

THE TURNING POINT OF 1450: ABSTRACT RULES VERSUS STANDARDIZED COMPONENTS IN ALBERTIAN THEORY

I Alberti

The anthropologist Leroi-Gourhan has argued that technical change is always the result of an encounter between material innovations (whether new or transplanted) and a favorable environment. An invention that serves no purpose is soon forgotten. An invention that is of little use does not become widespread. It may with some difficulty survive for a while in a muted form and finally flourish later on, a postponed invention that owes its ultimate success less to the history of technology than to the evolution of social practices: “in this sense, it is the group itself that invents.”¹

In Alberti’s entire corpus there is only one mention of the invention of printing. At the opening of the *De Cifris*—ironically, a manual of cryptography—Alberti reports a conversation that took place in Rome around 1466. The two interlocutors seem to refer with interest to this German curiosity, news of which had just reached them.² According to Politian, not long before his death Alberti was preparing a printed edition of his treatise on architecture, a project that is not documented in any other source.³ Drafted some twenty years before (probably around 1450), the *De re aedificatoria* still belonged to the age of the manuscript. Like Vitruvius, his major influence, Alberti was writing an unillustrated manuscript text, meant to be recopied by hand. The author’s warnings to future copyists have in some cases remained in the text. Alberti was particularly worried about errors in the transcription of numbers.⁴

Both theoretician and architect, Alberti was one of the fathers of humanist architecture. But the structure of his discourse, and his methods, are unmistakably those of the medieval Scholastic tradition.⁵ Mark Jarzombek’s

observation about the *De pictura* applies just as well to the *De re aedificatoria*: Alberti's treatise is "new wine in an old bottle."⁶

Antiquity, the foundation and justification of Alberti's architectural theory, cleanses itself, in the *De re aedificatoria*, from the practice of imitation. Alberti presents no concrete examples of ancient monuments; instead he supplies rules for *all'antica* construction. He formalizes ancient architecture without illustrating or describing it.⁷ Even the eighth book of the *De re aedificatoria*—a typological catalog of Greco-Roman public building⁸—exhibits a conception of antiquity that is far from visual.⁹ Aside from a few brief and often anecdotal cross-references or citations, Alberti provides no ephrastic reconstruction of any individual building, existing or having existed, in any specific place and time. The disparity between traditional Scholastic discourse and the visual demands of the new humanist culture could not be more marked. Moreover, this great antiquarian expert and theorist of painting seems not to have left a single drawing of an ancient monument; or, according to some, he may have left just one.¹⁰

Its avoidance of images notwithstanding, the Albertian treatise does not, on the theoretical level, relinquish control of the external appearance of all architectural elements. Granted, the *De re aedificatoria* did not prefigure an illustrated anthology of architectural antiquities; this was a modern invention that came into being only two generations after Alberti and was completely alien to his project. Nevertheless, Alberti did open the way for the sixteenth-century standardization of the system of the orders. Allowing for the repeated though limited use of certain decontextualized architectural components, Alberti separated the orders from any association with particular building types—a step that Vitruvius never made. Although he never arrived at a truly standardized set of models for the orders—something that would have been impossible without images—Alberti does define a sort of horizontal catalog of their components: three bases, four capitals, three cornices, seven moldings.¹¹ All of this was governed by a universal definition, a definition that was at the same time a rule for assembly. Every order (*columnatio*) is composed of a pedestal, base, column, capital, architrave, frieze, and cornice.¹² In true Aristotelian fashion, Alberti gives this definition of the common aspect (genus) of the orders, each of which then exhibits specific variations (species).¹³

Although Alberti goes on to introduce (especially in the ninth book) abstract rules of proportion that in part contradict his own definition of the or-

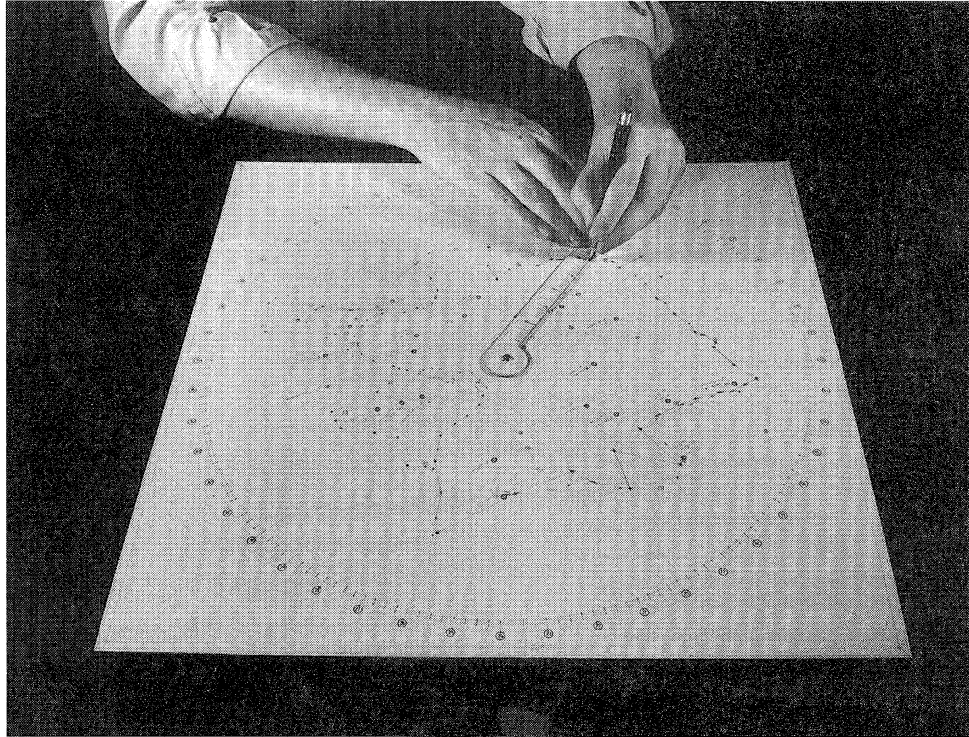
ders, some components of the Albertian orders already featured a standardized external design. For example, the seven regular moldings (platband, corona, ovolo, etc.) itemized in the seventh chapter of book seven have standard, fixed, and, in principle, repeatable profiles. But the standardization of an architectural form, even an elementary one, is difficult to achieve without drawings. Alberti might, as Filarete in fact did almost at that same time, have carried out or have made a profusely illustrated codex. But Alberti's treatise was not an art object. It was a book, even if a manuscript. Alberti envisaged the exact reproducibility of some architectural elements, but without making use of reproducible images.

The first typographically printed book to contain printed illustrations was published in Germany between 1457 and 1461 and in Italy by 1467.¹⁴ Although historically these were important firsts, the use of a relief or an incised (*intaglio*) surface for the reproduction of identical images cannot exactly be called an invention. Stamps and seals have existed for millennia. At the end of the fourteenth century, woodcuts were already used for printing patterns on cloth, and from the beginning of the fifteenth they were used also for printing on paper.¹⁵ The *Libro dell'arte* of Florentine Cennino Cennini (written between 1380 and 1437, perhaps in Padua) precisely describes the then current techniques for creating woodcut impressions (either by rubbing cloth stretched on a frame over the woodblocks, or by pressing the blocks onto the cloth).¹⁶ The edition of Cennini's treatise published in 1859 by the Milanesi brothers made use of a codex copied in 1437 in the Florentine prison of the Stinche, and the text cannot have been unknown in Florence in the time of Alberti. We know of some rare examples of independent woodcuts dated and printed on paper beginning in 1418,¹⁷ but a notarial act of 1430 lists among the property of a Florentine painter a set of woodblocks for printing playing cards and sacred images.¹⁸ In Venice in 1441, some local artisans filed a petition against the import of playing cards and of "hand-colored printed figures" on canvas or on paper.¹⁹ Playing cards, as is well known, are quickly worn out; hence no examples of these have survived. We can nevertheless assume that in Alberti's time some forms of printed images were already a part of life. Perhaps intellectuals were not among the social categories most directly interested in them.

