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# **Cryptographic City**

## **Decoding the Smart Metropolis**

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*Cryptographic City: Decoding the Smart Metropolis*

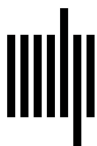
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### 3 Place Is the Code

There are many ways to make a place secure, including combination locks on security doors. The sight of a touch pad is enough to deter most people from trying the door handle. Spaces that signal their security measures may also signal the converse: something valuable is concealed here; it is worth breaking in. The discipline that foregrounds signals, signs, and messaging is known as *semiotics*. As communication is central to the cryptographic city, I want to start this chapter by positioning the securities afforded by urban cryptography within the wider field of semiotics.

#### Signs in the City

Semiotics focuses on the concept of the sign, the basic unit of communication whether spoken, written, implied, or embodied in architectural and urban objects. Semiotics is a practical matter that touches on how things communicate but also how they function in physical and social contexts. Semiotics assumes the all-pervasive nature of communication within human, biological, and even inanimate systems.<sup>1</sup> Winfried Nöth's expansive *Handbook of Semiotics* illustrates the broad scope of the field and the wide divergence of views it encompasses and that it claims within its orbit.<sup>2</sup> I'm thinking here of language philosophy, structuralism, poststructuralism, and deconstruction, with Wittgenstein (see chapter 1) exerting considerable influence across each. These philosophies are widely applicable across architecture and urbanism as I've recounted in several of my own publications.<sup>3</sup>

I presented James Gibson's theory of *affordance* in the introduction. Though framed in the language of ecology, Gibson's ideas find a home in

the field of semiotics.<sup>4</sup> The way I read Gibson, the world tells us how it is to be understood, interpreted, accommodated, cared for, and used. Touch pads, steps, doors, letterboxes, buildings, roads, and all the elements of the city afford actions, such as entering, walking, posting, dwelling, and commuting. That such objects carry affordances elides with the semiotic insight that they also *communicate* those possibilities. The extent to which a door makes clear whether you should push or pull to open it depends both on what actions it supports and what possibilities it signals.

As Nöth evidences in the *Handbook of Semiotics*, the discipline of semiotics also claims cryptography in its lineage. Semiotics includes the transmission of secret messages, secret access codes, the means of securing data and the whole apparatus of cryptography. In what follows I want to show that prosaic everyday semiotic practices in the city are subject to processes of coding and decoding information found in cryptography.

Any communication takes place within a context of multiple signals across many communication events. Any particular message lies within a much wider context of messages and communication practices. According to one of the standard models of communication, a sender codes their thoughts into some communicative medium and passes them through a conduit to be decoded by a receiver.<sup>5</sup> But in the case of everyday language, if communication involves coding and decoding then the coding system is also “transmitted” through the message corpus that includes previously shared exchanges. The means of decoding the message is transmitted along with the message, and in the company of other messages exchanged within a language community. We learn and transmit the code as we communicate.<sup>6</sup>

It serves well the design of the urban environment to think that the code is potentially part of the message, that communication events include the means of their decoding, or we could say of interpretation. Consider everyday tools, such as a hammer or toothbrush. Tools that are well suited to the task at hand, whether objects or words, make clear how they are to be used. They are their own codebook. Well-designed door handles signal to us by their shape, materials, and positioning whether they are to be pushed, pulled, or turned.<sup>7</sup> The current design of supermarket self-checkouts provides a negative example. Should I put my purchases to the right or left of the scanner? Where do I put my own recycled shopping bags? The current design of such machines rarely makes obvious how they are to be used, without lists of instructions, audio alerts, and the intervention of shop

assistants. In less-managed contexts, physical signage tends to accumulate. I think of paper notices adhered to the wall adjacent to our office printer, the dos and don'ts of its use and maintenance, some of which contradict. In his book *Site Planning*, urban planner and theorist Kevin Lynch expresses misgivings about notices as “ugly and chaotic, not by their nature, but because they are thoughtlessly used, ambiguous, redundant, and fiercely competitive.”<sup>8</sup>

Applying this code metaphor to space and place: the code that “unlocks” the secrets of a place are in the place. What does such a place look like? There's nothing remarkable about the idea of a place that contains within it the means of its translation, decoding, and interpretation. A place that is “legible” will contain tools, objects, and affordances that enable us to do useful things, which is to say that enable us to *understand* that place.

