

PROLOGUE: ARCHITECTURAL CULTURE AND TECHNOLOGICAL CONTEXT

According to the *Oxford English Dictionary*, a machine is “an apparatus for applying mechanical power, consisting of a number of interrelated parts.” The same entry goes on to explain that “in recent use the word tends to be . . . reserved for those apparatus of later invention in which manual labour is superseded by the action of the mechanism.”¹ In the production of material goods the use of machines may require a higher degree of precision than manual handicraft. In compensation, as both this definition and common experience tell us, machines have generally allowed for some reduction of human labor or energy. Typically, these savings are bigger when machines can reproduce large numbers of identical objects (economies of scale).

The idea of mass producing a series of artifacts, even complex ones, has a long tradition. In 1516, Thomas Moore’s *Utopia* already anticipated the construction of identical houses and cities. But it was only with the industrial revolution that this abstract goal became a material possibility, and even in some cases an inevitable necessity. It comes as no surprise that such plans were always controversial. In the West, various cultures and traditions have reacted differently to the technical conditions imposed by new means of production, and with results that still affect our daily lives. Some European landscapes have been marked more than others by the visual consequences of mechanization.

I will not deal here, except incidentally, with the economic and social history of the industrial revolution, which followed different courses in every country. The question that I wish to ask is: why is it that, having reached similar levels of industrialization, and using equally similar technologies, some regions of Europe produced such different visual environments? The answer to this question will not be found in economic

considerations. In fact, this is an area of inquiry that seems to belong to no one discipline in particular.

When I began my university studies—in Italy, in the late 1970s—the first signs of postmodernism had not yet infiltrated the academic routines of most architectural departments. For me, as for many Italian students of my generation, the cycle of modern architecture had not yet come to a close. It was still necessary for us to come to terms with the imperatives of industrial production, to bring the building site into the age of mechanization; we envisioned architectural forms that should embody and express, “soberly, advisedly,” the physical qualities of the new materials and means of production. As some may remember, this was in Italy a time of great ideological divisions, but strangely enough, when it came to architectural design, left and right were not too far apart. Most of the architects practicing (or, more frequently, trying to practice) in Italy at that time felt that they were engaged in a battle between architecture and the rest of the world. As the experiences of the pioneers of modern design had already shown, it was not an easy fight.

I remember my teenage travels from my native Italy to the Germanic north, Central Europe, and England. In those not too distant times, the border controls between European countries were still numerous. But among all the checkpoints, one in particular marked for me the most singular and puzzling cultural divide. Only a short drive north from Milan, separating the Italian province of Lombardy from the Italian speaking Canton Ticino of Switzerland, this boundary between Italy and the Swiss Confederation separates two built environments and two styles of inhabiting them that are incomparably diverse. And yet the people on either side speak the same language, the same dialect even, till the same land, and drink the same coffee.

When we crossed that line, most of our architectural dreams seemed to come true. The far side of the divide presented to us an image of orderly and well-tended land- and cityscapes. But this is not what made the greatest impression on us. The building techniques were perhaps a bit more advanced on the Swiss side than in Italy, and the materials of better quality, but from our point of view the remarkable difference was a purely formal one. Those bland and anonymous buildings, those discretely modernist forms that expressed without reservations or ostentation the standardized and mechanical modes of their production were almost the symbol of all that we were unable to put into effect in our southern country, at least not without the

price of a titanic struggle—which in itself would have run counter to the spirit of the industrial age: machines tend to be indifferent to acts of individual heroism.

Heading north on the same highway, however, it was only on the other side of the Gothard Pass that the true earthly paradise unveiled itself to the eyes of the roving Italian architect. There, in peaceful and prosperous residential neighborhoods, condensed into edifices of a mere four stories, was a high technology of pure volumes, right angles, curtain walls, and *béton brut*—but without the emphasis, drama, and scale of Le Corbusier’s machinocentric monuments. When we contemplated those suburbs, all sun, space, and greenery (“soleil, espace et verdure”), we concluded: here modern architecture has won its battle. In Italy the battle had yet to begin. We returned home frustrated and exalted, as appropriate to a bunch of young rebels—or to most young architects in every place and time.