Fabrics and tapestries, playing cards, small devotional images—it is not in this odd assortment of trivial goods that one would think of looking for the first signs of a technological revolution that would change the course of

history. Alberti, for one, did not: austere and thrifty almost to the point of miserliness, a conservative or at least a traditionalist in politics and theology, and a humanist writing an architectural treatise in a refined Latin, he unsurprisingly never thought to use for scientific purposes a technique of illustration that in his day was mostly associated with trendy haberdashers, religious zealots, and gamblers. After all, as recently as ten years ago, many architects, artists, and intellectuals were likewise convinced that digital imaging was child's play—a technology primarily destined for video games. Many examples come to mind of people who were great innovators or revolutionaries in their own right but who failed to recognize the potential usefulness of some new technology that was in the works, sometimes in a garage just down the street. In 1418 an anonymous artist printed in Brussels a woodcut of the Virgin and four saints in a garden.²⁰ By 1450, Alberti could easily have printed in Florence a series of bases, capitals, and cornices. But as Alberti himself had occasion to repeat, his treatise had no need of the example of drawings, *res ab instituto aliena*.²¹ Elsewhere in the treatise, Alberti attempts, with apparent difficulty, to describe *verbis solis* the functions of certain ancient devices, wheels, pulleys, screws, and levers (probably following Hero of Alexandria). He then compares the virtuoso descriptions of his own iconophobic writing with the veneration that Mercury received from the ancients for his “ability to be clear and intelligible, using words alone, and without resorting to any gesture of the hand.”²²

The desire to avoid the use of visual media for the recording and transmitting of scientific data is evident in two of Alberti's other Latin works: the *Descriptio Urbis Romae* (dated approximately between 1448 and 1455) and the *De statua* (date unknown). In both cases, Alberti invented a mechanism (in the literal sense of a mechanical device or piece of hardware) and a method (the software) for translating images into text. The *Descriptio* transforms a survey map of Rome into a system of points designated only by polar coordinates, without any other form of graphic documentation (figure 7.1). In *De statua*, Alberti expands the same system for use in three dimensions, as a tool for transcribing in alphanumeric format the measurements of the human body. Alberti boasts of the precision and trustworthiness of his method, which would even, so he says, make it possible to produce identical copies of the same statue in locations separated by hundreds of miles or by centuries, or else to carry out simultaneously the production of various parts of a statue in different workshops.²³ The *Descriptio Urbis Romae* is in



| Figure 7.1 |

Leon Battista Alberti, *Descriptio Urbis Romae*. A graphic reconstruction of the plan of Rome based on the polar coordinates supplied by Alberti. Modern materials were used to recreate the “machine” described by Alberti, consisting of a circle or “horizon” and of a hinged radius, both marked off in segments. Alberti explains the use of this device and lists the coordinates of the points from which the plan should be drawn. By permission of the MHA laboratory, Ecole d’Architecture de Grenoble. Reconstruction by Bruno Queysanne and Patrick Thépot (now published in Bruno Queysanne, *Alberti et Raphaël, Descriptio Urbis Romae, ou comment faire le portrait de Rome* [Grenoble and Lyons: Ecole d’Architecture de Grenoble and Plan Fixe, 2000]).

part a creative plagiarism, or “rebirth,” of the cartographic methods of Ptolemy, which were well known in the Quattrocento. Like Ptolemy and many others who had pursued their scientific work in a manuscript culture, Alberti sought to avoid the risks inherent to the manual reproduction of images. But Alberti, who overlooked the possibilities of the mechanical reproduction of images, invented, way ahead of its time, digital images—in the literal sense of images translated into a sequence of numbers. The replacement of ecphrasis by algorithms might have seemed somewhat strange to Alberti’s contemporaries, who indeed did not embrace his technique—one that would have incited the enthusiasm of computer programmers twenty years ago.²⁴

Without taking his high-tech experiments to such extremes, Alberti, always faithful to his principles, also tries in the *De re aedificatoria* to emulate through plain alphabetic writing the expressive potential of the images whose use he rejected. This was not without some curious results. Alberti explains how the profile of certain moldings can be obtained by assembling the graphic signs of some alphabetic characters. The capital letters “C,” “L,” and “S,” when combined in different ways, reproduce the profiles of platbands, coronas, ovolos, astragals, channels, waves, and gullets.²⁵ In this unprecedented way, Alberti might seem to be illustrating his treatise after all; but these are illustrations of quite a special kind. They are built up of from well-known, elementary, and stereotyped signs: the letters of the alphabet. These were apparently a kind of drawing that most copyists could be counted on to execute reliably. Hence, with some logic, in a treatise whose theories prefigured typographic architecture, Alberti ended up using a manuscript format that already included some standardized graphic types.

The pagination of the early incunables followed the model of manuscript codices, and handwriting or even typography may sometimes imitate drawing, but the Albertian page chose in this case to imitate an exactly repeatable form of drawing—drawings composed of iterative and standardized alphabetic signs, or, properly speaking, drawings reduced to writing. In order to define thoroughly the elements of his architectural theory, Alberti ought to have printed a series of ten illustrations: three bases, four capitals, three cornices—an undertaking that would not in fact have been as foreign to his program as Alberti himself supposed. But this fulfillment of the pre-typographic spirit of Alberti’s theory came later. A set of nine architectural engravings was published in Venice in 1528—three bases, three capitals, and three cornices, which did not follow the morphology of the Albertian orders. The printing of independent illustrations of single architectural elements or fragments was by then a common practice. But this series, attributed to a collaboration between Serlio and a Venetian engraver, anticipated a more coherent system of the orders. As the application for copyrights that Serlio submitted at that time to the Venetian authorities makes clear, already in 1528 he had something more ambitious in mind.²⁶

II Francesco di Giorgio

When, between 1485 and 1486, the treatises of Alberti and Vitruvius were printed for the first time, in Florence and Rome respectively, the Siene-
se ar-

chitect Francesco di Giorgio must already have drafted part of his pseudo-treatise on architecture—originally, not so much a treatise as a miscellany of paraphrases of Vitruvius (sometimes rather loose), digressions on antiquities, architecture, geometry, and other technical subjects (such as machines, city plans, and so on), all richly illustrated. The printing of the two Latin treatises could have motivated a new draft of Francesco di Giorgio's works, dated hypothetically between 1487 and 1491 and surviving in two codices, the Sienese and the Magliabechianus. In this new version, the organization of the subject matter is more systematic—now divided into seven books, with some differences between the two manuscripts. Erudite digressions and a more refined hand reveal the interventions of some humanist editor. The text is not autograph, with the exception of several passages of a version of Vitruvius that was probably dictated to the architect. Folios 1–102 of the Codex Magliabechianus, which correspond to the text of the seven “treatises” on architecture, contain 127 illustrations, some of them quite famous.²⁷