Formal signs as printed texts, notices, or instructions assume the role of rules, as if handed down or approved via some authority structure. Notices as textual signs populate the urban environment and tell us what to do and what not to do: “Place goods in bagging area.” Unnecessary urban rules come across as restrictive, censorious, and authoritarian. Places, buildings, and devices that present to us as a plethora of printed, vocalized, and displayed instructions have failed in some important design sense.<sup>9</sup> By way of contrast, places that enable self-evident social practices suggest nuance and sensitivity to the user and to context. Such place-based unwritten practices are *norms*. Designs that rely on text messages, signs, and audio that tell us what to do displace norms with rules.

### Urban Affordances in Context

Citizens learn to interpret, apply, and perform actions in social contexts. I soon learned how to use the unsympathetic self-checkout machine. I watched others. The machine and staff provided feedback when I did something contrary to the machine's function, such as placing my own shopping bag on the purchased goods side.

Norms are baked into well-designed and evolving urban places. I say “place” here. There's a social dimension to concepts of place. We tend to emulate how others use a place. Sometimes we just need a nudge to alert us to the norm, as when a pedestrian berates a cyclist for riding on the sidewalk. Bike parking racks do not need a notice that says, “Park your bike

here." The sturdy iron frames secured to the pavement appear to be eminently practical as a safe place to chain your bike. We don't need notices to tell people to gather in large central city plazas. The location of the place in relation to circulation routes, the control of vehicular flows, the welcoming nature of the architecture, the presence of retail and entertainment, and its accommodation of properties of bodies and movements abet people's willingness to congregate. Increasingly, the design of places takes into account their potential to attract, even as settings for digital photography.<sup>10</sup> Curbs on the edges of roads make it clear that cars must not encroach on sidewalks. Low, smooth, self-cleaning walls invite people to sit.

Urban designers and theorists such as Jan Gehl provide many examples of successes and failures in the arrangements within public urban space attributable in many cases to the communicative and functional aspects of places.<sup>11</sup> Places that are effective signal to you how you are to use them, or at least they provide an indication of the scope of their use. They accommodate social norms, unwritten understandings about what constitutes normalcy in this context.<sup>12</sup>

The city is permeated by written and unwritten codes. Admittedly, that's different from the idea of the city as a medium in which people communicate from sender to designated recipient using overt cryptographic methods and devices: Enigma's polyalphabetic electromechanical coding, Wittgenstein's substitution cipher or digital encryption. But I contend that even without such overtly cryptographic operations the city is a place that deals in the affordances of cryptographic processes and cultural outlook. Places participate in affordances that reveal, conceal, combine, suggest pathways to follow, hark back to original sources, facilitate interactions, and engender trust. Place is the code. The code is in the place.

### Illegible Cities

One of the affordances of cryptography is to conceal plain text by rendering it illegible to most but legible to a few. Legibility is a major dimension of city spaces. In his guidelines on planning and design in cities, Kevin Lynch outlines the means by which city places are enlivened by spatial elements: transitions, views, sequences, forms, textures, details, contrasts, orderings, and diversities that color our expectations within spaces. Key among these attributes is *legibility*. The various parts of the urban environment should

be so structured that people “can relate them to each other and can understand their pattern in time and space.”<sup>13</sup> He asserts that “the general framework of a living space, as well as the linkage of its public places, must be legible—not only in the street but also in memory.”<sup>14</sup> This is a practical matter and aids in wayfinding and talking about a place. But legibility “can be a source of emotional security and a basis for a sense of self-identity and of relation to society.”<sup>15</sup> He also suggests that legibility contributes to social cohesion.

A legible city exhibits flexibility in how it is presented as maps, sequences, and schemas.<sup>16</sup> As well as seasoned inhabitants, tourists should find the city legible, whatever the varieties of urban experience.<sup>17</sup> He argues for a temporal legibility as well: “The sensuous environment may be used to orient its inhabitants to the past, to the present with its cyclical rhythms, and even to the future, with its hopes and dangers.”<sup>18</sup> Urban theorists generally alight on historic cities to illustrate urban legibility: the Piazza San Marco in Venice,<sup>19</sup> the Bogro Allegri, Florence,<sup>20</sup> the Georgian public spaces in Bath, England.<sup>21</sup> Such places are time-honored, approved by scholars, and popularized by countless tourist guides, travel documentaries, websites, and Airbnb hosting sites.<sup>22</sup>