The history of contemporary architecture was soon to go in a completely different direction, where the scope of the present discussion will not take us. But there remains that question. Why, given the same materials, techniques, and methods of construction, does it seem that on one side of the border it is considered normal that people should live in houses that are more or less identical, while on the other side it is not so, and everyone seeks to avoid as far and as conspicuously as possible the anonymity of a standardized architectural landscape? As anyone can tell you, despite an overwhelming number of building codes and community and condominium rules, in Italy an apartment house with forty balconies usually displays on its façade forty types and colors of curtains or blinds. Since it would be cheaper to purchase forty identical curtains in one lot, this must come about by choice, not chance.

When I was in elementary school, one of my classmates had an eccentric grandfather. His eccentricity manifested itself in this way: often called to England on business, and having grown up in an era when Perfidious Albion was more or less the center of the world, this gentlemen regularly acquired his clothing—suits, shirts, shoes—at the elegant department stores in central London. But it was neither snobbishness nor lavish spending that was the source of his bad reputation in my home town. If I remember correctly the sarcastic comments of my Piedmontese grandparents (on this issue, at least, true Italians), what they blamed was, specifically, the quality of the old man’s purchases: “Doctor C. spent who knows how much on that

Aquascutum raincoat. I had a good look at it last night in the arcades around Piazza Cavour, and there isn't anything special about it at all."

As a matter of fact, considered as individual specimens, those raincoats aren't very special. Millions of them are to be found in all the corners of the world, all of the same cut, color, and quality. Yet this isn't the only item for sale at the state-run department store of some socialist or autocratic nation. Millions of people, in different countries, have chosen that model quite freely from among many others, willing to pay a price that they found reasonable. Apparently millions of people with freedom of choice are not embarrassed to wear the same raincoat. Nor do these people seek, as my grandmother would probably have advised, to personalize their coats with some original change that would turn the general into the particular—a mass-produced object into a customized one, a unique and irreproducible individual creation.² An Aquascutum raincoat is an industrial product. The brand name and the registered trademark guarantee that any one client is buying the exact same product as any other client. The pattern was created just once and for everyone. As Walter Benjamin argued, however, from the point of view of universal utility, "once does not matter."³ The individual item counts for less than the replication of the prototype.

Today, the great American hotel chains display with pride their individual logos—the images of their respective brands—on every continent. Again, the clients know in advance that, wherever they may be, as soon as they cross the threshold of one of these hotels, they will find exactly the same ambiance, the same procedures, the same satellite television programs, the same bath products, in short, in both a literal and metaphorical sense, the same climate. Even some discreetly exotic touches and occasional, tamed reminders of the local customs are part of this standard plan. In Italy, as elsewhere, the economic conditions of the recent decades have placed the ownership of many hotels in the hands of a few corporate conglomerates. But there is no sign that would betray this situation to the client, except for the small print at the bottom of the hotel bill, as demanded by law. Every hotel wants to seem to its clients that which it is not—a unique little *pensione* or a traditional one, a small family enterprise. It is a commonplace of contemporary marketing that most young people are brand conscious. But in Italy, until recently, if someone mentioned having stayed at an international hotel chain, or having eaten at a large chain restaurant, it was generally in order to deplore, or to denounce, some unpleasant experience.

These anecdotes—and many more could follow—are only meant to remind us that some cultures accept, while others refuse, the appearance of standardization. That is, they accept or reject the appearance of industrially manufactured products. But since each of the cultures I have just mentioned is industrialized, it is not in itself the presence or absence of industrialization that accounts for this rift. We must therefore look elsewhere for an explanation.

Logically, a history of the relationship between culture and industry should begin with the industrial revolution: enclosures, the crisis of the guild system, the power loom, coal, steel, and so on. As far as the industrialization of architecture is concerned, the scenario that has been commonly accepted runs the following course: first came the diffusion of new construction materials, then the resistance of traditionalist or reactionary architects in the nineteenth century, and in the end the purifying act of the pioneers of modernism who invented—or liberated—the architectural forms appropriate to the new machine age. And in the field of the figurative arts, no one has refuted the famous thesis of Walter Benjamin: it is only with the advent of photography that “the work of art reproduced becomes the work of art designed for reproducibility.”⁴

