

THE IDEAS OF
LE CORBUSIER
ON ARCHITECTURE
AND
URBAN PLANNING

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CHAPTER VII

Urban Planning

LE CORBUSIER approached the field of urban planning more slowly than he did the field of architecture. His first article on the subject appeared in June 1922, in the seventeenth issue of *L'Esprit nouveau*, at a time when his general theory of architecture was already completely thought out. His ideas, fairly schematic to begin with, were developed gradually, with occasional alterations and revisions, over the following decades.

By 1922, Le Corbusier, aged thirty-five, had learned a good deal about architecture from a number of different sources: his training at a technical school, L'École d'Art, at La Chaux-de-Fonds in Switzerland; the various architects, French, German, and Austrian, for whom he had worked; and his travels in Germany, Austria, and many Mediterranean countries.

He knew little about urban planning. Indeed, Le Corbusier would have had difficulty finding guidance in this nascent field. He had to start from scratch and was prompted to do so by his perception of the enormous problems of existing cities.

These problems had a long history: they had developed unchecked with the evolution of the city. In explaining this point, Le Corbusier distinguished between what he called "the donkey's way" and "the way of man":

"Man walks in a straight line because he has a goal; he knows where he's going. He decides to go somewhere and walks right up to it. A donkey ambles absentmindedly along, zigzagging to avoid large stones, skirt steep inclines, and stay in the shade. He exerts himself as little as possible.

"Man's feelings are governed by his reason; he subordinates his feelings and instincts to his goal. His intelligence gives orders to his animal nature. It establishes rules that are derived from practical experience, and experience is hard won. Man has to work in order to survive. And he cannot work effectively unless he follows a certain line of conduct, unless he obeys the rules derived from practical experience. He has to think ahead, toward the result.

"The donkey doesn't think about anything at all, except avoiding effort.

"The donkey marked out all our European cities, including Paris, unfortunately." (6, p. 5)

Le Corbusier, in a 1922 manifesto, formulated the underlying problems of existing cities:

"The survival of obsolete frameworks paralyzes city development. Industry and commerce will be strangled by backward cities.

"Traditionalism, in large cities, obstructs the development of transport, cramps and debilitates activity, kills progress, and discourages new ideas.

"The decay of old cities and present-day working pressures are causing physical and mental illness. Contemporary society must recover its spent forces. The layout of a city determines the physical and mental condition of its residents. Unhealthy societies waste away. A nation's vigor depends on that of its citizens.

"Contemporary cities cannot meet contemporary needs unless they are adapted to new conditions. Large cities govern the life of the nation. If large cities are stifled, the nation will founder!

"To transform cities, we must discover the basic principles of contemporary urban planning." (6, p. 78)

Le Corbusier's theory of urban planning, as it developed over the following decades, is a search for these basic principles. In the interest of clarity it may be divided into four stages:

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|------------------------|------|
| 1. A CONTEMPORARY CITY | 1922 |
| 2. THE RADIANT CITY | 1935 |
| 3. THE GREAT WASTE | 1937 |
| 4. REGIONAL PLANNING | 1939 |

1. A CONTEMPORARY CITY 1922

Le Corbusier's principles of urban planning, as presented in the *L'Esprit nouveau* articles republished in 1925 in his book *Urbanisme (The City of Tomorrow and its Planning)*, proceed from a project for "A Contemporary City for Three Million People," which he presented at the 1922 Salon d'Automne. Feeling that his project had been misunderstood, he described it in a 1925 *L'Esprit nouveau* article. As he explains:

"It was greeted with considerable astonishment . . . arousing anger in some and enthusiasm in others. My proposed solution was radical, uncompromising. There was no written explanation of the plans, and, unfortunately, not everyone is capable of reading plans. I should have been there to answer the kind of questions that spring from deep human feelings. Such questions

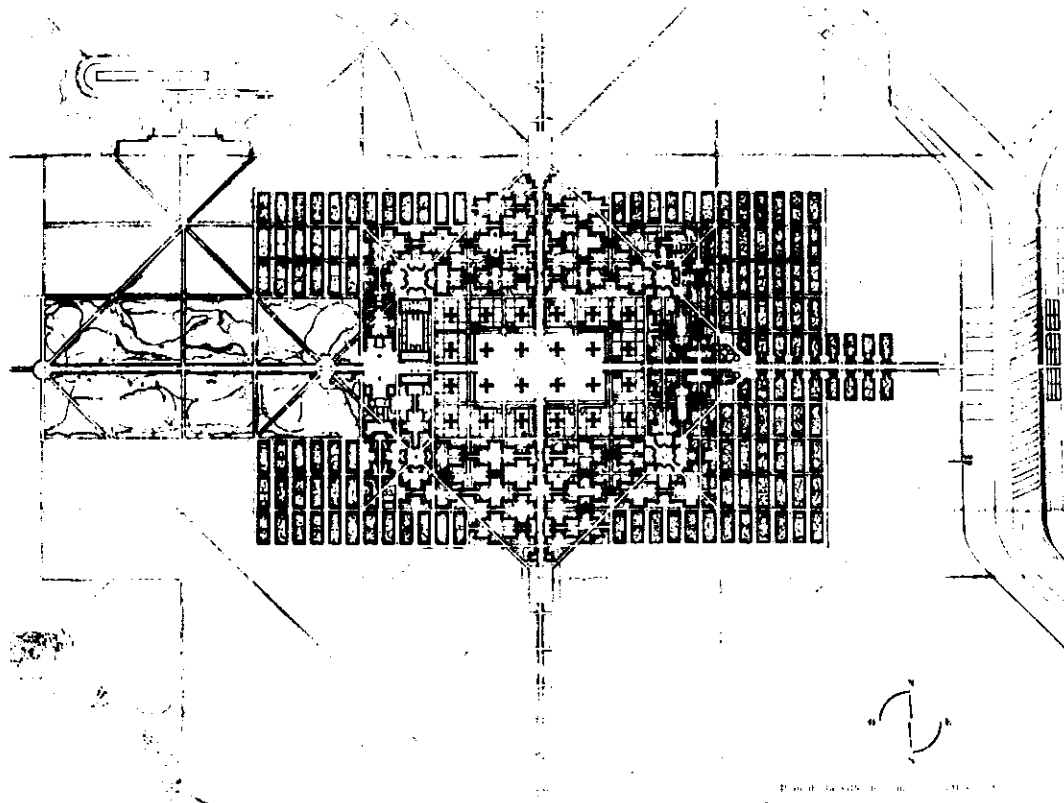


Plate 20: Plan of a contemporary city for 3 million people.

