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A City Is Not a Man-Made Thing

I was once waiting in line to order coffee at one of my local coffeehouses. I observed the barista, with his dark-framed glasses, scraggly reddish beard, and hurried manner, taking orders. From a distance, I formed an impression of his personality: Blasé and probably a bit curt; someone who would rather be somewhere else. But when I came face-to-face with him to place my order, I could feel his liveliness, warmth, and efficient friendliness. My impression changed dramatically.

It's the same with cities.

From a distance, from an airplane or a drone, we notice macro features and sweeping patterns that might form our first impressions. Noticing the layout of streets or the pattern of buildings from the air, we might say something like "Oh, what an impressive skyline!" or "This place is a dump!"

For instance, New York, London, and Paris each have distinct skylines. Approaching these cities from the air is thrilling as we spot the Empire State Building dominating Midtown Manhattan, Big Ben and Parliament hugging the Thames, or the Eiffel Tower standing proud counterpoint to La Défense. But while visually striking, these landmarks hardly begin to tell the story of what we will actually experience in those cities. For that

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we need to get on the ground and touch, smell, walk, and observe. Most places are like that, some more than others. Take Tokyo.

Tokyo's skyline is to me terribly underwhelming. Heavily bombed and burned-out during World War II and subject to devastating earthquakes throughout its history, Tokyo has as a result few tall buildings today compared to other major cities, and it's not much to see from the air either. Even as you drive in along the highway from Narita Airport, the architecture for the most part remains boxy and drab. As we enter the central city, with the Sumida River winding below, if we look between the buildings, we begin to glimpse Tokyo's vitality. But it is really only when walking the streets and public spaces—of Ginza, Shinjuku, and Akihabara, for example—do we finally experience the "real" Tokyo, the Tokyo from our personal perspective, and feel what philosopher Ken-ichi Sasaki calls the urban "tactility" beneath our feet and through our skin.

Beyond Tokyo, it's also the way we finally get to know London or Paris or any other city. We do it, as an American sports program used to say, "up close and personal." Each of us experiences a city from our personal perspective, yet somehow we are experiencing the same city; we're not just a bunch of blind men touching parts of an elephant.

The noted urban planner Kevin Lynch explains that each of us gradually forms a mental image of a city that eventually overlaps enough with the images of others to enable us to coordinate our plans. A first-time tourist in New York City navigating with a two-dimensional map with explicit street and place names might tell a friend, "I'll meet you at the southeast corner of 5th Avenue and 8th Street at 1PM." (This would be harder to do in Tokyo because relatively few streets there have names, so locating a specific place is very different from the way we do it in New York; and in central London, because winding streets change names seemingly from one block to the next, locals sometimes give directions by using walking time and landmarks.)

As we spend time in a city, we get a better feel for its environs, its inhabitants and their ways of doing things, and how we navigate changes. Our static, two-dimensional image becomes an evolving, multidimensional mental map, more detailed in some ways, fuzzier in others. Experience doesn't make this mental map less abstract, but rather abstract along different dimensions. A New Yorker then might tell her friend,

"Let's meet at the Arch in the Village at lunch time." Translation: "Let's meet under the Arch in Washington Square Park in Greenwich Village around 1pm-ish." Our image of a city changes gradually but radically with experience. While our unique perspectives make it highly unlikely that these shared images and specific points of reference are identical or even always consistent, they do allow us to navigate a complex urban environment and to coordinate our sundry plans with a reasonable expectation of success.

As well will see, one of the common mistakes urban planners make when planning for cities is to assume the process works the other way, that they can impose a deliberately constructed pattern onto a physical cityscape and then expect us to adjust our behavior to it in just the way they want us to. Sometimes that happens, but it usually doesn't, especially with big plans involving large numbers of people, no matter how breathtaking or efficient the design may appear to be…from a distance.

I believe it is in this sense that Jane Jacobs says, "A city cannot be a work of art" (Jacobs, 1961: 372).

1 The Nature of a Living City[1]

As Jacobs explains in *The Death and Life of Great American Cities*:

> Artists, whatever their medium, *make selections* from the abounding materials of life, and organize these selections into works that are under the control of the artist…the essence of the process is disciplined, highly discriminatory selectivity *from* life. In relation to the inclusiveness and the literally endless intricacy of life, art is arbitrary, symbolic and abstracted…To approach a city, or even a city neighborhood, as if it were a larger architectural problem, capable of being given order by converting it into a disciplined work of art, is to make the mistake of attempting to substitute art

[1] I have borrowed this useful term from the title of Roberta Bradeis Gratz's book, *The Living City* (1989). Gratz is a journalist and a long-time friend and colleague of Jane Jacobs, and continues to publish articles and books inspired and guided by Jacobs's approach to understanding cities, including most recently as of this writing *It's a Helluva Town: Joan K. Davidson, the J.M. Kaplan Fund, and the Fight for a Better New York* (2020).

> for life. The results of such profound confusion between art and life are neither art nor life. They are taxidermy. (1961: 372–3, emphasis original)

How then do we avoid turning the objects of urban design into taxidermy and killing off a city by planning? I think the short answer is that we avoid it by recognizing that there is a trade-off between the scale and design for a given space, on the one hand, and the degree of spontaneity, complexity, and intricacy in the resulting social order that the design will accommodate within that space.

Now, saying that a city cannot be a work of art doesn't mean that a city cannot be intentionally beautified or that deliberate design can never enhance its appearance or improve its operation in some way. Of course, it can. But I am suggesting that the beauty designed in a work of art is fundamentally different from the kind of beauty that emerges unintentionally from unplanned interactions or through long and varied experience with the real world. The skillfully made-up look of a young fashion model and the wizened face of an elderly grandmother can both be beautiful, but in profoundly different ways.

Some cast doubt on whether beauty is a relevant norm for some great cities. Niels Gron, an early twentieth-century political writer from Denmark living in New York, explains the downside of trying to achieve it.

> Before I came to this country, and in all the time I have been here [circa 1900], it has never occurred to me to think of New York as beautiful.... We expect of her power and magnificence, but not beauty.... The kind of beauty that makes Paris charming can only exist where private rights and personal liberty are or have been trampled on. Only where the mob rules, or where kings rule, so that there is at one time absolutely no respect for the property of the rich and at another time for the rights of the poor can the beauties of Paris be realized. (Koeppel, 2015: Loc. 3536)

When done on a large scale, designed artistic beauty within the ecology of a city comes with a high cost and undesirable consequences, much of it more felt than seen.

I am not saying that small is always beautiful. But there is a reason why, for most of us, mega- and giga-projects are more pleasing the farther

away from them we are, while the beauty or at least the distinctive character of a great city becomes visible, as I said, up close on the street and in its neighborhoods.

