

CHAPTER 8

The Urban Uses of the Land

Most of the land area of Megalopolis is covered with farmland or woodland, the use of which is largely determined, as we have seen in the preceding chapters, by the presence within the region of a large population of urban or suburban character. The way of life of these people, their income, their professions, and the density of the population all play a role. Although the land actually occupied by urban or so-called "special" uses adds up to only a small part of the whole area (probably close to 20 per cent of it by 1960),¹ it holds the vast majority of the people, dwellings, and places of work — that is, all that makes Megalopolis into a huge urban region. The land use is also determined, of course, by the region's relations with the outside world and with other sections of the country.

How the densely occupied, more obviously urbanized parts of Megalopolis are used cannot be fully described in this chapter nor even in one

¹ See above, Chapter 5, p. 234.

volume. These pieces of land, though aggregating no more than 10,000 square miles, house more than thirty million people — one fifth of the American nation, about one tenth of the whole world's manufacturing capacity, and probably close to one fifth of the world's big-business management. For an area of such immense concentration of population and of industrial and commercial activities description of the various local uses of the land would require a great many pages of text and maps. In many respects the details of industrial or residential land use are similar to those of other large urban and industrial centers in America. It may not be very fruitful or indeed worthwhile to go into these land uses in great detail. It is more significant for the purposes of this study to find out what features of land use are characteristic of the region and what trends are developing.

The Nebulous Structure of Megalopolis

The unity of Megalopolis as an urban region was founded on the relative integration in one continuous system of contiguous standard metropolitan areas along the Northeastern seaboard. To these the author has added a few adjacent districts not always classified as "metropolitan," at least not in the 1950 Census. Between and around the urban nuclei is territory classified as metropolitan but rural, or even as altogether nonmetropolitan, and the uses of such territory have been dependent on the push or pull developed by the urban centers. Thus the rapid expansion of the area devoted to urban uses of the land has been a prime factor in imposing urbanization as the essential force that directs land use throughout the whole region. How it has progressed in the recent past may be ascertained by scrutinizing a few maps of population density. The generalized map of density by minor civil divisions for 1940 (Fig. 121) shows massive concentration in a few large noncontiguous blocks of land in which the density was everywhere more than 150 per square mile and often more than 500. Two of these blocks are especially impressive — one between Massachusetts and Narragansett bays (the Boston-Providence complex), the second around New York City. Three other blocks are significant, though more modest in size — the area along the tidal Delaware (from Trenton, New Jersey, to Wilmington, Delaware), the area around Baltimore, and the area around Washington, D. C. Much smaller areas of obviously urban concentration are found scattered through Massachusetts, Connecticut, and eastern Pennsylvania. Their dispersal outlines the actual frame of Megalopolis.

The density of population is measured on the basis of administrative

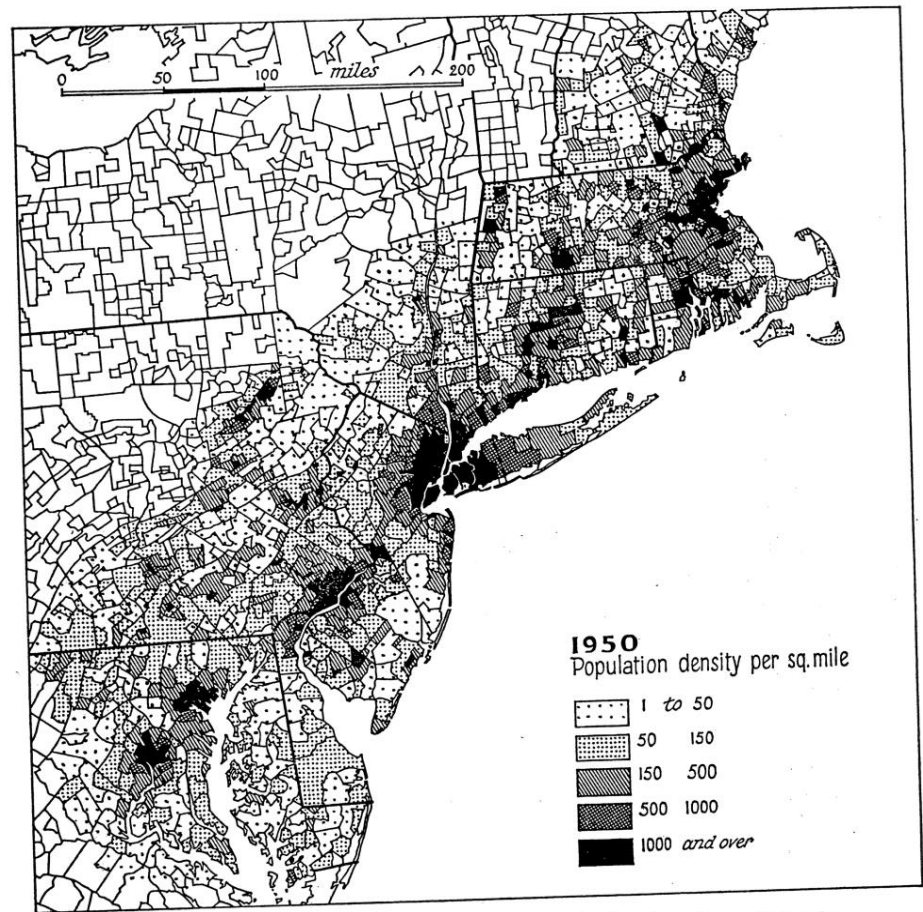


FIG. 122. Compare this distribution of the density of population by minor civil divisions in 1950 with the same for 1940 on Fig. 121 and for 1960 on Fig. 1 (p. 6).

subdivisions, and the people are counted where they live, not where they work. The statistics may therefore give a misleading picture as to the nature of the landscape. Within a New England township an area thoroughly built up with industrial plants may appear to be not much more populated than wooded suburban areas peppered with scattered residences, such as, for instance, the area south of Lowell, Massachusetts, (the land use of which is shown for 1950 on Fig. 67, p. 233).

What population changes were occurring throughout Megalopolis be-

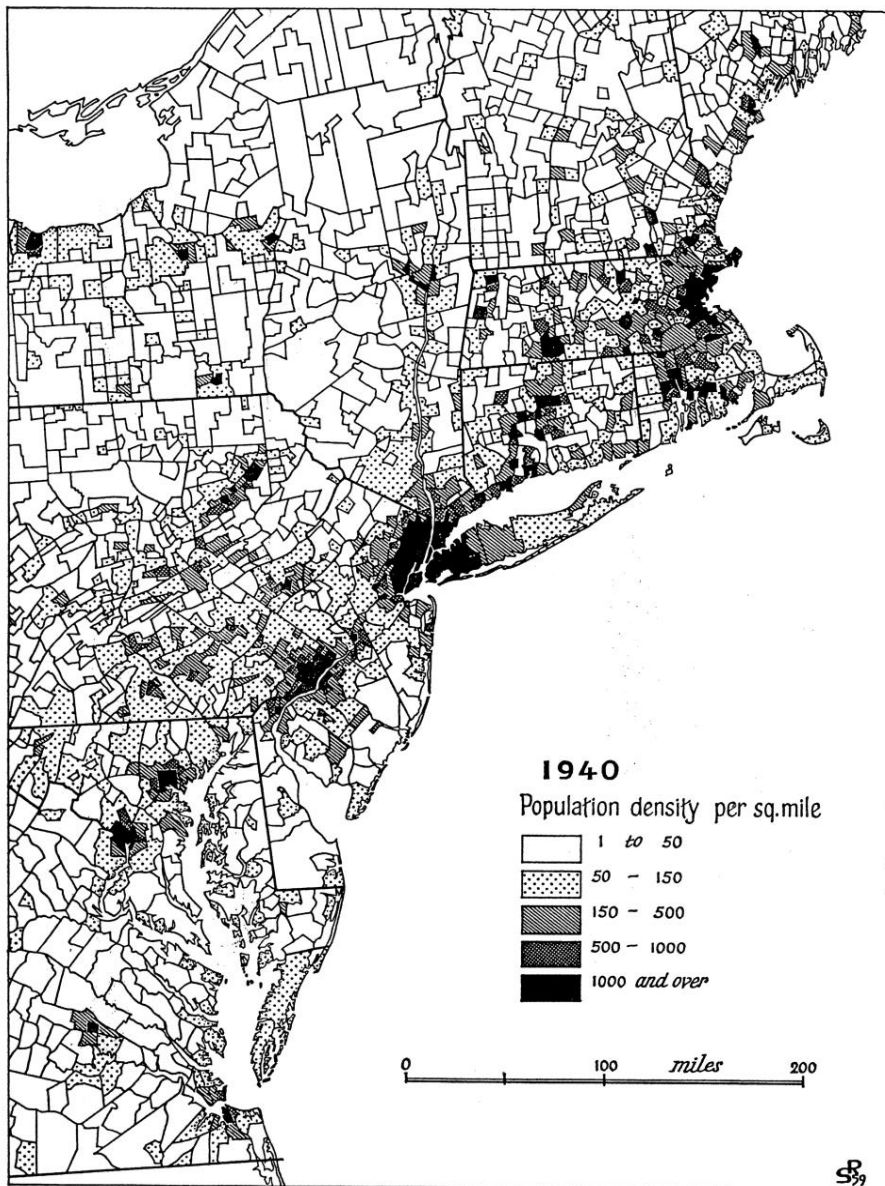


FIG. 121. Compare this distribution of the density of population by minor civil divisions in 1940 with the same for 1950 on Fig. 122 and for 1960 on Fig. 1 (p. 6).

