The Perspective Plan in the Sixteenth Century:
The Invention of a Representational Language

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Cologne, 1572: the appearance of the first volume of Georg Braun and Franz Hogenberg’s Civitates orbis terrarum marked a turning point in publishing. The basic idea was very simple: to gather in book form views of towns from every part of the world, since such views were more and more sought after, but not easy to obtain from distant countries, and too expensive and difficult to handle in large loose sheets.

This well-conceived formula, already tested a few years previously for geographical maps by Ortelius in his Theatrum orbis terrarum, met the market’s demand and found immediate success. As soon as the first volume was published, a number of rough, cheap imitations exploded onto the market. Publication of the Civitates continued until 1617, by which time there were six volumes, the last appearing after the death of the second editor. The set was subsequently republished several times, either engraved and colored by hand or engraved only, and during the next two centuries, the original copper plates fed a parallel local market for loose sheets, while the plates themselves were transferred by heritage or sale to Jansonius, Janssonius van Waesbergen, and De Wit, and were reused or reengraved for new books. For about two centuries the book of towns continued to be a profitable editorial genre.

Although Braun himself claimed that the Civitates was an unprecedented work, in Italy, France, and elsewhere it concluded a hundred years of partial attempts made in this direction. In the first half of the sixteenth century, Italy and France had developed the printing of town view collections. In Venice, small coarse albums of images of islands, fortresses, and towns related to the Republic came out of the main rival printing workshops (Fig. 1); in Lyon, town views, in larger and larger numbers, were inserted as supporting material in cosmographies and historical works (Fig. 2).

The quest for the original idea of gathering town views takes us back a century, to three precious manuscripts of Ptolemy’s Cosmographia edited in Florence. This group of manuscripts, illuminated by the same hand, shares a singular feature: following the old and new Ptolemaic geographical maps, each displays ten images of towns, the capitals of the ancient and medieval world. The enrichment of the manuscript’s decoration responded to the hunger for images of the world, but was not compatible with the content and the purpose of the work, which the author himself stated was strictly geographical, that is, concerned with the representation of the whole known world, and not of isolated parts of it. Therefore the artist’s innovation was rejected in the subsequent editions.

When this early seed of Florentine fifteenth-century culture ripened fully in post-Reformation Cologne, the result was quite different, and the joint venture of Braun, the Catholic scholar, and Hogenberg, the Protestant engraver, turned out to be a truly unprecedented work.

The Civitates covered a worldwide range, and indeed the world itself had expanded through the recent explorations in the East and the discovery of America. New towns in new countries were venturing out onto the stage of representation.

In the book, the double-page views stand out self-sufficiently, speaking literally for themselves: the texts on overleafs come second, as an editorial device that Ortelius invented for his Theatrum in order to avoid too many blanks

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1 An accurate survey of the editions of all the volumes and related data can be found in F. Bachmann, Die Altten Stadtbilder, Stuttgart, 1965. For a bibliography and detailed information about the editors, the contributors, and the relationship between the Civitates and the Italian production of town views, see L. Nuti, “All’origine del Grand Tour: Immagini e cultura della città italiana negli anni cento e nelle cosmografie del secolo XVI,” Storia urbana, vii, 27 1984, 3–54. The Civitates was reprinted in Amsterdam, 1663, with an introduction by R. Skelton.

2 It was published in Antwerp in 1570. In the introduction Ortelius clearly explains that with this book he intends to avoid the defects that keep buyers away from large-format geographical maps: cost and size.

3 The titles of the Italian productions are: Il primo libro delle città e fortezze principali del mondo, Venice, 1567 (the only copy known is in Vienna, Österreichische Nationalbibliothek); Civitatum aliquot insigniorum et locorum exacta delineatio, Venice, 1568; Civitatuum aliquot insigniorum . . . delineatio, Disegni di alcune più illustri città e fortezze, Venice, 1568 (reprinted one year later as Le vere imagine et descrizioni delle più nobili città del mondo, Venice, 1569); M. G. Ballino, Disegni delle più illustri città & fortezze del mondo, Venice, 1569; G. F. Camocio, Isole famose, porti, fortezze e terme marittime sopposto alla . . . Venetia, ed altri principi Christiani, et al., . . . Turen, novamente poste in luce, Venice, 1572. New editions with additions were republished after the Civitates. In Lyon: G. Goujoulh, Premier Livre de figures et portraits de villes, Lyon, 1552; and, by the same
than a century of debate: the primacy of the city in human history, the primacy of architecture among the arts,7 and particularly the primacy of sight among the senses.

