration centre. In the latter case, a new stage is added to the multistage centre system. Once again,

each solution is a particular one, to be decided upon carefully balancing features and possibilities.

Traffic relations within the agglomeration require to develop complex multistage system of road and mass transport, to provide for the inner traffic of town cores, traffic between the town core and the central settlement units (centres), traffic between the inner town core and the peripheral settlement ring (or centres) and traffic of the outer ring of settlements.

In addition to the functional and traffic relations of the centre system of agglomerations, need for morphology and composition unity of the town or agglomeration emerged. Though metropolises, agglomerations cannot be considered as urban ensemble, primarily because of their size, and even, for the latter, requirements for a landscape planning may prevail, to renounce of aesthetical coherence would be a mistake, just as no landscape aspects are to be left unconsidered in regional planning. Reckoning with natural features as an aesthetic factor, development of a town axis system, emphasizing the centres, morphology of the town as a whole, hence requirements of town composition are also valid to these metropolises and conurbations. Centres constitute aesthetic foci of these widely extended settlements, nodal points of the layout, and their system constitutes an overall townscape and landscape unit.

Summary

The town centre system takes an important place within the structure of the settlement region. In general, community centres can only function in co-operation with similar centres of settlements at a higher grade within the settlement region. Up-to-date town fabrics are featured by openness, articulation, differentiation and homogeneity. Size, character and fabric, as well as belt system and layout of a town centre are defined by the extension, character, fabric and central importance of the town. A town centre may be fit for reconstruction from several causes and aspects governing the overall lines of renewal. As concerns both conception and schedule, renewal of the town centre has to be co-ordinated with that of the town as a whole. Development of centre systems for metropolises and conurbations depends on the structure and character of these latter. The solution consists in multistage, hierarchic centre systems.

References

The list of works on the problem of settlement region and up-to-date town fabric, of the town centre development, i.e. theory and practice of planning and construction, begins with two earlier works by the author: PERÉNYI, I.: *Settlement Planning* (Budapest 1963, 2nd Edition) and *The Up-to-Date Town** (Budapest 1967). Edition in German 1970. From among similar works from abroad, let us mention BARANOV, N.: *Sovremennoe gradostroitelstvo* (Moscow 1962), POLAKOV, N.: *Osnovi proektirovania planirovki i sastroiki gorodov* (Moscow 1965) and BARANOV, F. N., SKVARIKOV, V. et al.: *Osnovi sovetaskovo gradostroitelstva* (Moscow 1966 and 1967). This important work of three volumes is a comprehensive study, replacing the enumeration of works on the same subject published in the USSR during the latest decades, now rather of historical importance. Let us quote MAKSIMOVIĆ, B.: *Urbanizam* (Beograd 1957, Yugoslavia), HRUŠKA, E.: *Vývoj stavby mest* (Bratislava 1961, Czecho-

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