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THE CHANGING POPULATION PATTERN
OF THE MODERN CITY

The city is a dramatic example of man's ability to fashion the physical and social world in which he lives; and the human products of the city may, in turn, be regarded as exemplifications of the sociologist's description of human nature as "original" plus "acquired" nature. Yet, despite the fact that cities are the works of man and modern man, in many respects, the product of the city, it can hardly be said that our contemporary cities or our contemporary urban human beings have been built according to plan. Nor can it be said that the "urban way of life" was deliberately conceived by man as a preferred means of existenced, or as a social heritage for molding the "human nature" of subsequent generations.

Although we know that the city is built by man and that man is to a considerable extent fashioned by the city, there is much that we do not know about the determinants in the structure and process of urban development and growth, and in the socialization of the human being in the urban environment. Moreover, we do know that we are often displeased with many of the physical and cultural aspects of the urban community and with many of its human products.

This somewhat paradoxical introduction is a rather complicated way of calling attention to the fact that modern city, urban culture, and urban peoples are, in many respects, the products of forces which are not controlled by man, which are not yet fully understood, and which have been subjected to research for a relatively short period of time. The social scientist--the sociologist, the human ecologist, the economist, and the political scientist have only in recent years seriously tackled the job of empirically studying the urban community in a comprehensive manner; and the city planner--drawn from diverse professions--has only recently turned to the gigantic task of planning the future direction and character of urban development.

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Our cities may be regarded as in transition, in a double sense. Not only are they changing in physical form, in land use in economic function, in social and political organization and in population type; but they are also in transition in respect to the manner or origin of their change. They are also in transition in the sense that changes are being more and more subjected to control in accordance with a plan.

It would be easy to exaggerate the extent to which the modern city is being influenced by plan. But the rapid out-cropping of city planning boards and commissions, of the city planning curricula in our universities, and of urban research projects bear testimony to the increased attention and energy which are being devoted both to improving our basic knowledge about our cities and using that knowledge to direct the course of their development.

THE PROBLEM AND THE MATERIALS.- The following discussion is focussed on a very important aspect of urban and metropolitan development--namely, the causes and consequences of metropolitan decentralization. It is my task to discuss the changing population pattern of the modern city.

The distribution of the population as between urban and rural areas, among urban areas and within urban areas, is among the aspects of our culture which is not controlled, which is not the result of a deliberate plan. On the contrary, the distribution of population within the nation, within a region, within an urban community, is a product of many competitive forces of a geographic, economic, social and political character as well as the resultant of the personal choices of individuals and of families. Let us, for a moment, however, set aside the casual factors underlying population distribution and redistribution, and examine the historical and contemporary nature of the urban population pattern.

The rapid growth of the total population of the United States, which increased 34-fold in its first 150 years, is one of the amazing chapters of human history. Even more striking, however, is the growth of the urban population of the United States, which during the same period 1790-1940 increased 372-fold from 200,000 persons comprising 5% of the total population to a total of over 74,000,000 making up 56.5% of the population of the nation. In 1790, there were only 24 urban places in the United States, only 2, New York and Philadelphia, with a population of 25,000 persons. In 1940, there were 3,464 urban places in the United States, 5 with populations over a million or more, 92 with 100,000 or more. (1)

The data on urban places and urban population do not, by any means, tell the whole story of urban growth. The "urban place"(2) as defined by the Bureay of the Census is necessarily based on aggregations of population in cities as political entities with artibrary and relatively fixed boundaries. The actual agglomerations of urban population do not conform to the historically fixed political boundaries of our cities. Rather, particularly in our larger cities, the population tends to spill over the city limits into the surrounding area. In an attempt to measure the actual concentrations of population as distinguised from the populations of cities as corporate units, the Bureay of the Census has, since 1910, published data for "metropolitan districts" (3) in addition to the data for the cities. The 44 metropolitan districts, for which data are available for 1900, contained about ¼th of the total population of the nation (25.5%). By 1940, these districts included well over a third of the total national population (36.8%). The 140 metropolitan districts for which data are available in the 1940 Census, contained almost half of the total population of the nation, 47.8% in 1940. Although the definitions of a metropolitan district have varied, both for a given census and to census, it is possible to use these data to trace the pattern of population distribution within metropolitan areas of the United States since 1900.

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(1) U.S. Dept. of Commerce, Bureay of the Census, 16th Census of the United States, 1940. Population. Vol. I: Number of Inhabitants Washington 1942, p. 25.

(2) In general, urban place is defined as an incorporated place having 2500 or more inhabitants, For exceptions to this rule, see ibid., p. 10

(3) Warren S. Thompson, The Growth of Metropolitan Districts in the United States: 1900-1940. U.S. Dept. of Commerce, Bureau of the Census, Washington, 1947, pp. 1-3.