Francesco di Giorgio returns—with the same insistence in all versions of his treatise—to the humanistic topos of architecture as the child of drawing. Drawing is the architect's most essential instrument. It nevertheless is not universal; there are objects that neither painting nor writing are fit to represent. In some cases, drawing cannot “describe” surfaces that have been covered over or that are invisible. In such situations, there is no substitute for the “ingenuity” (the intuition and experience) of the architect. However, even these reservations about the reliability of graphic representation seem to fade away over time—discussed in the first manuscripts but omitted from later copies.²⁸

Francesco di Giorgio also reflected on another function of architectural drawing, one independent of project design and building site. Drawings, he said, are necessary to any discourse on architecture. An architectural theory must have illustrations. The author, or his humanist collaborator, appeals to the authority of Aristotle. The origin of all knowledge is in the senses, and the first among these is vision, the “purest and most perfect” of the “external senses.” For this reason, our intellect can neither “understand perfectly” nor remember over time anything that has not been apprehended “by the sense of sight.” It followed therefore that even in the field of architecture “illustrated examples” were bound to be more effective than “general and special rules.” A text without images would never be enough to describe a

building.²⁹ A digression in the *Codex Magliabechianus* develops the argument further. There are to be found in different ages worthy authors who present their theories on the architectural craft through “characters and letters” alone, without the use of “figurative drawings.” These authors may think that they have given sufficient explanations, but they are wrong. Without images as their guide, readers are free to follow their own imaginations and to form ideas that may be far from the truth and from the original intentions of the author. The result is a deplorable confusion because in this way each reader becomes, as it were, a second author of the book.³⁰

A semiologist of the 1970s wouldn’t have found this in the least strange. In its context, however, this argument had a more limited and practical scope. Francesco di Giorgio was simply assessing the efficacy of the means at his disposal for transmitting technical and artistic information. And since at that time—and in fact until very recently—the original Vitruvian text was believed to have been illustrated with a set of since lost drawings, Francesco di Giorgio was probably taking aim at Alberti’s treatise, whose first printed edition had just appeared. In the next passage, the Sienese architect goes on to accuse his precursors of having shunned the use of images because they were lazy or lacking in artistic talent.³¹ If Alberti was indeed his intended target, this accusation was probably unjustified.

The misunderstanding is informative nonetheless. Like Francesco di Giorgio, Alberti had theorized about—and even more so than Francesco di Giorgio had contributed to establishing—the modern practice of project design. Alberti had dedicated to the theory of drawing another famous treatise. As Francesco di Giorgio himself recognized, drawing is to a visual model what the word is to an abstract rule: its primary and most pertinent medium of expression. Dedicated in large part to establishing rules, Alberti’s discourse had no need of images—with one exception. When it came to setting out the nascent theory of the orders, Alberti took a different approach. He did what he could—we have already seen how—to pen unambiguous descriptions of simple architectonic forms that needed to be visually recognizable. Alberti knew full well the limits and the risks involved in manuscript communication, and he conformed to them.

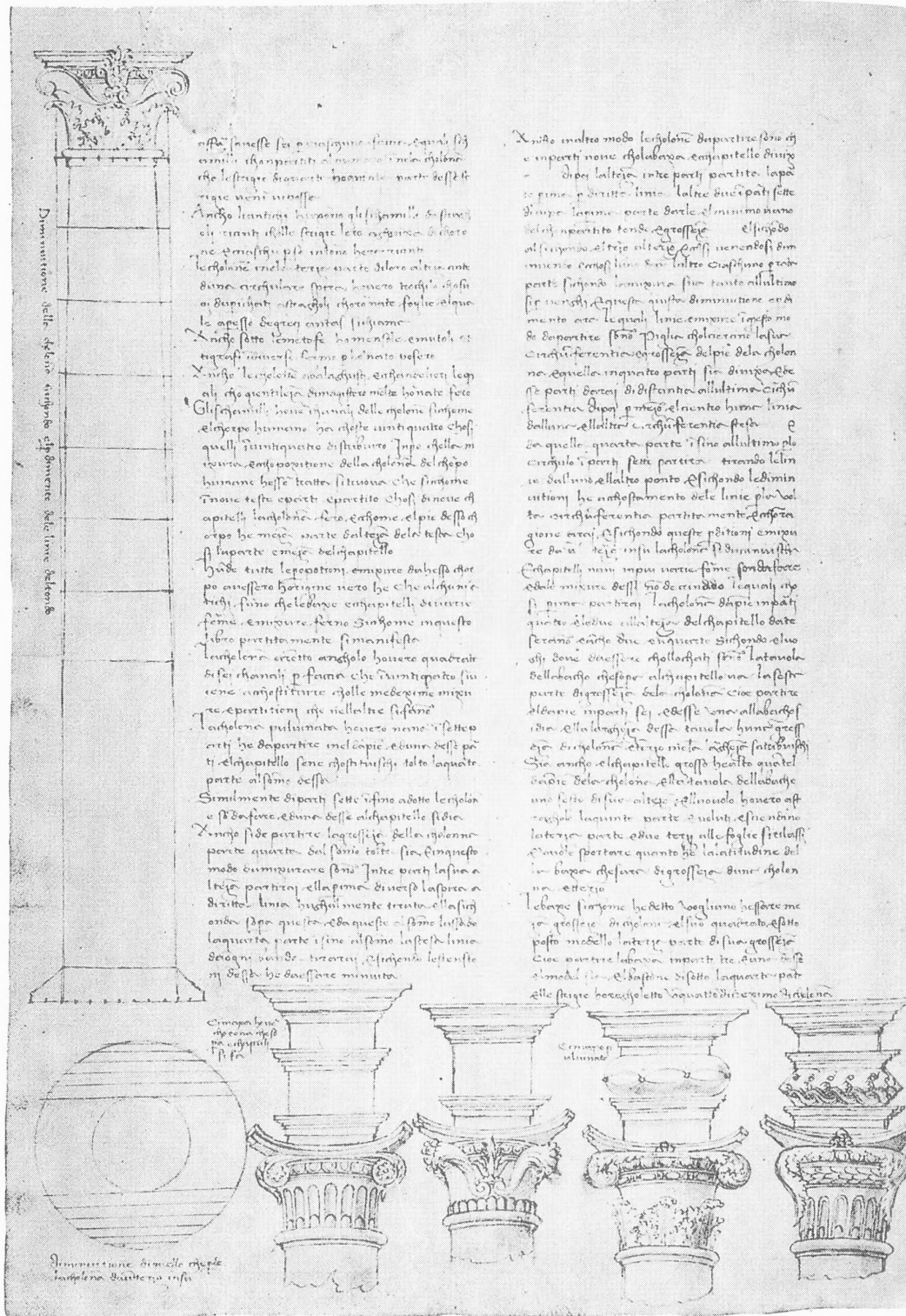
Francesco di Giorgio’s “theory of the orders”—the expression is probably too generous—is free of these preoccupations. Although he claims to have “found, seen, and measured” ancient monuments “with great diligence” in order to arrive at a “general rule,” his discussion of the “three

kinds” of columns is little more than a confused and incomplete summary of Vitruvius.³² The illustrations are only in part keyed to the text, and they represent, according to the author, various antiquities and other objects (capitals, cornices . . .) of his own “invention.”³³ Some of the drawings have captions, which may be more or less relevant, but the overall impression is one of creative or capricious disorder, as in a personal sketchbook. (figures 7.2 and 7.3).

