

Shouting “fire” in a crowded theater produces a dramatically different effect from barking the same word to a squad of soldiers with guns. Writing it on a hydrant yields yet another result. The meaning of a message depends not only upon the information that it contains, but also upon the sort of local ignorance or uncertainty that it reduces—in other words, upon what the message’s recipients require information *about*. Occupants of a flaming theater need to know that they should make for the exits. Members of a firing squad need to know exactly when to pull the trigger. A fireman facing an array of plumbing fixtures needs to know where to attach the hose. But if I receive the text message FIRE on my mobile phone, at some random moment, I can only respond with a puzzled HUH? Information becomes useful and messages serve their purposes in particular places at particular times. Context matters.

This book explores the ways in which the spaces and places of twenty-first century cities provide contexts for communication—serving not only to shelter and protect their inhabitants, but also to ground and sustain meaningful interaction among them, and to construct community.

#### **Words spoken in place**

Sometimes spoken words provide information about physical objects in the immediate vicinity of the conversation. The traffic light is red. Watch out for that car! Please pass the salt. In these cases, speaker and listener share a place and a moment. The directions of their gazes, gestures such as pointing and touching, the effects of walls, stages, desktops, tabletops,

frames and other bounding devices, and mere proximity help to pick out, from among all the things in the world, the specific ones that the words are about. The meaning of a local, synchronous, spoken message is a joint product of the words, the body language of the participants in the exchange, and the setting.

Stage and film directors know that, in order to flesh out the meaning of the words provided by a playwright, they must create an appropriate *mise-en-scène*—a place populated with objects for the words to refer to. (Radio plays, films shot entirely in tight close-up on the faces of the actors, and Samuel Becket in his bare stage mode are instructive limit cases.) Change the set, costumes, and props—by setting *Macbeth* in Washington, say—and the significance of the dialogue will shift. Rewrite the dialogue and it will assign new meaning to the same things. In much the same fashion, by providing tangible, visible referents, the spaces of actual buildings and cities participate in constructing the meaning of the speech that unfolds within them. Reciprocally, spoken sentences like “The meeting is in the second room on the left,” and “This was the scene of the crime,” add significance to spaces and their contents. As conversations unfold within particular architectural settings, they build up increasingly dense webs of shared understanding grounded—at least in part—on the points of reference that these settings afford.

Furthermore, boundaries of spaces often delimit the scopes of spoken assertions, as in: “Everyone in this room is sworn to secrecy.” To understand what the speaker intends, you need to know the relevant spatial limits. When you announce,

“I’m going out,” or ask, “May I come in?” you depend upon the clarity of the relevant architectural boundaries to establish precisely what you mean.

When spatial boundaries are ambiguous, or subject to redefinition, you can get conundrums. Within the limits of the world known to Europeans, for example, it was once true to say: “All swans are white.” But when the discovery of Australia expanded this world, it also destroyed the truth of the generalization, since Australian swans are black. When Jimi Hendrix sang, “The traffic lights turn blue on Sundays,” the boundaries were ambiguous. Maybe the guitar king from Seattle was telling us the truth, but exactly what traffic lights was he talking about? Where? When a Cretan claims, “All Cretans are liars,” he creates a notorious paradox, but when a Cretan on vacation in Athens announces, “Everyone back home in Crete is a liar,” he may be libeling his countrymen, but there is no logical problem.

#### Creating the *mise-en-scène*

The most obvious way to create a *mise-en-scène* to support communication is to gather objects in a space, such as a room, where they are simultaneously visible, and where not only the objects themselves but also the spatial relationships among them can assume significance. This is the mechanism at work when you collect your private possessions in a container (not only to protect them, but also to assert that they are yours), and when you place valued objects on honorific surfaces such as desktops and mantelpieces while tossing discarded objects into the trash—expecting that the cleaners will read the message

correctly. It enables Westminster parliamentarians to define themselves as members of the government or of the opposition by seating themselves on opposite sides of the house. It operates at an architectural scale when centrality asserts the importance of a building or an entrance relative to others, or a corner office suggests the status of its occupant. On your computer screen, it enables the expression of commands not by typing or speaking them, but by dragging icons from window to window, or into the trash.