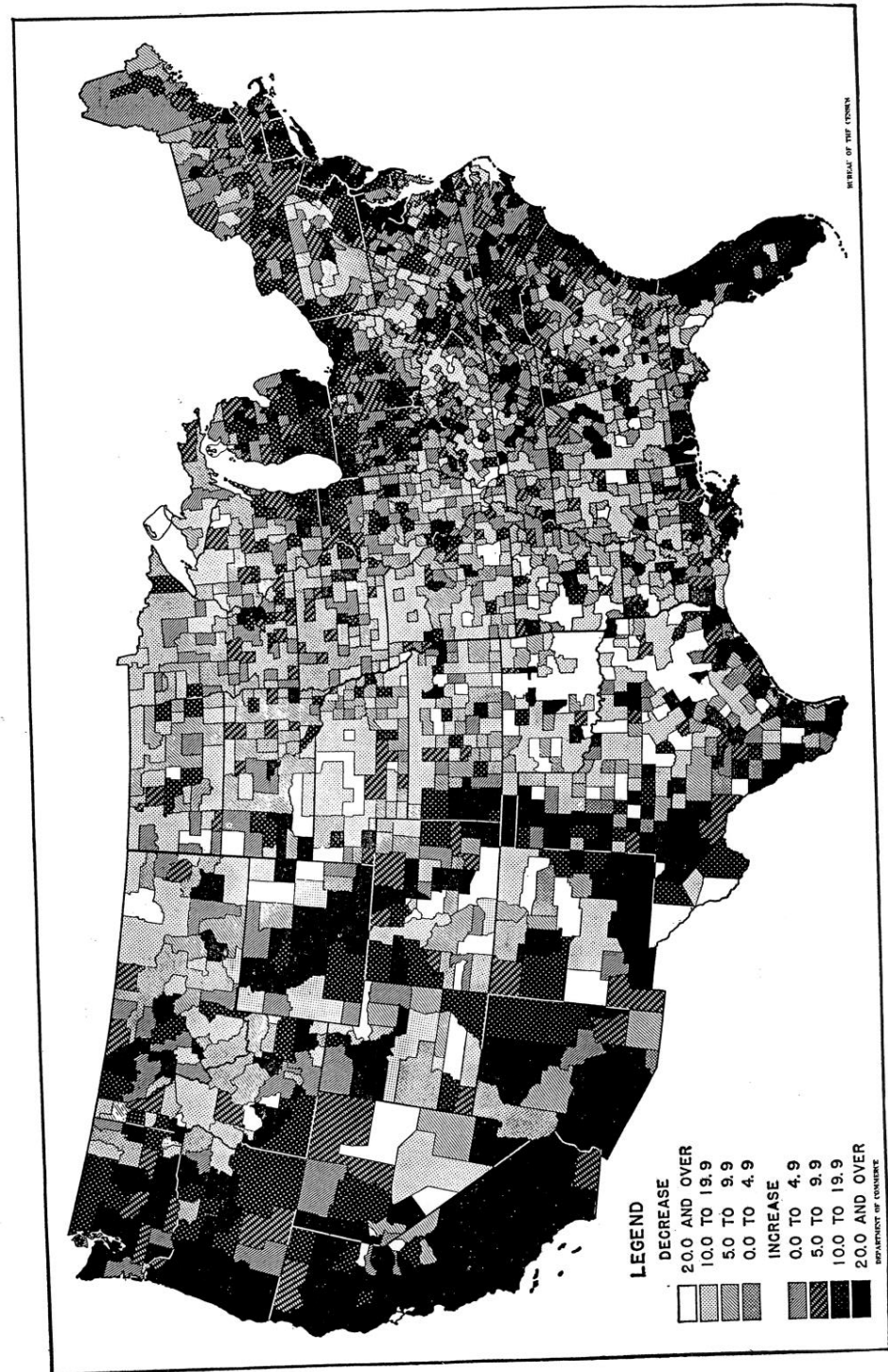
tween 1930 and 1950 is demonstrated on another map (Fig. 73, p. 248), which emphasizes interurban and peripheral growth of density, and therefore of urban land uses, along the axial belt joining the main historic nuclei. The resulting distribution of densities by 1950 (Fig. 122) testified to a considerable expansion of the territory with more than 150 inhabitants per square mile. Along the axial belt, a ribbon of this density had become practically continuous from Cape Ann to Alexandria, except for narrow interruptions in the northeastern corner of Maryland. For all practical purposes the suburbs of Baltimore and Washington had grown together enough to be counted after 1950 as one great urban system, comparable to the Boston-Providence complex or the Delaware complex around Philadelphia. By means of a narrow neck of high density following the axis of U. S. I and the tracks of the Pennsylvania Railroad, the latter had almost joined with the northeastern part of New Jersey that gravitates towards Manhattan.

During the 1950's the dispersal went on with greater speed and freedom than during the 1940's. Among the factors that led the sprawl to develop were better highways, more cars, and more families with small children looking for homes with a suburban setting. The detailed map of density for 1960 demonstrates the increasing dispersal of residences (see Fig. 1, p. 6). The Census taken in 1960 showed for New York City and several neighboring counties in New York State a migration to the periphery in clear-cut fashion. The great city itself lost 1.4 per cent of its population from 1950 to 1960; of its five boroughs only the more peripheral Queens and Richmond grew (by 16.7 and 15.9 per cent respectively), while Manhattan was the heaviest loser (-13.4 per cent). Great increases were achieved by the outlying suburbs on Long Island (where Nassau County grew by 93.3 per cent and Suffolk by 141.5 per cent), and north of the city Westchester and Rockland counties also counted substantial gains (29.3 and 53.2 per cent).²

The growth of the population of New Jersey by counties from 1950 to 1960 (see Fig. 9, p. 41) showed a sharp increase for the whole state. Few places added less than 20 per cent to their 1950 population, most of these being in the vicinity of large urban centers or in more dispersed areas that were already densely built up before 1950. Through most of Megalopolis, however, the areas where the more massive increases have taken place on

² U. S. Bureau of the Census, *1960 Census of Population, Advance Reports, PC(A2)-34*, Washington, D. C., March 1961.

Opposite FIG. 123. Percentage change in population of continental United States by counties, 1940-50. *Courtesy of the U. S. Bureau of the Census*



substantial acreages seem to be located largely on the suburban periphery of the main nuclei or along the main axial belt. It was on the outer reaches of New York's suburbia in Long Island that Levittown, New York, arose, and it was along the main axis between Trenton and Philadelphia that Levittown, Pennsylvania, and Fairless Hills were built, both linked to the large steel plants on the banks of the Delaware River below its falls. Similar trends can be observed along the main roads linking Baltimore and Washington, or in the outer ring of Washington's suburbs. Farther away from the old nuclei and from the axial belt, the filling in of more or less rural territory proceeded during the 1950's by scattered growth along the roads and around the ponds and creeks, rather than by massive advances of an urbanized front.

The scattering of buildings for various purposes along the roads has taken on such magnitude and frequency throughout most of Megalopolis that one seldom loses sight of buildings except on the landscaped parkways and turnpikes or inside public parks and forests. This was true by 1960 not only of the densely settled parts of Massachusetts and Connecticut (Figs. 67, 68, and 69, pp. 233, 235, 238) but also in the relatively rural parts of southern Megalopolis (see the 1960 densities on Fig. 124).

Residences, obviously, did not scatter alone. The Megalopolitan sprawl came partly because residences followed industrial or commercial establishments out of old urban territory, and partly because retail and wholesale trade establishments followed their customers toward new residential areas. However, as the location of either residences or industries required well-organized means of *access*, the dispersal remained dependent on the network of highways. In this era of the automobile it has been much easier to decentralize and scatter people as well as trade and light industry than it was previously, when the attraction of the rail lines or major waterways was stronger.

The maps of distribution of urban uses of the land in Megalopolis have thus been taking on an increasingly *nebulous* character. This has been fostered by the desire of many people to have their residences in rural landscapes; by the vogue of the suburban way of life among certain categories of urbanites; and by the advantages of "decentralized" locations for new industrial or even bureaucratic establishments. The functions of the neatly delimited "downtowns" and "uptowns" of the past have now begun to mingle in disconcerting fashion with farming, woodlands, or just highly populated suburbs.

The whole process, one might observe, has not been for the past fifteen years a monopoly or even a specialty of Megalopolis. Such urban and

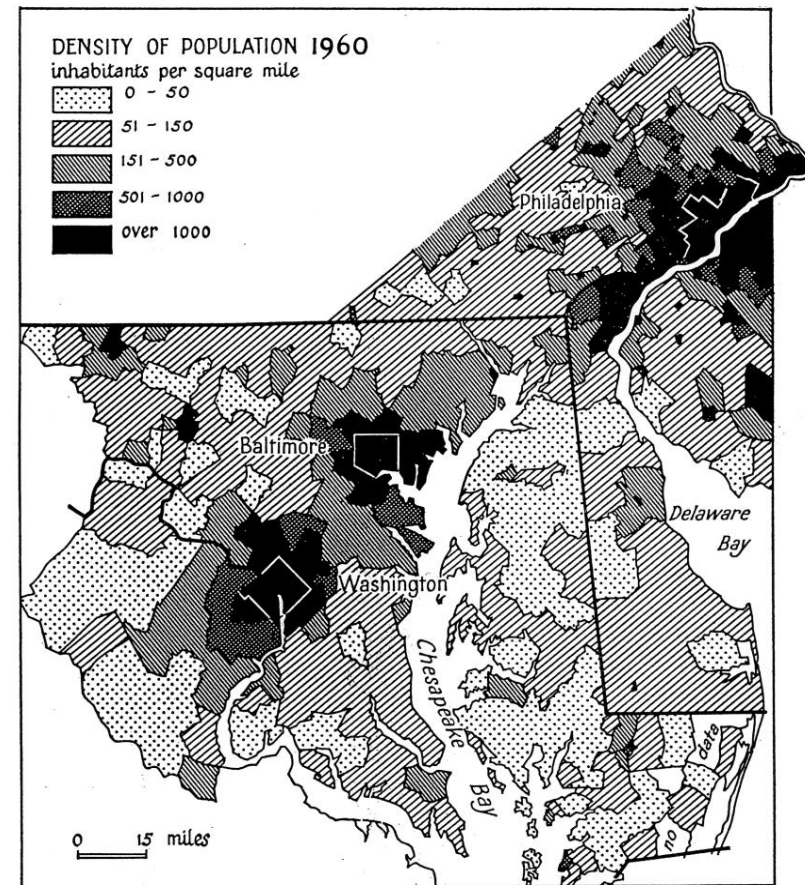


FIG. 124. Density of population in 1960 by minor civil divisions in the southern part of Megalopolis. Compare with the situation in 1950 on Figs. 14 and 15 (pp. 60, 62).

suburban sprawl, leading to many a new metropolis with nebulous structure, can be found in various parts of the United States from the San Francisco Bay area to Florida's Gold Coast. In fact, many people believe that the most spectacular case has developed around Los Angeles, and so it might seem on casual inspection. The arid, barren lands in southern California make every group of buildings stand out boldly in the landscape, while much of the Megalopolitan suburban sprawl is shielded from sight by the wooded nature of the area. But those who are so impressed by the

sprawl of the Los Angeles area might perhaps tone down their enthusiasm if they realized how much larger the Megalopolitan sprawl is in territory and in number of people, and how much more complicated and costly is the organization of means of access to the hub of Manhattan, to downtown Philadelphia, or even to the center of Washington than it is in the case of Los Angeles.³

This phenomenon, sometimes called the "metropolitanization" of the United States, has developed in Megalopolis on a scale that is unique so far in the nation and in the world, and over vast areas there is an almost *colloidal* interpenetration of urban and rural that gives the region a special quality. Despite this interpenetration, Megalopolis has also continued to build up its several enormous nuclei of densely occupied, congested central cities. Skylines have been changing more rapidly than ever, not only on the island of Manhattan but also in the old downtown business districts of Philadelphia and Boston and in the much smaller cities of Newark, Trenton, and New Haven.