When she says that a city cannot be a work of art, I believe Jacobs is thinking less about aesthetics per se and more about the phenomenon of social order generally—about how a city manages to solve the problem of getting thousands or millions of strangers to peacefully cooperate to a reasonably high degree, day after day, without commanding them to do so according to some comprehensive plan.[2] For that, we need to understand the nature of the order we see in the city. In Jacobs's words,

> It is futile to plan a city's appearance, or speculate on how to endow it with a pleasing appearance of order, without knowing what sort of innate, functioning order it has. (Jacobs, 1961: 14)

And for the same reason, I believe she would not regard a city as a work of engineering, either. Both the engineering perspective and the aesthetic perspective abstract from an organic whole; both substitute a single, guiding vision or purpose for the intricate ordering and unpredictable dynamics of a system that is the result of many minds and purposes interacting. These reasons parallel those of F.A. Hayek (1967: 100) who warned of the perils of treating an unplanned or "spontaneous order" as if it were a planned order.

The economist Richard E. Wagner (2010) draws the same distinction in his contrast between "piazza and parade." In a parade, each person follows an explicit, pre-assigned set of commands consciously choreographed by an overall planner. While any social framework—from a parlor to a park—constrains individual choice to some degree, a marching band on a parade ground is an extreme example of constrained choice. To achieve the pre-ordained pattern, no marcher may deviate from assigned movements, and individuality must necessarily be submerged as much as possible into the collective. This is not the place for unscripted action. Individuality, the freedom to differentiate oneself from the

[2] The respected urban planner Alain Bertaud expresses a similar sentiment when he writes: "A city is not a large building requiring a detailed blueprint before being built" (Bertaud, 2018: 354).

collective, disrupts the planner's vision and therefore cannot be tolerated. The relations among the marchers must be explicit, formal, and narrowly constrained.

People also interact with one another in a piazza, of course. Whether sitting, standing, eating, walking, or dancing, there are some rules each of us needs to follow to preserve social order. While some of those rules may be explicit and externally enforced, most are informal, tacit, and negative in the sense that they tell us what we cannot do rather than what we must do. Perhaps you are not allowed to toss trash into the fountain or play loud music or assault anyone. Anything not forbidden, however, is allowed. The scope of what you can do in this hypothetical piazza is infinitely broader than in a parade, where that which is not mandated is forbidden: "Take exactly five 18-inch steps forward, turn exactly 90-degrees to the right…."

1.1 Spontaneous Order and Organized Complexity

How to differentiate the spontaneous order of a piazza in contrast to the rationally constructed order of a parade? Using Hayek's description of an "order" (Hayek 1973: 35), I define spontaneous order as follows:

A *spontaneous order* is a set of interpersonal relations that emerges unintentionally over time and is sufficiently stable and coherent to enable independent individuals to form and carry out their plans with a reasonable expectation of success.[3] A spontaneous order has the characteristic of "unplanned emergence over time."

Emergence is the property of a complex system to form out of individual elements, where that system has properties not found in the elements considered separately, and adapts to different conditions without central control (Johnson 2001). For example, the letters L-I-V-E taken separately have their own meanings as individual letters, but putting them together as the word LIVE they take on a property, a meaning, that is not implicit or inherent in the letters taken separately. Its meaning "emerges"

[3] Compare with Bertrand de Jouvenel's formulation: "A collection of phenomena becomes orderly for me if and when I can tersely formulate a law of structure whereby each item is assigned the position which it holds" (de Jouvenel, 1956: 43 n3).

from combining the letters in a certain way rather than another, say, as EVIL. Unlike the word LIVE, however, a living city is emergent *over time*, a spontaneous order. I should reiterate that the "order" I am referring to here is not rigid but adaptable and allows room for people to correct planning errors, while also remaining stable enough to enable them to plan with a reasonable though, owing to imperfect knowledge, not necessarily perfect expectation of success.

Hayek describes a spontaneous order succinctly as "the result of human action but not of human design" (Hayek 1967: 96–105). Moreover, the people whose actions constitute the order need not be aware *that* their choices contribute to the order nor *how* their choices do so. Rather, these orders form when the framework of rules they operate in—for example, social norms, price signals, or grammatical rules—are such that people can successfully execute their own plans without having to think very much or at all about that framework. Examples of such orders include language, culture, legal interpretation, markets, and, of course, cities. Quite a wide-ranging list!

A memorable example of a spontaneous order appears in *Death and Life*, where Jacobs describes the daily street activity in front of her home on Hudson Street in Greenwich Village (Jacobs 1961: 50–4). The patterns she observes there, which she famously calls an "intricate sidewalk ballet," consists of several waves of many different people using the same public spaces for their own purposes throughout the day and in so doing unintentionally contribute the "eyes on the street" that supply informal public monitoring, which in turn unintentionally fosters the emergence of safety, trust, and local social networks.

Each of us operates in a host of spontaneous social orders—family, markets, science, religion, language, law—so why a special emphasis on the city?

The city, the sort of city Jacobs is writing about, the great city, the city of density and diversity, is in fact the principal locus of social change. The great city is the institutional matrix that incubates new ideas and novel lifestyles and ways of looking at the world. The family, markets, science, religion, language, law, et al. are what they are because they either originated in or markedly advanced in a great city. In fact, because of the central role of cities in the development of so many spontaneous social

orders, we may view a great city as a spontaneous order *par excellence*. Indeed, a great city is a spontaneous social order that itself breeds and sustains most of the important, emergent social orders that constitute civilized society. (I elaborate on this thesis when I discuss economic development in Chap. 6.) One might say that Jacobs is so strongly and relentlessly critical of the centralized, heavy-handed urban planning of the 1950s precisely because it was an attempt to turn piazzas into parades.[4] Once again, the problem is that the essential feature of a great city is change, change that is spontaneous and unpredictable, and therefore impossible to plan for except in a very limited way.

Jacobs is no less critical of the sociologist Louis Wirth's paradigm model of a city as an elegant three-variable problem—population, density of settlement, and degree of heterogeneity—with which he argues it is possible to "explain the characteristics of urban life and to account for the differences between cities of various sizes and types" (Wirth, 1938: 18). In contrast, Jacobs sees a great city as a problem of organized complexity, which involves "dealing simultaneously with a sizable number of factors which are interrelated into an organic whole" (Jacobs, 1961: 432).[5]

The final chapter of *Death and Life* and the first chapter of Jacobs's next book *The Economy of Cities*, taken in tandem, explain first why a great city is a phenomenon of organized complexity and then how the organized complexity of a city and the patterns within it arise spontaneously from the plans of self-interested individuals.[6] In my opinion, chapter 22 in *Death and Life* and chapter 1 in *The Economy of Cities* are together the most explicit enunciation of Jacobs's social theory.[7]

[4] We need look no further for current examples of such practices than to Brasilia, which I will examine more closely in Chap. 7, and to the examples cited at the beginning of Chap. 2.