The meaning of the whole work leans on this assumption: towns presented in images to the sharpest sense of sight will give information about themselves much more immediately than if they are described only in words.8

The major sovereigns of the past seem to have fully appreciated the importance of visual knowledge. Charlemagne, as historians recounted, owned three silver tables embossed with images of the known world and the two capitals of the Roman Empire, Constantinople and Rome. Alexander the Great used to scan the sites of imminent battles very carefully, and wanted to have them painted, so as to know exactly which sides to avoid and which to approach.9

Images, much more than his teaching of the skill of creating them, were the main reason for the extraordinary fascination exerted by Ptolemy on fifteenth-century culture. This feeling was widespread in geographical literature.

A few years before the printing of the Civitates, William Cunningham, in his The Cosmographical Glasse, developed the subject by means of a dialogue between two imaginary characters. One of them explains very carefully the differences between Cosmography, Geography, and Chorography. The other replies: “Although by your words, I have received more commodite at this present, then by all my reading touching the true difference of these three names: yet if it may please you to give me the figures of every of them, I shall so stedfastly printe it in my nynde, as I truste not to forget them, for it is truly said, thinges sene have longer imprence then only haide.”10

If Braun thought he needed to lay down the learned foundations of his work, it was because he was evidently well

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5. A. Ortelius, Theatrum orbis terrarum (as in n. 2), intro., fol. A 5r: “Quoniam visum nobis est, ingratum Lectori aut Spectatori fore, foliorum terga vacua videre & ommino inania; statimus ibi singulorum Tabularum brevem quandam declaratiunculam adscribere, codem modo quo in ipsis Tabulis diximus a nobis esse factum.”

6. “In his deminque urbium enarrationibus eorum scriptis usi sumus, qui eas peragratur, et oculis accuratissime perspexerunt ne quis mili de ignoto, et munquam a me visis multa scribere objicit” (Civitates, 1, unnumbered fol. after fol. Ev).

7. The importance and role of architecture in the development of human civilization were widely discussed in Alberti’s De re aedificatoria, and date back to Vitruvius’s work. The latest edition of Vitruvius has been published with the comments of Daniele Barbaro, whose name Braun cites as a reference authority for this subject (M. Vitruvius Pollio, De Architectura libri decem . . . Cum commentariis Danilis Barbri . . ., Venice, 1567).

8. “Dum acerrimo oculorum sensui qui reliquis omnes, Aristoteles teste, praestantia superat, accuratissimus urbium icones proponimus, quae in tabulis artificiis depictae, multo apertius de se judicium praebent, quam si descriptione litteris tantum comprehensa, quas quamque & obscura carum cognitio quaternatur” (Civitates, 1, fol. Ev). The ranking of the five senses in the order of their nobility was first formulated, as Braun reminds us, in Aristotle’s De anima.

9. The special appeal of the immediacy of sight was maintained throughout the centuries. See, for instance, Cicero: “Every metaphor, provided it is a good one, has a direct appeal to the senses, especially the sense of sight, which is the keenest.” (De oratore, ii. 191, as quoted in F. H. Gombrich, Symbolic Images. Studies in the Art of the Renaissance, London, 1972, 107). During the Renaissance, the most exact formulation can be found in Leonardo’s Trattato della pittura. See The Literary Works of Leonardo da Vinci, ed. J. P. Richter, 3rd ed., London, 1970, i, 38. Whereas medieval culture put words before images, Leonardo appealed to the theory itself to claim the superiority of painting to poetry: “If you, poet, had to represent a murder battle . . . the painter will be your superior, because your pen will be worn out before you can fully describe what the painter can demonstrate forth with by the aid of his science, and your tongue will be parched with thirst and your body overcome by sleep and hunger before you can describe with words what a painter is able to show you in an instant” (p. 53).

aware of the Ptolemaic distinction between Geography and 
Chorography, which gave to the second a minor and subordi-
nate role. When, in the introduction of the fourth book, he 
hints at the criticism of some venomous detractors, he 
apparently refers to the words of the contemporary Italian 
geographer Gierolamo Ruscelli, who, in commenting on 
Ptolemy, looked down on chorographical works, in particu-
lar his own books. They were documents of ephemeral reality, 
the world; for satisfying curiosity, but of no use for science.