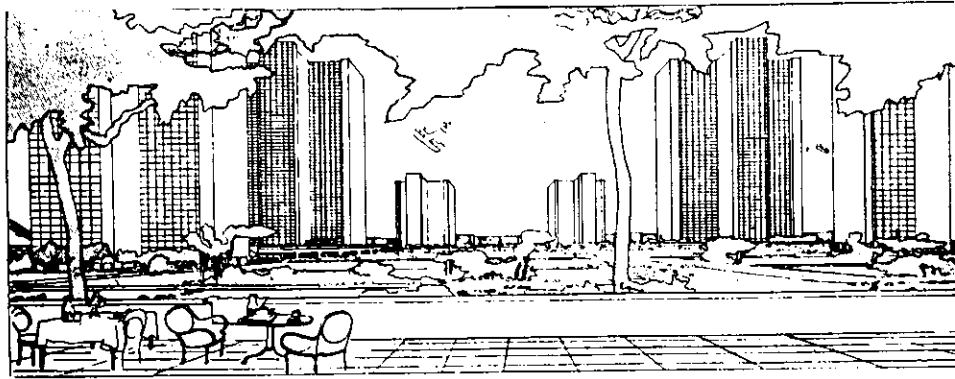


Plate 21: Perspective view of the "contemporary city."

are of major importance and should not be left unanswered." (6, p. 157)

Le Corbusier's "contemporary city" has three basic components: a central business district surrounded by residential districts; a large, open belt for future expansion; and, farther off, suburbs with residential and industrial areas. The business district can accommodate from 400,000 to 600,000 people with a density of 1,200 persons per acre. The surrounding residential districts have 600,000 residents with 120 persons per acre. There are two kinds of apartment buildings: some, built around parks, form large, closed city blocks; others, consisting of long slabs placed at right angles to each other, form an irregular open pattern. These slabs, set in large planted areas, straddle the streets. Two million people live in garden-cities located in the suburbs. The city itself is densely populated, since:

"The higher the density of a city's population, the shorter the distances to be covered. . . . However, though we must increase the density of the population, we must also greatly increase planted areas. . . . We must therefore build the city *vertically*." (6, p. 160)

Le Corbusier developed four basic principles:

- "(1) *Relieve the congestion of central districts* to satisfy traffic requirements.
- "(2) *Increase the population density of central districts* to facilitate business contacts.
- "(3) *Improve traffic flow*. This means that we shall have to change totally the

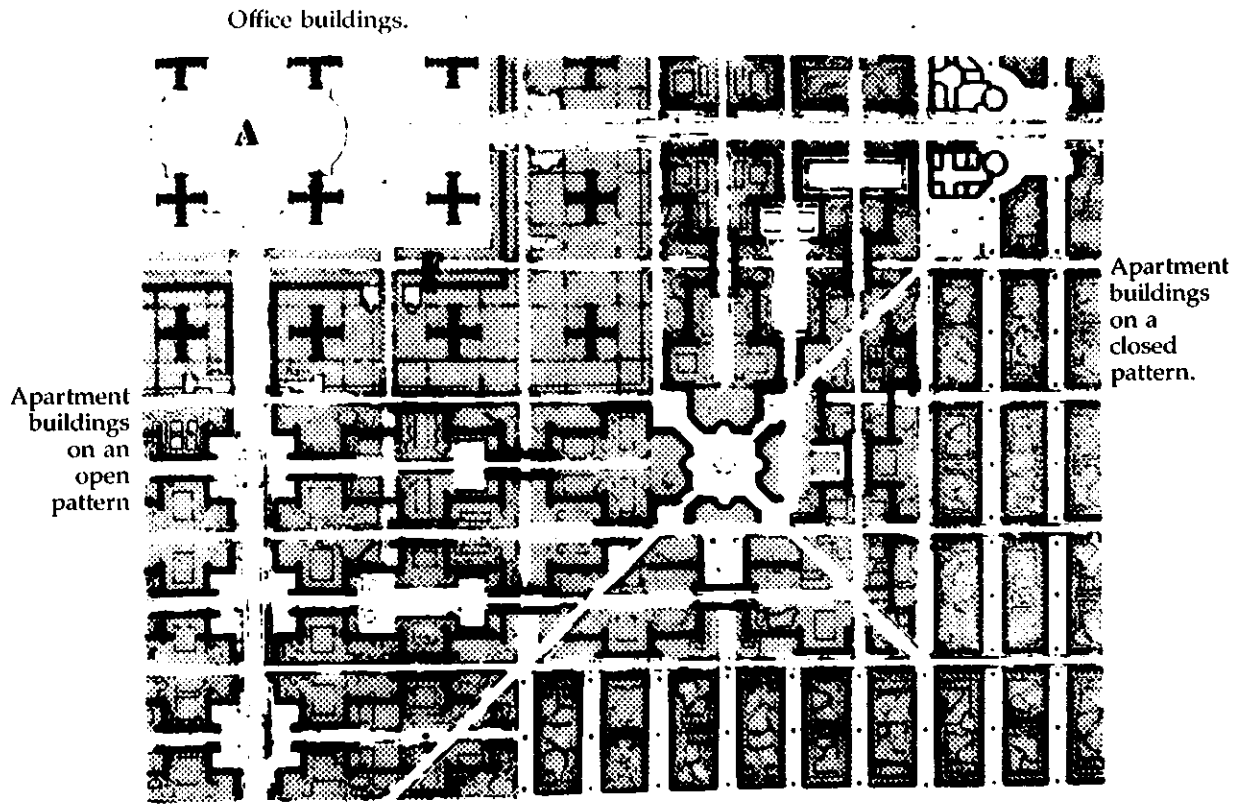


Plate 22: Detail of the "contemporary city" plan.



Plate 23: Plan of the Champs-Élysées area of Paris drawn at the same scale.

existing concept of a street, which is outdated by contemporary means of transportation: subways, cars, streetcars, airplanes.

"(4) *Increase planted areas.* This is the only way to promote healthy conditions and create a tranquil atmosphere that will offset the strain produced by the accelerated tempo of modern business." (6, p. 92)

Le Corbusier, returning to the problem of city streets, remarked:

"Existing streets are old dirt roads that have been paved over with subways underneath.