The suburban sprawl, fanning out horizontally, at times in dense and continuous formations and at times as a sparse dispersal, has not prevented but, it would seem, has merely accompanied and perhaps complemented the vertical rise in the central districts of the old urban cores. These various trends, while displacing many people and organizations and fostering many new fortunes in the real estate business, have also caused the pattern of each metropolis to acquire a new form, a rather *nebulous structure*.

The Morphology of These Urban Growths

Such a many-sided process of urbanization has assumed a wide diversity of forms throughout Megalopolis. The general trends have followed rather closely the general evolution of metropolitan growth in the nation as a whole. The areas in the vicinity of large urban centers and along the historical axial belt from Boston to Washington have been increasing in population and activities more rapidly, at least since 1900, than the outlying areas of Megalopolis, just as metropolitan areas in general have grown at a faster pace than the rest of the United States. And the suburban rings have been growing in all respects more rapidly than the old

³ In 1950 the average population density of Los Angeles County was 1,020 inhabitants per square mile, while that of neighboring and smaller Orange County was 277. The average for the metropolitan area stood at 900. In the New York-Northeastern New Jersey Standard Metropolitan Area the average density was 3,278; in the Philadelphia area, 1,034; in the Boston area, 3,078; in the Providence area, 1,492; and the central cores were more crowded in each of these and in other metropolitan areas of Megalopolis than was the core of Los Angeles.

urban cores. Here again Megalopolis follows the national trend as described by Donald J. Bogue:

Since 1900, a remarkable reversal in the pattern of growth within S.M.A.'s [standard metropolitan areas] has taken place. In 1900-10, the central cities had higher growth rates than the metropolitan rings, but in 1940-50 the rings were growing at a much more rapid rate than central cities. This change appears to have taken place about 1920 . . . The advent at that time of the use of automobiles for commuting marks the beginning of the more extended pattern of settlement around metropolitan centers which has now become an outstanding characteristic of population distribution. About 11 percent of the total population of principal S.M.A.'s was living in the metropolitan ring outside central cities in 1900. By 1950, this proportion had risen to 24 percent.⁴

The older metropolitan areas in the country, that is, those of Megalopolis, led the way, and their suburban rings began growing more rapidly than the central cities before this tendency developed in smaller and newer metropolitan units (see Table 17). The early beginning of this evolution in Megalopolis reflects the greater congestion of the central cores there. Of the many factors that have contributed to this congestion some are perhaps regrettable, such as the high population density and the greater age and therefore obsolescence of housing, but others testify to the resilience of the old cores. For example, there must be economic opportunity and growth in a core city to attract more people to work or to live in it, and there must be good organization of access to the central city from the outside. Many people who have moved their residences out to the suburbs have continued to work in town; others who do not work in the city still take advantage of its nearness to profit by the commercial, entertainment, and social facilities it offers.

To be successful a city must have a well-organized network of transportation and communication facilities, making it easily accessible from various directions. How could it otherwise preserve any "centrality," remain a "central city," even if only on a modest regional scale? This organization of good relations with its environs is what makes a city grow in terms of the activities located within it, but at the same time it may cause the city's nighttime population to decline or remain stabilized while the suburbs around it and even its satellite communities increase much more rapidly in population as recorded by the Censuses.

While a good deal of the explosive quality of suburban sprawl after 1920 can be attributed to the growing use of automobiles, in Megalopolis connections between central city and suburbs or satellite towns had been

⁴ Donald J. Bogue, *Population Growth in Standard Metropolitan Areas 1900-1950*, Housing and Home Finance Agency, Washington, D. C., December 1953, p. 18.

Table 17
 RATES OF GROWTH OF STANDARD METROPOLITAN AREAS IN MEGALOPOLIS, 1900-1950

Standard Metropolitan Area	Population 1950	Percentage Increase or Decrease					1900-1950
		'40-'50	'30-'40	'20-'30	'10-'20	'00-'10	
Manchester, N. H.	156,987	8.4	3.4	3.4	7.5	11.9	39.4
Central city	82,732	6.5	1.1	-2.0	11.9	22.9	45.2
Suburbs	74,255	10.5	6.1	10.9	2.0	0.6	33.4
Boston, Mass.	2,875,876	8.3	1.7	12.8	14.3	20.1	70.6
Central cities (Boston, Lawrence, Lowell)	979,229	2.4	-1.0	1.2	10.7	20.1	36.3
Suburbs	1,896,647	11.6	3.3	21.0	17.0	20.2	96.1
Brockton, Mass.	189,468	12.2	4.0	3.4	8.8	26.6	66.2
Central city	62,860	0.8	-2.3	-3.7	16.5	42.0	56.9
Suburbs	126,608	18.9	8.1	8.6	3.7	18.3	71.3
Worcester, Mass.	546,401	8.3	2.7	7.9	13.9	15.2	57.5
Central city	203,486	5.1	-0.8	8.7	23.1	23.3	71.8
Suburbs	342,915	10.3	5.0	7.5	8.6	11.0	50.0
Fall River, Mass.	381,569	4.6	0	1.6	12.7	26.4	51.4
Central cities (Fall River, New Bedford)	221,152	-2.0	-0.9	-5.7	11.9	29.1	32.2
Suburbs	160,417	15.5	1.6	10.6	14.3	58.6	12.1
Pittsfield, Mass.	132,966	8.7	1.3	6.8	7.4	10.0	39.0
Central city	53,348	7.4	0	18.9	30.0	47.6	145.1
Suburbs	79,618	9.7	2.2	-0.3	-2.6	-1.0	7.7
Springfield, Mass.	455,565	12.6	-0.9	10.4	25.5	25.7	94.3
Central cities (Springfield, Holyoke)	217,060	6.8	-1.5	8.8	20.4	36.1	101.4
Suburbs	238,505	18.5	-0.3	12.1	21.6	16.9	88.3
Hartford, Conn.	539,661	19.9	6.9	25.3	34.3	28.0	176.1
Central cities (Hartford, New Britain, Bristol)	287,084	8.3	1.7	19.6	43.1	35.9	156.1
Suburbs	252,577	36.5	15.3	35.9	20.7	17.3	203.0

New Haven, Conn.	545,784	12.7	4.5	11.6	23.1	25.3	102.8
Central cities (New Haven, Waterbury)	268,920	3.5	-1.0	3.3	23.0	34.4	74.8
Suburbs	276,864	23.4	11.7	24.8	23.3	13.2	140.2
Bridgeport, Conn.	504,342	20.5	8.2	20.5	30.8	33.2	173.8
Central cities (Bridgeport, Stamford, Norwalk)	282,462	20.2	2.5	11.0	53.9	44.1	203.3
Suburbs	221,880	20.9	16.4	37.6	3.0	22.1	143.6
Providence, R. I.	681,815	7.5	2.9	14.9	12.2	28.7	83.4
Central city	248,674	-1.9	0.2	6.5	5.9	27.8	41.6
Suburbs	433,141	13.8	4.7	21.6	17.7	29.5	120.8
Albany, N. Y.	514,490	10.5	1.9	11.8	6.4	15.0	54.0
Central cities (Albany, Troy)	209,091	3.7	-2.5	8.0	9.7	34.0	60.4
Suburbs	215,399	21.5	10.1	19.6	0.2	-9.0	45.9
New York-Northeastern N. J.	12,911,994	10.7	7.4	27.9	20.5	39.6	155.7
Central cities (N.Y.C., Jersey City, Newark)	8,629,750	5.4	6.5	21.4	17.7	38.4	121.9
Suburbs	4,282,244	23.2	9.6	46.9	29.5	43.8	209.5
Trenton, N. J.	229,781	16.5	5.4	17.1	27.2	31.8	140.9
Central city	128,009	2.7	1.1	3.4	23.2	32.1	74.6
Suburbs	101,772	40.1	13.8	57.1	40.7	30.8	361.4
Atlantic City, N. J.	132,399	6.7	-0.6	48.8	16.7	54.9	185.3
Central city	61,657	-3.8	-3.2	30.6	9.9	65.8	121.5
Suburbs	70,742	18.0	2.3	76.5	29.0	38.7	281.1
Wilmington, Del.	268,387	21.0	12.1	7.1	23.1	11.1	98.5
Central city	110,356	-1.9	5.5	-3.2	26.0	14.3	44.2
Suburbs	158,031	44.5	19.8	22.3	18.9	6.9	169.1
Reading, Pa.	255,740	5.7	4.4	15.4	9.6	14.8	60.2
Central city	109,320	-1.1	-0.5	3.1	12.2	21.7	38.4
Suburbs	146,420	11.5	8.9	29.5	6.8	8.1	81.5
Scranton, Pa.	257,396	-14.6	-2.9	8.4	10.3	33.9	32.8
Central city	125,536	-10.6	-2.1	4.1	6.1	27.3	23.0
Suburbs	131,860	-18.0	-3.7	12.4	14.5	41.3	43.6