In *The Image of the City*, Lynch argues for legibility while recognizing the value of its converse—illegibility: “It must be granted that there is some value in mystification, labyrinth, or surprise in the environment. Many of us enjoy the House of Mirrors, and there is a certain charm in the crooked streets of Boston.”<sup>23</sup> However, he qualifies the value of such surprise by stating that it must occur within an overall framework that is legible, and “the labyrinth or mystery must in itself have some form that can be explored and in time be apprehended.”<sup>24</sup> Lynch suggests the need for legibility is not a universal requirement, that it is sometimes desirable that parts of the environment are “hidden, mysterious, or ambiguous.”<sup>25</sup>

I recall as a student visiting the city of Venice and wanting to get lost in the tangle of canals and streets, to feel as though the city had indefinite extent. But I still wanted to find my way back to the train station. We experience cities in different modes: as a tourist wanting to get lost, as a visitor trying to find the way to a particular landmark or back to their hotel. For some local citizens the city scarcely impinges on their awareness. These are habituated residents, service personnel, postal and food delivery drivers and cyclists who need to cover as many bases within an allotted time.

Places designed and developed to provide their own code, the means of their own decryption, pose challenges appropriate to the mode of urban engagement. I'm prepared to release the city from the necessity to be always legible at all times and to everyone—hence my advocacy of the city as cryptographic.

### Urban Contest

Norms imply constancy and consistency among the users of public spaces. Not everyone agrees on what is to happen in a place. Baked-in, place-based norms are often dictated by those with an investment in the status quo. Certain spatial practices emerge that run counter to the authorized and dominant semiotics of a place. Traditionally this would have been the carnival, pagan festivals, and street entertainments. Think now of flash mobs, pop-up markets, parkour, skateboarding, protests, street performances, outdoor sleeping, trespass, and other grassroots urban practices not yet appropriated or noticed by city authorities, urban researchers, mass media, and commercial interests. Such spatial practices are varied responses to the semiotics of place. What to one person is a place to sit is for another a place to spend the night. A traffic barrier becomes a climbing frame. A window ledge becomes a foothold for a climber. A metal balustrade on a bridge is a place to attach a love lock. Marginal and unsanctioned spatial practices reveal aspects of city fabric in ways that are hidden to the rest of us. Groups may have different responses to places and that delivers conflicts of expectations and practices.

Elements within the city also form as a response to conflict. Most city ordinances and regulations point to physical adaptations that were established in the wake of a disaster, including fire escape stairs, nonflammable cladding, shielded electrical cables, and drains that prevent flooding and disease. Lockable external doors have arisen or coevolved with developments in city fabric and with spatial practices to prevent the inconvenience of a conflict between public and private. Cities engage in competition across numerous fronts, not least between those who wish to protect, and those who want to break in.

Urban theorist Wendy Pullan has indicated that there really are no rules for urban conflict, productive or otherwise. Identification of the protagonists, their differences, and causes of conflict are fluid, contingent, and

subject to the workings of interpretation, and rightly exercised, debated, and worked out in public life. So, an architecture that provides space for public life is crucial for the working of productive conflict, which she refers to by the Greek-origin *agon* meaning struggle, contest: “Place, by being structured in everyday activities rather than regulatory systems, can begin to open a territory where the necessary flexibility of *agon* can exist, with all of its paradoxes and ambiguities.”<sup>26</sup>

By my reading cryptography captures part of that contest. At its most benign, cryptography presents as a puzzle or a game. More significantly, and traditionally, cryptography was deployed in war settings, as combatants would exchange information in their military maneuvers. Cryptography is *agonistic* across several dimensions, not least the contest between cryptographers and cryptanalysis, the coders and codebreakers, those who dispatch coded messages and those who seek to intercept or scramble those messages.