"Modern streets will form a new organism: a sort of elongated workshop or warehouse where delicate and complex utility services can be easily installed and maintained. These services must be accessible at every point." (6, p. 160)

He proposed that three kinds of streets be placed one above the other:

"(a) There will be underground streets for trucks. If, in some districts, buildings were raised on stilts, these streets would not be underground.

"(b) At the ground-floor level of the buildings, there will be a complex network of regular streets that will allow local traffic to reach all parts of the city.

"(c) *Big elevated highways* 40 or 60 meters (130 or 200 ft.) wide, which are made of reinforced concrete, will run on the North-South and East-West axes of the city for rapid *through traffic*. They will be connected to the local streets by ramps at 800- or 1,200-meter ($\frac{1}{2}$ or $\frac{3}{4}$ of a mile) intervals.

"The number of existing streets *must be reduced by two-thirds.*" (6, p. 161)

Le Corbusier's proposed street system, based on a 400-meter ($\frac{1}{4}$ of a mile) grid sometimes divided in half, was determined by appropriate distances between subway stations or bus stops as well as by acceptable walking distances for pedestrians. He also stressed the need for planted areas:

"The new spirit of architecture and the emerging art of urban planning can satisfy our deepest needs by bringing nature into the city landscape. . . ." (6, p. 71)

"Apartment buildings will be twenty, forty, sixty stories high. But men, who remain 1.75 meters (5 ft. 9 in.) tall, will feel ill at ease when they walk down the streets, surrounded by these giant constructions. We must bridge the painful gap between man and his city by introducing a mean that fits into both scales. . . . *We must plant trees!*" (6, p. 70)

Le Corbusier subsequently complained that his project was interpreted as a utopian dream:

"In 1922, when I drew up plans for a *contemporary* city for 3 million people, all the critics, without exception, started talking about my city of the future! My protests had no effect. I insist that I know nothing about the future, that I know only about the present. People respond with a sly evasion, 'You are concerned with the future,' which implies that 'they' (everyone else) are concerned with the present. It's a lie! As a humble seeker, I live in the present, in the world as it exists today, while they live in, and off, the past." (11, p. 180)

He did, however, stress that his project was conceived as a diagram:

"Proceeding like a chemist in his laboratory, I dismissed special cases or accidental instances and assumed an ideal situation. I was not trying to overcome an existing state of things, but to construct a rigorous, theoretical scheme that would make it possible to formulate the basic principles of contemporary urban planning.

"For to plan a large contemporary city is to engage in a tremendous battle. And how can you fight a battle if you do not know exactly what you are fighting for?

"We must have guidelines. We must have basic principles of modern urban planning." (6, p. 158)

Le Corbusier formulated another general principle already mentioned in Chapter II: we should aim for diversity in the overall appearance of a city and unity in the individual buildings:

"When we walk through a city, our minds can evaluate the general plan and appreciate coordinated and majestic layouts. But our eye, limited to the narrower range of its visual field, sees only a succession of cells: a jagged, disjointed, diversified, complex, oppressive sight. . . . Overburdened, its only feeling is one of pain and fatigue, and the mind, after this initial defeat, is too harassed, exhausted, to respond to the splendid layouts."

He concluded:

"If these eclectic cells were based on a common standard, the impression of disorder would disappear, giving way to one of order and tranquility. If there were unity in the details, the mind, freed of encumbrances, would be able to appreciate the grandeur of the whole.

"The exact and ideal concept, already anticipated at the time of Louis XIV by Abbé Laugier, is as follows:

"(1) *Chaos and turmoil in the general plan* (meaning a composition full of contrasting elements—as in a fugue or symphony).

"(2) *Uniformity in the details* (meaning decency, restraint, and conformity in the details)." (6, p. 64)

Le Corbusier's second point has a further practical advantage:

"If we are to industrialize construction methods, we can no longer construct individual, custom-made buildings, each having its own peculiarities; we must build entire streets, entire districts. We must therefore study closely the basic unit, a human dwelling, and determine the right module and mass-produce it. The regular and quiet pattern formed by a succession of these units would then extend, far beyond the miserable corridor-street, to vast architectural compositions. Urban planning must do away with existing corridor-streets and, by designing new building developments, create a new architectural symphony on a much larger scale.

"The corridor-street and its two sidewalks, squeezed in between tall buildings, must go." (6, p. 68)

This first attack on the "corridor-street" was the onset of a campaign, pursued over many years, that forms an important part of his theory of urban planning.