The analysis of the metropolitan district data is beset with a number of troublesome problems. In the first place, the number of areas for which metropolitan district data are presented has varied from census to census since 1910. In 1910, the Bureau of the Census published "metropolitan district" data for 25 areas containing 28 central cities with 200,000 inhabitants or more, and data for 19 additional cities of 100,000 to 200,000 inhabitants with their "adjacent territory." In geneal, the "metropolitan district" data included the central city plus contiguous areas within a 10-mile limit of the city's boundaries, having a population density of 150 or more per square mile. For the city with its "adjacent territory," however, the report included the population of the central city plus the population of all cities, towns, villages, or other political divisions within 10 miles of the city limits of the central city. In 1920, similar definitions were followed, but in that Census there were 29 "metropolitan districts" with 32 central cities of 200,000 or more, and 29 central cities of 100,000 to 200,000 person with adjacent territory.

In the 1930 Census, the concept of "cities with adjacent territory" was abandoned, and data were published only for "mtropolitan districts." The 10-mile limit for the periheral area of the metropolitan district and the lower limit of 100,000 persons for the central city were dropped and a metropolitan district report was presented for every city which had 50,000 or more inhabitants in 1920, which together with its peripheral area aggregated 100,000 or more persons. This definition resulted in the publication of metropolitan district data for 96 areas. Finally in 1940, the concept employed was, in general, the same as that used in 1930. The application of the concept, however, resulted in the publication of metropolitan district data for 1940 areas.

Another troublesome problem in attempting to trace the population pattern of the metropolitan area lies in the changing political boundaries of both the central city and its peripheral minor civil divisions from census to census. As a result of new developments and annexations, such boundary changes tend to discovery any analysis of relative population growth and the distribution of population within the metropolitan district that is based on differentials between the central city and its surrounding area.

Finally, only limited data are available for analyzing the changing population pattern within the boundaries of the city. The data for wards and other political units within the city, besides varying greatly from census to census as the result of boundary changes, do not permit analysis of a systematic or comparable basis from city to city. The data for census tracts (4) are much better than ward or other political data for this purpose. But census tract data, although available for 60 cities in 1940, were tabulated for only 22 cities in 1930, and the tract boundaries changed too much for the comparative study for five of the latter cities. Moreover, the analysis of census tract data for a large number of cities is an exceedingly burdensome and expensive task.

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(4) Howard W. Green, Census Tract Manual. U.S. Dept. of Commerce, Bureau of the Census, Washington, 1947.

Fortunately, the larger part of these problems which constituted serious obstacles to the analysis of changes in the population distribution of our metropolitan areas were resolved in a painstaking and comprehensive study by Warren S. Thompson, recently published by the Bureau of the Census. (5) This study not only maximizes the comparability of the data for the various definitions and combinations of metropolitan districts contained in the Census reports, but also contains a careful and exhaustive analysis of differential changes in the population of central cities and their peripheral areas.

DIFFERENTIAL POPULATION GROWTH.- Let us examine, first, the changing population pattern of the 44 metropolitan districts, each containing at least 1 central city of 100,000 or more persons in 1910, for which the data are available from the beginning of the century.

It should be observed at the outset that during the past four decades the rate of growth of the country as a whole has been declining rapidly, and that this decline in rate of growth is reflected in the population increases of the metropolitan districts. The percentage increases in the total population of the United States as reported in the Census dropped from 21.0 between 1900 to 1910; to 14.9 between 1910 and 1920; 16.1 between 1920 and 1930; and 7.2 between 1930 and 1940.

For the first 30 years of this period, within the framework of total national growth, these 44 metropolitan districts, however, grew at rates more than twice as great as the remainder of the

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(5) Thompson, op. cit. The descriptive data which follow are in the main drawn from Thompson's data.

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United States. Only during the depression decade of the 30's did the 44 districts grow less rapidly than the rest of the country. The increases in the population of the 44 metropolitan districts and the remainder of the country for the 4 decades are listed below:

	1930-1940	1920-1930	1910-1920	1900-1910
44 Metropolitan districts	6.9	28.0	25.3	34.6
Remainder of the U. S.	7.4	10.2	10.8	16.4

The extent to which the metropolitan districts disproportionately absorbed the total population growth of the country is indicated by comparing the percentage of the total population of the United States resident in these areas with the percentage of the total national increase which they obtained. Thus, although the 44 districts contained about 26% of the total population in the United States in 1900, they absorbed 42% of the increase in national population during the decade 1900--1910. Similarly, although they contained 29% of the population in 1910, they absorbed 48% of the total national increase in the decade 1910-1920; and although they contained 33% of the population in 1920, they abosorbed 58% of the national increase in the decade 1920-1930. During the 30's, however, these areas barely managed to get their proportionate share of increase in population. They comprised 37% of the persons in the country but accounted for only 35% of the total national growth.

importante señalar
si el incremento
es por migración
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(id. para el cuadro)

It is clear that during the first 3 decades of the century, the 44 metropolitan districts under observation absorbed half of the total national increase in population. In consequence, the concentration of the national population in these areas increased appreciably, from about ¼ of the national total in 1900 to over a third in 1930. During the 30's, however, after this exceedingly rapid period of relative growth, the 44 areas barely held their own as compared with the remainder of the United States.

Although these metropolitan districts, as a whole, showed large population increases there were important differentials in rates of growth within the districts. Throughout the period, for example, the peripheral areas of the districts increased more rapidly in population than did the central cities; and within the peripheral areas, the rural population grew much more rapidly than did the urban.