Table 17 (continued)

Standard Metropolitan Area	Population 1950	Percentage Increase or Decrease					
		'40-'50	'30-'40	'20-'30	'10-'20	'00-'10	1900-1950
Wilkes-Barre, Pa.	392,241	-11.2	-0.8	13.8	13.9	33.5	52.6
Central cities (Wilkes-Barre, Hazelton)	112,317	-9.6	0.7	16.3	14.6	40.3	70.3
Suburbs	279,924	-11.8	-1.4	12.9	13.7	31.1	46.4
Harrisburg, Pa.	292,241	15.9	8.0	10.3	11.0	15.7	77.3
Central city	89,544	6.7	4.4	5.8	18.3	27.9	78.5
Suburbs	202,697	20.4	9.9	12.8	7.4	10.3	76.8
Allentown, Pa.	437,824	10.4	1.3	12.9	19.7	25.2	89.2
Central cities (Allentown, Bethlehem, Easton)	208,728	10.4	2.2	17.3	69.0	37.3	297.2
Suburbs	229,096	10.3	0.5	9.3	-3.8	20.2	40.2
Philadelphia, Pa.	3,671,048	14.7	2.0	15.6	19.7	19.9	94.0
Central city	2,071,605	7.3	-1.0	7.0	17.7	19.7	60.1
Suburbs	1,599,443	26.1	6.9	33.2	23.8	20.2	167.3
Lancaster, Pa.	234,717	10.5	7.9	13.3	4.1	4.9	47.4
Central city	63,774	4.0	2.3	12.8	12.5	13.9	53.8
Suburbs	170,943	13.1	10.4	13.5	0.7	1.7	45.1
York, Pa.	202,737	13.9	6.5	15.6	5.9	17.2	74.2
Central city	59,953	5.7	2.6	16.3	6.2	32.8	77.9
Suburbs	142,784	17.7	17.7	15.3	5.8	10.8	72.6
Baltimore, Md.	1,337,373	23.5	10.0	15.6	18.3	12.7	109.2
Central city	949,708	10.5	6.7	9.7	31.4 ^a	9.7	86.6
Suburbs	387,665	72.9	24.7	52.0	-27.0 ^a	24.2	197.3
Washington, D. C.	1,464,089	51.3	44.0	17.5	28.4	17.6	286.7
Central city	802,178	21.0	36.2	11.3	32.2	18.8	187.8
Suburbs	661,911	117.1	64.5	38.0	17.5	14.5	562.7

Source: Donald J. Bogue, *Population Growth in Standard Metropolitan Areas 1900-1950*, Housing and Home Finance Agency, Washington, D. C., December 1953, pp. 61-71.

^aThe unusually large percentage of increase for Baltimore in the decade 1910-20 and the accompanying decrease in population in its suburbs reflect the city's annexation of extensive suburban areas on June 1, 1918.

started much earlier, even before the railroad era. Around 1800 it was already common, when comparing the populations and the metropolitan role of New York City and Philadelphia, to count with the latter its suburbs, the small towns that were later linked with the central city by the "main line" of the Pennsylvania Railroad. To Philadelphia the "main-line families" meant something similar to what the society of Long Island or Westchester estates meant to New York.

A distinguished European, visiting the United States in 1912-13, was deeply impressed by the marked sprawling of American cities:

In America the city has spread out with heretofore unknown proportions . . . The American city has a transportation apparatus that makes it possible to specialize its various wards, to separate the "town" of business from the "town" of the *home*, to place between them vast parks, to keep the countryside within itself. "The locomotive," Anthony Trollope wrote half a century ago, "is here a domestic animal." What would he say nowadays? Swarming all around, indefinitely expanding its suburban districts, the city is the most perfect expression of Americanism.⁵

We may ask in the same vein: what would this author have said today, after another half century has elapsed? His prognosis certainly appears even more correct in 1960 than it must have seemed in 1912. It reminds us who live in the automobile age that Megalopolis knew metropolitan sprawl before the automobile's advent.⁶ As seen in Table 17, in the New York-Northeastern New Jersey Standard Metropolitan Area the three central cities increased by 38.4 per cent from 1900 to 1910 and by 17.7 per cent in 1910-20, while the suburban ring grew by 43.8 and 29.5 per cent in these two intercensal periods; the disparity of the rate widened, of course, in the 1920's (21.4 and 46.9), was reduced through the depressed 1930's, but increased in the 1940's and, as far as we can tell, to an even greater degree in the 1950's. In the Philadelphia, Boston, and Providence metropolitan areas the rate of increase of the suburban ring was only slightly above that of the central city in the 1900's, while in Fall River, Scranton, and Baltimore it was quite marked. In other cities this more rapid growth of the suburbs did not begin until a later decade, but it is now characteristic of most of the standard metropolitan areas in Megalopolis, and indeed in the country as a whole.

⁵ Paul Vidal de la Blache, *Principes de Géographie Humaine*, Librairie Armand Colin, Paris, 1921. This is a posthumous work, the author having died in 1917. The quotation, in our own translation from the French, is from the unfinished fragments annexed to the book, p. 295.

⁶ In fact, Vidal de la Blache mentions Chicago and St. Louis, as well as New York, Philadelphia, and Boston, on the page from which the above quotation was taken.

GROWTH OF MAJOR STANDARD METROPOLITAN AREAS IN U.S. 1900-1950

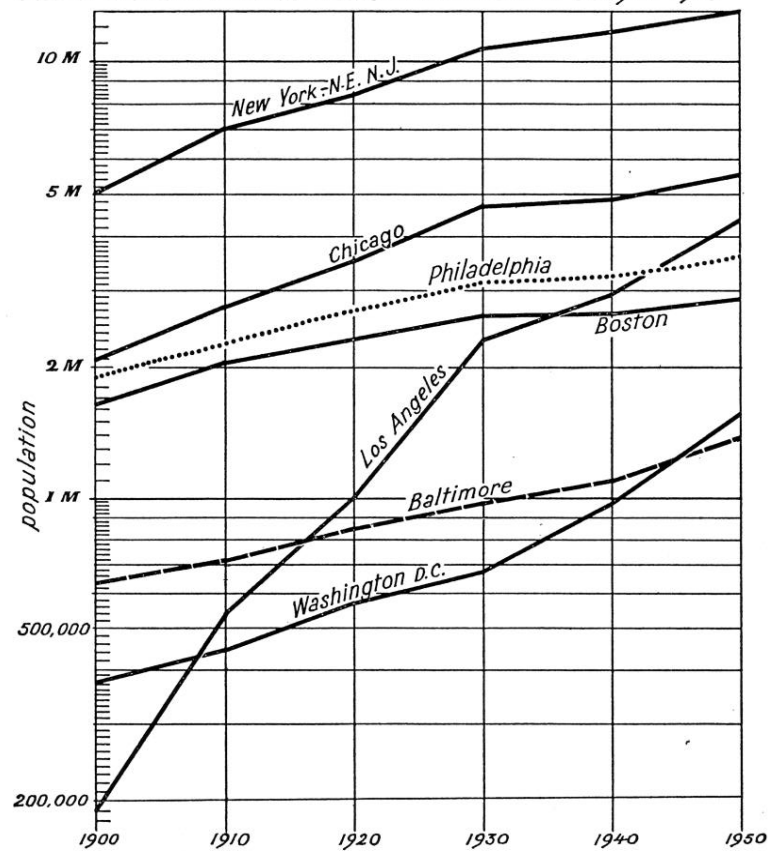


FIG. 125

The growth of the suburban rings has continued at an increased pace through the 1950's. Even before the publication and analysis of detailed data gathered by the 1960 Census, many records, observations, and even counts have demonstrated this. An approximate evaluation made by the Bureau of the Census in 1956 estimated that 85 per cent of the increase that took place in the civilian population of the United States between 1950 and 1956 went to the standard metropolitan areas (in their limits as defined in 1950). While this meant a rate of increase of 14.8 per cent for the country's metropolitan population, that rate had been only 4.7 per cent for the central cities but 29.3 per cent for the suburban rings; and within those rings the urban areas (as defined in 1950) had increased by

17 per cent and the "rural" areas by 55.8 per cent. There can be no doubt that the suburban sprawl rolled on through the 1950's.⁷

The more rapid growth of the suburbs did not result only from the shift of former central-city residents to new homes in greener pastures. In fact, had such a migration been the essence of the whole process of metropolitan growth, the central cities would have been emptied at a much quicker pace than has been the case. The speed of population growth in the suburbs indicates, in Megalopolis as well as in the rest of the country, that *most of the newcomers to the suburbs have come from outside the metropolitan area*. Exactly how many of them there have been and from how far away they have come we do not know. However, we can gather some indications about their origins from statistical data available on interstate migration,⁸ and we may deduce a little more from the characteristics of each metropolis. It can thus be logically inferred that the Washington metropolitan area, because of its role as the national capital, will draw from the entire United States to a greater degree than will any other sector of Megalopolis. The New York metropolitan area may be expected to rank second in this respect, because of its size and its role as the major financial and commercial hub of the continent. In other metropolitan areas the mixture may not have been as diversified, but there is no doubt that natural increase within a large metropolitan area could not be responsible alone for the population growth.⁹

The days of the frontier may have passed, but metropolitan sprawl has

⁷ See U. S. Bureau of the Census, *Current Population Reports, Population Characteristics*, Series P-20, No. 71, Washington, D. C., Dec. 7, 1956; see also the comments in Donald J. Bogue, *The Population of the United States*, The Free Press, Glencoe, Ill., 1959, pp. 42-52. Projections for the future on the basis of the 1900-1956 data are offered in Jerome P. Pickard, *Metropolitization of the United States*, Research Monograph 2, Urban Land Institute, Washington, D. C., 1959.