Far from the standardization inherent in Alberti’s architectural forms, which are neither ancient nor modern but rather almost timeless ingredients of a general method for architectural design, the graphic models of Francesco di Giorgio, both ancient relics and modern inventions, are not “designed for reproducibility.” The standardization of architectural design is not his goal; hence Francesco di Giorgio can make free use of drawings that are not reproducible. Conversely, when visual standardization *was* his goal (essentially for the design of the parts of the orders), Alberti could not make use of drawings that were not reproducible. For equal but opposite reasons the one author embraced and the other shunned illustration.

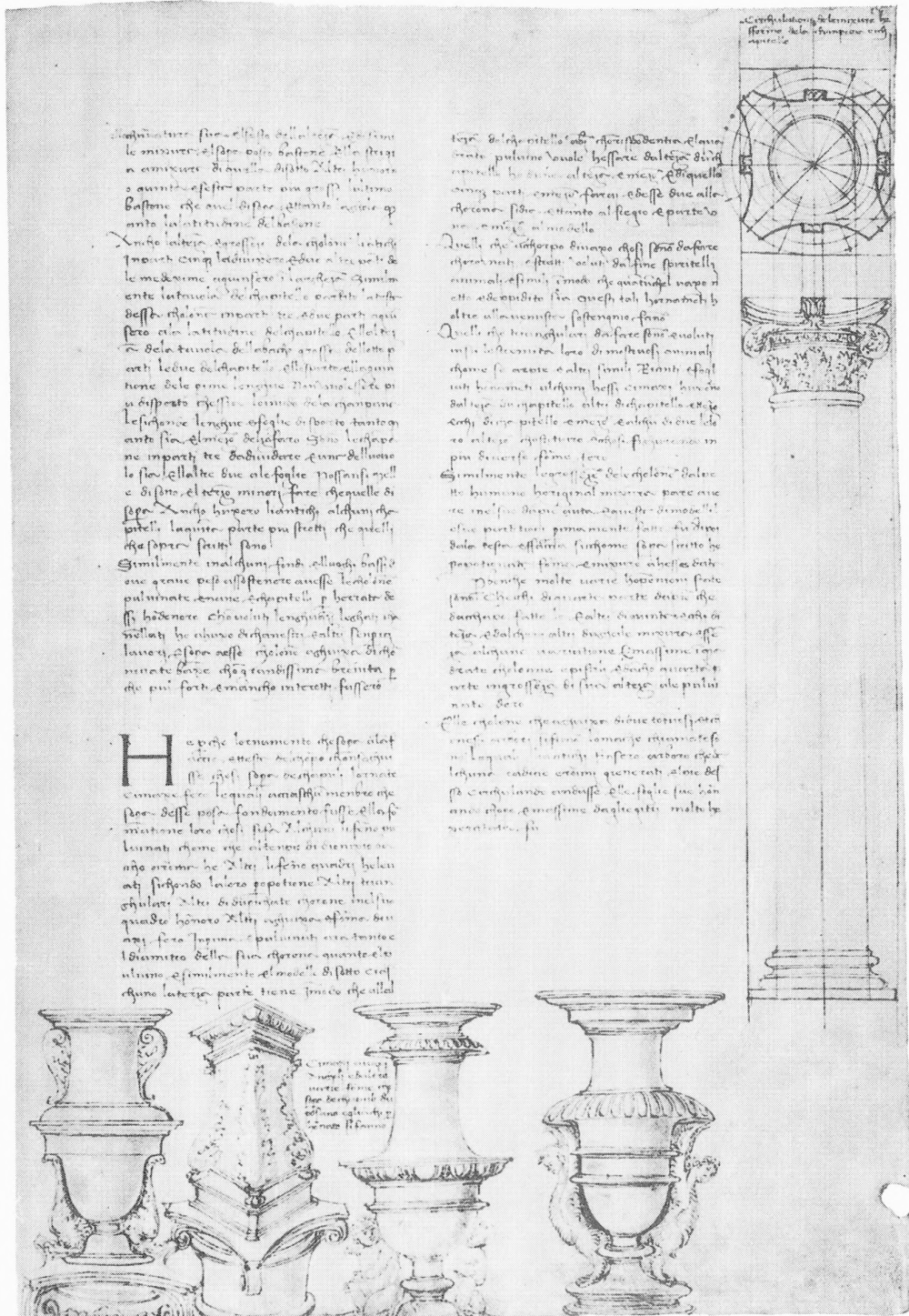
Francesco di Giorgio used ancient models as sources and as points of departure for original inventions. Every reader, presumably, would be encouraged to follow the author’s example, as would also the copyists, whose fidelity to the originals would be part of the same process—submitted, as it were, to these same rather unbinding criteria. Carried out by different hands under the author’s supervision, some of the manuscripts attributed to Francesco di Giorgio are in fact workshop productions (idiographic copies).³⁴ The celebrated illustrations of the Codex Magliabechianus (or else of a copy after it) were, according to some, realized in Naples in 1492 by Fra’ Giocondo. This future editor of Vitruvius, an erudite and well-known architect, would have found it difficult to limit himself to tracing someone else’s drawings.³⁵ In any case, the graphic fidelity of manuscript copies does not seem to have been the condition sine qua non for the circulation of Francesco di Giorgio’s treatise. The fifteenth-century practice of creative imitation could happily coexist with the unpredictable drift of manuscript illumination.³⁶

Francesco di Giorgio’s treatise took the form of manuscripts that did not need to be printed, although in that age printing already existed. The treatise of Alberti was a manuscript that anticipated the invention of printing before printing came into existence (or more precisely: in an age when



| Figure 7.2 |

Various capitals, ink on vellum, from Francesco di Giorgio Martini, Saluzziano Codex, folio 15v. Turin, Biblioteca Reale, MS. Saluzziano 148. By permission of the Italian Ministero per i Beni e le Attività Culturali.



f. 16 TAV. 27

| Figure 7.3 |

Various capitals, ink on vellum, from Francesco di Giorgio Martini, Saluzziano Codex, folio 16r. Turin, Biblioteca Reale, MS. Saluzziano 148. By permission of the Italian Ministero per i Beni e le Attività Culturali.

the mechanical reproduction of images was only a marginal phenomenon). This contrast underscores the paradox of the uselessness of the Albertian treatise in the Quattrocento. Francesco di Giorgio, whether as theorist or architect, had no need of Alberti's treatise and does not seem to have made use of it.³⁷ Alberti's Latin would have been a sufficient obstacle. But at another, purely conceptual level, the irrelevance of the *De re aedificatoria* for the architects of the later-fifteenth century depended on two reasons, two opposing anachronisms. Alberti's treatise managed the difficult feat of being at once too far behind and too far ahead of its time.

The normative, axiomatic, and Scholastic structure of the *De re aedificatoria* was in conflict with humanist methodology, which was based on repeated direct imitation of an accessible archetype (*exemplum*). Small wonder that the first moderns did not welcome with great enthusiasm this late reincarnation of the medieval School. Nor, on a more practical level, did Alberti's unillustrated Latin treatise have much to offer the daily practice of early Renaissance architects.

If Alberti's treatise was in part a Scholastic throwback, his reduction of the orders to a system of repeatable elements arrived on the scene too soon. Francesco di Giorgio's treatise is further evidence that in the Quattrocento no one felt the need for an anthology of indefinitely repeatable graphic citations. For this invention of Alberti's, there existed in the fifteenth century neither an adequate means of communication nor a public. Typographic architecture, pioneeringly but only marginally prefigured in a segment of the Albertian treatise,³⁸ had to wait another two or three generations to find a "more favorable environment." When, in the second quarter of the sixteenth century, the success of the printed, illustrated book revolutionized modern architectural theory, the *De re aedificatoria* was also canonized—by then a venerable monument, but out of date.