The disparity between the rates of population growth in the central cities and in the peripheral areas increased from the beginning to the end of the period, as is indicated in the data showing percentage of increase in population, which follow:

	1930-1940	1920-1930	1910-1920	1900-1910
Central cities	4.2	20.5	23.4	33.6
Peripheral areas	13.0	48.7	31.3	38.2

Thus, although the rate of population increase in the peripheral territory was only slightly than that of the central cities in the decade 1900-1910, it was almost half again as much in the decade 1910-1920, was almost two and one-half times as great between 1920-1930, and more than three times as great between 1930-1940. The peripheral rural population grew more rapidly than the peripheral urban population throughout the period, but the greatest differences in rates of growth occurred during the last 2 decades. Between 1920 and 1930, the peripheral rural populations increased at a rate almost three-fourths again as much as that of the urban population; while between 1930 and 1940 the rural population increased by a percentage about four times as great as the urban increase. The percentage increases in the population of these areas are shown in the data which follow:

	1930-1940	1920-1930	1910-1920	1900-1910
Peripheral urban	7.3	40.6	30.2	35.9
Peripheral rural	28.1	68.1	34.5	43.1

Part of the more rapid rate of increase in the peripheral rural, than in the peripheral urban, population is to be accounted for by the procedure used by Thompson in the compilation of the data. As indicated above, the population was classified as urban or rural on the basis of the classification of the place at the beginning and not at the end of the decade. If the reverse procedure had been followed, the increase in peripheral urban population would have been somewhat greater than that reported, while the increase for the peripheral rural population would be somewhat less. In either case, however, it would be clear that the rural population of peripheral areas increased more rapidly than did the urban.

The differential pattern of urban-rural population growth in the peripheral areas of the metropolitan districts runs counter, of course, to the differential pattern of urban-rural population growth in the reminder of the country. Throughout the history of the United States the urban population has grown much more rapidly than has the rural population; and with the single exception of the 30's the urban population of the nation has shown a percentage increase at least twice as great as that for rural areas since 1820. (It was more than nine times as great between 1910 and 1920.) This reversal of the pattern of urban-rural growth within the metropolitan district follows, of course, from the spilling over of population into the unsettled and unoccupied parts of the metropolitan district. Some of these "rural" areas have, in the course of the years, become incorporated and re-defined as "urban." Others have been defined as "urban" for Census purposes, even though they are not incorporated places. Most of these "rural" areas in peripheral parts of the metropolitan districts, however, are not rural in the same sense as in the rest of the nation, and constitute the "urban fringe" or "rural fringe," which is getting increasing attention for statistical and other purposes. (6)

As has been indicated, the data for developing the changing pattern of population distribution within the boundaries of the central city are more limited and the analysis more difficult and costly. The work of McKenzie for the decades 1910 to 1930, for four cities, to which reference is made above, provide sufficient data, however, to permit, at least, a description of the pattern of differential rates of population growth and the changing pattern of population distribution within the entire metropolitan area, including zones within the central city, for the 3 decades from 1910 to 1940.

In these four metropolitan areas, individually, and in the summary form presented below, the pattern of differential population growth for the 30-year period is reasonably consistent. The population of the zones of the cities closest to the center uniformly showed a decline in population for each of the three decades. In the other zones of the cities, population growth was more rapid as distance from the center of the city increased. The peripheral areas of the metropolitan districts, although they grew more rapidly than did the central cities, grew less rapidly than the outer zones of the central cities in the earlier 2 decades; and at about the same rate as the outer zones in the decade, 1930-1940.

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(6) Walter Firey, "Ecological Considerations in Planning for Urban-Rural Fringes," American Sociological Review, Vol. 11, Nº 4, August, 1946, pp. 411-423. Also, Paul H. Landis, Population Problems: A Cultural Interpretation, American Book Co., New York, 1943, pp. 346-357.

The percentage increase in population for the 4 metropolitan areas combined, are shown below:

	1930-1940	1920-1930	1910-1920
4 Metropolitan districts (N.Y., Chicago, Cleveland, Pittsburgh)			
Central cities (7)	4.4	20.0	20.6
Inner zones	-4.2	-16.8	- 7.2
Middle zone	4.8	18.9	19.5
Outer zone	8.0	51.9	63.0
Periphery (8)	9.0	49.0	34.0

This consolidated table, although to some extent distorted because of variations in the physical size and structure of the cities, provides a good summary of the differential rates of population growth within these metropolitan areas by zones within central cities, as well as for the peripheral areas of the districts.

Of the 16 metropolitan districts for which data are compiled by Thompson for the decade, 1930-1940, 13 have sufficient comparability to permit a similar analysis (Los Angeles, New York, Chicago, Philadelphia, Cleveland, Cincinnati, Boston, Pittsburg, Buffalo, St. Louis, Indianapolis, Columbus, Ohio and Washington, D.C.). In these 13 areas combined, the pattern of population growth for the decade 1930 to 1940, is identical with that of the 4 districts described above. The inner zone, that nearest the center of the city, showed a decrease in population. The rate of population growth increased for zones within the city with distance from the center; and the rate of population increase in the peripheral area, while greater than that for the districts as a whole, 9.0%, was below that of the outer zones of the central cities, 14.7%. The percentage increases in population between 1930 and 1940 for the 13 metropolitan areas combined are shown below:

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(7) For the individual city data, 1910-1939, see R.D. McKenzie, The Rise of Metropolitan Communities," in Recent Social Trends in the United States, President's Research Committee, Vol. I, p. 464.