[5] In his outstanding biography of Jacobs, Peter Laurence speaks of "Jacobs's historic introduction of complexity science to urban thinking" (Laurence, 2006: 50).

[6] Where *The Death and Life of Great American Cities* essentially concerns the nature and significance of living cities and why appreciating this demands a radical reorientation and reform of urban planning, *The Economy of Cities* concerns the nature and mechanics of city-based innovation and economic development, in which the dynamic processes of exporting and importing constitute "two interlocking reciprocating systems" (Jacobs, 1969: 234).

[7] I elaborate on these themes in Ikeda (2020).

That final chapter of *Death and Life*, "The Kind of Problem a City Is," naturally segues into the first chapter of *The Economy of Cities*, "Cities First, Rural Development Later." The former characterizes a city as a problem of "organized complexity" that results when a number of variables interact with one another in highly complex ways to generate an orderly but unpredictable "organic whole" (1961: 432). It articulates and justifies Jacobs's approach to studying and understanding living cities as complex systems. The first chapter of *The Economy of Cities* then sets out the book's essential lesson of how organized complexity emerges, including both the city itself and the processes that arise within it, which the rest of the book generalizes to explain how urban-based economic development takes place. Contradicting received archeological history, it hypothesizes that large settlements with complex divisions of labor and not farming villages must have been the origin of agriculture. But more important than this hypothesis, which may be right or wrong, are the two narratives it contains that explain how organized complexity spontaneously emerges as the unintended consequence of purposeful, self-interested activity by resourceful traders, merchants, and entrepreneurs. The first narrative is a theory of how trade among diverse groups establishes permanent markets that evolve into true cities; the second explains how the specialties of animal husbandry and seed hybridization come about as the unintended consequences of self-interested decisions. She argues that economically sustainable development occurs through innovation of this sort and that the conditions found in large, complex, and diverse urban settlements (which is another explicit connection to *Death and Life*) are necessary for that to happen.[8]

1.2 Fellow Travelers

Far more congenial to her way of thinking than Wirth are the design theories of Kevin Lynch (1960) or William H. Whyte (1980) or Jan Gehl (2013), or advocates of the novel traffic policies of "shared space" that

[8] I cover the subject-matter of this paragraph at length in Chap. 6.

have been spreading across Northern Europe.[9] Each pays careful attention to how real people interact with each other and with the built environment in intricate and surprising ways. All, in their own way, appreciate with Jacobs that a city is a spontaneous order.[10]

Urbanist Christopher Alexander, like Jacobs, also appreciates the complex nature of a city. For example, Alexander's well-known essay "A city is not a tree" (1965), contrasts the structure of a mathematical tree with that of a semilattice, where he deems a tree-designed city "artificial" and a semilattice-designed city "natural." A *tree* in the context of urban design refers to a scheme in which a physical element, such as a residential block or "branch," is intended to be used only in conjunction with a specified set of other elements, such as a school or grocery store or office, in branches to which it is directly connected; and people in that "branch" are not supposed to have any significant interaction with people or elements in any branch to which it is not directly connected. It is seemingly designed according to someone's notion of efficiency so that people need only use the schools, stores, et cetera, in their own neighborhood or district.[11] On the other hand, an urban design based on the concept of a *semilattice* allows for or even encourages mobility across neighborhoods and districts; it reflects how real people use the diverse land-uses of a living city.

When visually mapped out, a mathematical tree looks like a stylized tree where the smallest branch (e.g., an office, school, or grocery store) connects to one and only one inner branch (e.g., a neighborhood) that in turn is connected to one and only one branch closer to the trunk (e.g., a district containing several neighborhoods); a semilattice looks more like an incomplete, slightly messy spider's web, where one node has multiple

[9] See for example, https://www.pps.org/article/what-is-shared-space. Accessed 8 May 2023. I discuss "shared space" in Chap. 9.

[10] While I find it helpful to distinguish complexity from spontaneous order (or emergence), David Colander and Roland Kupers, leading authorities on complexity theory, apparently see complexity as entailing emergence: "In analyzing a complex system you have to consider the interconnectedness of the parts together with the parts themselves, which implies that in a complex system, the whole is not necessarily equal to the sum of the parts" (2014: 13).

[11] The so-called "15-minute city" of Carlos Moreno seems to have this tree structure. See https://www.15minutecity.com/. Accessed 8 May 2023. Léon Krier's version of poly-centricism within a city also has tree-like characteristics that I will discuss in Chap. 9.

physical connections up, down, or across the network, so that people living in one neighborhood may conveniently work, shop, or attend school in several neighborhoods.

Alexander fears it is "this lack of structural complexity, characteristic of trees, which is crippling our conceptions of the city." Although real people will somehow find ways to use poorly designed physical spaces (or not), tree designs unnecessarily limit how they might adjust to unexpected changes or engage in informal intermingling and connection-making that set the stage for discovery. On the other hand, designing with a semilattice in mind opens the possibility of orders of magnitude more complexity and discovery to take place. In the planning context, this means as much as possible creating conditions or establishing parameters that permit or promote novel patterns to arise via experiment and trial-and-error, as I explain below. One implication is to avoid constructing large-scale or meticulously detailed projects, of the kind mentioned at the beginning of Chap. 2, and instead to allow those details, the "granularity" of land-uses, to emerge over time.

1.3 Complexity and Radical Ignorance

As noted, Jacobs observes that the artist *abstracts* from life, with all its "literally endless intricacy." Many architects, especially those with great ambition, seem to ignore existing intricacy and treat urban environments as a blank canvas, which, if not empty already, needs to be wiped clean, sometimes literally, to make way for their brilliant creations. That is what abstracting from endless intricacy is about. The better sorts of architect-planners try at least to consider how their constructions might fit into the existing built ecology and complement the lives of the people who, with some measure of free will, might be using them. But predicting how real people will respond to change is a pretty iffy thing, whether it is an architect or an economist who is trying to do it. That iffyness comes from two factors: complexity and radical ignorance. Let's take complexity first.

Complexity in this context arises from personal interactions that are so numerous or varied or changeable that it is too costly for anyone to be aware of all of them or their consequences. But what is complexity?

Hayek defines the *degree of complexity* in terms of the "minimum number of elements of which an instance of the pattern consists in order to exhibit all the characteristic attributes of the class of patterns in question…" (Hayek, 1967: 25). As that minimum number increases, the system becomes more complex. It takes far fewer elements to fully capture the abstract concept of a city intersection ("street X and avenue Y cross at right angles") than the actual intersection of 5th Avenue and Broadway in Manhattan, depending on the particular "Lynchian image" of that place one has in mind. Working from this definition, the more complex the phenomenon, the harder it will be to adequately describe its essence in so many words or equations. In a world with only a few variables, such as those described in a high-school algebra problem or in Wirth's three-variable equation, it is possible in principle to possess all the knowledge relevant for a complete description. In the real world, however, the number of relevant variables is far too large and changeable, the number of dynamic interactions among people too intricate, and our cognitive powers too limited to comprehend any but the smallest part or aspect of the overall pattern.