⁸ See the graphs of Figs. 54a to c and 125, pp. 192-193 and 398, and the comments about them in Chapter 4, for some general indications.

⁹ The City Planning Commission of New York City estimated in 1951 (as reported in *The New York Times*, Aug. 6, 1951) that during the 1940-50 intercensal period the city's net gain in population from excess of births over deaths would have amounted to 580,000. In actual fact its gain was only 445,000, for a massive out-migration of 750,000 and an in-migration of only 615,000 left a negative balance of 135,000 from migration movements into and out of the city. Probably most of the out-migration was to the suburbs, but some of it may have gone farther - to the Washington metropolitan area, which grew so rapidly in the 1940's, to the army, and elsewhere. According to calculations of the Regional Plan Association (see its *Bulletin*, No. 78, June, 1957) the entire metropolitan region of New York (which by the Regional Plan's definition includes twenty-two counties in three states) had a natural increase in 1940-50 of a little more than 2 million and a net in-migration increase of about 800,000. Comparison of these figures with those for New York City indicates clearly that a good deal of the population growth in the suburbs must have come from other sources than migration out of the central city.

become in several respects the modern version of the frontier, and the American people still show great mobility. It has been estimated recently that one out of every five Americans moves during a year—a high mobility rate. From this it would appear that there must be a good deal of moving from one metropolitan area to another, in addition to the migrations from the central cities to the suburbs and from nonmetropolitan territory into metropolitan areas.

The importance of suburban sprawl may be measured not only by population figures but also by the distribution of increase in retail trade sales. On a map showing the rate of this increase from 1948 to 1958 for the counties in and immediately around Megalopolis the peripheral growth of the main metropolitan conglomeration is clearly shown (Fig. 157, p. 508). The growth of retail trade has been made visible in the landscape by the rise of large shopping centers, many of which include branches of department stores from the central cities. These establishments take space, all the more so as they need generous parking areas, and they provide employment.

For what the Census of Business calls the “selected service trades,” the distribution of receipts in 1954 (Fig. 160, p. 513) showed a definite emphasis on the more metropolitanized counties, and also, of course, on the major central cities, which still hold the greatest concentrations of people and of business. Between residences and establishments of retailing and special servicing a mutual attraction develops in obvious sequence: trade and services follow the migrations of residences and then, by creating more employment in the residential areas or in their vicinity, they cause more people to settle in that general area. Until recently manufacturing and such commercial activities as wholesale trade and transportation were held to be the essential job providers in urban areas. This is still true of the central cities and their more industrial satellites, especially if office work is added to the categories of employment mentioned above. However, the fields of employment more directly in touch with the consumer cannot be disregarded nowadays. In a suburban but still industrialized section such as Nassau County, on Long Island, manufacturing occupied some 69,000 persons in 1954, the selected service trades 17,000, and retail trade 52,600, the two latter together thus employing almost exactly as many as manufacturing. In heavily industrialized and urbanized Union County, New Jersey, retail trade employed 24,700 people in 1954, the selected service trades 11,000, and manufacturing 81,000. Situated in the axial belt, on the main line from New York to Philadelphia, Union is much more heavily industrialized than the more outlying Nassau County, and

yet even there dealing with the consumer involves a substantial part of the labor force.

Manufacturing has thus been a prime factor in determining suburban densities. In a country and a period of generalized motorization and well-organized routes of access, industry did not need to go to the very heart of the labor market and yet when selecting a new plant site it could not afford to move out of easy commuting range of prospective workers. Management had to take various other criteria into consideration when choosing locations, such as accessibility to and from markets and sources of supply, taxation, availability of large enough tracts of land that are not too expensive, labor relations, and, for certain kinds of manufacturing, specially skilled personnel. Most of these criteria usually work together to favor some location not far from at least one large city, and preferably close to and therefore between two or more larger urban nuclei. Thus the extraordinary industrial concentration of the axial belt of Megalopolis has grown. The more division of labor a manufacturing process involves, favoring a contractual structure, with an involved pyramid of subcontracting factories or firms, the more the factors of transportation facilities and sometimes of proximity weigh heavily in the choice of location.¹⁰

Employment in manufacturing is still heavily concentrated in the region's main central belt, because it has been better equipped for such purposes for a longer time. It is concentrated in especially large numbers in the major cities (with the exception of Washington, D. C.) and in their immediate vicinities, except in New England, particularly in eastern Massachusetts (Fig. 137, p. 457), where for historical reasons it is more widespread. In the years 1939–54, however, the trend of evolution has been rather to get away from the older agglomerations, at least in terms of increase percentagewise (Fig. 138, p. 459). This trend has meant consolidation and widening of the axial belt, some shifting of manufacturing southward within Megalopolis, and some shifting northward from the already heavily crowded Philadelphia–New York City axial belt.

On the whole, outside the more fully urbanized areas high residential densities often coincide in Megalopolis with a higher proportion of manufacturing workers in the labor force (Fig. 126). This is to be expected. As we look at the pattern of these relationships on the map we are still re-

¹⁰ The factors of industrial location come into this study at several stages of the analysis and must be considered from various angles. The brief remarks in this chapter are therefore complemented in other passages, especially in Chapter 5 above and Chapter 10 below. See also National Resources Planning Board, *Industrial Location and National Resources*, Washington, D. C., December 1942; and for a recent case study, James B. Kenyon, *Industrial Localization and Metropolitan Growth: The Paterson-Passaic District*, University of Chicago (Department of Geography Research Paper No. 67), Chicago, 1960.

minded that the great numbers of manufacturing workers are in the highly urbanized counties, where they do not, nevertheless, account for a majority in the labor force. Modern urbanization and suburbanization in Megalopolis do not entirely depend on nor develop from manufacturing activities. Although these industries are very important both to the prosperity of Megalopolis and to the distribution of people within it, there are various other activities that share, with increasing responsibility, in determining the direction and characteristics of the metropolitan sprawl.

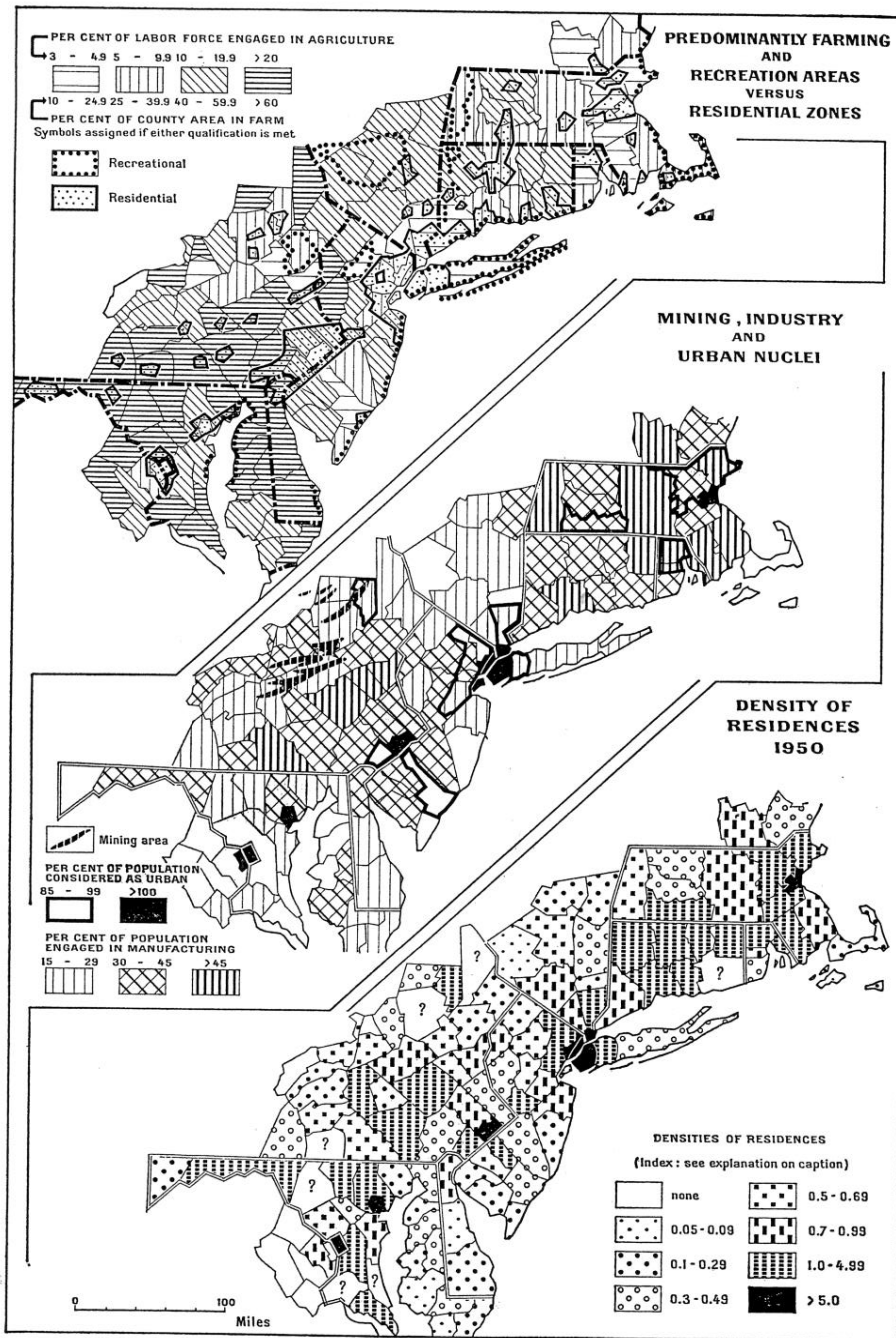
Thus the seaboard metropolis explodes in a great many ways. From the overcrowded central city some population spills over, scattering over a radius widened by the ease of circulation through the area. This same ease of movement induces newcomers, who have come from distant points to work in the central city, to settle in the outer suburban ring. Other factors bring more industrial and commercial establishments to the suburban districts. Thus broad dispersal goes on, appropriating more and more land for urban or special uses and thickening the urban character of the region. In describing the various aspects of the dispersal we have already mentioned and sometimes analyzed the forces at play, for in such a complex process one can hardly describe the "hows" without touching upon some of the "whys." Once it is realized that land is in relatively scarce supply, particularly as it is desirable to keep a good part of it green, either in farms or in forests, the question arises as to *why so many people and factories move out of the more crowded section*. Is there really no space left for them there, or are they moving away from undesirable obsolescence in the areas that were first urbanized?

