

THE PRINCIPLE OF AGGLOMERATION AND ITS ROLE IN THE PROCESS OF URBANIZATION

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Historians inform us that at the beginning of the 15th century there were only four cities in Europe — Paris, Constantinople, Venice, and Milan — which had more than 100 thousand inhabitants each, and that up to the last quarter of the 18th century there were no cities with a population of one million or more (we are not concerned here with Antiquity). In the middle of the 19th century only two cities — London and Paris — had more than one million inhabitants, but at the beginning of the 20th century there were ten cities of that size, six of which were in Europe. About 1950 the number of cities with more than one million inhabitants had already reached 51, and at present, at the beginning of the last quarter of the 20th century, there are about 140 such cities. If we consider the uninterrupted growth of large cities of more than 100 thousand inhabitants each — and there are already more than 2500 such cities — as well as all other processes which come under the heading of 'urbanization', we will understand why Mankind cannot but feel disturbed when facing such problems as where the process is leading to, and how it can be, and should be, directed if we are not to be confronted with insurmountable difficulties.

Quite obviously, when studying processes and types of urbanization, we are not allowed to disregard social problems. We should base our research upon objective economic laws of social development, and only by discovering them and relying on them can we arrive at reasonable decisions and recommendations.

Every socio-economic era is characterized by a specific population law, acting only in the conditions of a given formation; it determines the movements of people engaged in production, the areal distribution of population (including the differentiation between the urban and the rural settlements), migrations, and, as a final result, the natural movement of population.

In capitalist societies, under the influence of the universal law of capitalist accumulation, the growth of relative overpopulation is a continuous process. It has its roots in the growth of the organic composition of capital which brings about a diminishing demand for labour force, as well as an increasing exploitation of workers, the destruction of the small enterprise, and an increase in the reserve labour force. As a result, while in the cities appears a growth of unemployment in its undisguised forms, in rural areas, where the peasants live, one can observe an increasing number of poor peasants and farm workers who tend to move into the cities in search of employment.

Under the socialist system of production the population law is quite different. The aim of socialist production is to satisfy the growing material and cultural needs of the population. Under the rule of planned, proportional development of the national economy the causes of spontaneous labour movements are eliminated, a planned distribution of the labour force is introduced, and the transfer of workers from villages to towns thus assumes an orderly, well organized character. The socialist economic system, being a planned one, is able to achieve full employment in conditions of accelerated scientific and technological progress.

Nevertheless, there are some regular features in the process of urbanization which are common both to capitalism and socialism. We are referring here to such features as, for instance, the objective trend towards agglomeration in production and therefore to the agglomeration of population. We see in the principle of agglomeration an objective law of economic geography which came into force simultaneously with the birth of industrial production, its separation from the rural economy, and its concentration in towns. This principle expresses the tendency of production to concentrate within limited areas and is a specific economico-geographical form of the tendency to overcome spatial discontinuity between different elements of production. The concentration of production has to be viewed as one of the basic causes of agglomeration.

In its initial forms, the effects of the agglomeration principle appear even in the pre-capitalist formations making, for example, craft enterprises concentrate in towns; its full effects, however, are observable only in the capitalist era and have not entirely disappeared from the socialist society.

It was Alfred Weber, a German bourgeois economist and sociologist, who first gave a convincing analysis of the functioning of the principle of agglomeration. As is well known, in 1909 Weber developed a theory of industrial location (the industrial *Standort* theory) in which the choice of a site for an industrial plant was made first by investigating which site was the most appropriate from the point of view of the sources of raw materials and the labour force market, and thus guaranteed the entrepreneur the lowest possible outlays. In his theory, Weber was concerned only with the capital and working funds, ignoring the surplus value. He was far from considering the real historical processes of the development of social division of labour and of the formation of economic regions, and disregarded the objective laws ruling the location of industrial plants in the capitalist system. However, there were also positive aspects in his work: he used mathematical methods in analyzing economico-geographical phenomena (although, in doing this, he started with wrong initial conceptions) and — what is of particular importance — he was the first writer to establish not only the concepts of 'resources orientation' and 'labour orientation', but also the important role of agglomeration processes, i.e., of the tendency of industrial plants to concentrate in individual, separate centres. But Weber was a far cry from even trying to find out the causes of this tendency and to establish the objective rules that are inherent in it. Thus he fell short of discovering the principle of agglomeration — and there is nothing fortuitous in this failure of his. To Weber, the historical and social changes specific to a given epoch were linked to the irrational nature of the cultural process, and the process itself had the intellectual elite as its motive force. Thus, according to Weber, the development of human society is steered by an interplay of mental forces. Taking up such an idealistic stance, he denied the existence and the proveability of objective laws governing the development of human society.