(8) Computed from Thompson, op. cit., Table 3, pp. 33-45.

	Total	Central City	Inner Zone	Middle Zone	Outer Zone	Periphery
13 Metropolitan areas	7.0	5.2	-1.3	4.8	14.7	9.0

POPULATION DISTRIBUTION. The net effect of the differentials in population growth within the central cities, and between the central cities and the peripheral areas of metropolitan districts has been to alter significantly the patter of population distribution within the district, in the 44 metropolitan districts, for example, the central cities in 1900 contained well over three-fourths (77.3%) of the total population of the districts: by 1940, this percentage has declined to slightly over two-thirds or 67.1%. Conversely, the peripheral areas which contained less than one-fourth of the population of the districts in 1900 had approximately one-third of the population by 1940.

The percentage of the total population of the metropolitan districts resident in peripheral urban areas, increased from 15.5 to 22.6 during the 40 years; while that resident in peripheral rural areas, increased from 7.2 to 10.2. The percentage distribution of population within the 44 metropolitan districts for central cities and for peripheral urban and rural areas for each decade follows:

	1940	1930	1920	1910	1900
44 Metropolitan districts (9)	100.0	100.0	100.0	100.0	100.0
Central cities	67.1	68.9	73.4	76.2	77.3
Peripheral areas	32.8	31.0	26.6	23.8	22.7
Urban	22.6	22.5	18.7	17.3	15.5
Rural	10.2	8.5	7.8	6.5	7.2

It is clear that during the 40 years under observation, the differential population growth of areas within metropolitan districts has resulted in marked changes in the distribution of population, as between the central cities and the peripheral areas. In general, in the course of the years, the proportion of the total metropolitan district population resident in peripheral areas has appreciably increased, ~~while that resident in central cities has appreciably increased~~, while that resident in central cities has shown a considerable relative decline.

Many factors, as will be indicated below, are involved in the process of urban decentralization. One factor which is relatively easy to control is worth noting here, namely the rapidity of metroplitan district population growth. Analysis of the relationship between population decentralization and the rate of population increase reveals a positive correlation. That is, the more rapidly an individual metropolitan district grew during the 4 decades studied, the more rapid was its process of population decentralization. This relationship is evident in the data which follow:

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(9) Ibid., pp. 33-45.

Number of Districts	Percentage Increase in Population of Metropolitan Districts, 1900-1940*	Median Percentage Increase in Proportion of Persons Resident in Peripheral Areas
11	30.0- 83.3	26.2
11	85.2- 137.3	44.6
11	142.4- 162.3	110.7
11	177.8-2260.3	215.0

* The 44 areas were ranked by percentaged increase in population between 1900 and 1940 and grouped into quartiles with the ranges indicated.

A single measure of this association is afforded by the coefficient of correlation (Pearsonian r) which for these data was .40 (after elimination of 6 extreme cases). This is a relatively high correlation when it is borne in mind that variations in physical size of central cities and peripheral areas, and differences in annexation procedures tend to distort the relationship being measured.

The foregoing analysis of the population shifts between central cities and peripheral areas has been restricted to 44 metropolitan districts because it is only for these areas that data are available for as long as 40 years. It should be observed, however, that for each of the other combinations of metropolitan districts, for which statistcs are available for varying periods of time as described above, the pattern of population distribution within the metropolitan district is practically identical with that for the 44 districts for each decade for which comparisons are possible. As an illustration of the correspondence of the data for the various groupings of metropolitan districts, the percentage of the population in the constituent parts of the districts are shown for 1940 for the 44 metropolitan districts and for the group of 140 districts below:

	Total	Central Cities	Peripheral Total	Peripheral Urban	Peripheral Rural
44 Metropolitan districts	100.0	67.1	32.8	22.6	10.2
140 Metropolitan districts	100.0	68.0	32.1	19.8	12.3

Thus, the data for the 44 districts seem to be a good sample for the purposes used to describe the changing population pattern of the 140 metropolitan districts for which Census data are published.