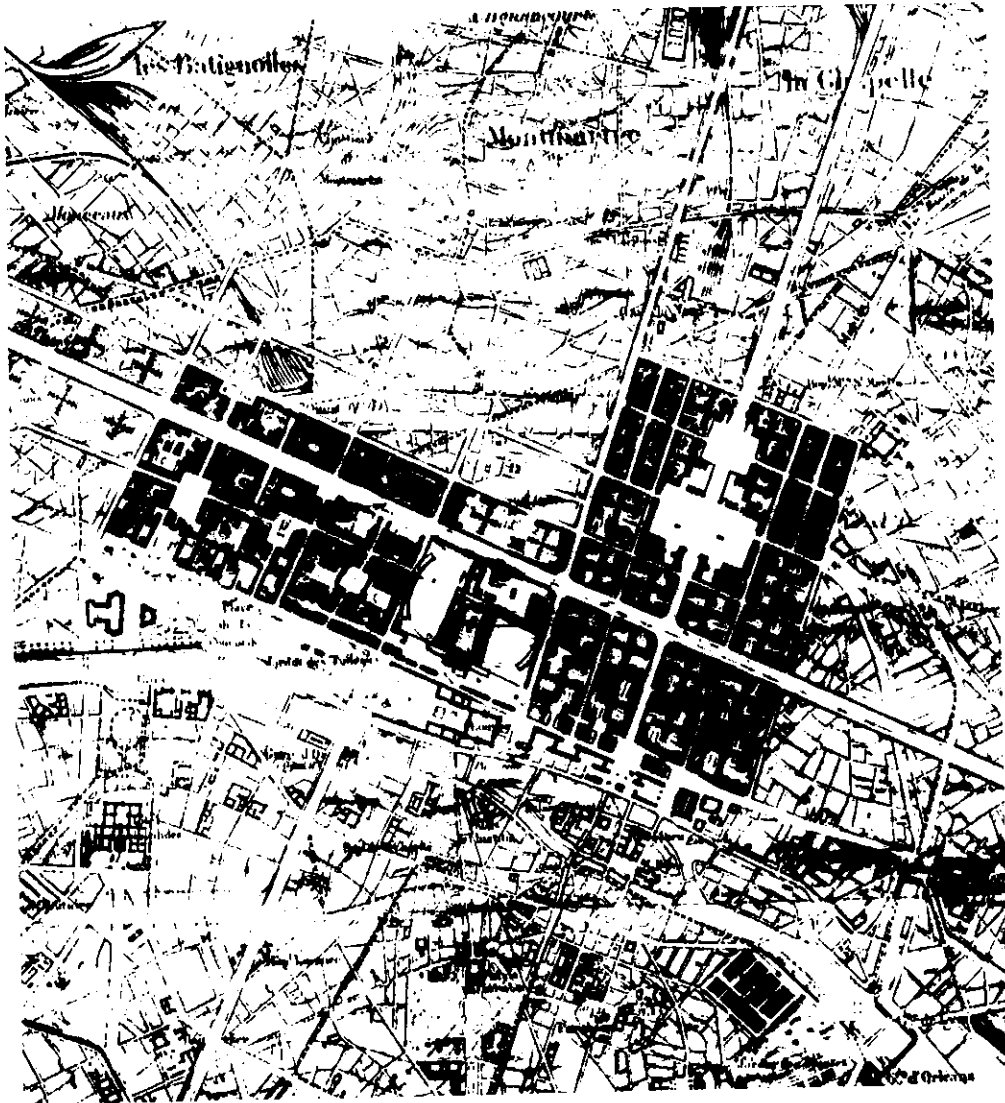


Plate 24: The "Plan Voisin" for Paris.

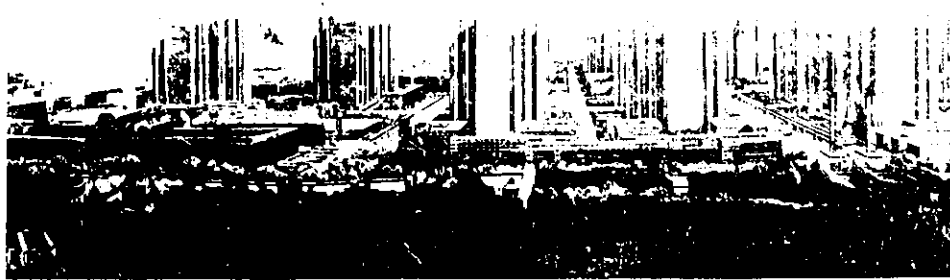


Plate 25: Perspective view of the "Plan Voisin."

The "Plan Voisin" For Paris

In the 1925 "Plan Voisin de Paris," financed in part by the Voisin motor company, Le Corbusier for the first time applied certain principles of his "contemporary city" to an existing situation: a partial renovation of Paris. The plan was, and still is, severely criticized. We must, however, realize that this, too, was intended as a diagram:

"The Plan Voisin does not claim to offer a detailed solution of the problems confronting this central district of Paris. But it may serve to bring our consideration of these problems into line with contemporary needs and set them in the right perspective. Its principles cut through the tangle of petty reforms with which day by day we delude ourselves." (6, p. 273)

The plan covers an area about two miles long, which lies north of the Rue de Rivoli and is divided into a business district in the East and a residential district in the West. All of the historical buildings are preserved.*

Le Corbusier, in the fourteenth chapter of *Urbanisme*, asks whether surgery or medicine should be applied to the ailing city of Paris. His radical "Plan Voisin" is clearly a surgical operation, justified by the gravity of the disease:

*In 1937, Le Corbusier drew another plan for the center of Paris that covers a much smaller area.

"The Old Paris committee has convened. We are glad to know that vandalism is being curbed. Of course, of course! We are reassured to learn that beauty is considered a legitimate need of citizens.

". . . But a person who is dying of heart and lung diseases does not do finger exercises on the harpsichord." (6, p. 245)

The Ciam and the Athens Charter

The formation of the CIAM (International Congress on Modern Architecture) in 1928 provided a mouthpiece for Le Corbusier's ideas on urban planning. During the 1933 meeting of the Congress, which was held in Athens, a charter was drawn up demanding a basic reform of urban planning.* While this restates most of the principles embodied in Le Corbusier's "Contemporary City" project, those listed under the headings of "Administration" and "Housing" anticipate the subsequent evolution of his thinking. First, urban planning should go beyond the city limits:

"Cities, like villages, must be studied in the context of their regional economies. City plans must give way to regional plans."

Second, city housing must be not only efficient but also pleasant:

"The best sites will be used for residential districts. Each room in an apartment will have sunlight during a minimum number of hours. . . ." (14, p. 30)

Since Le Corbusier here, as in his Paris renovation project, discusses such problems as financing and land expropriation, it is worth quoting his speech to the 1930 meeting of the CIAM in Brussels:

"Contemporary architecture and, still more, urban planning are closely connected with social problems. We should keep abreast of these developments through our own investigations, but I strongly urge that we steer clear of political and social problems in our meetings. They are extremely complex and, moreover, raise further economic problems. We are not qualified to discuss these difficult subjects.

"I repeat we must here confine ourselves to our role of architects and urban planners and, on this professional footing, inform those concerned about the possibilities offered by contemporary techniques and of the need for a new approach to architecture and urban planning." (11, p. 37)

2. THE RADIANT CITY 1935

The main difference between Le Corbusier's "radiant" and "contemporary" cities stems from his growing determination to give city dwellers a more pleasant as well as more efficient environment. This new concept was preceded by many years of anxiety and doubt. As he explains:

*The charter was not published until 1941. By then Le Corbusier had already set forth its basic principles in his "Pavillon des Temps Nouveaux" at the Paris exhibition of 1937.