Moreover, we are accustomed to thinking of complexity as two- or three-dimensional, as in a drawing or a building. Jacobs offers the following common example of complexity along the dimension of time:

> Consider the history of the no-yield space that has recently been rehabilitated by the Arts in Louisville Association as a theater, music room, art gallery, library, bar and restaurant. It started life as a fashionable athletic club, outlived that and became a school, then the stable of a dairy company, then a riding school, then a finishing and dancing school, another athletic club, an artist's studio, a school again, a blacksmith's, a factory, a warehouse, and it is now a flourishing center of the arts. Who could anticipate or provide for such a succession of hopes and schemes? Only an unimaginative man would think he could; only an arrogant man would want to. (Jacobs, 1961: 195)

Compared to the vast complexity of a social order, intra- and especially inter-temporarily, predicting the weather is a good deal simpler.

As we saw in Chap. 2, *radical ignorance* means being unaware of information that is relevant for making a correct decision, not because the cost is too high, but because we are utterly unaware that the information even exists. For example, we might be very hungry, but walk blithely past a restaurant serving food that would completely and inexpensively satisfy our hunger. A simple solution escapes our notice because of our sheer lack of alertness. So, whether the problem is complex or relatively simple, "not knowing that we don't know" means we cannot solve the problem because we don't know the problem even exists.

Acting in the presence of complexity and radical ignorance means it is impossible to know all the relevant alternatives or to trace all the consequences of any one of those alternatives because (1) we are utterly unaware of at least some of them or (2) they are too numerous, convoluted, or remote given our limited mental capabilities *even if they stood in front of us*. The first is a problem of radical ignorance, the second a problem of complexity. As a rule, the bigger the *scale* of the changes we wish to make in the real world, or the more detailed the *design* we wish to impose on a plan of a given scale, the harder it will be to predict what is going to happen because either there are "states of the world" about which we are radically ignorant or they are beyond our cognitive abilities to grasp or calculate. (These are two aspects of what I have heretofore been referring to as "the knowledge problem," which we can designate as "epistemic problems" and "cognitive problems," respectively.)

Here I am, of course, making the distinction between radical ignorance and complexity in the context of urban planning, but it also has implications for social theory and, in particular, to economics.

One of the lessons economists learned from the twentieth-century debate over collectivist central planning—the socialist calculation debate—is that the "optimal" level and scale of central planning is much lower than we think. The local knowledge—"the knowledge of the particular circumstances of time and place" (Hayek, 1945)—that we each use to coordinate our individual plans in the real world, including our tastes, the appropriate technologies, and resource availabilities, is beyond the

reach of central planners.[12] Because of this, the more they try to impose a design onto a complex social order that doesn't align with our plans, the more we will adjust to the planners' interventions in ways they won't be able to foresee, often thwarting their original intentions in the process. And beyond some relatively limited degree, if the planners succeed in substituting their designs for an emergent social order—the outcome of the myriad minds of ordinary people—the result will be significantly less complex and dynamic (and perhaps beautiful) than they intended.[13]

With respect to urban design, the larger and more elaborate a design is in relation to the social space it is trying to fit into, the narrower will be the scope of unplanned activities that it permits. That is because a construction, of any scale and design, necessarily constrains to some extent how we can use the space in and around it. Building a mid-size residential townhouse within a largely commercial block means excluding other uses of that space for at least some time even as it mixes in a new land-use to the block. Still, it changes the character of that block and perhaps also the surrounding areas in unpredictable ways. This is unavoidable for any built structure, of course, but the bigger the structure and the more complex the design elements it contains, the more the designed complexity will constrain spontaneous complexity. Constructing something that takes up an entire city block, such as the Empire State Building, places even greater constraints on what we can do in and around the building itself and the surrounding area. The impact of scaling up to a multi-block development such as Lincoln Center in Midtown Manhattan or Hudson Yards on the Far West Side is greater still; and it sets planners the daunting task either of accurately predicting the range of activities in that space people will want to engage in today and in the future or of making sure

[12] I will have more to say about the socialist-calculation debate in Chap. 7. See Mises (1981), Hayek (1945), and Read (1958).

[13] There is a large literature based on such an appreciation of knowledge and incentive problems that critiques macroeconomic policies, and an equally large one critiquing microeconomic regulation, but outside of an urban context. To begin with, see, for example, Ikeda (1998), Boettke (1994), and Boettke and Coyne (2015). This book, of course, focuses specifically on the urban context. And while it does address topics commonly found in microeconomic discussions, rent regulation for example, my task is to use a Jacobs-inspired analytical framework to examine topics outside the normal scope of typical economic analysis, such as the socioeconomic impact of urban design and the regulation of land-uses.

the physical structure, legal rules, community expectations, and management practices are flexible enough to allow for effective, reasonably low-cost responses to unforeseen changes in economic and social conditions.

If planners want to preserve the potential for unplanned liveliness, they will need to leave substantial room in a project for adjustments over time to its structure and use. That means, other things equal, limiting the size of the project or the number of planned elements in it. Otherwise, the level of spontaneous complexity will be overly constrained by the planners' imagination. The architect Rem Koolhaas, in assessing how the skyscraper has shaped expectations about the diversity of activities within it, also points to the role of "indeterminacy," such that the success of a building should be "measured by the degree to which the structure frames their coexistence without interfering with their destinies" (Koolhas, 1994: 85).

A city can handle endless waves of problems if the rules that govern interactions in the spaces where people interact allow the collective intelligence of many minds to discover those problems and to work out solutions for them. Good urban design therefore needs to take seriously into account a city's "invisible infrastructure"—that is, the patterns of contact, dynamic social networks, and social norms—that enable individuals to harness their local knowledge and human capital. The result will be greater complexity at a moment in time and over time. Planning should complement emergent order rather than substitute for it, and planners should keep in mind that increasing the scale of a construction cuts ever more deeply into the living flesh of a city. The challenge for the designer of a public space then is where possible to enable rather than replace the spontaneous, "street-level" plans of ordinary people, and to preserve or promote public spaces where informal contact, networking, and discovery tend to happen. Too often, scaling up and adding greater planned detail progressively drains the life and intelligence from a city. Clearly, there is an important trade-off involved.