The disinterest shown by many Renaissance architects for Alberti's architectural theories was paralleled by the abandonment of certain of his construction innovations. These were conspicuously visible visibly on display in his built architecture in Florence, Mantua, and Rimini but were ignored or flatly rejected by most architects of the second half of the fifteenth century. In recompense, as we have seen, the fate of the *De re aedificatoria*—and of Alberti's architecture in general—was to take numerous and unforeseen turns at the end of the sixteenth century, when to the detriment of the

first revolution of the humanists, a new synthesis of tradition and modernity was called for by many, in various contexts, and for different reasons.³⁹

III Filarete

In the years immediately following the composition of the *De re aedificatoria*, some of the central themes of Alberti's architectural theory reverberated in the writings of another Florentine architect and theorist. The same conflict between an architectural theory that required the didactic use of images and the inherent difficulty of transmitting images receives, in the treatises of Alberti and Filarete, two antithetical solutions. Alberti constructed—with the exception that we have already seen—a discourse that was normative, Scholastic, and aniconic. The scion of another medieval tradition, Filarete entrusted his treatise to an illuminated codex, a deluxe manuscript that was intended for a different audience and different forms of circulation and diffusion than was Alberti's.

Following an ancient dialogic format, perhaps Platonic—which would be consistent with the Greek pseudonym of this Florentine who may have disappeared in or en route to Constantinople⁴⁰—the treatise is written as a conversation between the author and two interlocutors. The written text records an oral exchange of questions and answers. The author refers constantly to images that, in the fiction of the dialogue, he produces to illustrate his arguments and that, in reality, are painted on the pages of the treatise. The fictional dialogue comes to resemble a multimedia presentation of sorts. But, unlike the conference speakers of our own day, in a real presentation Filarete would have had to foresee the distribution to his public, or to his less wealthy students, of a text stripped of the illustrations that he mentions.

In accord with the spirit of the times, the last three books of the first version of Filarete's treatise are devoted to a true manual of drawing, with numerous references to Alberti. Together, however, with the practical and professional aspects of drawing as the basic tool of architectural design,⁴¹ Filarete, like Francesco di Giorgio, also reflects on the theoretical and didactic function of images. Drawings, better than speech, describe individuals—or at least their outward and visible forms: Filarete remarks that if it is through stories that we know of the deeds of Roman emperors, their faces are known to us only through the reliefs on coins and medals.⁴² Some

centuries later Louis XVI was to be apprehended in Varennes when a commoner who had never seen him recognized the king's face from printed banknotes. Apparently the likeness was a good one.⁴³

Architectural history, as a participant in the example-driven theory emphasized by humanist historiography, was transformed in the early modern era into a museum of paradigmatic models—single, outstanding achievements, or buildings canonized as archetypes. In the treatise, Filarete undertakes a verbal description of the form of the Colosseum, reciting all of its measurements, but the Sforza duke, listening to him, loses his patience and interrupts, “now I would like to see a drawing of it, or at least of a part of it, in order to understand what it was like.” Filarete then produces two images, a plan and a partial elevation of two arcades of the amphitheater, much to the duke's satisfaction: “now I understand quite well; tell me who had it built, who ordered [its construction], because it pleases me and I can see that it must have been a fine building.” In the *Codex Magliabechianus*, the best known of Filarete's surviving manuscripts, the two drawings appear in the margins of the text (although the plan of the Colosseum is not immediately recognizable; figure 7.4).⁴⁴ As the author concludes, “in architectural matters it is difficult to make oneself understood without resorting to drawings. And then, not everyone understands drawings because sometimes understanding a drawing is even more difficult than making one.”⁴⁵

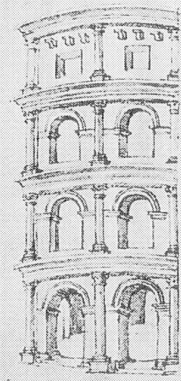
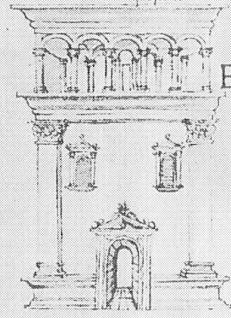
One can read a dialogue, or listen to someone else reading it. An illustrated text cannot be read in the same way. In his treatise's first dedication (to the Milanese duke Francesco Sforza), Filarete evokes a double mode of textual reception—visual and auditory. A book is made to be “seen” and “heard.”⁴⁶ The second dedication (to the Florentine Piero de' Medici) leaves out any mention of the visual; this “architectural book,” read or recited out loud (“for reading or having read to one”) will be “a pleasure to the ear.”⁴⁷ The pleasure of the eyes, which would seem to be an integral part of the purpose of an illustrated architectural book, is no longer discussed. Modern collectors of the deluxe reprints on glossy paper would probably be disillusioned by this, but it seems that Filarete would have been content with a radio broadcast of his treatise.

The manuscript tradition of Filarete's treatise testifies to the unreliability, in the early modern period, of a distribution cycle dependent entirely on the hand-copying of a technical iconography. Recently published and many times reproduced, the *Codex Magliabechianus* has never been definitively

come femina dentro luna amano diritta & l'altra amano manca dalaltro ca-
 po del teatro era questo era l'entrata che veniva di verso Roma & sicca l'ap-
 napale & stava nella forma che noi vedete qui disegnato & anora ogni ent-
 ra & in questo io stimo che stiano a vedere quegli principali Era ancora nella
 zzo uno luogo dove credo stiano quegli hauevano a giudicare & erano an-
 ra nel centro uno obelisco cioe una giunta la quale era scolpita un uelatore e
 giuache come gia anticamente suolano. Do dimi quello che dicono quelle lettere
 non uelso dire che non possono interpretare sono tutte lettere figurate chi anni
 animale & chi annuale & chi anno uacello & chi abissa alcuna e una cuncta al
 cuna come dire una foglia chi come uno occhio come dire ancora una figura &
 chi in una cosa & chi in un'altra tanto e deprecissimi sono che possono interpreta-
 re uero e chepheta francois fileso midise che quegli animali significauano da
 una cosa & chi un'altra castelano ogniuno per la giunta significa l'auaritia & co-
 si ogniuna a sua significazione segia loro ancora non auessino fatto delle fuffino
 pure come sono laltre & potessino computare quelle che o riuoluate che sono pu-
 re in forma d'animali & daltre cose pure stampiano come l'altre nostre lettere
 Dimi anche modo stamo. Al presente non e tempo di narrare questo io uelano ste-
 ro un'altra uolta quando aremo meglio tempo. Bene sono contento ma fa no-
 tefia di niente se pure non me narrasse a me uelano carterete. Ora dimi ca-
 me stua la scena & poi il teatro uolto era come io mostro di sopra la scena almo
 parere sia in questa forma.