The Process of Obsolescence

Obsolescence in buildings, whether homes, factories, or offices, is a very complex and largely subjective notion. Whether a given building is obsolescent now for its current use depends on the investment capability of its owner, on the taste of the occupant, and on the existing possibilities for replacing the present building with a new one that is

Opposite FIG. 126. Specialization of various areas within Megalopolis. The data were taken from U. S. Bureau of the Census, *County and City Data Book: 1952, A Supplement to the Statistical Abstract of the United States*, and used as indicated in the legends on the maps. The index of density of residence (lower map) was calculated as follows:

$$\text{Index} = \frac{\text{occupied dwelling units} - \text{commercial farm units}}{\text{land area of county} - (\text{area in farms} + \text{woodland area})}$$



more profitable or more fashionable. In an affluent society, obsolescence of buildings becomes a matter of fashion as much as of cost of maintenance. Thus a building may be considered less desirable either because the material necessities of maintaining it have grown too cumbersome or because it has gone out of fashion — in terms of its outside appearance, its internal layout, the personnel it requires, or its neighborhood.

So many factors are thus at work in a rapidly changing and prosperous community to cause the obsolescence of buildings that the very physical condition of the structure itself and of its basic equipment is seldom a primary criterion of obsolescence. A much-deteriorated building may be worth full repair and refitting for new use if its internal layout meets the requirements developing in its neighborhood at the time. Such restorations in previously blighted sections of large cities have occurred in Sutton Place and Washington Mews in Manhattan, and in Georgetown in the District of Columbia; and in similar fashion some old farms have been converted to fashionable suburban residences or summer homes.

On the other hand the social obsolescence of a neighborhood may often cause the physical deterioration of its buildings to progress at a faster rate than would otherwise be expected, because maintenance costs are cut and less care is given to upkeep. Urban territory in Megalopolis has been expanding very rapidly for the past century, and during the last half century suburban sprawl has progressed with increased impetus. Since this has been also a time of great technological progress and rather general prosperity, except for the 1930's, the social and economic factors determining desirability of various locations for either residential or commercial uses have been undergoing rapid change, causing many and frequent shifts in the patterns of land use.

Studies of obsolescence in urban buildings have usually been devoted to dwellings and have concerned themselves with the grave social problems of slums, the essential element of blight on the urban landscape and community. A great deal of very useful literature has been published in America on these problems of slums and urban blight. They are basic problems and should be given first priority whenever urban renewal is undertaken. *The whole question of obsolescence of buildings, however, cannot be reduced to the problem of slums, for slums are the result, not the cause, of obsolescence*, a process that may accelerate and generalize blight in some places but spur on renewal or displacement in others. The process of obsolescence is not simply ended by the redevelopment or the renewal of slum areas and the relocation of the residents in better quar-

ters. The matter reaches much more deeply into the region's social and economic structure.¹¹

To understand the recent and present trends in urban uses of the land it seems worthwhile to consider briefly the roots of this process of obsolescence of buildings and neighborhoods. These two factors are constantly reacting on one another: the more obsolescent the buildings in a district, the less desirable is this district as a location, unless the whole neighborhood undergoes rejuvenation. Such renewal or redevelopment usually modifies the kind of residents or the type of activity characteristic of the area. Whether it spurs on blight or renewal, obsolescence accelerates displacement of people, activities, entire neighborhoods. In areas of increasing population and employment, it must mean the occupation of *more land* by urban uses. Thus, accelerating the process of obsolescence in a developing urban area will accelerate the sprawl of buildings, as has happened recently over large sectors of Megalopolis.

Before we come to define the process of obsolescence itself, we must examine the general status of housing in Megalopolis around 1950. Was it actually good or bad? The question is in fact a difficult one, for the quality of a building, especially as a dwelling, is a most debatable question. The yardsticks of good and bad can be defined in many different ways, and only a few qualitative features of housing seem quantitatively measurable.

The Census has a category of relatively good dwellings, defined as not dilapidated and equipped with hot running water and private toilet and bath. In 1950, the Census of Housing recorded that 63 per cent of all the

¹¹ In the early 1940's the Twentieth Century Fund made a careful study of housing in the United States, and the problem of slums was well summed up in the introduction of the report by Miles L. Colean:

"Housing is confused with the slum problem because slums are made up of houses, and because the deteriorated condition of slum housing, and in many ways the character of its original planning, aggravate the slum situation. Many factors, however, contribute to the existence of slums, among which are the problems of poverty and of the demoralization that comes from poverty. Almost equally pertinent are the problems arising from the structures of cities and the methods of city growth, from the techniques of land valuation, assessment and taxation, from the hopes of property owners for increases in value, and from the complicated nature of laws affecting the reassembly of scattered ownerships.

"All these things make for the creation and preservation of slums. All of them are probably more directly responsible than the dwellings of which the slums are composed. The remedy for slum conditions can never come from attempts to improve housing conditions unless the whole problem of urban organization is attacked at the same time." (Miles L. Colean, *American Housing: Problems and Prospects*, Twentieth Century Fund, 1944, p. 4.)

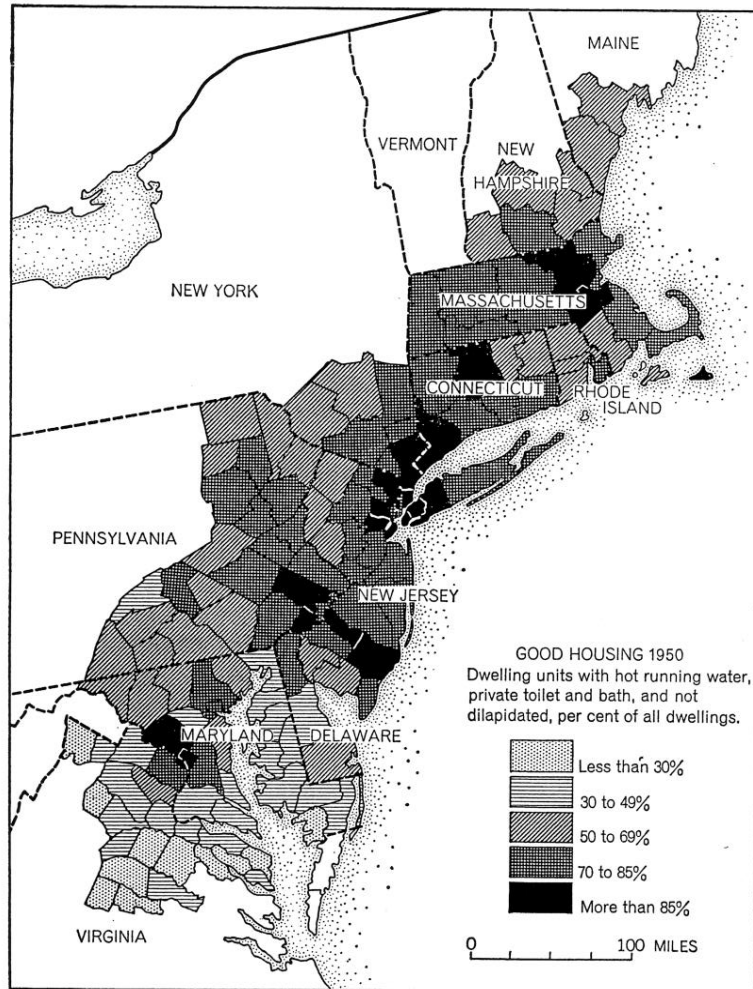


FIG. 127

dwelling units in the United States belonged in that category. Among the main regions in the country, the Northeastern seaboard ranked quite high, with an average of 79.2 per cent of all dwelling units classed as relatively good in the Middle Atlantic states and 73.9 per cent in New England; only California had a higher ratio of good housing, with 86 per cent. The distribution of this ratio over Megalopolis, on a county

basis, is quite interesting (Fig. 127). There was a predominance, especially along the axial belt of the region, of percentages greater than 70, and in and around the main cities (except Philadelphia and Baltimore) they were greater than 85. Within Megalopolis the less well-housed sections were toward the south and away from the main cities. Beyond the fringe of Megalopolis, too, in northern New England, in the Appalachian Mountains, or even more in Virginia, the average quality of housing declined.

The good showing of the more crowded and more urbanized districts may shatter the old association in the minds of many between urban areas and slums. Although many people do live in blighted housing in the large cities, they make up, in this midcentury, only a minority of urban and suburban population. In fact, while 63.1 per cent of *all* dwellings in the entire country were classified in this better category in 1950, that ratio rose to 69.5 per cent for the nonfarm dwellings and 77.8 for urban dwellings. Only 6.5 per cent of the urban dwelling units were classed as dilapidated, 2 per cent were not dilapidated but lacked running water, and 10.5 per cent had no private toilet or bath.¹² These proportions were higher for rural nonfarm dwellings and much higher for rural farm. For the country as a whole, therefore, people were better housed in urban territory than in rural areas, and this was true even in Megalopolis, as the map of housing shows, for although its cities are older, many of the buildings are relatively new or in good general condition.

To conform to current standards of good housing, then, a dwelling must have running hot and cold water and private toilet and bath, and must be, of course, in a good state of repair. Proper equipment and maintenance are more important than age, but obviously they are more difficult and costly in an older building than in a newer one. In 1950 the proportion of old dwellings (more than thirty years old) was much higher in the rural farm category than in the urban, but urban dwellings were on the whole older than rural nonfarm dwellings, because of the recent expansion of outer suburbia. The urban houses, however, seemed better maintained.¹³ Perhaps the relatively high rents in the cities warrant more repairs.

This Census definition of good housing is concerned mainly with

¹² U. S. Bureau of the Census, *U. S. Census of Housing: 1950, Vol. 1: General Characteristics, Part 1: U. S. Summary*, U. S. Government Printing Office, Washington, D. C., 1953, p. 4.