It may also be seen that the differential rates of growth have altered the pattern of population distribution within the city. For the four cities combined, for which data are available from 1910 to 1940, the proportion of the total city population resident in the "inner zone" of the city--that adjoining the central business district-decreased from decade to decade so that the percentage in 1940, 17.8, was less than half that in 1910, 36.3. The "middle zone" showed a remarkable consistency for the four decades, varying in the proportion of total city population from 38.2 to 38.9 percent. The "outer zone," in contrast, consistently increased its proportion of the city population from decade to decade. In 1910 only 24.8 percent of the population of these central cities lived in the outer zone, but by 1940 43.9 percent were located there. The changing pattern of population distribution for those cities is shown:

	1940	1930	1920	1910
4 Cities combinated (New York, Chicago, Cleveland, Pittsburgh)	100.0	100.0	100.0	100.0
Inner zone	17.8	19.4	27.9	36.3
Middle zone	38.3	38.2	38.6	38.9
Outer zone	43.9	42.4	33.5	24.8

If the entire metropolitan districts of the 4 cities are considered, the pattern of population distribution, similarly, shows the effect of centrifugal forces. In 1910 well over half of the population of these districts, about 57%, resided in the inner and middle zones of the central cities combined. By 1940, almost two-thirds of the population of the districts, 62%, lived in the outer zone of the central cities and the peripheral areas combined. This remarkable shift in the course of three decades reflects the consistent declines from decade to decade in the proportion of metropolitan district population resident in the inner and middle zones, respectively, of the central cities; and the consistent increase in the proportion of metropolitan district population resident in the outer zones of the central city and in the peripheral areas. The consolidated data for the four metropolitan districts are shown below:

	1940	1930	1920	1910
4 Metropolitan areas combined	100.0	100.0	100.0	100.0
Central cities				
Inner zone	12.0	13.2	20.6	27.5
Middle zone	25.8	26.0	28.4	29.4
Outer zone	29.5	28.9	24.7	18.7
Peripheral areas	32.8	31.8	26.2	24.1

By reason of the relatively small increase in total population of metropolitan areas during the thirties, no significant change in the distribution of population within the 13 metropolitan districts mentioned above is discernible between 1930 and 1940.

REGIONAL DIFFERENTIALS. Although the general pattern described above of differential population growth and its consequent changes in the distribution of population within the district characterizes the metropolitan districts of the nation as a whole, there are important differences in the magnitudes of differential growth and of population decentralization within the district among the major regions of the nation.

In general, the metropolitan districts of the Northeastern states have grown less rapidly and have shown smaller differentials between central city and peripheral area population growth than have the districts of other regions of the nation. In consequence, the 15 metropolitan districts (10) (of the 44 being considered) in the Northeastern states show relatively little shift in the pattern of population distribution within the district during the 40 years under obserbation. The peripheral areas of the Northeastern metropolitan districts contained 31% of the population of the districts in 1900, and had increased their share of the total to 37% by 1940.

The process of population decentralization was more rapid during these 4 decades in the metropolitan districts in the other regions of the country. Thus, in the South, the peripheral areas which contained about 17% of the total population of metropolitan districts in 1900, increased their share to 23% by 1940; in the North-Central states, they more than doubled their share, increasing from 11% to 26%; while in the West, in which metropolitan districts and urban population in general grew much more rapidly during this period than in any other region of the country, the proportion of total metropolitan district population resident in peripheral areas more than trebled, increasing from 11% to 38%. For summary purposes, the percentages of the population of the metropolitan districts resident in peripheral areas are shown by major regions below:

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(10) Ibid., p. 47.

	Total	Northeastern	Northcentral	South	West
1940	32.8	37.8	26.1	22.6	37.8
1900	22.7	30.8	10.9	17.2	11.0

It is evident that the Northeastern metropolitan districts had a relatively high proportion of residents in the peripheral areas at the beginning of the period under observation, from 1900 to 1940; and that they showed relatively little further population decentralization during this period. One factor contributing to an explanation of this regional differential in rate of population decentralization is the relatively slow population growth since 1900 of the Northeatern districts compared with the other districts in the country. This explanation is suggested by the correlation between population growth and decentralization reported above. (This correlation may, in fact, have been considerably higher were it not for the Northeastern metropolitan districts.) The metropolitan centers of the Northeast are older and more stable than the districts of the Northcentral and Western states, while the metropolitan districts of the South, after a long period of relatively slow growth, have shown signs of relatively rapid growth during the past two decades.

DIFFERENTIALS BY SIZE OF DISTRICT. The pattern of population decentralization with metropolitan districts has also shown some variation by size of the district. The proportion of the population resident in peripheral areas is directly related to the size of the district--that is, the larger the population of the district, the larger the proportion of peripheral inhabitants. In 1900 in the 4 districts having 1,000,000 or more inhabitants, ¼ of the population lived outside the central cities. In districts having fewer than 25,000 persons, only 18% lived outside the city limits. The proportion of the population living in the various parts of the districts in 1900 are shown for 4 size groupings of districts below:

	1900 Total	Central Cities	Total	Peripheral Urban	Rural
Under 250,000	100.0	82	18	5	13
250,000 to 500,000	100.0	79	21	13	8
500,000 to 1,000,000	100.0	76	24	10	14
1,000,000 and over	100.0	75	25	21	4

In 1940, a similar positive association between metropolitan district size and percentage of population in peripheral areas was evident. But the difference in the proportion of the population in peripheral areas between the smaller and larger districts was appreciably increased during the 40 years. The proportion of persons in the peripheral areas of the metropolitan districts with 1,000,000 or more inhabitants increased by nearly half during this period, from 25 to 36%. In districts with populations of from 500,000 to 1,000,000 the porportion in outlying areas increased from 24% to 31%, or by almost 1/3; in districts from 250,000 to 500,000 inhabitants it increased by only 1/10 from 21 to 23%; while in districts with fewer than 250,000 persons it increased by more than a third from 18 to 25%. It is evident that, with the exception of districts from 250,000 to 500,000 persons, the rapidity of the process of descentralization was directly correlated with size of the district--the larger the district the more rapid the population decentralization. A summary of the population distribution within the metropolitan districts for 1940 by size follows:

	1940 Total	Central Cities	Total	Peripheral Urban	Rural
Under 250,000	100.0	75	25	4	21
250,000 to 500,000	100.0	77	23	8	15
500,000 to 1,000,000	100.0	69	31	20	11
1,000,000 and over	100.0	64	36	27	9

It has already been observed that the proportion of the peripheral population which is resident in urban or rual areas is, to a considerable extent, a function of the incorporation practices of the area and the statistical practices of the Census Bureau. Moreover, the technique employed by Thompson in the compilation of the data tends to over-state the rural at the expense of the urban population (see above). Nevetheless, it is worth noting that there was a definite pattern of direct relationship between percentage of persons in peripheral urban areas and size of district, and of inverse relationship between peripheral rural population and district size. Thus, 27% of the population of the largest district and only 4% of the population of the smallest districts lived in peripheral urban areas. Conversely, 21% of the inhabitants in the smaller districts and only 9% of the larger districts lived in peripheral rural areas.

THE PROCESS OF DECENTRALIZATION. The modern metropolis, of which the Census Bureau's "Metropolitan District" is necessarily but an approximate and incomplete description, is, in many respects, the unique culture complex of our civilization, embodying, as it does, a great part of the advances in our material culture and many of the distinctive aspects of our nonmaterial culture.

It has already been indicated that the differential rates of population growth among the constituent parts of metropolitan districts, and the changing pattern of population distribution within the district have not followed a man-made plan. On the contrary, they are the resultant of a large number of forces, geographic, economic, social, political and personal, the interaction of which have produced remarkably consistent and unfform patterns among the diverse metropolitan districts of the country.

The general, and some of the specific, causes of urban concentration and of population decentralization within metropolitan communities have been dealt with in the literature (11) and require onlu brief mention here. Without question, the invention of the steam engine, the evolution of the factory, the development of the division of labor, the expansion of markets, the emergence of many specialized service functions, great advances in agricultural technology, together with considerations of time and space, were among the key elements which contributed to the centripetal force producing large urban agglomerations of population. Likewise, it is clear that the advent of the automobile and the paved highway; improved and rapid local public transportation; the increasing importance of electricity as a source of power and advances permitting the transmittal of electric power over greater distances; improvement in means of communication--the telephone, the radio, the press; the comparative values of central city and suburban existence; the shortening of the work day and work week; and the decentralization of industry and trade are among the elements contributing to the centrifugal force, manifest in the decentralization of metropolitan population. Much remains to be learned, however, about the specific ways in which these and other factors operate and about their specific effects.

A useful conceptual framework for approaching the study of the metropolitan community, both in its structural and dynamic aspects, is afforded by the development in human ecology. (12) It is neither necessary nor appropriate here to elaborate the contribution of human ecology to the understanding of the structure and dynamics of the metropolis. But it would be helpful, briefly, to summarize the highlights in the ecologist's "ideal construct" of the urban community and of a few of the processes underlying urban development and change.

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(11) Adna F. Weber, The Growth of Cities in the Nineteenth Century: A Study in Statistics, New York, Macmillan Co., 1899. Alfred Weber, Theory of the Location of Industries, Chicago. University of Chicago Press, 1929. R.D. McKenzie, The Metropolitan Community, McGraw-Hill, New York, 1933. Ernest W. Burgess, "The Growth of the City: An Introduction to a Research Project," In R.E. Park, E.W. Burgess, and R.D. McKenzie, The City, University of Chicago Press, Chicago 1925, pp. 47-62.

The city as an ideal construct, has been envisaged by Burgess (13) as comprising five major zones, approximating in form a series of concentric circles (the actual geometrical form of the zones is not of major importance for our purposes). These zones consist of the central business district at the center of the city; and successively as one approaches the periphery of the metropolis, of an "area in transition" or "interstitial area"; an area of working men's homes; a better class residential area of apartment buildings or single family residence; and finally, the commuters' area--the suburbs.

Land use and population type within these zones is envisaged as the result of a complex process of competition through which the institutions and peoples of the urban community become distributed in space, and the community is structured in a dynamic equilibrium. A major element, and perhaps the major element, in distributing the population within the urban community is the ability to pay for the better, the newer, the most desirable residential facilities.

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(12) Park, Burges and McKenzie, op.cit. E.W. Burgess, The Urban Community, University of Chicago Press, Chicago 1926. A.B. Hollinghead, "Human Ecology," in R.E. Park, An Outline of the Principles of Sociology, Barnes & Noble, New York, 1939, pp. 65-168. Milla A. Allihan, Social Ecology: A Critical Analysis, New York, Columbia Univefsity Press, 1939 C. A. Dawson, "The Sources and Methods of Human Ecology," in The Fields and Methods of Sociology, L.L. Bernard (ed.), New York, Long and Smith, 1934, Ch. IV. James A. Quinn, "The Development of Human Ecology in Sociology" in Harry Elmer Barnes, Howard Becker, and Frances Bennett Becker (eds.), Contemporary Social Theory. D. Appleton-Century Co., New York 1940, pp. 212-244.