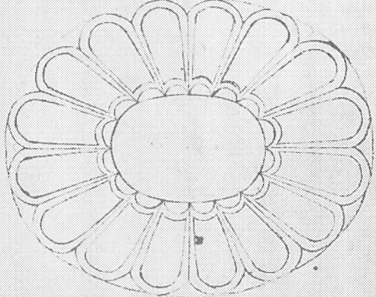
Del coliseo

Roma si scruita per questo



Il teatro uolto era nella forma del coliseo stua in questo modo come qui
 uelano il meglio che posso uelato amendero ogni haueua molte entrate ma
 xime in dimostrazione di uenir pote era tutto in archi circundato come de spuo-
 io uedere non era po totalmente tondo ma era quasi come dice uno uoluo
 secondo come oggi di ancora in Roma si uede quello di Roma e grande. Signo-
 re quello la grandezza sua e questa imprima la brezza sua se braccia ornata-
 tuono dimezzo cioe la piazza puo uerso e braccia cento cinquanta tre pollate
 uerso e braccia cento uno d'entrate perfino al uolto del mezzo cioe la piazza
 sono braccia d'otto & sono in archi & in molte le quali uolte uanno intorno &
 cosi guardi uanno intorno rispondono luno nell'altro & di questi archi uene qua-
 nto che sono piu larghi che l'altro del mezzo uno braccio cioe sono questi larghi
 braccia otto & altri braccia dodici questi & gli altri braccia undici & mezzo que-
 ti quanto adimura rispondono como io detto nel mezzo & uanno adimura lu-
 no dirimpetto al altro gli altri d'acanto a questi luno uena supra una scala la quale
 uenae di sopra da una uolta che uanno intorno la quale risponde al archi secondi &
 questa e ancora piu archi che rispondono dentro in su le scale alcuna scala anco-
 alla similitudine di quella di sopra che rispondono alla seconda uolta di sopra la qua-
 le al presente e sopra credo bene che anticamente fusse sopra & fusse uoluto
 dalla parte dentro & di sopra fusse il teatro a quelle colonne le quali uenano
 a rispondere in su le scale dentro cioe alle scale che andauano intorno intorno fu-
 le quali stiano le porte a uedere la festa che ui si faceua. Io o detto abbastanza
 le sue misure & sua forma credo hauea ancora mreso come douea stare &

sono ancora infigu-
 ra chi domina
 li chi domina
 forma & chi
 di un po
 che sono
 stanno



| Figure 7.4 |

Colosseum, elevation and plan, ink on paper, from Filarete, Codex Magliabechianus, folio 87v. Florence, Biblioteca Nazionale Centrale, MS. Magliabechiano II,1,140. By permission of the Italian Ministero per i Beni e le Attività Culturali.

The Turning Point of 1450

dated by philologists. It may be a product of the author's final years in Milan (1464–1465), although an analysis of the watermarks suggests a later Florentine copy (1487–1490).⁴⁸ The codex comprises 190 sheets illustrated with 215 images; twenty-four of the figures mentioned in the text are missing. First drawn in the same brown ink used for the text, the images were watercolored with pink and yellow, the landscapes with blue and green as well. The illustrations are numbered, incorrectly, from 1 to 209, but the text never refers to the images by number. Several drawings fail to match up with the passages that they should illustrate; the discrepancies are sometimes major and have already been pointed out.⁴⁹ The same hand seems to have copied both text and images. According to the almost unanimous opinion of those who have studied the question, this must have been a professional copyist and not an architect. If this is the case, then this deluxe manuscript—very likely produced in Filarete's lifetime, and even under his direct supervision (perhaps as a presentation copy sent by Filarete to his Florentine dedicatee)—would be autograph in neither text nor images.

Passed on by Piero de' Medici to his children, the *Codex Magliabechianus*—or another similar one—was used at least once between 1482 and 1489 to make other copies. All of the lendings of this manuscript were meticulously recorded by Lorenzo the Magnificent's bookkeepers with the dates on which it left and was returned, the reasons for its use, and the names of the guarantors. Around 1930, one of the presumed copies was in the library of the University of Valencia in Spain; it has since disappeared. Some photographic reproductions of it survive, however, and these allow us to gauge the degree of fidelity that could be achieved by the manual copying of a complex architectural iconography. The original belonged to the library of Lorenzo de' Medici; the copy was ordered by the cardinal of Aragon, so we can be sure that both manuscripts were the best quality that money could buy. And in fact the three or four architectural illustrations that we can compare directly do resemble one another—when seen from a distance.⁵⁰

Vasari speaks of a Filarete manuscript that was illustrated by the author. But this original, if it ever existed, is lost. We must therefore come to the almost inevitable conclusion that the drawings currently attributed to Filarete are in fact the work of an anonymous copyist who, at an unknown date, produced the *Codex Magliabechianus*.⁵¹ Another deluxe manuscript, rich with polychrome illustrations, the text freely translated into Latin, was carried out around 1484–1489, commissioned by the king of Hungary. We know of

a fifteenth-century Latin copy of it, and three made in the sixteenth century, and of these five Latin codices, three contain the same 214 or 215 illustrations as the Medicean manuscript. But a Milanese manuscript (the Trivulzio Codex),⁵² now lost, which represented perhaps a first draft of the treatise in twenty-four books, contained just 156 images, apparently rather mediocre ones. The Palatine Codex, dedicated to Francesco Sforza, is illustrated only with a spare nineteen diagrams or elementary schemata, primarily plans of buildings. The watermarks of the Palatine Codex seem to indicate that the paper was produced in Bergamo around 1461, and the Trivulzio Codex, perhaps a presentation copy that Filarete had prepared for his Milanese patron, used to be considered the closest to the archetype. If this is so, Filarete would have endorsed the minimal illustration of the Milanese manuscripts—perhaps even a manuscript with hardly any illustrations—and not the celebrated drawings of the Florentine codices.

If it never had the luck to be printed, Filarete's treatise was not for this unknown in the sixteenth century. The fact that it existed only in manuscript of course made its consultation a bit more difficult. We can understand the Sieneese architect Pietro Cataneo's interest in Filarete: he too was the author of a treatise and was a theorist in particular of urban design. The manuscripts of Cataneo's compatriot Francesco di Giorgio were probably more accessible, but Cataneo painstakingly copied out Filarete's text by hand, transcribing twenty or so pages of it. Instead of copying or tracing the images, however, he actually cut them out (from what codex we don't know) and pasted them into his notes.⁵³