A second possibility is to arrange objects along a circulation route so that they appear in sequence like successive sentences in a narrative or scenes in a film. Here, patterns of clustering and sequencing can become significant. Paintings in a museum may be hung in chronological order; books on library shelves may be arranged by their Dewey Decimal numbers; and items in a supermarket may be displayed with like items in labeled aisles and sections. Architects may organize spaces along circulation routes to present sequences of views, or to create staged transitions from public to private space, or perhaps from profane to sacred. Theme park rides invert the standard theatrical strategy of presenting successive scenes in the same space to an audience that remains fixed in place, and instead move audiences through scenes that occupy adjacent spaces and play simultaneously.

Like music that gains its effect from both the simultaneity of sounds and the unfolding succession of sounds, then, the interconnected spaces of a city construct a *mise-en-scène* through both the synchronic effect of simultaneously visible elements and relationships and the diachronic effect of ele-

ments and relationships presenting themselves sequentially to moving observers. This dual character of architectural and urban space shows up in strategies for giving directions: you can trace a route to a destination on a map, which shows everything simultaneously, or you can specify a sequence of landmarks and intersections together with turn instructions at each one. A GPS-based automobile navigation system plays it both ways by keeping track of the driver's location in a continuously updated map and providing a sequence of turn instructions in real time.

Of course our movements through buildings and cities, and our opportunities to assemble at various points, are far from unconstrained. In fact, cities operate as huge machines for sorting their populations and organizing opportunities for face-to-face encounter and exchange. Times Square and Trafalgar Square are central, accessible, highly public spaces that attract vast numbers of people, present those people to one another, and offer at least the physical possibility of random meetings—together with its flip side, the possibility of lonely anonymity among the crowds. Sites of commerce—markets, stores, shopping malls, restaurants, bars, bordellos, and airports—occupy somewhat less central locations within the urban fabric, attract more specialized populations, and have more powerful exclusion mechanisms. Churches, mosques, clubs, schools, child-care centers, and courts of law are typically more selective and specialized still—or, at least, differentiated along different dimensions. Private homes place very strong restrictions on co-presence, and boudoirs, teenager bedrooms, dens, and studies within them may be even more restricted—as appropriate to the most private discourse.

Each of these place types provides the necessary boundaries, scenery, and props for the associated characteristic type of spoken discourse. You can say some sorts of things in public and others in private. The language of commerce, the language of the law, the language of liturgy, and the language of intimacy all have their places, while these places set expectations and conventions for the interchanges that unfold within them. Sometimes, as well, the speaker's location confers particular authority, as in speaking from the chair, from the bench, or *ex cathedra*, or imposes particular obligations, as in speaking from the witness box. Knowing what you can say where is a crucial component of effective community membership, while speaking out of place is a challenge to community norms that may get you ostracized or exiled—sent to a place of exclusion.

But the mechanisms described so far merely establish the lowest layers of the city's support for communication. Physical objects and spaces also carry associations and evoke memories. Any thing that you see, hear, smell, or touch may make you think of something else. Any element of the surrounding scene may serve as a link to memories of past events and distant places, to narratives that you have heard, and to facts that you have learned. These linkages may derive from reflexes, as with Pavlov's dogs salivating at the sound of a bell. They may operate through resemblance, visual metaphor, metonymy, or synecdoche. They construct a virtual *mise-en-scène* on the substructure of the immediate physical one.

The virtual *mise-en-scène* provides more for you to think about, and to the extent that your companions share it, more

for you to talk about. Some buildings, such as cathedrals and monuments, are designed to function primarily as sites of evocation in this way. Some, such as Maya Lin's minimalist Vietnam War Memorial in Washington, have little or no other purpose. In others, such as industrial warehouses, the architecture's evocative qualities may be of distinctly secondary importance, but they are never entirely absent. Our sense that a city functions as collective memory and as a crucial site of shared cultural reference depends upon its power to provide virtual as well as physical settings for interchanges among its inhabitants.