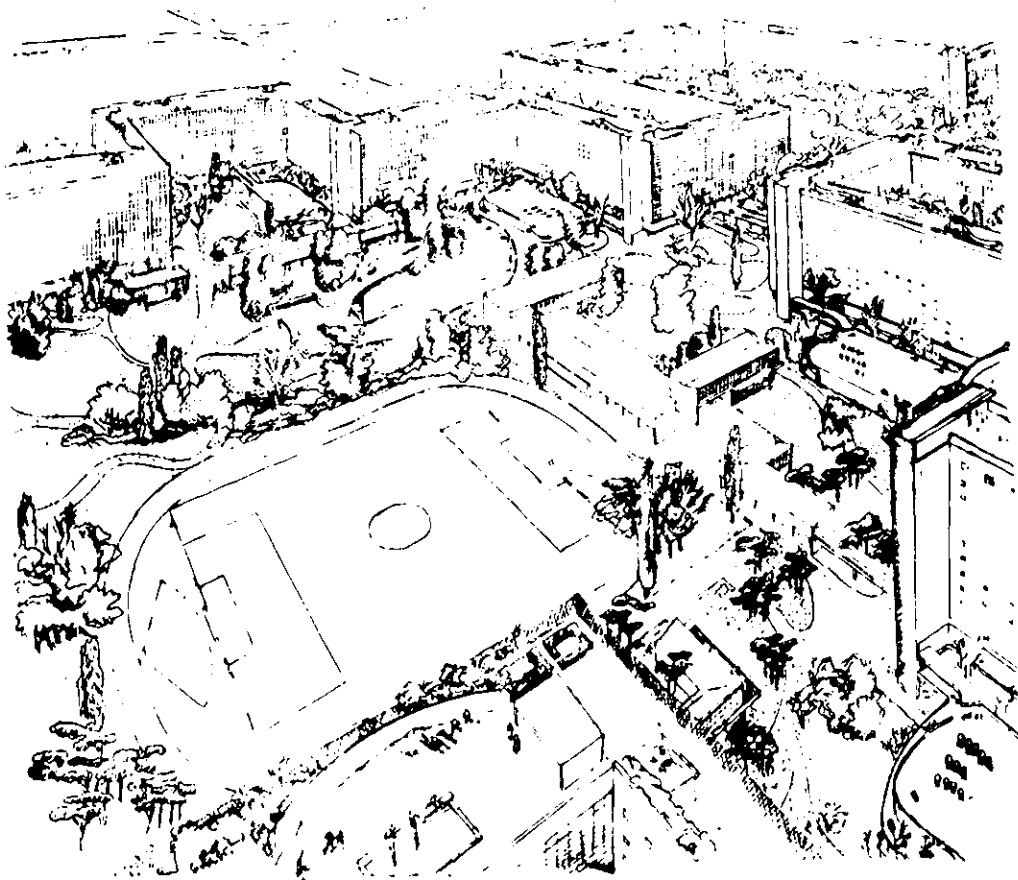


Plate: 26: The Radiant City. Perspective view.

"This takes me back to 1922 and the state of mind I was in while designing a *contemporary city for 3 million people*. My analyses, my calculations, and a powerful intuition had convinced me that I must set up a *new scale for the city*. . . . But how disturbed I was by the results! What anguished weeks I lived through! . . . I was tortured by the thought that the great empty spaces of this imaginary city, everywhere dominated by the sky, would be so dead, so dull, that its inhabitants would be panic-stricken.

"It took me eight anxious years to discover the solution.* It proceeded from the following question: what kind of a life should a machine age man really lead? How can I fill every moment of his daily life and, better, make these moments enjoyable? Still better, give this man a sense of personal freedom in this collective organism and the means of satisfying the personal initiatives resulting from this freedom?" (11, p. 105)

Le Corbusier's answer was suggested by the following idea:

"With these questions clearly formulated in my mind, I one day told myself: *sports must be an everyday activity*, and THEY MUST TAKE PLACE RIGHT

*The studies leading up to the principles of the "Radiant City" include seventeen plates drawn up in 1930.

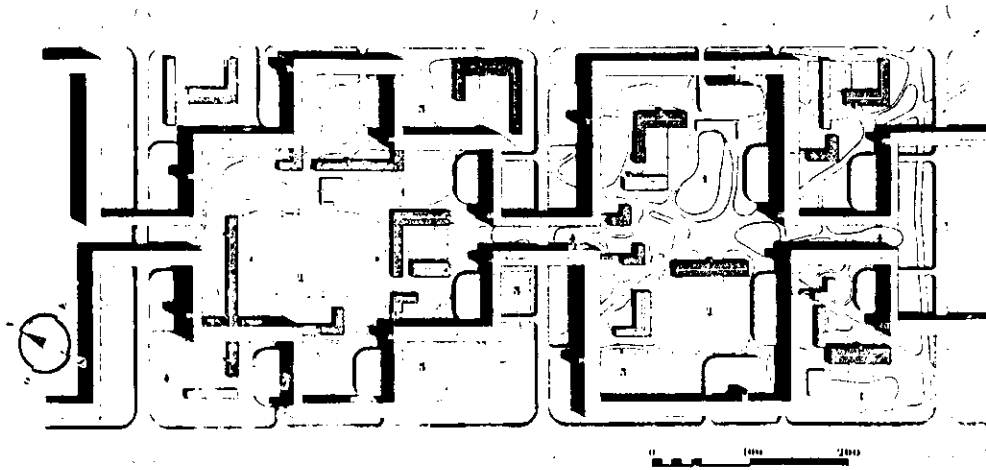


Plate 27: The Radiant City—Plan of a residential district.

- 1 swimming pools,
 - 2 stadium, soccer, etc.,
 - 3 tennis courts,
 - 4 playgrounds.
- The hatched and dotted areas indicate nurseries, kindergartens, and schools.

OUTSIDE THE HOUSES. It seems a dizzyingly reckless proposition. And yet, once this idea was firmly anchored in my head, I was able to seek out stubbornly—and find—an answer. After studying the problem for a number of years, I arrived at the idea of the Radiant City. Sports grounds were right outside the houses." (11, p. 65)

Le Corbusier defines the goal of the "Radiant City" as follows:

"The radiant city, inspired by physical and human laws, proposes to bring machine age man *essential pleasures* . . .

*Sun in the house,
a view of the sky through large windows,
trees he can see from his house.*

I say that the materials of urban design are:

sun
sky
trees
steel
cement

in this order of importance."