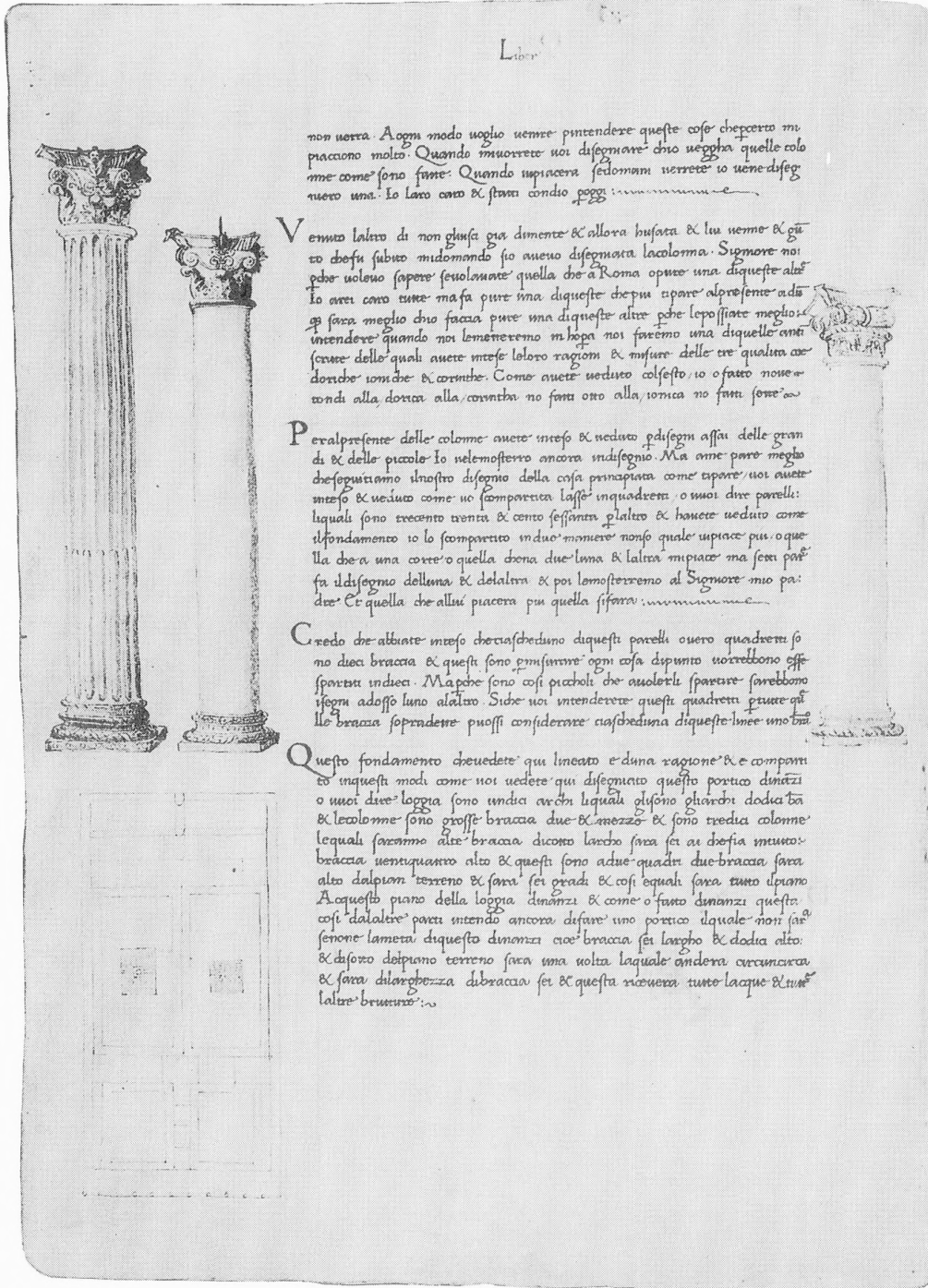
Filarete's vision of antiquity has often been called "romantic." Following his enthusiastic but confused antiquarian impulses, Filarete seems to have overlooked archaeological details.⁵⁴ It is true that Filarete was no archeologist. His discourse conjures up a fantastical picture of ancient architecture, an impressionistic approach largely corroborated by his drawings. Archaeology as we know it did not of course exist in 1460. Yet in his visionary antiquarianism, which was in reality no more than a lack of diligence and precision, Filarete was simply conforming, whether he knew it or not, to the means of communication at his disposal. A message of a higher graphic resolution would not have found an adequate material support—reason enough to explain why modern archaeology could not in fact exist in that period. Drawings of antiquities in a personal or private sketchbook may be more or less accurate depending on the aims and talents of the artist. But

why would anyone want to spread far and wide detailed archaeological surveys, perfectly to scale, in plan, elevation, and section, knowing in advance that his drawings would be different in every copy?

Just as “romantic” as his antiquarian reconstructions, Filarete’s three Greek orders demonstrate a classical renaissance that was still free of typographic contagion (figure 7.5).⁵⁵ Europe had already known various other rebirths of antiquity, but the classicism of the fifteenth century, unlike its predecessors, was destined to cross paths with an unprecedented media revolution. Without the aid of print, the classical orders of the High Renaissance would probably have met the same fate as those of Filarete. As merely notional patterns stuck halfway between image and verbal discourse, and lacking an iterative and visually recognizable graphic format, in a best-case scenario these hand-drawn orders would have followed the uncertain diffusion of a limited series of luxury manuscripts. And yet, even while Filarete was illustrating his manuscripts, the new world of typography and mechanically reproduced images was taking shape. Like Alberti, Filarete cannot have been ignorant of the first signs of a revolution that was already beginning to change people’s lives. Nor was Filarete unaware of the proximity of a universe of stereotypical and exactly repeatable architectural forms.

Every creation, Filarete reflected, bears the mark of its creator. Three portraits of the same person painted by three artists will all reproduce the same face, but each in a particular way, because every drawing has its “manner” and “style,” and the “hand” of the artist is always recognizable. A single wealthy patron could commission from a single architect a multitude of buildings, but why should these buildings—even if designed and constructed simultaneously—look like each other? A thousand scribes can copy the same manuscript, and each new copy will contain the same text but in a different hand. When God created man, he could have made us all identical. Isn’t this the case with ants and spiders? But God did not create any two people alike.⁵⁶

Precocious in the history of art theory, Filarete’s notion of “style,” and the words that he used to define it, have recently attracted much critical attention.⁵⁷ However, in its original context, Filarete’s parallel was singularly pertinent. Like every creative imitation of an architectural or artistic model, every new manuscript copy is characterized by unforeseen variations, graphic or textual—interpretations, inventions, or simple errors, but always the unrepeatable signs of human intervention. From a more practical point of



| Figure 7.5 |

Columns, ink on paper, from Filarete, Codex Magliabechianus, folio 57v. Florence, Biblioteca Nazionale Centrale, MS. Magliabechiano II,1,140. By permission of the Italian Ministero per i Beni e le Attività Culturali.

view, these variants have made possible the modern science of philology, but in Filarete's metaphor they also seem to anticipate the equally modern notion of a dialectic between "influence" and "artistic individuality." Even the parallel between artistic and divine creation recalls a typical Romantic topos.

Indeed, in the nineteenth century all of these questions became current once again during a second, more traumatic, mechanical revolution. The Renaissance standardization of architectural images was primarily concerned with the perception and conception of a visual language. In the nineteenth century, machines standardized material production. Filarete was reacting to the standardization of design, Ruskin to the standardization of the building site. Filarete's conclusions are not the less clear cut for this: a standardized architecture was for him, in the first place, ugly, for it was remote from the natural habits of man; but worse yet, it was impious, because it contradicted the will of God.