2 What the Trade-off Might Look Like

It might help to use some simple diagrams to express all this. We can depict the trade-off between (1) the scale of a given design and (2) the maximum level of complexity and spontaneity permitted by that scale as a downward-sloping curve. The specific shape of this trade-off is unimportant for now and my goal here is not to derive testable hypotheses, although I believe that is possible to do in principle. Rather, my goal is to emphasize, reasoning from our earlier analysis, that given the epistemic and cognitive limits of the human mind, beyond some point the vision of the designer in terms of scale and level of detail begins to substitute for rather than encourage the emergence of a social order of far greater spontaneous complexity.[14]

Figure 3.1 illustrates the resulting trade-off:

The scale of a structure and the designed complexity or planned uses of the space within that structure are of course two different things.

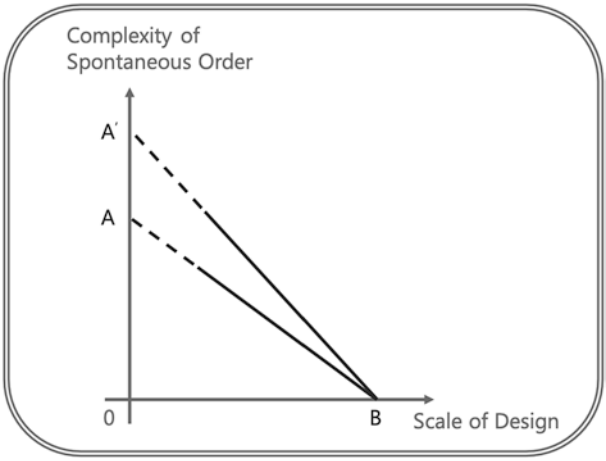

Fig. 3.1 Scale-complexity trade-off

[14] I should add that "unplanned simplicity" in a structure or its usage can also occur, but the consequences of doing so, such as when unnecessary walls or rules are eliminated, is to allow a greater complexity of usage over time, as Jacobs's example from earlier of the "no-yield" space illustrates.

Increasing the dimensions of a room doesn't necessarily mean the essential elements that go into its design become more numerous (e.g., floor, walls, ceiling). To keep things simple, Fig. 3.1 illustrates how scale alone impacts spontaneous complexity, keeping the number of designed elements constant. Thus, as scale increases, moving from A to B, the potential for spontaneous, unplanned order decreases. This is what happens, for instance, when a project increases from the scale of a townhouse to something like Hudson Yards.

To scale and spontaneous complexity, I am adding a third variable to incorporate Jacobs's observations on how we adjust to our environment with the passage of time. We can plan for spontaneous complexity to a very limited degree, but fortunately, the passage of real time makes it easier and usually cheaper to adjust our actions, social rules, and physical spaces to better complement our plans, again in ways that the original designers cannot foresee. For any given scale of construction, time allows us to discover uses for a space that it was not designed for and to alter the relations we can form in and around it. An entrepreneur may wish to turn a gas station into a café, for instance. With plans embodying this kind of flexibility (i.e., like a semilattice), the adjustment and adaptations need not entail extraordinary costs, and the uses that emerge will more easily increase inter-temporal complexity.[15]

In a two-dimensional image, changes in a third variable or parameter will change the position of the curve. As time passes, then, the frontier in Fig. 3.1 shifts up from AB to A'B, where point B represents the case where the structure occupies 100% of the relevant space in which we can carry out our personal plans. Again, all else equal, for any given scale, the passage of time allows us to find more ways to interact with others or to find previously unthought-of, cost-effective ways of altering the space. Koolhaas again:

[15] In addition to Jacobs's "no-yield space," another good example of the influence of time is William Easterly's "Greene Street Project," which traces the evolution of uses on a short block in Manhattan's Soho District over four centuries. The uses went from residential, to sex work, to garment manufacturing, to light industry, to art galleries, to present-day luxury housing. See http://www.greenestreet.nyc/. Accessed 8 May 2023.

> In terms of urbanism, this indeterminacy means that a particular site can no longer be matched with any single predetermined purpose. From now on each metropolitan lot accommodates – in theory at least – an unforeseeable and unstable combination of simultaneous activities, which makes architecture less an act of foresight than before and planning an act of only limited prediction. (Koolhaas, 1994: 85)

How far A'B will shift in a given time period, as with the exact shape of the trade-off, is an important empirical question, but both questions go beyond what it is possible to explore here. We can deduce, however, that the trade-off is negative and so the line A'B, like the economist's demand curve, is downward-sloping. Thinking of the relation of time to scale and spontaneous complexity in this way helps to explain how, despite the monumental scale of Nero's Rome or of Haussmann's Paris or Niemeyer's Brasilia, time has liberated us to make spaces more useful and livable than when originally built.

What is the impact on spontaneous complexity of increasing designed complexity in a space of a given size?

Figure 3.2 depicts a possible trade-off between the potential for spontaneous complexity on the one hand, and the degree to which the complexity of the structure is planned rather than emergent.

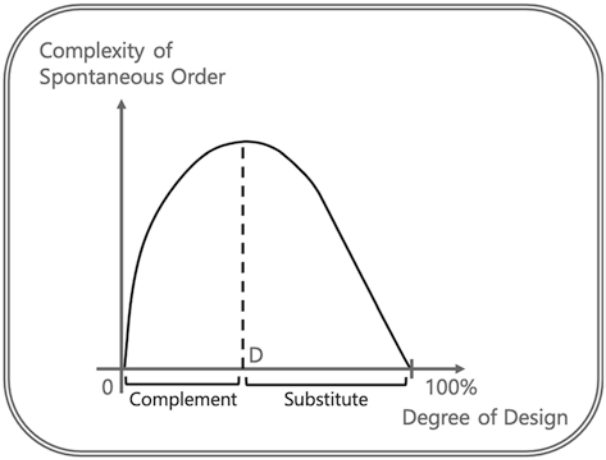

Fig. 3.2 Spontaneous complexity–designed complexity

A purely negative space, in which there are no physical design elements at all might still give rise to a spontaneous order—a proverbial "blank slate" for creative minds. But of course, no space in which people are able to act is a total vacuum. Successful action (within what will later be called an "action space") presupposes at a minimum mutually understood and followed rules of interpersonal conduct—the foundation of an invisible social infrastructure—without which we could not be confident that our plans would succeed. For example, absent mutually accepted social norms we might hesitate to enter any public space; or without commonly accepted boundaries of some kind it would be tough to build on or trade property. Thus, in Fig. 3.2, I have drawn the curve emanating from the origin—that is, where there is no design of any kind and so no spontaneous complexity—but rising steeply at first to indicate that in most cases with minimal design elements in place positive features quickly fill purely negative space. As planned complexity increases, potential spontaneous complexity reaches a maximum at D, beyond which designed complexity begins to crowd out rather than complement spontaneous complexity.

Precisely because it is not a work of art, because it is not wholly the result of deliberate design, a city can achieve astonishing and unimagined levels of intricacy and organized complexity—a deeper social order than the imposed "pretended order" that Jacobs disdained. These considerations are at the heart of Jacobs's social theory.[16]

What then is a city?