A few decades after Weber, E. Hoover (1948), W. Isard (1956) and other authors devoted a good deal of serious work to the problem of agglomeration, without, however, discovering its laws. I. Bain (1954), on the basis of his computations concerning metallurgical plants, came to the conclusion that, in a developing society, all plants tend to concentrate in a single, specialized centre. This would be an extreme manifestation of the principle of agglomeration; Bain, however, also failed to formulate it. McCarty, Hook and Knox, writing about agglomeration processes in the USA and the locational behaviour of industry concluded by making use of a proverb "... birds of a feather flock together".¹ It may be witty, but, of course, can hardly be considered an attempt at formulating the principle of agglomeration.

After having discussed different points of view, P. Hagget reached a very pessimistic conclusion: "The problem of the random nuclei around which so much of our industrial enterprise within developed countries has grown remains an intriguing byway in locational research" (*Materialy...*, 1962, p. 142). In other words, Hagget refuses even to recognize the principle of agglomeration and, in fact, acknowledges its inscrutability.²

From what we have just written, it is quite obvious that, lacking a true scientific methodology, and the sway of idealistic philosophical conceptions being all too powerful, it is more or less impossible to make worthwhile generalizations and to discover the laws of development, even though goodwill is not lacking, and abundant factual data are at the disposal of the investigators.

In the USSR the problem of agglomerations was dealt with in the works of P. I. Dubrovin (1959), V. G. Davidovich and G. M. Lappo (1964), V. G. Davidovich (1967), D. I. Bogorad (1967), and other scholars. According to their opinions, agglomerations are most developed and intricate forms of group settlement, most often centred around the largest cities which thus become the cores of agglomerations. Pursuing this line of thought, the economic nature of agglomeration can be identified by studying the settlement systems, blending with the notions of 'conurbation' and 'megalopolis'. However, some regular features of the agglomeration processes should be brought out: (1) the areal concentration of industrial production and labour, (2) the spontaneous, unrestrained character of agglomeration formation under capitalism, (3) the control of agglomeration growth by the methods of regional planning under socialism. These features are manifestations of more general laws of political economy.

D. G. Khodjayev and B. S. Khoryev (*Problemy...* 1971) have convincingly demonstrated how, in the USSR, the share of the largest cities in the population's total is gradually decreasing; this is perhaps an example of how the effects of the principle of agglomeration can be partly overcome in a planned socialist economy. The share of seven 'old' cities of more than one million inhabitants each (Moscow, Leningrad, Kiev, Tashkent, Baku, Kharkov, and Gorki) in the total population of large cities changed as follows: 1926 — 60%, 1930 — 40.7%, 1959 — 29.4%, 1970 — 23.4% (*Problemy...*, 1971, p. 23). When interpreting these data, we should bear in mind two circumstances: (1) the

¹ Quoted after *Materialy...*, 1962, p. 141.

² Translator's note: There seems to be some misunderstanding here, because the Russian translation of Haggett's text is somewhat different from the original. The Russian translation, when re-translated verbatim into English, would sound a shade more forceful: "The causes of the formation of the random nuclei around which so much of industrial enterprises within developed countries have grown remains, now as before, an enigmatic field in locational analysis".

rise in the share of the population of large cities which fall below the one million mark (a fact which is also an effect of the principle of agglomeration), and (2) the growth of the population in the conurbations formed around the previously named largest cities is chiefly explained by population changes in their peripheral areas which administratively are not included in these cities and, therefore, are not reflected in their population statistics. Elaborating the idea of a unified system of settlement (USS), the authors emphasize: "Within the framework of the conception of the USS there is no room whatsoever for contrasting the large cities and agglomerations with the small forms of urban life" (*Problemy...* 1971, p. 29), which means that here, too, the concept of agglomeration can be reduced to that of a settlement system. In the same book N. T. Agafonov, S. B. Lavrov, and B. R. Pavchinski advance, to my mind, a more precise concept of the agglomeration understood as an areal concentration of enterprises: "The agglomeration of production appears to be a regular outcome of all the aforementioned forms of the social organization of production acting simultaneously" (*Problemy...* 1971, p. 63), i.e., it is a result of concentration, specialization, cooperation and integration. The authors even write about the effects of the agglomeration principle as if it were in fact operating (*Problemy...* 1971, p. 69), but unfortunately fail to formulate it. To understand, as they do, the agglomeration as an agglomeration of production (but not of population) is, in my opinion, fully justified. The same can also be said of the conception promoted by F. D. Zastavnyi (1972, p. 151); in his opinion an 'agglomeration effect' is the 'attraction' that brings together industrial plants and other economic objects which are areally linked with them. V. U. Tarmisto (1975, p. 193) also sides closely with this understanding of agglomeration.