Cybersecurity in the cryptographic city intensifies a discourse of conflict, contest, and war. Hugo Hoffman’s *Cybersecurity Bible* enjoins us to “think like the enemy”<sup>27</sup> and makes frequent appeals to defend against attackers. We should always assume there are active agents intent on sabotage. Concepts of cybersecurity instill anxieties about risks and threats. This adversarial framing of place is familiar enough to architecture, which includes castles, city walls, and other defenses in its repertoire. The early architectural theorist Vitruvius (ca. 80–15BC) paid substantial attention to city defenses, as well as catapults, ballistae, and other means of breaching city walls.<sup>28</sup>

This militaristic framing also underpins characterizations of the security challenge. In chapter 6 I’ll introduce encryption methods. Three named fictional characters recur in cryptographic textbooks to help explain the methods. They are named benignly Alice, Bob, and Eve. According to Simon Singh in *The Code Book*, “Alice wants to send a message to Bob, or vice versa, and Eve is trying to eavesdrop.”<sup>29</sup> That simple three-way drama implies persistent and active agency, malevolence from the third party (Eve) who wants to intercept communications between legitimate correspondents. It is a useful model in understanding the workings of cryptography, but it’s a framing at odds with everyday life. In familial and friendly social settings, malicious overhearing, eavesdropping, and the interception of private communications is the exception rather than the rule. So it is difficult for many of us to tune in to the supposedly urgent demands of cybersecurity.



In friendly social settings, nonadversarial metaphors that depend on norms of trust apply. First is the *dilution* metaphor. A container holds something of value, our information. Secret keepers don't want that value diluted as it leaks and dissipates into general discourse. Second, think also of the value we attach to secrets. Secrets are objects of value to many and are to be kept, shared, and gifted as such. Third is an affective framing. Emotional states associated with pride, shame, and scandal feature in everyday relationships and guard against unwarranted interception of private communications. In contrast, cybersecurity aims for severe, inflexible, and all-encompassing protections to information, though I will show subsequently how cryptography is recruited in discourses about trust.

Some years ago colleagues and I penned an article we titled "Permeable Portals"<sup>30</sup> in which we advocated for the design of websites that resist firewalls and security protocols regulated via secure logins. As our students developed skills in interaction design, we would help them to resist the instinct to set up registration and login protocols to protect all aspect of data flows. Now, public-facing platform design (such as social media and gaming platforms) typically afford graded access to resources via "guest" access, levels of membership, and "freemium" permission structures set by default or in a user's profile. Not all users of a platform have to type personal details into a registration form or negotiate paywalls. Not all data and interactions need shielding all the time and for all time. These are urban concerns as well. Cities have long dealt with the physical arrangement of properties, zones, and districts and the permeability of their boundaries. Contest and the management of border conditions runs deep within information flows, as well as in design and the city.

### Secure Places

Cryptography affords controlled access and security. To reveal and to conceal in urban settings is to negotiate matters of trust, risk, and security. Norms impact on security in urban settings via a kind of collective surveillance. "Everyone has his eye on you,"<sup>31</sup> wrote Thomas More (1478–1535). This is something akin to libertarian civil society. A sense of community and shared social responsibility promote security and appropriate behavior that can be abetted by environments and systems in which people's activities are in view rather than hidden away.

As an illustration of collective security and trust, the urban critic Jane Jacobs attributes the keeping of “public peace” not to the presence of police, but “by an intricate, almost unconscious, network of voluntary controls and standards among the people themselves, and enforced by the people themselves.”<sup>32</sup> In contemporary spatial terms the contrast is most acute if we compare gated communities that lock in monocultural enclaves with open and diverse neighborhoods. Gates and locks advertise there’s something to be protected. In vibrant, diverse neighborhoods with permeable boundaries people are *watching out for each other*.

Many studies indicate there is a positive relationship between busy places and security, or at least a sense of security. Security expert Bruce Schneier provides such advice in his book *Beyond Fear: Thinking Sensibly About Security in an Uncertain World*. The best way to feel safe is after all to “live in nice neighbourhoods where people watch out for each other.”<sup>33</sup> When we think of how to be safe the first militaristic impulse is to build a fortress: “If someone is living in fear—whether it’s fear of the burglar on your block or the fanatical dictator half a planet away—it’s because she doesn’t understand how the game of security is played. She longs for a fortress.”<sup>34</sup> He advances the case that there is no condition of absolute security, in spite of the suggestion from news media and fiction, feeling secure is a subtle condition depending on context, and conditions and contexts change over time.

Feeling safe involves trade-offs. You need to be smart about your environment: “The smart way to be scared is to be streetwise.”<sup>35</sup> There is scope in lived urban environments to communicate and implement measures that obviate the need for high walls, security fences, surveillance cameras, and keypad-operated checkpoints. Online communications and data transfer protocols are by definition regularized, calculated, and formal. However, it’s worth reiterating, astute creators of user experience (UX) design and digital interaction know that not every aspect of a digital system needs to reside behind a firewall requiring the user to recall a password. Digital encryption operates at many levels in a system, most of which are invisible to the end user as data courses through networks. Some access is negotiated via passwords managed by the operating system, or via face recognition software and other biosensing technologies. The visibility of digital encryption protocols is as nuanced as people-centered urban design. The cryptographic city does not need to be the *regulated* city.