[16] For a view of the relation between design and complexity/spontaneity similar to mine, see the recent book by Jorge Almazán and Studiolab with the intriguing title, *Emergent Tokyo: Designing the Spontaneous City* (2022). As the subtitle suggests, while they appreciate the organic, evolutionary nature of living cities, they believe in "light planning from above and self-organizing emergence from below" (Ibid: 6) and advocate planning interventions they believe will generate complex, spontaneous streetscapes. Their urban aesthetic is heavily influenced by street-level Tokyo, and they have produced a carefully illustrated, data-driven study of certain characteristics of Tokyo: alleyways, buildings, infill, streets, and neighborhoods. They reject modernist, post-modernist, and post-critical approaches to urban planning (or non-planning), and "corporate-led urbanism." They question the belief in Japan's "cultural exceptionalism" and hold that Tokyo's design principles are transferrable to non-Japanese cultural contexts. Their recommendations tend mainly to describe desired outcomes, which I find hard to disagree with, or to address design principles private developers should follow rather than positive regulatory proposals. Indeed, finding regulatory proposals proves elusive, making it difficult to assess whether or the extent to which their approach diverges from the perspective I am taking here.

3 The City as a Spontaneous Order

Jacobs defines a *city* as "a settlement that generates its economic growth from its own local economy" (Jacobs, 1969: 161). This definition places her in the tradition of the economic historian Henri Pirenne (1952: 56), who links the re-appearance of cities in Europe after the Middle Ages with commerce, the emergence of an economic middle class, and dramatic social change. More to the point, as we will closely examine in Chap. 6, for Jacobs, the essence of economic development is *innovation*.[17]

Ancient Rome and contemporary Washington, D.C., are not quite cities according to Jacobs's definition to the extent that they consume more wealth than they produce and adopt (or suppress) rather than generate innovations. Each may "innovate" in the form of legislation and regulations that foster economic development, there is a large economic literature arguing that this has had mostly the opposite effect.[18] On the other hand, New York City is certainly a Jacobsian city because, in addition to the vast net wealth it creates for the rest of the world through trade, and the way it generates more tax revenue for the rest of the country than it receives in subsidies,[19] it is and has been the source of countless wealth-producing innovations in business and finance, in the arts, fashion, and entertainment, and in lifestyles and language. In this sense, too, Paris, London, and Tokyo are also Jacobsian cities.

It is a bit awkward, however, to deny that Ancient Rome and contemporary Washington are cities. Perhaps sociologist Max Weber's distinction between a "consumption city" and a "production city" might be more helpful (Weber, 1958: 69). Instead, however, I have found it useful to term what Jacobs strictly defines as a city as a *living city*, and to use the unqualified term "city" to refer to any large settlement where a great number of strangers peacefully interact, even if they lack density,

[17] Compare Jacobs's economic definition of a city with, say, that of Richard Sennett: "...a city is a human settlement in which strangers are likely to meet" (1974: 39) or of Edward Glaeser "Cities are the absence of physical space between people and companies. They are proximity, density, closeness" (2012: 6). Either would apply to a mall, a prison, or to Paris.

[18] A good place to begin would be Congleton et al. (2019).

[19] See for example https://www.osc.state.ny.us/press/releases/2020/01/new-york-continues-send-more-federal-tax-dollars-washington-it-gets-return. Accessed 24 May 2023.

diversity, or discovery. Therefore, I will use the "living city" or "great city" unless the context allows me to drop the qualifier.

Recall that many of Jacobs's admirers tend to overlook the central component of her social theory, which is that a great city and the life within it are emergent and unplanned. Steven Johnson observes an unfortunate consequence of this:

> Since *Death and Life*, the celebration of sidewalk culture has become the *idée fixe* of all left-leaning urbanists, an axiom as widely agreed upon as any in the liberal canon. But the irony is that many of the same critics who cited Jacobs as the initial warrior in the sidewalk crusade misunderstood the reasons why she had embraced the sidewalk in the first place. And that is because they saw the city as a kind of political theater, and not as an emergent system. (Johnson, 2001: 94)

Make no mistake, at any scale of a social order, there is always some deliberate design. But the spontaneity of which I speak exists at a level "just beyond" these designed elements. For example, the decision to buy from a particular supplier is deliberate, but the total market demand for that input and the pattern of responses of entrepreneurs to unexpected changes in supply are not. The architect's plan for a building may be meticulously designed with a specific purpose in mind, but how it interacts with the surrounding structures, and with the people who move in and around them over time, influencing the character of a neighborhood block, is not. These phenomena are the unintended consequences of the deliberate actions of individuals or set of designed elements.

Jacobs focusses on an urban complexity whose spontaneous emergence consists of a profound and constantly evolving intricacy.

> Under the seeming disorder of the old city, wherever the old city is working successfully, is a marvelous order for maintaining the safety of the streets and the freedom of the city. It is a complex order. (Jacobs, 1961: 50)

And once again, it is not a consciously designed complexity imposed from above, a concept utterly at odds with Jacobs's spontaneous-order-based social theory. Planning should complement or promote, not crowd out or substitute for, spontaneous complexity.

> There is a quality even meaner than outright ugliness or disorder, and this meaner quality is the dishonest mask of pretended order, achieved by ignoring or suppressing the real order that is struggling to exist and to be served. (Jacobs, 1961: 15)

Like Jacobs, I see a living city as a highly adaptive system that can achieve a level of spontaneous complexity and orderly dynamism well beyond any "pretended order." Again, for the most part, cities are the result of human action, but not of human design (Hayek, 1967). They are largely emergent, self-regulating, and self-sustaining.

I say "largely" because sometimes a city, like a building, starts out as a deliberate creation by someone. But at different points in its history it may be subject to extensive redesign, reuse, and rebuilding, so that over time, it evolves in ways that no one who played a part in any of its deliberate changes could have foreseen. The original designers of the New York City subway system in the late nineteenth century could not possibly have accurately predicted how the system would evolve over the next 100 years, much less the impact it would have on life in the city. And, as we have seen, the ambitious public mega-projects undertaken at various points in a city's history—such as Haussmann's Paris—may eventually be absorbed into the urban matrix given sufficient time to adjust. A living city outgrows the design elements of its beginnings. It is a messy process, but the living flesh of a city tends to heal and grow, although no one can predict just how. (To address some readers' concerns at this point, let me say that, in Chap. 9, I will discuss examples of how deliberate design might indeed complement the emergence of complex spontaneous orders.)

Like the spontaneous orders of language, judge-made law, and markets, cities evolve in response to myriad impulses from their inhabitants. Cities thrive when we are free to interact in public spaces voluntarily with others. Flourishing cities draw together strangers seeking opportunities for profitable interactions, whatever form they may take. As I will frequently point out, what fuels innovation in a living city is the presence of people in large numbers who are socially distant[20] from one another.