#### Inscribing text

None of this depends upon writing, and it all must have worked well enough in pre-literate cities. But the introduction of technologies for inscribing physical objects with text, and the associated practices of writing, distribution, and reading, created a new sort of urban information overlay. Literary theorists sometimes speak of text as if it were disembodied, but of course it isn't; it always shows up attached to particular physical objects, in particular spatial contexts, and those contexts—like the contexts of speech—furnish essential components of the meaning. A label on a wine bottle or the door to a room tells you what is inside (not what you will find in some other container), and the cover of a book refers to the pages that are physically bound to it. A stop sign at an intersection refers to that particular intersection, and you would be ill advised to argue otherwise with a traffic cop. Signing a contract has different consequences from

tagging a subway wall with your name. A padlocked gate with a notice announcing, "This is not an entrance" is unremarkable, but an invitingly open door with the same sign creates a frisson of paradox and evokes memories of René Magritte.

The effects of inscription are complicated by the fact that many designed objects have characteristic, immediately recognizable forms. Unless you are instructing someone in the English language, you do not add any information by labeling a door "door," a gothic structure with a spire "church," an automobile "car," or a hot dog "hot dog." Nor is it helpful to attach pictures of doors, churches, cars, and hot dogs to these things. But labeling obviously plays a more useful role when objects have ambiguous forms, as with generic soup cans and enigmatic electronic devices. And it can combine with the message sent by the form to elaborate, clarify, add commentary, or produce irony and paradox. Designers must decide upon divisions of symbolic labor between the forms of objects and the labels and other inscriptions that they carry.

Literacy did motivate the development and proliferation of products—such as rectangular sheets of paper, scrolls, books, and billboards—that serve the primary purpose of efficiently and fairly neutrally carrying text. Indeed, if you are a clerk or a scholar, you may find that most of your attention is focused on these highly specialized textual supports. But in a modern city, almost anything that you encounter, from underwear to skyscrapers, is inscribed with a name, identification number, brand, descriptive label, warning, or instruction for use. Some urban spaces, like commercial strips, may be completely dominated by their inscriptions. Mostly, we learn what unfamiliar things are

(or are supposed by someone to be) by reading the labels they carry.

It follows that the uses we put things to, and the kinds and levels of value we ascribe to them, are often highly determined by their labels—both the inscribed labels they explicitly carry and the implicit labels that result from speech and writing about them. When Alice encountered a bottle labeled "Drink me," she did just that. When a door says "Enter," we are inclined to accept the invitation. When a cigarette package warns, "Smoking kills," we think twice. Such labels, and other fragments of text that are physically associated with objects, give meaning to and are given meaning by all the other text to which they are linked by references and allusions. So the vast web of intertextual relationships that we continually navigate in our intellectual and cultural lives is inextricably interwoven with the physical objects and spatial relationships that constitute the city. Acts of use and inhabitation and acts of textual production and consumption cannot be separated neatly into functionally distinct categories, but should be understood as parts of the same system of meaning.

The system of inscriptions is shaped by the economy of surfaces. The space for text on a physical object is obviously limited; there is only so much you can inscribe on a T-shirt, a Coke can, or the label on an artifact in a museum. But this directly inscribed text can point to potentially unlimited quantities of text in other locations. The museum label might refer you to a lengthier entry in a printed catalog, and then the catalog entry might have footnotes referring to learned articles, and so on. Any labeled object can become the root of an

endlessly ramifying tree of cross-linked texts. Conversely, you can follow trails of textual linkages back to particular physical objects located in particular places at particular times.

The global web of spatially grounded symbols, texts, and discourses is, as poststructuralist cultural and literary critics have emphasized, dizzyingly self-referential. You can see this, in an elementary way, in dictionary definitions of words. "Hard" and "soft" are defined as antonyms, but this does not help you much unless you can draw upon direct experience of hard or soft things to break the circularity. Natural environments must once have provided the primary basis for the grounding of language in this way. But, for thousands of years, architecture, cities, and material artifacts generally have played that role. In our urban culture, there is a reciprocal, continually evolving relationship between things that there are words for and words that there are things for. The cognitive function of architecture (distinct from its function of providing shelter) is to create a rich environment for symbol, language, and discourse grounding, and act as the glue of communication that holds communities together. One role of designers, then, is to reproduce things that there are words for—thus providing cultural continuity. But another role is to operate at the ambiguous and contested margins of the system, conceiving of things that there are not yet words for, and providing concrete referents for words that there are not yet things for.