This somewhat teleological interpretive pattern that, if generalized, would lead us to associate every great period in building history with a specific construction technique (the Ancient Greek with trabeation, Roman with the arch, Gothic with stereotomy, right through modernism with reinforced concrete) admits of at least one major exception, an exception that has been pointed out before. Allowing for slight variations according to chronology and location, in the period falling between the end of the Middle Ages and the beginning of the Renaissance, the architectural forms being built throughout Europe changed in a sudden and radical way—but without any corresponding change in either materials or construction procedures. In a case perhaps unique to architectural history, the diffusion of the Renaissance style, so this argument goes, was not dictated, accompanied, or followed by the adoption of either any new machinery or any new building technique.⁵

In his apology of the machine society, published in 1948, Siegfried Giedion, the militant historian of modern architecture, makes an incidental reference to the diffusion of printed treatises in the Renaissance. According to Giedion, this was nothing more than a false start—the “predestined

hour” of the true mechanical revolution was not to come until much later. These books presented little or no innovation over the techniques of Hellenistic times; moreover, Giedion continued, they had no practical effect, and exerted no influence, on the production techniques of their time.⁶ Giedion could have observed that these treatises represented in themselves a marked change with respect to traditional methods of reproducing texts and images. Gutenberg’s press was a machine, and the products that issued from it, like all mechanically produced objects, resembled one another. The text and images of the same edition of the same book are identical, because they are imprints of the same ink-smearred mechanical matrix.

The mechanical reproduction of images was to have important and long-lasting consequences for the transmission of scientific knowledge, and even more for technical subjects and for the visual arts. Architecture was no exception. Renaissance architectural design is based on the imitation, with varying degrees of creative license, of a certain number of ancient models. In order to imitate the visible form of an architectural model, one must have seen it. And in order to see a building, from antiquity until the diffusion of the woodcut, there was but one way: one had to see that building in person. Buildings could not travel, so people had to. A new availability of trustworthy, portable, and inexpensive printed images of architecture greatly facilitated the imitative task of Renaissance architects.

We can ask ourselves what the “all’antica” architecture of the first moderns would have been if the print technology had not become available—almost providentially—just at the exact moment when that technology became indispensable to the diffusion of the new architectural theory of humanism. This feedback phenomenon is inherent to any complex sociotechnological shift: a new invention will spread only in a favorable environment, an environment where it is of some use. Reciprocally, we can ask ourselves what the practice of architectural imitation could have been in an age when images could neither be reproduced nor transmitted with any precision.

As in the case of photography, whose improper use was condemned by Benjamin, in an initial phase Renaissance artists and architects made use of woodcuts for reproducing images of antique objects that were not originally designed to be reproduced. This incongruity of format was quickly corrected; starting in the early sixteenth century, architectural treatises began to diffuse a new, media-savvy architectural theory that was consciously developed in response to the new means of communication. The Renaissance

theory of the five architectural orders (Tuscan, Doric, Ionic, Corinthian, Composite) is the keystone of this process.

The system of the five Renaissance orders, as defined in particular in the *Fourth Book* (1537) of Sebastiano Serlio, was a catalog of graphic components that were standardized and repeatable—what Benjamin would have called “designed for reproducibility.” Every element in this system was designed for being reproduced wholesale and then assembled or reassembled with other matching elements. Recomposition was governed by a set of rules (the instructions for the use of the system) that might be more or less complex according to cases. This *architectural method* imposes a simplified theory of design and inevitably leads to the repetition of a certain number of identical components. But this process of graphic, or typographic, reproduction had nothing to do with the material manufacturing of the architectural object. The Renaissance orders were not prefabricated. They were predesigned. With few exceptions, Renaissance treatises define architectural “orders” (columns, capitals, lintels, etc.) that are singularly lacking in material weight. What are they made out of? Wood, marble, stone, brick, stucco? How are they made? By whom? With what instruments? At what price? The books don’t tell us.⁷ Despite the standardized production of tens—sometimes hundreds—of identical architectural components destined for the same building, the concept of economies of scale does not belong to the sixteenth century. The system of the orders standardized the design process and only incidentally the manual actions of artisans or masons. The predestined hour of the Taylorist standardization of the building site, as Giedion said, was not to come until some time later.