## Crypto-Urbanism

The encryption of communications and data flows is now commonplace and goes largely unnoticed by regular consumers and users. But there was a time when cryptography subverted norms.

As this book is about the built environment it is hard to resist a brief foray into the architectural meanings of *norms* and *rules*. The word *normal* is derived from the Latin noun *norma* which was the square of wood used by carpenters and masons for creating right angles.<sup>36</sup> It appears among the symbols of Freemasonry. As known to any student of geometry, a line (or wall) is *normal* to another if it meets it at right angles. Common usage has since generalized *normal* to refer to any operation or behavior that follows a pattern, template, or model. *Rule* originated from the Latin *regula*, a rod for drawing straight lines and measurement, though it's adopted now to indicate prescriptive statements about behaviors that are to be followed. Rules can be recited or written down, regularized—as regulations. It is hardly surprising that spatial expressions of rule breaking often settle on sloping walls and angular shapes and geometries that are non-orthogonal.

*Codes* and *code breaking* come to us within a more legalistic frame.<sup>37</sup> Urban geographer Rob Kitchin means by *code* the instructions in computer programs that increasingly govern our lives: “code and space are mutually constituted,”<sup>38</sup> by which he means that code is “both a product of the world and a producer of the world.”<sup>39</sup> Digital code pervades our urban experience. Urban theorist Stephen Graham makes similar observations by referencing “the hidden world of codes”: “code-based technologized environments continuously and invisibly classify, standardize, and demarcate rights, privileges, inclusions, exclusions, and mobilities and normative social judgments across vast, distanced, domains.”<sup>40</sup>

A book by urban planning scholar Eran Ben-Joseph, *The Code of the City: Standards and the Hidden Language of Place Making* presents *codes* as “regulations” that “exert influence and shape the global landscape.”<sup>41</sup> Building codes and standards, many of which have changed over time, are indeed hidden or latent as norms within the fabric of a place. According to common usage as I have outlined already, norms follow a pattern that may be invisible; rules are explicit.

The extremes of rule-breaking behavior or living without rules is captured well by the concept of *anarchy*—being without a ruler or rule.<sup>42</sup> Breaking

into secret messages strikes anyone with a mind for rule and order as an act of defiance and disorder. But the movement of the 1980s known as *cypherpunk* championed cryptography as a means of evading government and state instruments that might seek to monitor its citizens.<sup>43</sup> Digital encryption methods would enable “individuals and groups to communicate and interact with each other in a totally anonymous manner.”<sup>44</sup> The cryptographic methods formerly the preserve of the U.S. National Security Agency (NSA) and other state bodies would be distributed and improved for anyone to create secure messaging: “crypto anarchy will create a liquid market for any and all material which can be put into words and pictures.”<sup>45</sup> I am quoting here from the “Crypto Anarchist Manifesto”<sup>46</sup> put forward in 1988 by the founder of the movement, Timothy May.

A 1993 article in *Wired* about the movement captured its mood, reporting the dream that an “individual’s informational footprints” “can be traced only if the individual involved chooses to reveal them; a world where coherent messages shoot around the globe by network and microwave, but intruders and feds trying to pluck them out of the vapor find only gibberish; a world where the tools of prying are transformed into the instruments of privacy.”<sup>47</sup> In these early analyses, cryptography was seen as an enabler of free, grassroots, trusted, and neighborly information flows. The cryptographic city is caught up in these disruptive practices, overtly in the case of political activism but also breaking in and theft.

### Urban Disruptors

There are many ways of disrupting the orderly arrangements of a city.<sup>48</sup> One disruptive practice is to welcome outsiders who introduce “the shock of fresh habits and ideas: challenges to old ways” according to Lewis Mumford in *The Culture of Cities*.<sup>49</sup> Other disruptive practices seek to override the usual arrangement of things and impose new methods of organization, or of breaking through the organization. They turn access into a challenge about how to bypass and subvert the spatial arrangement of the city by creating alternative entry points. They try to break in.