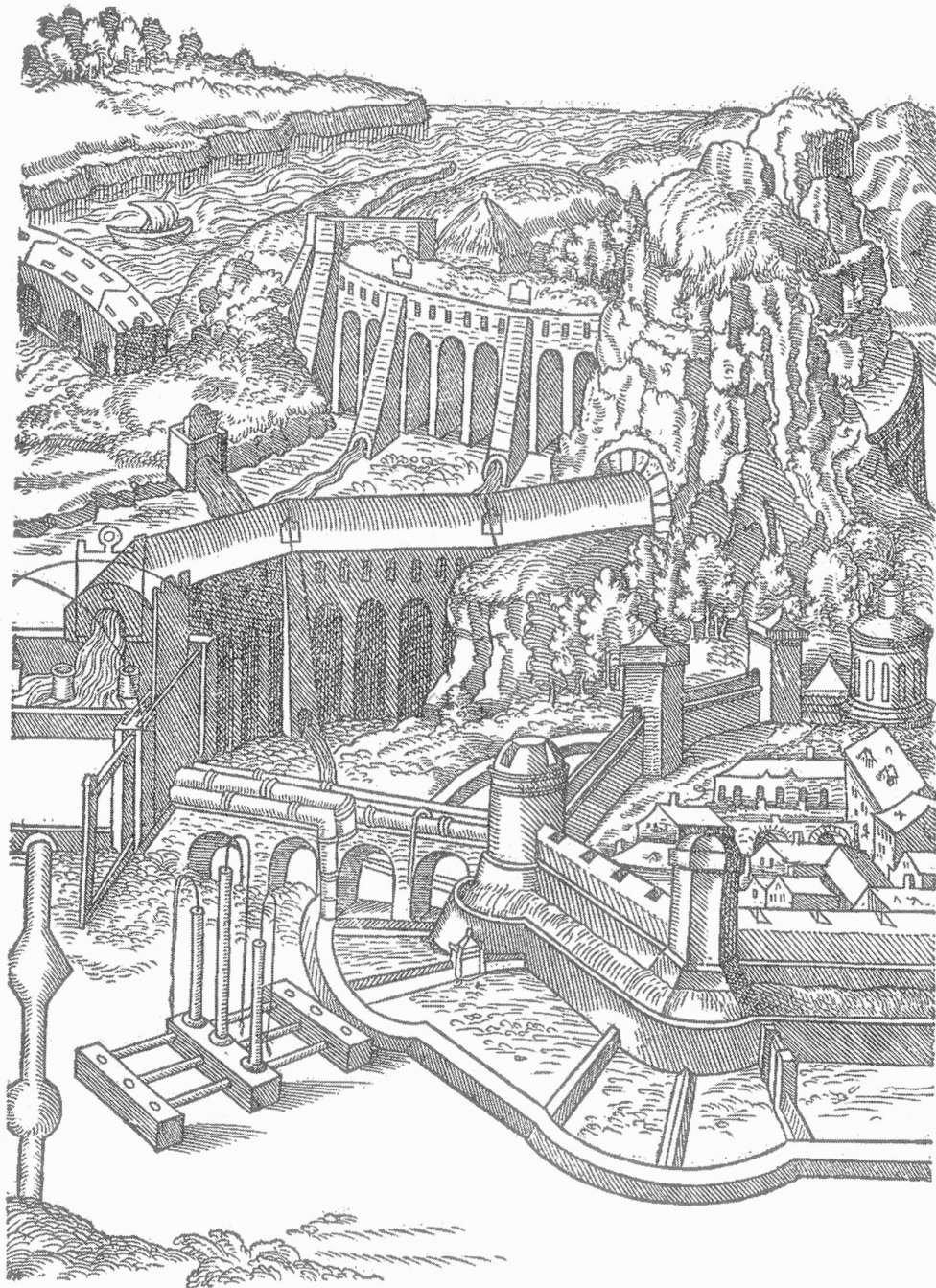
It was in the pages of the printed book that the modern standardization of vision celebrated its first triumph. Just one or two generations after Filarete, every literate person was integrated into a universe of mechanized typographic signs that were identical and infinitely repeatable. Hence we are left with the latter of Filarete's arguments, the theological one.

In the ninth book of the *De re aedificatoria*, a true synopsis of a treatise on aesthetics, Alberti divides and subdivides—faithful to his method—the categories of architectural beauty. Without entering into the finer points of this labyrinth, which is at the heart of Alberti's thought, the notion of *concininitas*—"the absolute and fundamental rule in Nature"⁵⁸—implies among other things that architectural components independent at one level of the design process should respond, or correspond, to each other at a higher and more abstract level of composition (*summus consensus partium*).⁵⁹ The architect pursues this correspondence through a careful selection of numbers and proportional relationships (*finitio*), and through *collocatio*, which is a more complex operation: the elements in direct visual relationships (on right and left or above and below) must have coordinating numbers, structures, and appearances (*numerus, forma, facies*).⁶⁰

Another and no more transparent of Alberti's expressions, *coaequatio parilitatis*, a synonym of *collocatio*, is normally translated today as "symmetry" (in the modern, not the classical sense of the term).⁶¹ But Jean Martin, who translated this term in 1553 as "égalité," might have more perceptively.⁶²

Alberti did not limit himself to postulating a symmetrical correspondence among elements—he demanded that some of these elements be equal to one another: *aequalia aequalibus aequatissime convenient*. Alberti continued: the statues symmetrically arranged on ancient building facades were so similar to each other that we would say that here art truly surpassed nature, for in nature it is impossible to see so much as two noses that look exactly alike.⁶³

The repetition of identical elements, which for Filarete was both hideous and sacrilegious, paradoxically for the same reasons acquired with Alberti both aesthetic value and the dignity of secular virtue. Creation has always been the object of numerous attempts to reduce the many to one, but the more recent theories seem no more decisive than earlier ones, and apparently still at the height of the Darwinian era, Filarete’s theological argument gave proof of a certain resilience. When John Ruskin denounced in Renaissance architecture the inhumanity of a style that made “plagiarists of its architects, slaves of its workmen,”⁶⁴ he was pointing out one of the roots of modernity. Even if built by manual labor, a standardized architecture also standardized the movements and actions of the artisan worker and prefigured the assembly line. For a number of different, more complex, and certainly more eloquently expressed reasons, Ruskin too, like Filarete, found classicizing or neoclassical architecture to be impious, unchristian. All good work is free-hand work: in the nineteenth century, the reaction against a machine-made environment allied itself with the contempt for Renaissance architecture. Thus we tend sometimes to forget that Renaissance architecture was created without any machines—except one, which was at least in part responsible for the spread of those that came after.



Des cisternes, ensemble de leur usage & utilité.

| Figure 7.6 |

Aqueducts and cisterns in a landscape, woodcut, from Alberti, *L'architecture et art de bien bastir*, trans. Jean Martin (Paris, 1553), folio 214r (illustration to *De re aedificatoria*, X,VIII).

Cliché Bibliothèque nationale de France, Paris.

Notes

A Note on Abbreviations and Editions

The abbreviated references to Vitruvius and Alberti (for example, *De architectura*, I,II,5) indicate the division of the Latin texts into books, chapters, and paragraphs according to: Vitruvius, *On Architecture [De architectura]*, ed. and trans. Frank Granger, Loeb Classical Library, 2 vols. (London and Cambridge, MA: W. Heinemann and Harvard University Press, 1931–1934; reprint Cambridge, MA: Harvard University Press, 1970); Alberti, *L'architettura [De re aedificatoria]*, trans. Giovanni Orlandi, with introduction and notes by Paolo Portoghesi, 2 vols. (Milan: Il Polifilo), 1966. All English translations of Alberti are from *On the Art of Building in Ten Books*, trans. Joseph Rykwert, Neil Leach, and Robert Tavernor (Cambridge, MA: The MIT Press, 1988; reprint 1994). The abbreviated titles of the books of Serlio's treatise are given in English (*Third Book*, *Fourth Book*, etc.). Full citations of references are given on their first occurrence in a chapter. All works cited more than once are also given in the bibliography. Except where otherwise indicated, references are to the first edition of a work or a later edition in the original language. References to English translations are given when the work has been quoted directly.

Chapter 1

1. *Oxford English Dictionary*, 2nd ed., s.v. “machine.”
2. Unrelated and unknown to my grandmother, Marcel Duchamp had already experimented with different ways to mark out mass-produced, anonymous objects. His *Readymades* (produced from 1913: bicycle wheels, shovels, “fountains,” etc.) were famously defined by André Breton in 1934 as “manufactured objects promoted to the dignity of objects of art through the choice of the artist.” The identifying sign was normally the signature of the artist—Duchamp himself, or an apocryphal one.