The loss of quality presented by this predesigned architecture did not escape the notice of Renaissance theoreticians. For Serlio, as for some of his followers, it seemed a price worth paying. As Serlio stated repeatedly, this system was not designed for talented architects and was not intended to give rise to architectural masterpieces. Serlio’s project was not only pedagogical but also social: his method aimed above all at creating a class of middle-brow building professionals. This program of popular education was possible thanks only to the printed book; it spread through print, and without printing it would never have come into existence. No one could have dreamed of normalizing world architecture via an illustrated manuscript, which might give rise, in a best-case scenario, to a few dozen illuminated copies, each one different from the next.

Serlio's architectural program—revolutionary in its context and not only metaphorically iconoclastic—was born in Italy, in an Evangelical context, in the second quarter of the Cinquecento. By the next generation it had already migrated elsewhere. Towards the end of the century, thinkers of the Counter-Reformation had at their disposal a complete arsenal of theoretical objections to the system of the orders. An enemy of creativity, of Church tradition, and of Aristotelian principles, this technocratic and Philistine method could only produce a banal and narrow-minded architecture. In 1584, the Milanese painter and art theorist Lomazzo wrote an invective against Serlio and his books that remains famous. Some years later, the Jesuit Possevino stated with surprising transparency his aversion to the vulgarity of the mechanism of the orders (and at the same time to the vulgarization of the Vitruvian text). In Rome, as early as the publication of Vignola's *Regola*, the Serlian method was quickly repudiated. Michelangelo's architecture is neither repetitive nor standardized.

Meanwhile, Serlio's theory of the architectural orders was something of a best-seller all across Protestant Europe. In a complex pattern of reciprocal and sometimes misleading influences, the diffusion of Serlio's method of the orders was tied right from the start to the translation and exegesis of the Vitruvian treatise. Many of these editions, and some of the most important, were printed in Strasbourg, then in Geneva, Basle, and in other Reformed cities. A child of the printed book, the modern theory of the orders was for some time in synch with its parent's development.

The Council of Trent introduced a series of obstacles to the diffusion of printing in Counter-Reformation Europe. Neither censorship nor the Index of forbidden books was a prerogative of the Roman Church. Yet the Church's hostility to the translation of the Scriptures into vernacular languages had the perhaps unforeseen consequence of suppressing an enormous potential market for the printed book, a market that the printing industry in Catholic countries had to do without for some centuries. Only a very small number of printed architectural treatises ever found their way onto the Index, but the function assigned to the printed book by Tridentine doctrine was not without consequence for the use of books in general, including for training and education in technical fields such as architecture.

That the media played an important role in shaping the artistic culture of the early modern era is, admittedly, a somewhat eccentric and partial argument. What I shall focus on is only one component, not more determin-

ing than others, from a period that saw many complex changes. For this reason, the arguments that I will develop in the following pages do not attempt to contradict or replace other interpretations of Renaissance classicism. A new point of view does not have to be in conflict with previous ones, although it may invite new reflections. Nevertheless, the singularity of some of the themes that will be developed suggests the need for some preliminary comments on the content and organization of this study.

This book is an investigation into some of the crossroads between information technologies, the media, and architectural design. The arguments and chapters will follow chronologically from classical antiquity to modern classicism, with one exception. The works of Leon Battista Alberti and of the authors of other Quattrocento manuscript treatises are not found where one would expect them—midway between medieval codices and the illustrated printed treatises of the sixteenth century. Rather, these pretypographic humanist productions are discussed separately in the final chapter of the book, as a sort of flashback narrative. Filarete, Francesco di Giorgio, and most crucially and problematically Alberti were only partially aware of changes in communication technologies that were imminent or already underway. For example, Alberti's *De re aedificatoria*—written in Latin and without illustrations—was conceived as a codex that would be copied and transmitted in manuscript format. Nevertheless, the chronological and even cultural proximity of the new world of printed texts and images makes itself felt at several points in Alberti's text. The illustrated manuscripts of Filarete and Francesco di Giorgio present similar problems. For this reason, sacrificing chronology to didactic clarity, I have chosen to contrast directly the oral and manuscript formats of antiquity and the Middle Ages with the modern print format, which started to affect the transmission of architectural theory around the 1530s. Only after having traced this ideal antithesis can we recognize the ambivalent and precarious character of certain fundamental works of the Quattrocento that signal the shift from one era to the next but properly belong to neither.