Mumford described the ideal city as the *metropolis*, “the mother city.”<sup>50</sup> In place of the *polis*, consider the term *borough*, a word of Germanic origin. It denotes a fortified “civic community” according to the *Oxford English Dictionary* (hereafter, OED). Now *borough* usually implies some kind of

protection or fortification, such as a castle, a court, or a manor house—and the related proper nouns ending *burgh*, as in *Edinburgh*.

In native English a *burgh-breche* was a break-in, now contracted to *burglary*, “The crime of breaking (formerly by night) into a house with intent to commit felony” (OED). The term was usually applied to a house, a domicile, a residence, a place of habitation—and now that includes the “people’s house,” the U.S. Capitol. Burglary implies rule breaking and a form of anarchy, and is in the company of theft, arson, robbery, vandalism, insurrection, and other crimes affecting person and property, including cybercrime.

These definitions bring burglary under the purview of the city. At least that is the proposition advanced in Geoff Manaugh’s *A Burglar’s Guide to the City*.<sup>51</sup> He develops the theme by recounting the history of George Leonidas Leslie (1842–1878), a Cincinnati-trained architect who turned to robbing banks, mostly in New York. As described by Manaugh, Leslie’s approach to burglary was inventive, and even theatrical, demonstrating a clear understanding of place and space. He would create full-scale replicas of the places he and his gang intended to rob in order to leave little to chance, a familiar heist scenario: “Pirates of space-time, dressed in opera costumes, picking bank locks and assembling duplicate vaults in abandoned Brooklyn warehouses, Leslie’s gang and their astonishing success rate set a delirious precedent for future burglaries to come. Leslie thus became both burglary’s patron saint and architecture’s fallen superhero, its in-house Lucifer of breaking and entering.”<sup>52</sup>

Manaugh makes the case that concepts derived from the nefarious practices of burglary have informed our conceptions of the city, and even the form of our cities. Continuing the story of the Cincinnati architect-criminal: “You cannot tell the story of buildings without telling the story of the people who want to break into them: burglars are a necessary part of the tale, a deviant counternarrative as old as the built environment itself.”<sup>53</sup>

To view places through the practices and eyes of a burglar might indeed provide new ways of looking at the city and its architectures, and has the potential to influence urban design, as architects and city planners install the means to prevent burglary but as they contemplate burglary’s spatial and temporal implications. If crime is hardwired into the history of architecture, mainly through measures to prevent crime, then so is cryptography. My claim that cryptography as a means of concealing and revealing information is hardwired into the fabric of the city finds further justification.

## Quiet Places

In chapter 2 I focused on text as written or printed, and alluded to deictic utterances, shibboleths, and quirks of pronunciation. There's much that could be said about *crypto-sonics*, sound as a coded medium. In order to close off the discussion I began in chapter 2 about writing and place I want to now conclude with whispers.

Whispering provides an obvious connection with secretive communications, speech directed intimately at a designated recipient, in resistance to Eve the eavesdropper. Steven Connor has written extensively on the cultures of the voice. He says in his book *Beyond Words: Sobs, Hums, Stutters and Other Vocalizations*: "The whisper signifies intimacy and secrecy. It is the mode in which I most naturally speak to or overhear myself. As such, it has religious or supernatural overtones, the whisper being the favoured mode of communication both of angels and of demons. The intimacy of the whisper gives it strong erotic force, too, as in the many popular songs in which whispering features."<sup>54</sup> The popularity of whisper videos<sup>55</sup> also demonstrates the long-standing fascination we humans have with the voice speaking softly.<sup>56</sup>

Whispers aren't as secretive as we might think. More than concealing a message, they announce that a secret is being told. Some urban spaces make it easier to hear whispers, such as beneath domes or in caves, and these are sometimes called "whispering galleries." Nooks, cosy firesides, and well-appointed corners of rooms and urban spaces encourage soft and intimate talk. Some spaces incline us to whisper, due to the solemnity or acoustic reverberation of a space. While researching this theme I happened to visit the town of Echternach in Luxembourg. The peaceful crypt of the abbey was suffused with the gentle slurping and gurgling from a stone channel fed from St. Willibrord's Spring. It sounded as a whispering voice. Whispers and whisper-like sounds seem to belong in such places and engender a kind of calm reverence.