(13) Park, Burgess and McKenzie, op. cit., pp. 50-58.

In general, through "natural" forces, the quality of housing and other residential attractions improve from the center to the periphery of the city, largely because the more modern and more attractive housing facilities are to be found in the newer sections of the city, which are the farthest removed from its center. The population of the area is distributed, therefore, at least initially, by economic class; with the lower economic stratum taking the least desirable facilities, located usually in the interstitial areas; and the highereconomic strata, in accordance with the ability to pay, and located in increasingly better residential facilities as the periphery of the area is approached.

The process of urban growth and development is seen as a process of radial expansion from the center with each zone sucessively invading its adjoining zone towards the periphery of the city, in respect to both land use and population type. With continued successful "invasion," the completed process is denoted as "succession."

Finally, of particular importance for our purpose is a brief description of the interstitial zone, that bordering on the central business district. This is the area characterized by "blight"--the locus of the slums and disproportionate shares of the institutional and personal pathology of the metropolis. Physically, this is the oldest residential area of the city, which is still available for residential use--since the central business district, as it expanded in the growth of the city, absorbed that which may have been older. It becomes an area of decay, partly because of the anticipated expansion of the central business district, which is evidenced by its anamaleus relatively high land values and low rents. The land is, in the main, held for speculative purposes frequently under circumstances which do not, on economic grounds, justify further improvement or even reasonable maintenance of the residential housing.

This sketchy and greatly oversimplified vision of ecological structure and process in the city is presented because it helps to clarify and to explain the facts of population decentralization which have been described. It has been noted, for example, that even with a declining rate of metropolitan population growth, there have, nevertheless, during the 40 years observed, been appreciable increases in the population of metropolitan districts with the single exception of the depression 30's. As both a cause and effect of population increase, the expansion of the central business district has forced the emptying of the population of its adjoining area, and invasion, successively, of the other zones towards the periphery of the city. These processes are clearly evident in the data which have been presented on the differential rates of population growth and the changing pattern of population distribution, both within the city and for its adjoining peripheral area. The facts of differential rates of growth and population decentralization tend to confirm the theory of radial expansion; and the theory contributes to a better understanding of the facts.

THE PROSPECT. What is the prospect for the further decentralization of our metropolitan areas? No one can answer this question with certainty and precision, but some considerations can be presented which provide at least a framework for anticipation of the future.

To begin with, it is clear that at least since the turn of the century, the process of population decentralization has been to a considerable extent a function of the rapid growth of population in our metropolitan areas. Further prospect of population growth for the country as a whole and for its various regions may, therefore, shed some light on the prospect of further decentralization.

The abrupt decline in the rate of urban population growth between 1930 and 1940 raised many questions about the future growth of cities in this country. Some of these questions have, in a measure, been asnwered by the effects of the War on metropolitan growth and development. Data are available, fortunately, which make it possible to assay the impact of the War on urban growth and population decentralization.

Between 1940 and 1943 population estimates released by the Bureau of the Census, (14) based on registration for war-time rationing, indicated that the civilian population of the 137 "metropolitan counties " (15) grew much more rapidly than the remainder of the United States. The metropolitan counties, in fact, increased in civilian population by 2.4 percent, while the balance of the United States, largely because of inductions into the Armed Services as well as out-migration, actually decreased in civilian population by 7.3 percent. The metropolitan areas in the West and South grew more rapidly under the impact of war-time expansion of production facilities than did those in the North.

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(14) U.S. Dept. of Commerce, Bureau of the Census, "Estimated Civilian Population of the United States, by Counties: November 1, 1943." Series P-44, No. 3, 1944.

(15) Metropolitan counties were defined as the county or countries, one-half or more whose population was in the Metro - politan District as defined in the 1940 Census.

The effect of the War in accelerating urban population growth is also evidenced in a sample study of the Bureau of the Census reporting urban and rural population for April 1947. (16) The civilian population in April, 1947, numbering over 142,000,000 was 7.9% greater than the total population of the United States in April 1940. The civilian population in urban areas of the United States in 1947, however, was 12.7% greater than the total urban population in 1940. In contrast, the civilian rural population was only 1.7% greater than the rural population of 1940. The relatively large increase in urban population, as the result of war and post-war conditions, resulted primarily from the decline in rural farm population. During this period, the rural farm population declined by 9.6%, whereas the rural non-farm population increased by 14.3%. Thus, under the impact of war, the average annual increase of urban population in the United States between 1940 and 1947 was over twice as great, 1.8%, as that during the decade of the depression 30's, .8%.