A second preliminary note: the standardization of architectural design that resulted from the diffusion of printed drawings was not limited to representations after the antique and its modern ersatz, the canon of the five architectural orders. Serlio's treatise itself bears witness that the use of the orders and the imitation of ancient monuments are only two components of a general and more comprehensive method embracing all areas of design.

In accordance with the teaching of his friend and mentor, the neo-Platonist philosopher, linguist, and magician Giulio Camillo, Serlio imagined this method divided into seven levels, or “steps,” and it is not by coincidence that he divided his treatise into seven books as well. The same process of selective visualization that is manifest in the drawing of ancient monuments and of the five Renaissance orders reproduces itself at every one of the seven levels and at every stage of the design process: from the large scale of the urban form, to Serlio’s precocious catalog of standardized building types, right through to ready-made patterns for perspective and geometric constructions.⁸ In a less systematic manner, many of these themes were taken up and developed by other architectural theorists in the sixteenth and seventeenth centuries, in some cases under the direct influence of Serlio’s treatise.

An entire chapter of this book is devoted to the printing industry in Geneva and to some architectural books published in Geneva in the sixteenth and seventeenth centuries, but of course this is not meant to suggest that in the general economy of Renaissance architectural treatises Geneva occupied a more important position than Venice or Paris, for example, or even nearby Lyons. However, Geneva’s contribution to the printing of illustrated architectural books at the time of the wars of religion has so far received little critical attention. Likewise, the scant references to sixteenth-century Spanish and Portuguese books on architecture, and the absence of any discussion of editions in the Slavic languages, are not the result of deliberate omissions but are the unfortunate consequence of the rarity of primary materials—and of their remoteness from where this book was written.

A final, more crucial caveat deserves to be presented right from the outset. In the fifteenth and sixteenth centuries, a substantial number of architectural drawings and drawings after the antique circulated in manuscript format. These drawings were copied from a limited number of archetypes, and in some documented cases were even mass produced, manually, in highly organized workshops. According to one theory, born in the late nineteenth century but which still has defenders today, these albums of drawings should be considered as primary agents in the formation and diffusion of antiquarian culture and also of Renaissance architectural theory—before, during, and even after the rise of illustrated architectural treatises published in print, and the sixteenth-century diffusion of printed architectural drawings.⁹

The complementarity and competition that existed in the sixteenth century between hand-made and machine-made images merits a separate study. But even a cursory analysis cannot fail to notice that a manual and a printed copy of the same drawing differ in one essential and almost ontological aspect. Copying by hand, regardless of the motivations of the artist and his desire to remain more or less faithful to the model, is always to some extent a creative act. With few exceptions, a manual copy is executed outside the control of the author of the original design, sometimes at a great geographical or chronological distance, and with aims that may be different from those that were initially anticipated. The conditions of use of a printed image are diametrically opposed to this. Both the author and the public know that a printed image is an exact reproduction of the original mold. Technology here stands as a guarantee, if not of the accuracy of the author's drawing, at least of the fidelity of its reproduction. At opposite ends of the chain of communication, the creator and the viewer of a printed image share the same bipartite persuasion: the image conforms exactly to an original, and the matrix is designed to give identical and theoretically unlimited copies. This reciprocal awareness modified the status of the image, its authority, its dependability, and, in the end, the uses that could be made of it. The direct result of this process was the birth of a new culture of images, a culture in which data, information, and knowledge could be recorded and transmitted in a new visual format.

Architectural design was one of many disciplines whose history was directly and permanently affected by printed images. From the beginning of the early modern period, the diffusion of architectural patterns and motifs has been determined first and foremost by the direct transmission of visual models, not by the indirect means of verbal description. At the same time, mechanically reproduced illustrations gradually replaced those copied by hand. This change of format had in its turn irreversible effects for the transmission and transmissibility in space and time of architectural models, as the quality of copies was vastly improved and quantity increased. In the wake of these changes, the relationship between imitation and invention was thrown into question as was, eventually and inevitably, the very notion and nature of the original. But even apart from such considerations, this fundamental fracture in the history of architectural theory at the beginning of the early modern age is also linked to other profound and long-lasting changes.