Whispers also have a disconnected aspect. Connor associates whispering with ventriloquism: "The whisper is this voice, embodied, but without abode."<sup>57</sup> So whisper spaces might be un-homely, or detached spaces. More profound perhaps is the provocative assertion that to whisper is to play between the spaces of inside and outside.<sup>58</sup> Connor goes on to suggest that this ambiguity of interior versus exterior contributes to a whisper's purchase

in the realms of secrets and rumors, “the shades of the underworld.”<sup>59</sup> In this respect, whispers equate to dark, shadowy places,<sup>60</sup> further aspects at the hidden reaches of the cryptographic city.

### Subliminal Codes

Beneath the radar of even whispered speech are messages that evade conscious attention. Traditionally, cryptography operates with single messages. It has the force of a command or an instruction, a singular performative message given added weight through its mode of delivery. Who could ignore an encrypted message from high command! But communications also impress their target through frequency, by constant repetition. A message can be rendered invisible as background noise, as in an advertisement repeated ad nauseam on television or at the start of a YouTube clip, but it is no less forceful. Like most effective propaganda, such messaging operates “subliminally.”

The classic experiments in subliminal messaging were less about covert signals hidden within innocuous public service announcements, and more about plain text messages concealed within advertisements. Audiences in a cinema could be induced to buy a Coca-Cola during intermission if presented with a few images of the brand and texts telling you that you are thirsty. These suggestions would appear for a split second in the film as just single, isolated frames evading conscious detection. These techniques were not put into widespread practice, but they were experiments by the marketing psychologist James M. Vicary in the 1950s.<sup>61</sup> The theory was that we pick up words and images presented to us in ways that we neither notice nor recall.

There’s no real evidence that this kind of subliminal messaging works with the immediacy as proposed. By most accounts, the experiments were a fabrication, though the idea of subliminal messaging persists as a cultural meme, bolstered by ideas about mass hypnosis, charismatic leaders, irrational cults, and adherence to unlikely conspiracy theories.

Image technologies from moving film to digital processing encourage suspicion of subliminal messaging. Thanks to video formats such as animated GIFs, images flashed in rapid succession are commonplace in the digital age. If you have sufficient visual acuity you can race through your own digital photo-library at about ten frames a second and identify the portrait of your best friend. Images may also flash before your eyes of which you have no recollection or awareness.

Though advertisers were skeptical about subliminal messaging techniques, the idea became a target for critics of mass media advertising. In his book *The Hidden Persuaders*, Vance Packard sought to expose the surreptitious nature of all advertising tactics: “These efforts take place beneath our level of awareness; so that the appeals which move us are often, in a sense, ‘hidden.’ The result is that many of us are being influenced and manipulated, far more than we realize, in the patterns of our everyday lives.”<sup>62</sup>

The idea of subliminal messaging gained prominence after World War II as people reflected on the power of propaganda. A 1958 edition of *Life* magazine included an article featuring so-called “Hidden sell” techniques.<sup>63</sup> Film producers were on the verge of producing SP (subliminal perception) movies. A film might flash images of a skull at audiences to heighten the impact of a horror scene. The advertising scenario was best captured by a cartoon that showed a TV addict reclining in his armchair while his female companion looks on. Hair products are on the coffee table and his hair is in curlers. “I don’t know what came over me,” he says. The article highlighted serious and nonserious alarm about subliminal messaging.

What isn’t subliminal? The idea that advertising might operate subliminally assumes that the application of such techniques is exceptional—as if we are otherwise in control of what we see, hear, and sense, and the effects those sensations have upon us.<sup>64</sup> Media presentations that reinforce stereotypes are also a form of subliminal messaging. It is a common feature of interpretation in any age that we are never fully aware of what influences our judgments and interpretations.

Such covert messaging operates by evading detection. It also operates through repetition. A single ad for wash-and-wear shirts may fail to have a direct impact but is more likely to if encountered repeatedly and across different media channels. With consumer profiling advertisers present readers with targeted messaging, repeatedly. I will continue the theme of repetition and combinatorial complexity in chapter 4.

In this chapter I’ve added a tighter focus to the claim that cities can be understood through the lens of cryptography. This took me on a journey through semiotics, theories of affordance, debates about urban legibility, norms, rules, notions of conflict, defiance, rule breaking, sonic practices, whispering, and hidden persuasion. Insofar as these themes speak to the affordances of cryptography, they bolster my case that the city is cryptographic.





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