### \* Reproduction and telecommunication \*

The recording, reproduction, and telecommunication technologies of the nineteenth century added yet another set of

mechanisms to the continually evolving system of symbols in space. The playwright August Strindberg was an astute early observer of this, and he vividly represented it in *Dance of Death*. The action of the play unfolds at one of the world's spatial extremities—a single room, on an isolated island. This claustrophobic place initially seems to be disconnected from any wider human context. But the audience soon realizes that the walls are hung with photographs and other mementos, inserting reminders of the past into the scene. And there is a clacking telegraph apparatus in the corner, bringing news of distant happenings. By means of new technologies, information about temporally and spatially displaced events gathers at this spot, constructing a context for the two protagonists to interact and thereby allowing the playwright to disclose the complexities of their relationship.

Extending this condition on a vast scale, the mass media of the nineteenth and twentieth centuries transformed the global information dissemination system by radically separating the contexts of message transmission and reception. Novelists writing for thousands of readers, musicians in recording studios, and radio performers at their microphones could not know all of the potential reception sites for their productions, and could not assume uniformity among these sites, so they could not count on site features to help clarify or elaborate their meaning. This condition favored the production of works that were not only repeated exactly at different times or in different places, but were also as self-contained and independent of the context of reception as possible.

A closely related outcome was a growing demand for places and devices that masked the consumer's immediate

surroundings in order to facilitate immersion in standardized, modular, mostly self-sufficient information structures: quiet places for undistracted reading; darkened movie theaters where all attention is focused on the screen; the white-walled, minimalist art gallery; the Walkman or iPod that plugs into your ear; and—at the logical limit—the immersive virtual reality installation. Open a book, enter a movie theater, or dial up a track on your iPod and your attention is instantly shifted to another place or time. The dense embedding of these discrete media spaces in the urban fabric yields a city that, like a film with jump cuts and flashbacks, is experienced and understood as a sequence of spatially and temporally discontinuous scenes—some of them expressions of the current, local reality, and others ephemeral media constructions.

Reproduced and displaced information also creates an overlay of anticipation and retrospection on the direct experience of places. Reading James Joyce on Dublin, Raymond Chandler on Los Angeles, or Lawrence Durrell on Alexandria before you go to these cities produces structures of expectation that may be confirmed, modified, or denied by the lived reality, while reading them after you have been there contextualizes your memories in new ways. The more you immerse yourself in texts, films, and records somehow associated with a place, the more extended and asynchronous is the process of making sense of that place and of the communication that it provides context for. I had often walked past the Pythian Temple on West 70th Street in New York, for example; and had never given it much thought until I read, in the opening paragraph of Bob Dylan's *Chronicles*, that it contained a tiny studio where Bill Haley and

his Comets recorded "Rock Around the Clock." A familiar place, a record heard long ago and far away, and a newly-read text suddenly came into meaningful conjunction.

### The digital era

The digital technology that emerged in the latter half of the twentieth century dramatically transformed conditions for the reproduction and transmission of information. Digital information has only a tenuous and fleeting relationship to its material substrates. It mostly exists in the form of electromagnetic charges and pulses, it moves around at incomprehensible speed, and it can be reproduced exactly and endlessly. By the dawn of the twenty-first century, it had become a ubiquitous, ghostly presence that flowed ceaselessly through global networks and lurked everywhere within the objects we encountered in our daily lives.

The containment of digital information by physical artifacts has motivated the increasingly important field of user interface design. Usually, it is most helpful to the user of a digital device to conceal behind an abstraction layer the full complexity of what is happening inside the box. The abstraction layer might be a physical cover, with the available functionality presented by an array of buttons, knobs, and the like, as with a radio or a telephone. It might be a programmed screen, with the functionality presented by means of menus and graphic symbols, as with a personal computer. Increasingly—even with very simple devices, like wall thermostats—it is both. With digital devices, form follows function—but within some

framework of interface conventions, and at some chosen level of abstraction.

Digital devices rarely operate in isolation, but are linked to one another by communication channels. When some of them receive digital information emitted by others, spatially extended digital networks emerge—whether they have been planned or not. Network links may be established through physical transportation of units of portable storage such as tapes or disks (once popularly known as *sneakernet*), electrical or optical transmission of bits through cables, wireless transmissions through space, or by some hybrid means. Digital networks now form a vast, growing, indispensable backdrop to our everyday lives. They are connected to our thoughts and actions at interface points—locations where bits are converted to and from visible texts, images, and scenes, audible sounds, motions, vibrations, sensations of warmth and cold, and so on, much as the aural and textual worlds are connected at sites of reading aloud and transcription.