[20] In Chap. 5, I explain this concept more thoroughly.

> Great cities are not like towns, only larger. They are not like suburbs, only denser. They differ from towns and suburbs in basic ways, and one of these is that cities are, by definition, full of strangers. (Jacobs, 1961: 30)

These are themes I will develop more fully in Chaps. 4 and 5.

Hayek explained in his famous essay of 1945, "The use of knowledge in society," because our knowledge is limited, we rely heavily on the money prices that emerge from countless market exchanges as signals to coordinate our individual plans with one another. This ability to detect and harness dispersed and contextual knowledge enables intricate and highly complex adjustments to take place, making the market process and the price system much "smarter" than any human mind could be, even if assisted by artificial computational power. As we have seen, the knowledge problem is not computational in nature, it is rather an epistemic and cognitive problem. In the same way, the collective intelligence of people in a living city can solve countless problems by relying on the social infrastructure that emerges in an urban environment that none could discover and solve on their own.

Now, it is true that some of these problems would not have arisen but for large numbers of people with diverse knowledge, skills, and tastes packing themselves together into dense agglomerations. But these are the same conditions that foster informal contacts that ultimately turn cities into incubators of ideas and the principal sources of economic, cultural, and scientific innovation.[21] As I mentioned in Chap. 2 and will discuss at some length in Chap. 7, innovation and creativity are not needed if knowledge is perfect. And where knowledge is indeed imperfect, the innovation and creativity necessary to cope with the resulting social problems require a venue for experimentation and trial-and-error. That is what a city is.

> Cities are an immense laboratory of trial and error, failure and success, in city building and city design. (Jacobs, 1961: 6)

[21] "The same age, which produces great philosophers and politicians, renown generals and poets, usually abounds with skilful weavers, and ship-carpenters." David Hume (1985[1777]).

But trial-and-error is characteristically messy and often dangerous. Even though the number and diversity of opportunities we find in cities significantly lowers the uncertainty and the cost of experimenting, failure and disappointment will always be part of the bargain.[22] They are always at the cutting edge of dynamic social change. Rem Koolhaas (1994: 59) put it well:

> The entire spectacle defines the dark side of Metropolis as an astronomical increase in the potential for disaster only just exceeded by an equally astronomical increase in the ability to avert it.

While he had Manhattan specifically in mind in this passage, it could apply to any living city.[23]

A city is an unintended consequence of its inhabitants following their own plans, their own dreams. And when free to do so, they will both shape and abide by norms, conventions, beliefs, and institutions—the "rules of the game"—that promote social cooperation and create wealth and innovations in ways none of them could fully imagine, let alone predict. Their choices will also nudge those norms, conventions, etc. in unpredictable directions over time.

In Chap. 2, we saw how economic freedom is implicit in Jacobs's framework. "Freedom" here also means the ability to break away from existing social networks and to make connections with new social networks. All that making and breaking, like all change, entails some amount of disappointment, even tragedy. But the payoff, the "bright side of metropolis," is greater fulfillment, innovation, and wealth. In that sense,

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[22] I will expand on these themes in Chap. 7.

[23] This is similar to economist Ludwig Lachmann's statement in *Capital and Its Structure*:

> We are living in a world of unexpected change; hence capital combinations, and with them the capital structure, will be ever changing, will be dissolved and re-formed. In this activity we find the real function of the entrepreneur. [...] A progressive economy is not an economy in which no capital is ever lost, but an economy which can afford to lose capital because the productive opportunities revealed by the loss are vigorously exploited (Lachmann, 1978: 17–8).

This passage is also relevant to the discussion in Chap. 2 on the relation of Jacobs's thought to market-process economics.

innovation and disappointment, creativity and conflict, go hand in hand. The same human tendencies and institutional setup that create the dark, destructive side of metropolis are responsible for the bright, creative side. Trying to eliminate the dark side, to put a stop to unwanted change, or to impose rules aimed to avoid disappointment, runs the risk of causing even more profound disappointments and stifling attempts to change the status quo. In other words, taxidermy.

This is not to say that urban managers should not address noxious spillovers and dangerous practices that threaten the well-being of our neighbors, a theme I explore in Chap. 8. When planning complements productive spontaneity, ordinary people will be free to apply their knowledge, energy, and resourcefulness where they see fit, so that the forces of creation can stay ahead of the gales of destruction and the city evolves (Schumpeter, 1942).

4 Living Cities Are Not Economically Efficient

Before we can correct what we think is wrong with a city, we need an appropriate standard of what is right with it. That standard of rightness in turn depends on our understanding how the thing we are trying to fix is supposed to work. Unfortunately, when it comes to complex phenomena, finding a normative standard to evaluate what is better or worse is tricky. While standard economics might appear to be a likely place to look for it for an economic-based concept of a city, that is not the case. Like Jacobs and for essentially the same reasons, I am afraid neither mainstream macroeconomics nor microeconomics is of much help here.

Recall from the previous chapter that Jacobs is characteristically frank in her criticism of macroeconomics.

> Macro-economics – large-scale economics – is the branch of learning entrusted with the theory and practice of understanding and fostering national and international economies. It is a shambles. Its undoing was the good fortune of having been believed in and acted upon in a big way. (Jacobs, 1984: 6–7)

In traditional macroeconomic theory, much important detail is lost in its focus on aggregates and averages, such as Gross Domestic Product, aggregate demand, and capital accumulation. For example, standard macroeconomic theory treats capital goods, sometimes defined as "produced means of production," as homogeneous or perfectly substitutable for one another, and makes no distinction between capital as different as, say, a hammer and a horseshoe, except that a horseshoe could be in some very abstract sense the equivalent of a certain number of hammers. The approach is too blunt to get to the level of detail needed to appreciate the complex time-structure of capital of an economy, let alone to tell us what would be necessary to promote the value-productivity of that structure (Lachmann, 1978; Horwitz, 2000).

And her regard for macroeconomics in practice is even lower.

> We think of the experiments of particle physicists and space explorers as being extraordinarily expensive and so they are. But the costs are as nothing compared with the incomprehensibly huge resources that banks, industries, governments and international institutions like the World Bank, the International Monetary Fund and the United Nations have poured into tests of macro-economic theory. Never has a science, or supposed science, been so generously indulged. And never have experiments left in their wakes more wreckage, unpleasant surprises, blasted hopes and confusion, to the point that the question seriously arises whether the wreckage is reparable; if it is, certainly not with more of the same. (Jacobs, 1984: 6)

We might trace a large part of this negative assessment to her more fundamental observation, noted before, that unlike a living city a nation-state is not a natural unit of economic analysis (Jacobs, 1984: 31–32).