It is to be regretted that among 46 papers read in the Section on Urban Geography at the 22nd International Geographical Congress (Canada, 1972) there was none dealing with the theoretical aspects of agglomeration. Villard Miller's paper (1972) gave a conscientious analysis of relative changes in the distribution of industry in the USA megalopolises between 1954 and 1967; although there can be no doubt that these changes were primarily effected by the principle of agglomeration, the principle itself, its essence and influence, were not considered. H. Kohl and A. Zimm (1972, pp. 861-863) dealt with agglomerations from the point of view of recreation only.

All that we have just said proves that in economic geography — and in other sciences too, for that matter — terms are used without sufficient precision. Often the same term is used by many authors who each endow it with a different meaning. This is so in the case of the term 'agglomeration'. O. P. Litovka (1976) presented us with a wide review of current definitions of what an agglomeration seemed to be. Having analyzed a variety of written material, he himself is of the opinion that the most characteristic feature of the modern urbanization process is qualitative changes in the forms of settlement; namely those changes which cause isolated, compact settlements to be replaced by structures which are at the same time compact and articulated. The latter are a result of growing functional dependency among the settlements that were formerly autonomous, but of late have been growing larger and larger each year and have thus become a fundamental form of settlement. Those urban organizations which are both compact and articulated, O. P. Litovka is willing to call agglomerations. To him, a conurbation is a policentric agglomeration.

So, as things stand today, in modern economic geography the term 'agglomeration' is mostly understood as a definite system of settlement. To some

extent this may be justified, but by thus limiting the scope of the term we lose a good deal of its meaning and are by no means delivered from the necessity of considering it in a more fundamental, theoretical sense.

A rather satisfactory formulation of the principle of agglomeration is given by N. T. Agafonov and S. B. Lavrov (1973, p. 30). From among the principles and laws that govern the location of industry under the conditions of socialism, they bring out the principle of agglomeration of production as the one that expresses the tendency of production to accumulate in a limited area.

In my opinion, the principle of agglomeration is one of the universal laws of economic geography; its effectiveness grows with the development of capitalist relations and it also preserves its force, although in a modified form, under socialism. The essence of this principle consists in the fact that—within the framework of more general laws of political economy and under the influence of technological factors in the location of industry—the highest economic effect is obtained through maximum spatial concentration of production.

Consequently, what we have to deal with is the agglomeration of production and not that of population or of the forms of settlement. However, as, quite obviously, there is no production without men and women, the distribution of population is closely related to the location of industry. The phenomena are interacting and interdependent. It is the principle of agglomeration that effects the maximum spatial concentration of production and this, in turn, effects the concentration of population in cities and sets in motion all the interwoven processes called urbanization. These two notions, i.e., the agglomeration of production and the agglomeration of settlement, should be kept mentally separated, despite their being denoted by the same term.

It can easily be envisaged that, if the process of urbanization proceeds at the same pace as in the last decades, in some remote future there looms large the danger of a single overgrown giant megalopolis extending over the whole land-mass of the Earth. That is what one could expect in the very remote future on the strength of the tendencies shown by the effects of the principle of agglomeration under capitalism. However, this tendency will never reach its apogee for the era of capitalism is historically limited in time, and also in space.

In a socialist society the principle of agglomeration is manifested first of all in a tendency to spare the effort of labour necessary to overcome the spatial hiatus between elements of production; this tendency is subject to correction and regulation by means of the planned, balanced development of the national economy. In some cases two contradictory trends are in evidence: concentration—the result of the principle of agglomeration, and decentralization—the result of the rule of planned, proportional development of the national economy. The contradiction, however, is not an absolute one but dialectical, and in the end an equilibrium is reached between the optimum dimensions of conurbations and the intermediate rural and recreational areas.

However, the urbanization process will not vanish completely. Under socialism the opposition between town and village is being eliminated. The documents of the Communist Party of the Soviet Union point the way to the further development of the so-called rural settlements: "Gradually the kolkhoz villages will become enlarged settlements of urban character endowed with modern living quarters, communal services, welfare institutions, cultural and medical establishments. Eventually the cultural and welfare conditions of the rural population will be brought up to the level of those of the urban inhabitants" (*Materialy...*, 1962, p. 384). Such being the case, the notion

of 'urbanization' embraces not only the growth of cities and their increased role in the life of the nation (or of a region), but also, and first of all, the concentration of urban types of activity, the spread of the urban way of life, the creating of new forms of settlement. Y. L. Pivovarov (1975) has dealt very conscientiously with the problem. Much attention should be paid to finding out what are the optimum dimensions of urban settlements. To this end methods can be applied that have been proposed by N. I. Blazhko, S. V. Grigoriev, and Y. I. Zabotin (1970). Finally, the problems of the relationship between the city and the natural environment are of the utmost importance.

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