¹³ *Ibid.*, pp. 1-3.

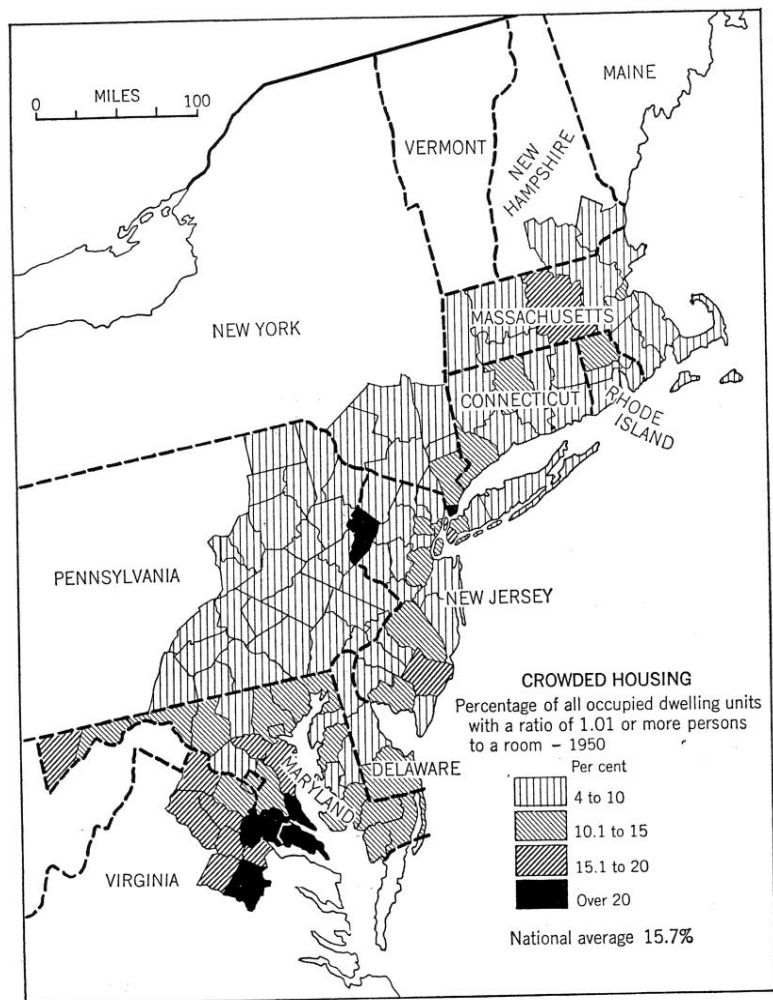


FIG. 128

sanitary conditions, which are important considerations but not the only important ones. A dwelling adequately equipped and repaired will not provide actually good living conditions if it is crowded with too many people in every room. Moreover, overcrowding will also make good maintenance more difficult and may well accelerate the rate of obsolescence. We must, therefore, consider the "persons per room" or "P.P.R.

ratio"¹⁴ as an index of crowding. This can be expressed for an area by giving either the average number of persons per room or the percentages of all dwelling units having a low or a high density of occupants. Crowding in a household really begins when there is more than one person per room, which gives a P.P.R. ratio greater than 1, and a map of the relative degree of crowding in housing may be obtained by showing the percentage of all dwellings in which the ratio is greater than 1 (Fig. 128). In this respect Megalopolis does relatively well, and the larger cities do not appear especially blighted in terms of crowding. In fact, it is remarkable that in the United States higher regional density of population does not make for more crowded housing. The P.P.R. ratio in 1950 was relatively low — 0.66 — in the densely populated Northeast, while it was 0.78 in the South and 0.70 in the West (all ratios for nonfarm households).¹⁵

Neither the physical condition and equipment of the structures nor the density of occupancy per room can serve, of course, as entirely satisfactory measures of housing obsolescence, but they provide valuable indications. Related to income, household size, racial distribution, value, and rent, as has been done by Louis Winnick, the P.P.R. ratio proves a significant index. From such studies it is evident that housing is more adequate for white families than for nonwhites. In many areas the crowding per room is usually greater in Negro neighborhoods than in white districts, and the higher ratios in this respect in the South reflect the higher proportion of Negroes in that section's population. This crowding stems, of course, from the unwillingness of white people to let Negroes settle where they would like to. However, the minorities whose areas of residence are thus crowded because of such restrictions usually have a relatively lower income level, which also decreases their capacity to secure better housing.

As a result of urban studies carried on by American sociologists since the beginning of the century it has become almost commonplace to stress how the history of an old house in a large city tells the story of successive waves of settlement and migration through a given area — how, as the structure has aged, it has sheltered households of newcomers and of people with relatively decreasing incomes. This succession used to be true of many (though not all) districts in the larger urban nuclei of Megalopolis, especially as long as immigrants from abroad kept pouring

¹⁴ For a very good analysis of this ratio and a discussion of the various measurements of housing, see Louis Winnick, *American Housing and Its Use* (Census Monograph Series for the Social Science Research Council in cooperation with the U. S. Department of Commerce), John Wiley and Sons, New York, 1957.

¹⁵ Winnick, *op. cit.*, pp. 61-65.

in, and the most recent layer among them usually corresponded to the lowest income level. Then, as the influx of immigration slackened, the in-migration of Negroes from the South took on increasing importance in Northeastern cities, and still more recently the Puerto Ricans have come, especially to New York City.¹⁶ Such successive use of older structures by group after group of poorer people accelerates the rate of obsolescence. Often the new occupants would be willing to contribute to better maintenance, but they seldom own the buildings; and in a socially declining neighborhood a landlord is less interested in keeping up his property than in making as much profit from it as possible before the building becomes completely obsolescent, leaving merchantable value in the land only.

In the process of obsolescence age is therefore a very important factor for other reasons than the fatigue of materials used in the structure. It must be remembered that in the United States by 1950 some 55 per cent of all nonfarm dwelling units were more than thirty years old, and only 21 per cent were less than ten years old.¹⁷ The Internal Revenue Service uses thirty-three and one third years as the standard of the useful life of a one-family frame dwelling.¹⁸

The U. S. Treasury's valuation of the useful life of a dwelling house does not correspond with the usual assumption by banks and mortgage loan companies that it will last fifty to one hundred years. The former estimate is based on the depreciation of rented housing, which undoubtedly is more rapid than for owner-occupied dwellings, and it allows for a reasonable profit on the capital investment. The latter estimate is oriented more toward the owner-occupied house. Whatever the point of view of an evaluation, age becomes an essential component of a house's value. It is therefore interesting to consider the distribution in Megalopolis of recently built houses (Fig. 129). By 1950 in most of the counties of Megalopolis the percentage of dwelling units in structures built after 1940 was below 20, i.e., below the national average; it was more than 30 per cent only in the parts of Maryland and Virginia where the suburbs of Baltimore and Washington had been sprawling, and in Nassau County on Long Island. Despite the relatively good condition and little

¹⁶ Oscar Handlin, *The Newcomers*, New York Metropolitan Region Study, Harvard University Press, Cambridge, Mass., 1959.

¹⁷ U. S. Census of Housing: 1950, Vol. 1, Part 1, pp. 1-3.

¹⁸ We are indebted for a good deal of research on housing to Dr. John Rickert, a research assistant with the Study of Megalopolis in 1957-58. The tables and graphs of his report on the obsolescence of housing have been used in the preparation of the following pages.

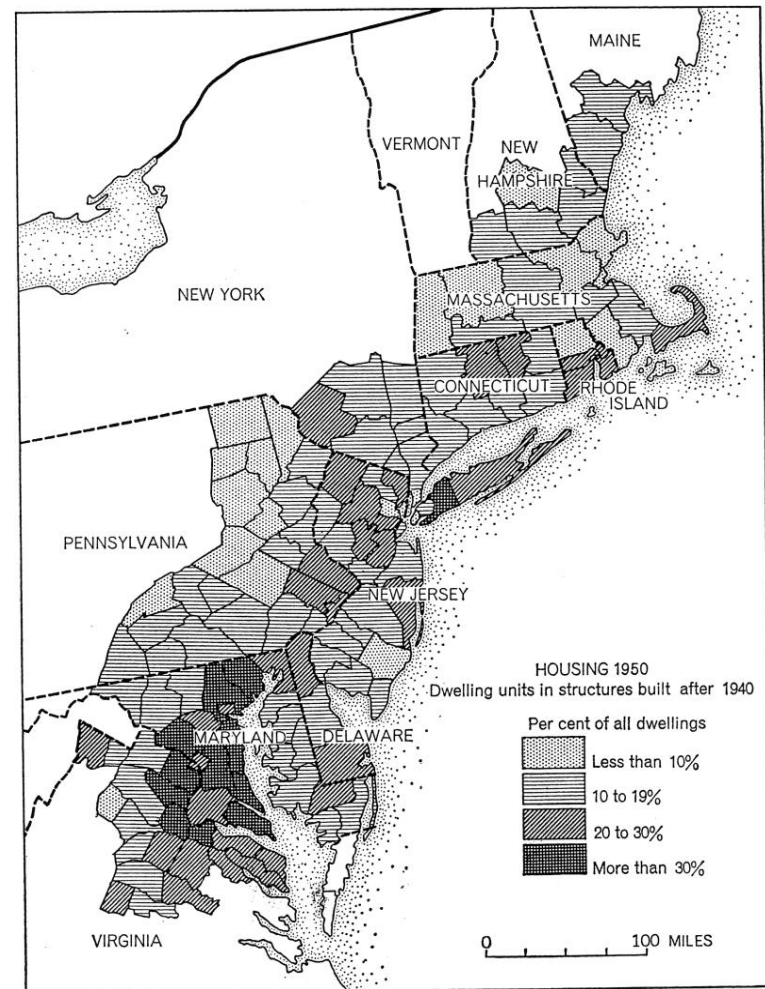


FIG. 129

overcrowding of housing in Megalopolis, the age of the great majority of the buildings could cause some concern for the not-too-distant future.