Thinking of his "sports grounds right outside the houses," he adds:

"But we must not forget another source of happiness: a chance to parti-

cipate actively in common pursuits that will benefit the whole community and alleviate the misery of less fortunate members." (11, pp. 85 and 86)

With this goal in mind, Le Corbusier greatly extended the ideas he had formulated for his "contemporary city." To begin with, he increased the density of the residential areas and completely eliminated the suburban garden-cities:

"The authorities want to force us to live in suburban garden-cities (60 to 120 residents per acre). . . . I propose to turn the city back into itself, enclose it within its own limits, and raise its population level to 400 residents per acre. We must eliminate garden-cities, with their spuriously natural surroundings. This will solve *the transport crisis*. And we must turn the dull-witted, retrograde, and suffocating city of Paris into a *green city, a radiant city*. We must bring *nature inside the walls of Paris*; it will be no more, nor less, contrived than that of garden-cities, but it will be much more useful." (11, p. 107)

The "radiant city," despite its higher density, frees considerably more ground space for pedestrians by raising all the buildings on stilts. By eliminating all closed city blocks and using only open building patterns, which straddle streets, it does away with conventional corridor-streets and also produces more attractive and varied open spaces:

"We have, needless to say, eliminated corridor-streets, now prevalent in all parts of the world. *Our apartment buildings have nothing to do with streets*. We have, moreover (and in perfectly good faith), completely reversed the present policy of urban planners, who want to make pedestrians run about *in the air* on elevated footbridges and let cars drive on the ground. *We have given THE ENTIRE GROUND SURFACE of the city over to pedestrians*. . . . And since our apartment buildings are raised on stilts, they can walk from one end of the city to the other in all directions. I add: NO PEDESTRIAN WILL EVER, UNDER ANY CIRCUMSTANCES, MEET A CAR!" (11, p. 108)

The different means of transportation will be organized as follows: cars will use elevated drives; trucks and streetcar routes will be located side by side under these drives, with underpasses for pedestrians.

The concentration of large numbers of people in tall apartment buildings will simplify their access to these buildings. As Le Corbusier explains, "2,700 people will use the same entrance."

"Cars will leave the elevated drive (which is a continuous stream of traffic) and enter an elevated car port in front of the main entrance. Instead of seventy-five doors opening onto the street, *there is only one door, and it is far away from the street*. . . . There will be a garage beneath the car port for the cars of building residents.*

"An entrance at ground level will be used by pedestrians. . . . This leads to a flexible network of octagonal and diagonal paths. . . . A sort of continuous marquee runs down the center of each path . . . : the pedestrian's umbrella."

Underpasses at 400-meter ($\frac{1}{4}$ of a mile) intervals will permit pedestrians to walk under the truck and streetcar routes. Streetcars will stop at every underpass. This plan allows for a convenient utility system:

"Utilities, placed under the slabs of the elevated drives, will be easy to

*One would assume that truck deliveries would be made at ground level.

get at and repair. At last! Or else they will be placed in trenches dug underneath the marquees of the pedestrian paths, where they will be protected from rain and easily accessible." (11, p. 124)

Le Corbusier concludes:

"Here, then, the 'artificial garden-city' is an effective concept: *because the city is vertical, not horizontal*. Height resolves every difficulty.

"And the city immediately becomes an organized entity: transportation problems are solved; common services, which eliminate waste, bring urgently needed time-saving benefits to each household."^{*} (11, p. 57)

Le Corbusier later used the ideas expressed in his "Radiant City" for a number of specific urban planning projects:

"These purely theoretical ideas have made it possible to formulate basic principles in ideal terms, above the battleground. Can such a theory be lifted out of its utopian framework and applied to concrete situations? Once a theory has led you to the heart of a problem, you acquire certitudes, guidelines, and are able to study particular cases in the light of a basic postulate. . . . In the years that followed, the principles embodied in the Radiant City directly confronted concrete realities in my plans for Algiers, Stockholm, Barcelona, Nemours, etc., etc." (11, p. 156)

3. THE GREAT WASTE 1937

In his "Radiant City" Le Corbusier had already eliminated suburban garden-cities. Going one step further, he now proposes to eliminate all suburbs on the grounds that they waste time and money. This development, a consequence of his trip to the United States, is described in a chapter of his book, *Quand les cathédrales étaient blanches (When Cathedrals Were White)*, entitled "Le Grand Gaspillage," "the great waste."

"I had for many years studied the harmful effects of that monstrous and disruptive outgrowth of our times: urban sprawl. It is easier to diagnose the illness in the U.S.A., where it exists on a larger scale and is a more desperate case." (13, p. 226)

He here analyzes the problem:

"My main argument in attempting to win over the American people to my reform of architecture and reorganization of the city is that our solar day has been misused. . . .

"The proper equilibrium of this twenty-four-hour cycle must be discovered and restored. This is our only possible salvation!

"I express our solar day as it exists now in the U.S.A. and also Europe by a circle (Fig. 62). The first segment (A) represents sleep . . . (B) is an hour and a half wasted in transportation—subways, trains, buses, streetcars. (C) is the eight-hour working day we now devote to necessary manufactured

^{*}Le Corbusier also advocated a sweeping agricultural reform described as the "Radiant Farm" and "Radiant Village." (11, pp. 319-337)

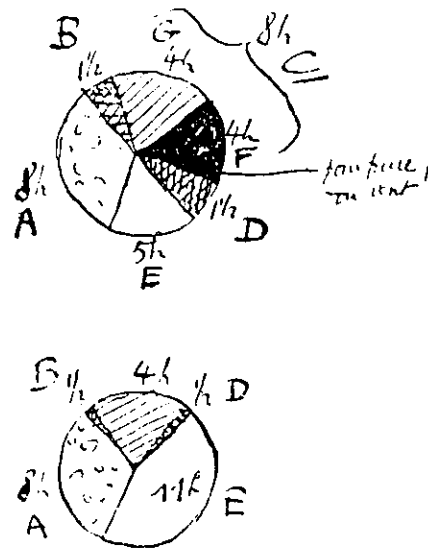


Fig. 63

articles; (D) is, once more, time wasted in transportation. This leaves us (E), five leisure hours in the evening." (13, p. 252)

Indeed, in addition to the hours lost in trains, subways, buses, etc., we must count those lost in constructing, maintaining, and operating transport systems as well as in extending utilities to the suburbs. Le Corbusier estimates that we each pay for this every day with four hours of additional work.