As a result, the physical settings that we inhabit are increasingly populated with spoken words, musical performances, texts, and images that have been spatially displaced from their points of origin, temporally displaced, or—as in the case of email and Web pages downloaded from servers—both spatially and temporally shifted. Physical spaces and the information space of the World Wide Web no longer occupy distinct domains—*meatspace* and *cyberspace* in the provocative trope of the *cyberpunk* nineties—but are increasingly closely woven together by millions of electronic devices distributed throughout buildings and cities. These devices add a dynamic layer of

electronic information to the *mise-en-scène* established by an architectural setting and the meaningful objects and inscriptions that it contains.

The reproducibility and mobility of one particular type of digital information—computer code—also produces displacement of human agency to the networked objects that increasingly surround us. The automated teller machine that provides you with cash, the mobile phone that connects you to your mother, the automobile guidance system that gets you to your destination, and the wireless laptop computer that downloads Web pages for you are all following instructions that were formulated and issued by people you have almost certainly never met, at distant and scattered locations, at various points in the past. Furthermore, programmable objects can perform speech acts, and autonomously engage you in various forms of discourse. They can query you, demand information such as passwords, refuse you access, provide you with information, accept your instructions, and issue orders to you. They can dispense facts, fictions, and lies. And malicious computer viruses, worms, and Trojan horses can take over networked, programmable objects to do you harm.

The effects of these digitally induced dislocations, displacements, insertions, and recombinations of digital information in relation to architectural and urban settings have already been dramatic, and will become more so. A shopper once inhabited the closed world of a store, but can now make mobile phone calls to check on what's needed for dinner, or surf the Web to comparison shop. At the checkout, a wireless device can read the RFID tags on the purchased goods, charge for them, and



update the inventory control and purchasing system. A political operative can stay in touch via her Blackberry and initiate action without leaving a committee room or disturbing the ongoing discussion there. A student in a seminar room once interacted primarily with the material introduced by the instructor, but can now Google the topic of discussion on a wireless laptop and focus globally accumulated information resources on the evolving discourse. A terrorist used to have to be on the scene, but now can just transmit a few bits to a mobile phone wired to some explosives.

Contrary to once-popular expectation, however, ubiquitous digital networking has not simply ironed out the differences among places, allowing anything to happen anywhere, anytime. Instead, it has provided a mechanism for the continual injection of useful information into contexts where it was once inaccessible, and where it adds a new layer of meaning.

#### The twenty-first century city

As these various modes and media of communication have successively taken their place in the world, they have partially substituted for their predecessors; you may, for example, choose to pick up a telephone or send an email instead of meeting a friend somewhere for a face-to-face conversation. Mostly, though, new forms of information have overlaid and complemented what had come before them. The written word did not end conversation, and the electronic word did not kill print.

All of the diverse communicative practices that I have described here—from conversation among those gathered

within earshot about things at hand to inscribing and reading labels, constructing and downloading globally accessible Web pages, sending and receiving email, and blogging meetings from wireless laptops—now work together both to give meaning to places and buildings and to derive meaning from them. The social and cultural functions of built spaces have become inseparable from the simultaneous operation of multiple communication systems within and among them. Architecture no longer can (if it ever could) be understood as an autonomous medium of mass, space, and light, but now serves as the constructed ground for encountering and extracting meaning from cross-connected flows of aural, textual, and graphic, and digital information through global networks.

The following essays flesh out this view of twenty-first century buildings and cities by providing sequential snapshots of their increasingly complex, multimodal systems of spaces, information flows, and practices in operation. They were mostly written over a period extending from the bombing of Baghdad to the Bay of Bengal tsunami—the six hundred or so days of the search for the non-existent weapons of mass destruction in Iraq. With the exception of “Do We Still Need Skyscrapers?” which appeared in *Scientific American* in December 1997, and several essays that were produced for collections appearing in 2005, they were written as columns for the *Royal Institute of British Architects Journal*. They have sometimes been edited into forms slightly different from those in which they originally appeared, but the content has not been revised in the light of subsequent events.