True, because of the heavy urban concentrations in the old cities a higher proportion of the population lives in large structures built of heavy masonry. The physical wear and tear on a building is, of course, influenced by the materials of which it is made, and upkeep is in many

respects easier and less costly for masonry than for wood, especially in terms of exterior maintenance. As to the interior, wear and tear again depend greatly on the quality of the materials originally used in the construction, and at a later stage on the kind of maintenance and repair provided. "Adequately modern" contemporary residences, whether one-family detached structures or multi-storied apartment houses, require a constantly increasing internal equipment of growing complexity. As mechanization spreads, a home uses more and more electrical apparatus, and periodic or continuous overloading of the electrical wiring causes the wires to overheat and burn out the insulation, creating a fire hazard. A number of machines or gadgets that used to be luxuries, occasionally installed by residents according to their respective whims and means, are increasingly becoming indispensable components of a dwelling unit. In America hot running water and private baths are no longer criteria of luxury but essentials of decent dwellings. New houses and apartments are expected to have a mechanical refrigerator and even built-in air conditioning quite as naturally as they are expected to have windows and electric outlets (see the maps of dwellings with refrigerators and central heating, Fig. 130).

Real estate salesmen often hold that "gadgets sell houses." Such gadgets, to name a few found in the better suburbs, included in the late 1950's built-in stoves and ovens, vacuum cleaners and dishwashers, garbage disposals and air conditioners, and in many cases radio intercommunication systems and radio-controlled garage doors. It is easy for many people to do without many of these technological improvements, but social standing and relative dwelling comfort increasingly depend on many such features in a home. The rapid pace of technological refinement in mechanizing homes requires a building to be adaptable to all these changes. Unadaptable houses may be considered obsolete to the extent the occupants desire this sort of progress. Thus new *technological obsolescence* must be reckoned with, which quickens the pace of obsolescence in general as long as the rising standard of living allows it to go on and on. This trend also increases the significance of the age of buildings.

Both technology and taste have recently modified the whole design and plan of houses and apartments. Space is now distributed within the structures differently from what was usually the case before 1940. On the whole, space for living has been shrinking (perhaps with the exception of the living room proper), while space for "gadgets" has increased. Homes of smaller cubic footage have been accompanied by much larger garages, which must hold one and preferably two bigger cars per family.

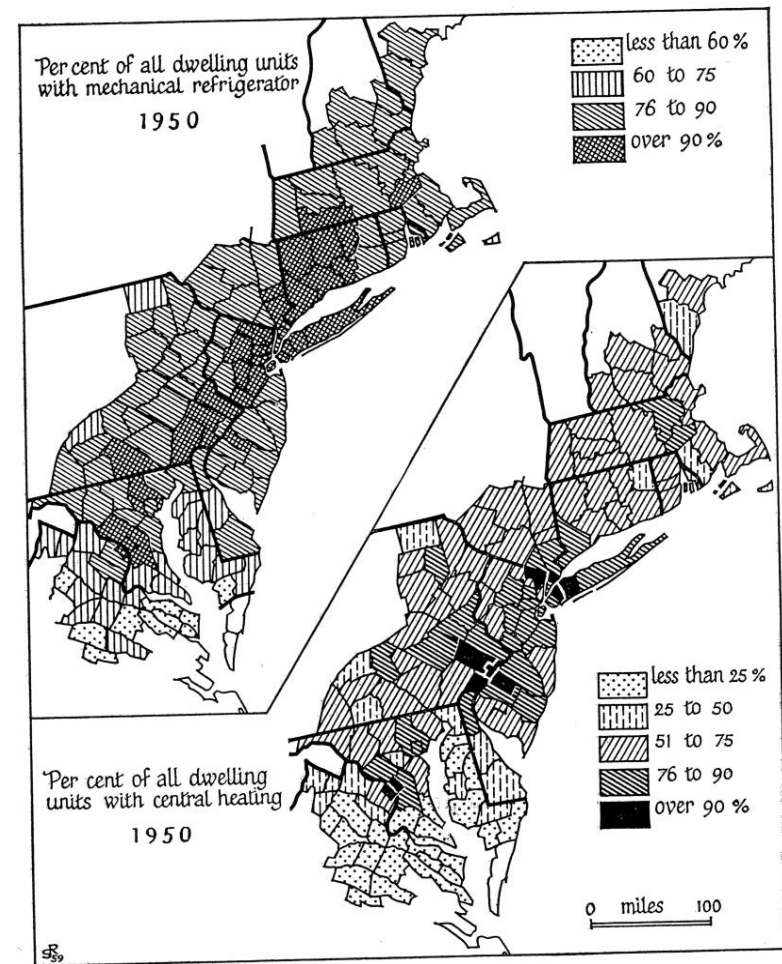


FIG. 130

The one-level or split-level plan is in many cases preferred to the older multi-storied homes. These fashions in design, which, of course, are not unrelated to considerations of comfort (elimination of stair climbing, for example), have added to the general trend of an accelerated rate of obsolescence.

Obsolescence means depreciation for the great majority of structures, though there has always been a market for unusual homes and historic relics, which may be compared to the demand for antique furniture.

Certain kinds of old structures have been especially glorified by history or literature; and though they may be especially costly in terms of upkeep and equipment with modern gadgets, the wealthier members of a community may well accept the expense in exchange for the aesthetic feeling and the prestige value derived from such surroundings. This is why Sutton Place and Georgetown have been rejuvenated and made fashionable, and why many manorial farms have been restored and kept up in areas of estate farming from northern Virginia to Rhode Island, and why former fishermen's houses on Cape Cod or Nantucket have taken on new value.

The relationship between age and the adequacy of a house as a dwelling could certainly not be formulated in simple and constant terms, but it could generally be agreed that *the older a house is, the higher is its propensity toward obsolescence*, though measures can be taken to offset the trend if the owner is able and willing to go to such expense. In 1937 a study of one-family dwellings in the United States showed that the value of a building went down to 93 per cent of the original amount three years after construction, to 60 per cent after thirteen years, to 37 per cent after twenty-three years, to 12 per cent after forty-three years, and to 4 per cent after sixty-three years.¹⁹ Happily for the owners, the value of the land usually goes up as the building itself depreciates. The predominance of U-shaped graphs showing the changing values of houses and the land they stand on, in the Megalopolitan cities of Providence, Rhode Island, Worcester, Massachusetts, and Trenton, New Jersey, indicate also that the land becomes more valuable than the house on it forty-two to fifty-five years after construction; in the non-Megalopolitan city of Richmond, Virginia, this occurs after about a 60-year period (Fig. 131). These trends suggest that, but for a few exceptional cases or locations, some fifty years after it was built a residence becomes obsolete and is worth essentially only what its land is worth.

The obsolescence of housing is affected not only by age and technological, economic, and social changes, but also, and to a substantial degree, by existing legislation on such matters as zoning, taxation, and credit. Many authors have pointed out that zoning, at least in the way it has been used, does not help much to control obsolescence. It rather "petrifies urban improvement";²⁰ and, as Arthur B. Gallion has shown, taxation

¹⁹ Data used in this paragraph and in the construction of Figure 131 are from U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, *Financial Survey of Domestic Housing*, Washington, D. C., 1937.

²⁰ Arthur B. Gallion and Simon Eisner, *The Urban Pattern: City Planning and Design*, Van Nostrand Company, Princeton, N. J., 1950, p. 367.

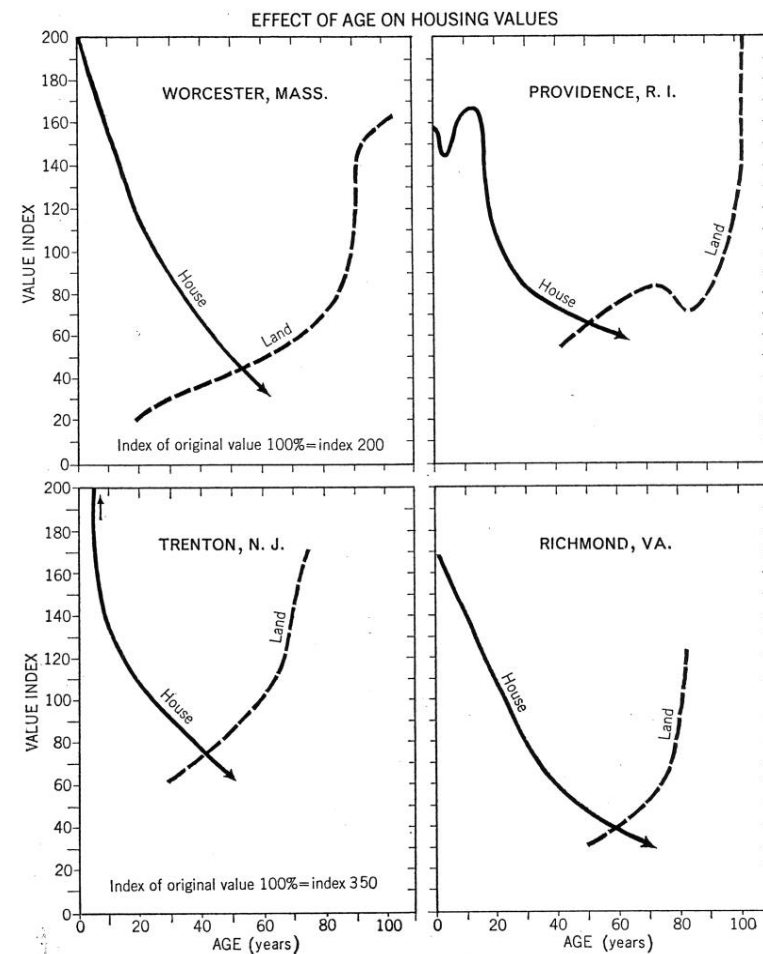


FIG. 131

works in reverse of what it might have been expected to do for the conservation of built-up lands:

Physical and social self-maintenance is the urgent need—a form of preventive treatment that will build resistance to decay and render major operations less necessary. . . . Buildings are built to provide space in which to live or conduct business. Taxes are collected to support the public services that make these building ventures possible and profitable. Today taxes are measured