As we have also noted, Jacobs sees the limitations of standard microeconomics as equally severe. Take the concept of efficiency. Efforts to make cities run more efficiently, when "efficient" means something more than simply "the way I want to see things done," run up against a deep conceptual problem (Ikeda, 2010). Strictly speaking, an action is economically efficient when we can achieve a given end with the least costly of all available means. In other words, *if* we know what the most valuable end we could be pursuing is, and *if* we know what the correct value of

each of the possible ways of achieving that end is, then our choices have a very good chance of being economically efficient. It would simply be a matter of matching the known, least-cost means to the known, highest-valued ends.

But if we lack knowledge of any part of that ends-means framework, if our knowledge is not perfect as to what our highest-valued goal is or the cheapest way of achieving it, it would be impossible to tell whether any particular ends-means combination is efficient or inefficient. I choose to take the train to Paris from Rome thinking it is the lowest-cost vacation destination and the cheapest way to get there, when in fact I would get a higher net satisfaction from flying to Amsterdam and vacationing there instead. I would regret my choice to travel to Paris as inefficient *only if I were aware of the superior alternative*. It is only if I know of all possible competing ends and all possible means to achieve those ends, that I can determine whether one choice is more efficient than another. We cannot compare an actual outcome with an ideal outcome if we don't know what that ideal outcome might be. It may be appropriate to speak of efficiency in Louis Wirth's ideal 3-variable city because of its sheer simplicity. But in a Jacobsian city of organized complexity, in which the city is not itself a choosing agent with a purpose of its own, the concept of an "efficient city" in the strict economic sense is completely inapplicable.

The starting point of Jacobs or of Hayek and market-process theory is that in the real world, we are aware of only a small portion of the total amount of information we need for the successful completion of our plans, and so we inevitably make mistakes and our plans conflict. Making such mistakes is obviously not efficient. Fortunately, the institutions and social processes of living cities are precisely what facilitate the discovery of such conflicts and mistakes, as well as stimulate and harness the dispersed resources needed to resolve or correct them.

To be clear, the concept of economic efficiency is valid and helpful when applied to situations where there is (1) a known and clearly specified end; (2) a known set of clearly specified alternative means to achieve that end, and where there are; (3) market prices to help people rationally evaluate the end and the alternative means. If we want to build a house to sell for a certain price, and we have the right set of inputs (e.g., labor, material, equipment, land) and the prices of those inputs, it would be

possible then to make a rational, efficient decision about whether or how to build and sell it. But a living city is not a house, or a machine, or a work of art, and therefore it can be neither efficient nor, strictly speaking, inefficient.

At the deepest level, the market process and a living city are of the same nature. Neither have purposes in themselves.

And because our knowledge is imperfect (owing to the limits of our mind) and because in a dynamic world we can never fully remove that imperfection, real markets will never be efficient, and for the same reason neither will real cities be. The good news is that, with an effective process of trial-and-error, neither of them need to be. Markets and cities each embody the means of discovering and reducing those imperfections. But experimentation through trial-and-error takes us outside the realm of efficiency. To someone trained in standard economics, this sounds paradoxical. If you understand why a city cannot be a work of art, which is a superb expression of Jacobs's social theory, it makes perfect sense.

As we will see, beginning in the next chapter, a living city works by effectively combining what I call the "4 Ds," *diversity* and *density* generating *discovery* and *development*. Regarding what a normative standard consistent with promoting creative discovery would look like, I will simply say that it would focus on whether the "rules of the game" create the conditions that empower us to discover problems and to create effective solutions for them. This doesn't mean we should try to eliminate the disruptive gales of destruction. Rather, our focus should be on the enabling conditions that keep the forces of creation ahead of those dark forces, and less on how closely the outcomes we see match the ideal outcomes we can imagine.[24]

5 Concluding Thoughts

That a living city is a spontaneous order and not a deliberate work of art means there is a trade-off between the scale and designed complexity of a project and the spontaneous complexity of the social orders that can

[24] I take up these topics in Chaps. 4 and 6.

emerge within it, and that the passage of real time may soften the severity of that trade-off. As we will see in greater detail in the following chapters, this trade-off arises because increasing the scale and design of planned constructions impinges on spaces where creative, informal contact among strangers can happen. Design can complement those things to a point, but beyond that it begins to crowd them out. Small is not always beautiful and big is often unavoidable. That makes it all the more important to understand the impact of scale and design on complex, spontaneous social orders.

This applies as much to private projects as it does to public projects. When the designs are small relative to the surrounding social milieu, the downside of the trade-off is not very steep. The problems usually begin when budget constraints are soft and projects become mega-projects and mega-projects grow into giga-projects. At the risk of sounding ideological—Jane Jacobs somehow avoided being ideologically pigeonholed all her life—soft budget constraints are primarily the domain of governmental projects and so-called public-private partnerships: Elephantine-starchitectural-wonder-developments that require massive subsidies and guarantees too often strive for off-the-charts wow-factors that drain the life out of surrounding public spaces. Without police powers, legal privileges, subsidies, and eminent domain, could the scale and degree of design of purely privately funded developments even begin to compare to public projects in terms of potential harm to the social infrastructure? Probably not.

What I have said here applies not only to the built environment but equally to the formal rules that govern land-use and human interactions within urban spaces (Cozzolino, 2018). Rules need to adapt or permit adaptation to changing circumstances and some rule-structures, like physical structures, do this better than others (Cozzolino, 2022). Designing rules to achieve a specific socioeconomic outcome has the same tendencies as imposing a particular physical design on the social order, potentially damaging the social order in the process, although perhaps preserving the appearance of life. Taxidermy again.

I worry that in our conversations about what makes a city livable, we pay lip service to “mixed uses” and “density” and “diversity” without really understanding exactly what these mean and their importance for

economic development and liveliness, which is something I will try to clarify in the next chapter. Jacobs explains how a living city fosters economic development and liveliness—for her, the two go together—by promoting the diversity of land-use and of skills, knowledge, and tastes. As we will see, no entity, private or public, can build a living city (or a neighborhood community) because it is epistemically and cognitively constrained in trying to construct the essential, self-regulating and self-refueling processes that characterize it and must emerge organically within it. In Chap. 7, I will examine cases where some have nevertheless attempted to do just this.

In the ordinary course of their activities, planners can at least refrain from doing the things that would thwart the emergence of these processes and the invisible social infrastructure that gives rise to that emergent diversity, development, and liveliness. And because I am afraid planners won't refrain, I worry that when they propose large-scale fixes for urban problems, they will do so without noticing or caring about Ken-ichi Sasaki's (1998) "urban tactility," another essential feature of the fine-structure of a living city that is the result of human action, but not of human design.

The more precise and comprehensive our image of city is, the less likely it is that what we are imagining really is a city.

What exactly is it about a living city that fosters spontaneous complexity? What are the conditions that enable the emergence of complex social order? Why do innovations happen mainly in cities? These are questions Jacobs addresses in *The Death and Life of Great American Cities* and the ones we will turn to next.

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