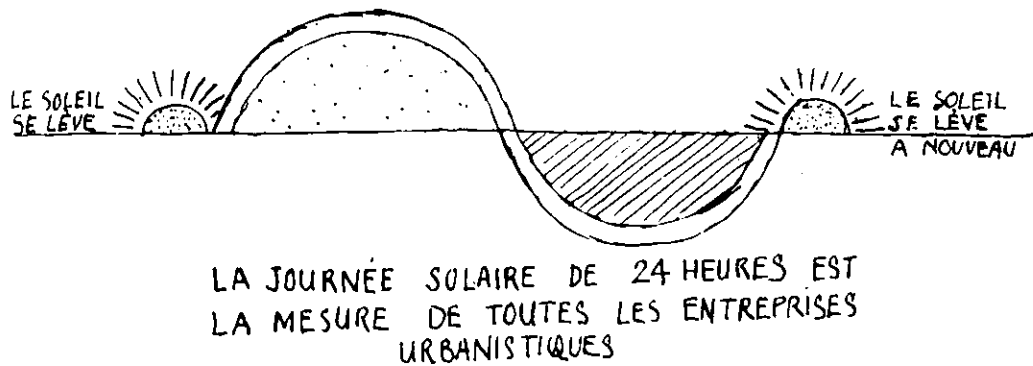
Le Corbusier here points out:

"The hours lost in reaching our different workplaces are *nothing compared* with the daily work hours lost in paying for this unhappy situation." (13, p. 282)

"Socially useful manufactured articles are shoes, clothes, food and drink, housing (and, more generally, shelter), books, movies, plays, works of art. The rest is mere wind, but it has created a devastating hurricane: *the great waste*."

"The verdict is clear. Let us draw the necessary conclusions and reschedule our time accordingly: which is to say, reconstruct our cities and revitalize the countryside.

". . . A modern city should have no suburbs. Modern techniques allow us to recover in height what we lose in breadth. The city should be concen-



Urban planning should always be based on the twenty-four-hour solar day.

Fig. 64

trated, compact. The problem of transportation would then resolve itself. We would rediscover our feet. . . .

"I am drawing another 24-hour solar-day circle (Fig. 63); there are eight hours for sleep (A); half an hour for transportation (B); four hours for productive work, which are all that will be needed (C); another half hour for transportation (D). This leaves us eleven daily leisure hours (E).

"America's *great waste* allowed me to get to the bottom of our unhappy situation and see it more clearly than was possible in Europe, which has the same disease. *And I now realize that my two solar-day circles simply refer to the past and to the future.*" (13, pp. 258 and 259)

Le Corbusier's famous diagram of the solar day is his illustration of the twenty-four-hour unit on which urban planning should be based (Fig. 64):

4. REGIONAL PLANNING 1939

During World War II Le Corbusier used his enforced leisure to expand his urban planning theories to a regional scale. His idea of the city was by then firmly established, and it was time for him to move on.

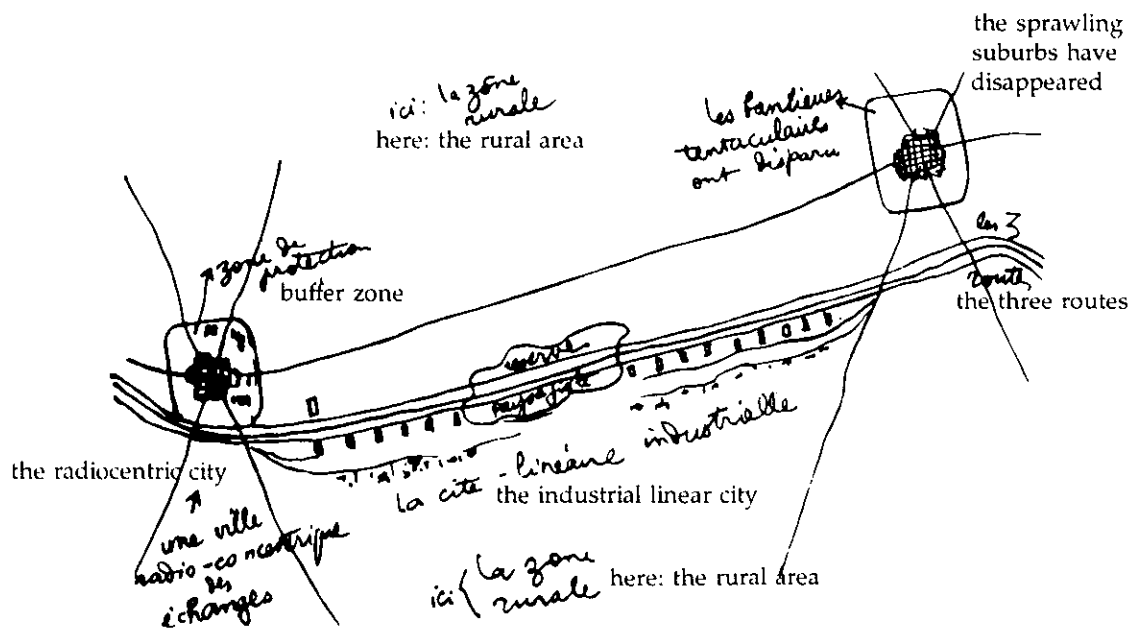


Fig. 65

The Four Routes

Le Corbusier's urban planning studies proceeded from the recent "revolutions" in social conditions and building techniques; his regional planning studies, from a similar "revolution" in transport systems or, as he calls them, "the four routes": roads, waterways (in France this would include canals), railways, and airlines.

"What was the reason for the birth of this new field of study? The radical transformation, in less than a century, of the great routes along which men live: roads, waterways, railways, and airlines. Machines, breaking through millennia of history, replaced the *traditional speed* of men on foot or horseback by the *twenty or a hundred times faster* speeds of railroads, cars, steamers, and planes. Speed has transformed the values of space and time and, in so doing, has created tremendous misery."