The diffusion of printed architectural images, and in particular the assimilation or interiorization of the system of the orders, could in some “favorable environments”¹⁰ have prompted a more general visual familiarity with standardized images and objects. It is always difficult to distinguish between cause and effect, but the pertinent use of the system of the orders, at least in the original Serlian version (many others followed, different in use and significance) was associated in one way or another with certain ideological and technical presuppositions. For some moderns, beginning in the sixteenth century (or rather as early as the mid-fifteenth century, as will be seen) the mass production of identical architectural elements was considered to be neither a calamity, nor an abomination, nor a sacrilege. On the contrary, certain forms of visual standardization evidently took on positive connotations right away. These connotations might be, depending on the case, ideological, moral, theological, economic, technological, aesthetic, social, or political. All of these issues—even if not all of the terms used here to designate them—are inherent in the Renaissance theory of the orders and are pronounced, or denounced, by Renaissance architectural theorists. When the “predestined hour” of the machine age truly arrived, after this “false start,” some viewers accepted the machine aesthetic more easily and naturally than did others. And this with good reason: what seemed to be a new aesthetic had actually been three centuries in the making. For those having already made the first step, the second was easier.

So we see, in the end, that even the architectural revolution of the Renaissance was linked to a technical innovation. It is a relationship, however, that may be difficult to grasp. Chronology speaks against it: the architecture of humanism was born in Italy before the German invention of the printing press, and the decisive encounter between Renaissance architectural theory and the printed book came about only in the sixteenth century. Furthermore, as opposed to innovations such as trabeation and reinforced concrete, the printed book is manifestly neither a building material nor a construction technique; nor is it a tool employed at construction sites. But the building site isn't the only point of convergence between architecture and technology.

When we speak of architecture we may mean either something built or a body of knowledge—a collection of experiences that may be transformed into models or rules and that continues to exist only if these are recorded, accumulated, and transmitted. Recording and transmission are dependent

on the instruments, vehicles, and media used to carry them out. Such mediating techniques change over time, and as information science has shown us, no means of communication is either universal or neutral. To take an example, Vitruvian architectural theory did not escape either in its form or content from the conditions of use inherent in the manuscript medium. Gothic architectural knowledge is inseparable from the means of oral transmission practiced or imposed by the lodges and guilds of medieval builders. In general, then, one may posit that the constant interaction between architectural thought and means of communication must have had rather marked effects on the history of built architecture as well.

Printing from movable types is probably the means of communication that most profoundly influenced the civilization to which we still belong. From the moment of its first appearance during the Renaissance, this typographic culture has always remained with us. For architecture, as for various other technical disciplines, a second media revolution much like that of the Renaissance repeated itself in France in the eighteenth century with encyclopaedism. Based on the same program of popularization by means of printing and of technical illustration, this revolution was associated with other architectural forms and other ideological suppositions. Lithography, then photography, then color photography, heightened the content and the efficacy of reproduced pictures and altered some of their features—with important consequences for architecture and the visual arts—but without changing the basic conditions inherent to mechanically printed images. With industrialization, the iterative mode predicted by Renaissance design theories finally transformed material production as well. In this century, modernist architecture has created a new set of standardized forms alien or averse to the visual vocabulary inspired by the classical tradition—or by other historical models. But throughout all of the phases of this centuries-long process, the printed image in all its avatars (whether a woodcut, postcard, or photograph in a glossy magazine) has never ceased to be the main vector for the communication of architectural experience. Up until now that is.