Comprehensive data are not available for the analysis of population decentralization since 1940, but such evidence as there is indicates that population decentralization was also accelerated as a result of the conditions generated by the War. A study of 10 "congested production areas" (17) with a total of almost 11,000,000 persons in 1944, excluding military personnel stationed in the area, throws some light on the matter. Between 1940 and 1944 the metropolitan districts in these 10 areas combined increased by 26.4%. The central cities in these areas, however, increased by only 17.3%, while their peripheral areas showed an increase of 42.8%.

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(16) U.S. Dept. of Commerce, Bureau of the Census, "Urban and Rural Residence, Age, Sex, Color, and Veteran Status of the Civilian Population ofthe United States: April, 1947," Current Population Reports: Population Characteristics, Series P-20, Nº 9, Washington, 1948.

(17) U.S. Dept. of Commerce, Bureau of the Census, "Total Population of Ten Congested Areas: 1944," Population, Series CA-1, Nº 11, Washington 1944.

Still another price of evidence on decentralization during the War is afforded by the Special Census of Los Angeles. (18) Between 1940 and 1946 Los Angeles showed a population increase of 20%. Long Beach, which is the largest single peripheral area in the Los Angeles Metropolitan District, however, during the same period showed an increased of 46.8%.

It seems reasonably safe to conclude that the War gave new impetus not only to the growth of urban population, but also to the further decentralization of population within metropolitan areas.

In considering the prospects of future urban growth and future population decentralization, the trends in the total population growth of the Nation must be considered as an important factor. The declining rate of total population growth will undoubtedly tend to dampen the rate of urban population growth. Projections of urban population growth under varying assumptions strongly point to the possibility that the rate of population increase in our cities will sharply decline by the end of this century. Under the assumption of mixed economic conditions, that is averaging periods of prosperity and depression such as we have experienced in the past, the urban population of the United States would grow more slowly in the coming decades and increase by only 4% between 1990 and 2000. Under conditions of continued economic depression, the urban population would actually decline during the same decade. (19) The projected percentage increase of urban population by decade to 2000, under assumtpions of "mixed" economic conditions, is shown below:

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(18) U.S. Dept. of Commerce, Bureau of the Census, Special Census of Los Angeles, California, Series P-SC, Nº 119, April 10, 1946. Also U.S. Dept. of Commerce, Bureau of the Census, Special Census of Long Beach, California, Series P-SC, Nº 118, April 10, 1946.

	Percentage Increase
1950	10.4
1960	10.8
1970	9.4
1980	7.7
1990	5.5
2000	4.2

We have observed that population decentralization is, in part, a function of rapidity of urban population growth. The extent that decentralization is dependent upon rapid growth, the declining rate of total population growth and of urban growth will tend to dissipate at least part of the centripetal forces making for population decentralization. It seems reasonably safe to conclude that in the coming decades the population decentralization of metropolitan districts will depend more on factors making forthe redistribution within the metropolitan area of the populating already resident there, than on the necessity for accommodating or making room for large population increments. On the other hand, the prospect of continued, even through diminised, urban growth points rather definitely to the likelihood, all other factors being equal, of contined decentralization of our urban population for at least the remainder of the century.

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(19) Philip M. Hauser and Hope T. Eldridge, "Projection of Urban Growth and Migration to Cities in the United States." Milbank Memorial Fund, Postwar Problems of Migration, New York, 1946, pp. 159-173.

The relative importance of rapid population increment as compared with other factors in effecting population decentralization will, for at least a few decades, vary for the different regions of the country. In the North, and especially in the Northeast, rapid population growth may be a relatively unimportant factor in the further decentralization of metropolitan areas. In the South and in the West, on the otherhand, rapid population growth may for a longer period continue to be an important element in the decentralization of metropolitan populations.

SOME IMPLICATIONS FOR THE FUTURE. The process of urban growth and of population decentralization within metropolitan areas has, in the main, resulted from the play of "natural forces" of the type briefly described above. With increasing knowledge of the processes involved, and with the dissipation of some of the forces making for decentralization resulting from declining rates of urban growth, the possibilities of, and opportunities for, planning the distribution of populations within metropolitan areas will undoubtedly improve. Considerable knowledge is already at hand, and more can be obtained, to make possible the redistribution of population within metropolitan areas in accordance with a plan, if that should be desired and if planning objectives can be agreed upon.

As a result of the "natural process" of urban growth and decentralization, all of our metropolitan districts, for example, are characterized by large areas of blight which impose a heavy drain on the resources of the community and produce disproportionately large shares of its physical and social pathology. An understanding of the processes which produced these areas of blight constitutes at least the first step in bringing these areas under control and dealing with the problems which they create.

Similarly, in regard to other areas within the metropolitan district, an understanding of the natural forces which have been responsible for the pattern of land use and population type within metropolitan areas constitutes the first step in any attempt to control the development of our metropolitan areas in the interest of their inhabitants, and of the nation.

Finally, in this atomic age, it is conceivable that it may prove desirable to hasten decentralization of the population of our metropolitan areas by reason of considerations of national security. Should the outlook for peace grow so dim as to make such accelerated decentralization desirable or necessary, plans for, and actual accomplishment of, the taks would undoubtedly benefit from a utilization of the knowledge we have gained about the "natural" forces and processes involved in urban population growth and distribution.