Le Corbusier proposed to examine the practical consequences of this problem in his book *Sur les quatre routes*, published in 1941 but written two years earlier:

"I wrote it in the fall of 1939 during the first three months of war. It anticipated victory and set forth a partial program for the great building

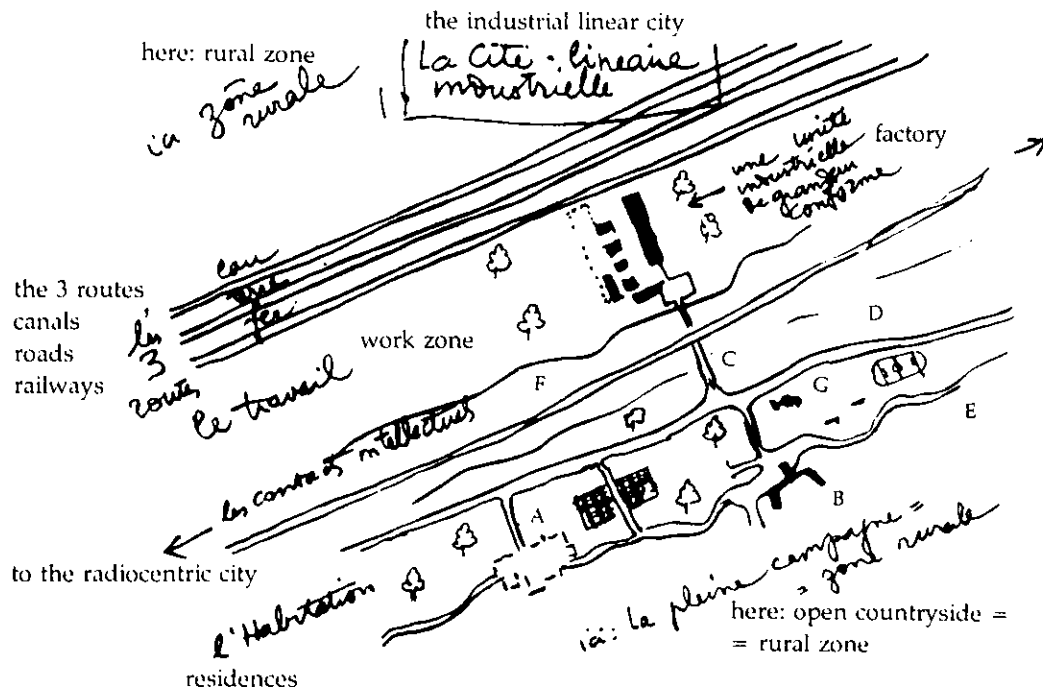


Fig. 66

enterprises that would soon have been required. It will be published, with no changes, after the defeat, for a defeat, in the course of human events, means only that a chance has been replaced by a mischance." (16, p. 8)

Despite the broader view suggested here, *Sur les quatre routes* consists primarily of urban planning principles that Le Corbusier had developed in his "contemporary" and "radiant" cities. It does, however, make the following point: regional, even more than urban, planning requires architects to work with other specialists.

"The four routes require teamwork, and the team must cover the whole spectrum of needed specialists. . . .

"Architecture, in confronting the four routes, faces a task of unlimited scope. A single individual would never get to the bottom of it, for omniscience and omnipotence are not prerogatives of mortal men. Builders, like scientists and technicians, must consequently resort to specialization.

"On the four routes described in this program architects will have to work closely with engineers. Tomorrow's tasks require builders."

Le Corbusier nonetheless gives the key role to the architect:

"In the command posts and central offices, he will be the coordinator, the conciliator, the *harmonizer*. As such, he will discover and integrate different factors. . . .

"The architectural profession will be opened wide." (17, pp. 27-29)

The Industrial Linear City

During World War II Le Corbusier participated in a study group called ASCORAL (Assembly of builders for an architectural revolution), which was concerned with planning and building on a regional scale. A small book published in 1945, *Les Trois établissements humains (The Three Human Establishments)**, presented the results of these studies.

Le Corbusier identifies three basic "human establishments"—agricultural, industrial, and commercial—and argues that their respective forms and locations should be adapted to present-day needs:

"We thus propose, for farm reform, a new or revised form of agriculture. . . . For industry, a form that will specifically satisfy its requirements: *industrial linear cities*. . . . *Radiocentric cities*, situated at the intersection of major highways . . . , will again become commercial, intellectual, administrative, and governmental centers" (Fig. 65). (21, p.72)

Le Corbusier had already proposed a "Radiant Farm," in *La Ville radiuse*, and his "radiocentric city" adds little, beyond the name, to his existing urban projects; but the "industrial linear city," as he emphasizes, is a new concept. Most modern cities, he points out, grew up at the points of intersection of important trade routes. These "radiocentric cities," which are well adapted to the exchange of goods or of ideas, are ill adapted to the needs of modern industry: namely, the transport of raw materials and manufactured products. Industrial cities should, instead, stretch out *along* appropriate transport routes:

"Lined up along these routes, they will naturally take the form of 'linear cities.' The linear city thus follows a trail inscribed in a country's geography. It is based on the principle of alignment, not dispersion. . . ." (21, p. 102)

Factories scattered throughout the countryside, as proposed during the prewar period, not only would spoil these regions but also would be inefficient.

Le Corbusier analyzes the functioning of the "linear city" as carefully as he had analyzed that of the "radiant city." The key to the whole system lies in the three transport routes that bring raw materials and distribute manufactured products: waterways, roads, and railroads. These will run along one side of the factory. Overhead conveyors will carry shipments to and from the factory. The typical site plan is as follows (Fig. 66):

(A) Houses. (B) Apartment building. (C) Road to the factory. (D) Road connecting dwellings and common services. (E) Pedestrian paths. (F) Green buffer zone and parkway leading to radiocentric cities. (G) Common services: nurseries, schools, movies, libraries, youth centers, sport facilities, etc.

In addition to the linear city's green zone between the factories and the worker's dwellings, Le Corbusier provides a large green zone between the industrial linear city and the radiocentric cities. His earlier urban projects had envisaged such a zone as a way of protecting residential cities from industrial areas. He now, however, sees it as a safety valve or buffer zone that will soften the impact of their colliding energies. It is a place where people from both cities will be able to meet. Laboratories, libraries, various research fa-

*The book was written by Le Corbusier and nine other members of ASCORAL. The passages quoted here are taken from chapters written by Le Corbusier.

cilities, and certain universities will be located there. Big sporting events will take place there.

Le Corbusier attached particular importance to his idea of the industrial linear city. Returning to the subject in a small book *Mise au point (Explanations)*, written in 1965, he says:

"By studying the single problem of equipping a machine age civilization in every kind of country and climate, I realized (with the same sort of astonishment one might feel on suddenly seeing a flying saucer or a Sputnik) that our machine age society has no industrial establishment, no industrial cities; and that this third new human establishment, the 'Industrial Linear City' . . . solves problems that preoccupy all reformers who are men of goodwill, whatever their political affiliations." (37, p. 39)