As is generally the case, we understand best the spirit of a place or time when we are about to abandon it or when we can compare what we are leaving with what we hope to find next. Over the course of the past five centuries, machines have shaped the visible architecture of our world, first with the standardization of images, then with the standardization of things. But

the accelerated demise of both these now venerable traditions has already begun. In modern factories, computer-aided manufacturing permits economies of scale independent of the visual normalization of the product; today we can mass produce (or rather, “mass-customize”) objects that don’t all look the same. And, with regard to the transmission of architectural (and artistic) knowledge and experiences, the sequel to this book would be titled, evoking again Walter Benjamin’s language, “architecture in the age of its electronic reproduction.”¹¹ If it is true that a close encounter with the Gutenberg Galaxy¹² was enough five centuries ago to change the course of European architectural history, it seems likely that the recent interest of architects (and their publics) in cyberspace navigation will have consequences of its own. From black and white to bits and bytes: if, as some insist, print culture will soon be a thing of the past, then a bleak future can also be predicted for the typographic architecture that has accompanied us, with all of its ups and downs, reversals, and internal conflicts, for the past half millennium. And perhaps the people and places that were most profoundly influenced by this quintessentially Western architectural tradition will be the most resistant to change and will suffer most from the changes that may come.

Computer-based information technologies have already begun to change the forms of social organization, and the consequences of this revolution are already making themselves felt at a territorial and urban level. It is impossible at present to predict just how computers will change perceptions and conceptions of architectural forms in the coming years. But there are some suggestions, and we can at least indicate one possible line of inquiry. We can, for example, draw an inventory of all that the printed book has contributed to or imposed on architecture over the past five hundred years—an inventory of all that, presumably, will vanish with the disappearance of the printed book. We do not know yet the names of the new actors, but we can list all of the roles that are, or soon will be, up for grabs.

Immersed as we are now in an ever-increasing flood of hype about the future of digital culture and virtual realities, this is not an inappropriate time to step back and take stock. In the pages that follow I will speak of the past, not the future. We always hope that history has something to teach us. In a celebrated passage of *Notre Dame de Paris* (1831–32), Victor Hugo already reflected upon the relationship between architecture and the printed book: “This will kill that [. . . ;] the book will kill the building,” laments Dom

Claude Frolo, archdeacon of Notre Dame.¹³ In 1482, the year in which the story is set, the reservations of an ecclesiastic about the printed book would have been more than justified. In a self-reflective aside added by Victor Hugo himself, the victims of print keep growing in number; the book “will kill the Church” as well as the preacher’s pulpit, discourse, performance, and images—the “Bible of stone” then on display to the faithful: images that were drawn, painted, sculpted, and that spoke in a language that was nonliterate but not for that reason lacking in erudition.¹⁴

The relationship between the printed book and the Protestant Reformation is today a commonplace of historical scholarship. At the distance of some centuries, it seems possible to conclude with reasonable certainty that the printed book did not in fact kill the Church, but contributed to its renewal—on both sides of the Tridentine border. At a more modest criminal scale, the printed architectural treatise doesn’t seem to have killed early modern architecture either. But if Renaissance architecture is different from medieval architecture, it might just be that Gutenberg, together with many others, had something to do with it.

VITRUVIUS, TEXT AND IMAGE

We moderns understand an architectural treatise to be a thing that comes packaged in book form, but this statement of the obvious should not cause us to forget that the book as we know it is a recent invention. Any association of a particular type of theoretical discourse with the material support in which it is diffused is always the transient result of a complex interaction between medium and message. In antiquity, a book was in most cases a scroll (*volumen*). When the architectural treatise of Vitruvius, composed toward the close of the first century B.C.E., enjoyed its modern rebirth roughly 1500 years after it was written, the absence of illustrations from the Latin text provoked some perplexity among its first Renaissance readers and interpreters. It was a gap that many sought to fill. From 1511 on, an incessant succession of exegetes, scholars, architects, and archaeologists labored to “restore” to the text these images that had been thought lost, forgotten, or destroyed—an undertaking that still continues and that could go on forever. The irritation experienced by some Renaissance critics of Vitruvius is understandable. With its elaborate yet confusing mode of expression, its uncertain syntax, and its inventive hybrid vocabulary of Greek and Latin terms, the Vitruvian text is discouragingly obscure. What the reader wants is some supplement to the text, a visual clarification of its most notoriously baffling passages. And indeed Vitruvius promises illustrations, even alluding to accompanying figures. What happened to them? Without illustrations, the Vitruvian text is not a technical treatise but a book of mysteries.

In antiquity, however, the two things were not incompatible. In the second edition of his *Fourth Book* (1540), Sebastiano Serlio reflected on how unlikely it was that the Vitruvian illustrations should have disappeared by chance or been excised by design. It was a far more likely scenario that Vit-