Braun's argument about the relationship between repre-
senting the whole (Geography) and an isolated part of it 
(Chorography) does not reiterate the Ptolemaic similitude 
of the head and the eye, but it brings up Dürer's theory of 
portraits. Braun acknowledges the chorographical role of the 
Civitates, but maintains that it is complementary rather 
than subordinate to geographical works in general, and to 
Ortelius's Theatrum in particular.

On the other hand, Braun sets out to assure commercial 
success for his book by opening a dialogue with his readers, 
which continues volume after volume, involving them di-
rectly in his creation. He includes reviews, letters, and poems 
by influential personages in praise of his work, and he 
explains for the first time the purpose and limits of the book, as well as 
shortcomings and limits, in response to criticism. He also 
discusses the range of views in each volume, and his effort to 
avoid excessive prices increases. As the book is a work in 
progress, he invites amateurs to contribute by supplying 
views and descriptions of their own towns, and he promises 
full acknowledgment.

The market for maps was already extensive, but the editors 
of the Civitates tried to expand it even more, to reach all 
potential customers. Theirs was a very ambitious target, as 
Braun demonstrates in his definition of his prospective 
readers: the traveler in search of a guide for the places he 
is going to visit; the merchant keen to find out about the 
commercial sites and trading customs; the military man 
who wishes to become familiar with the defense system of his 
imminent objectives; the citizen hungry for a deeper knowl-
edge of his own country; and finally the scholar wishing for a 
round-the-world trip, while comfortably ensconcled in 
his chair, and free of the costs and risks of a real journey. 
All these different demands could be satisfied only through 
pic.

Braun declares his book to be superior to anyone else's in 
the world "artificio & veritate," on the grounds of skill and 
truthfulness. First of all, he stresses the formal value of a 
refined engraving technique. Franz Hogenberg's workshop 
functioned as a filter for all the materials that poured into 
Cologne and he had views redrawn and reengraved, adapting 
them to the standard of the book by the addition of 
figures and details and dressing them in a splendid, new, 
uniform look.

The book's formal quality would not constitute sufficient 
merit, however, without the particular features of the pic-
tures themselves. Braun is unique in his time in his establish-

11 La Geografia di Claudio Tolomeo Alessandrino, tradotta del greco in italiano 
du M. G. Ruscelli, Venice, 1574, 9.

3 G. Hofnagel. Male et Castelmoov, from G. Braun and Franz 
Hogenberg. Civitates orbis terrarum, III, Cologne, 1581 (photo: 
Pisa, Dipartimento di Storia delle Arti)

ment and expression of a connection between the represen-
tational mode and the nature of the information conveyed.

The process of mapping towns was not developed else-
where to the same point, and not all the available images were 
completely satisfactory. As the desire for displays prevailed at 
that time, minor views were also inserted in the Civitates, 
and the book can also be seen as an outline of different 
approaches to the representation of towns. Braun dwells, 
however, on describing the features of the very images that 
seem to comply perfectly with the purposes of the book.

Braun first points out that all the information conveyed in 
the pictures derives from direct observation, from a true 
relationship with the world seen, not from a written account, 
but from a purely conventional model, nor even from an 
abstract idea. He explicitly states that the painters really went 
through the towns they drew and assumed the real world as 
their starting point.

The concept that truthfulness was an important value for 
town view had been clearly expressed at the end of the 
fifteenth century. A gentleman from Genoa, Antonio Ivani, 
when sending his friend Donato Acciaioli a picture of his 
hometown, added a few lines: "I'm sending you those parts of 

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12 The attempt, or possibly the temptation, to categorize town views is 
shared by a number of studies, both specific and general. Such highly 
hybrid imagery has inspired the multiplication of categories and 
definitions, and they are valid, at best, only for the group of materials 
examined. The typological approach runs the risk of being an end in 

13 "Eas urbis genue partes, que per picturam tradi possunt, ad te mitto, 
non ut egregiam picturam, sed ut veram." The letter is published in 
N.A., "Una lettera di Antonio Ivani a Donato Acciaioli," Giornale 
ligurto, VIII, 1881, 129, and partially in L. Volpi, "Genova nel sec. 
XV. Note d'iconografia panoramica," Atti della Società Ligure di Storia 
Patria, VII, 1924, 263–265. It is quoted and commented upon by Shultz, 
458.
During the following century the claim to mirror reality became fundamental for the topographical view. In 1500, for example, the German merchant Kolb asked the Senate of Venice for permission to print a woodcut presented as a “true drawing” of the town.\(^{14}\) From then on, the adjective “true” in the main languages was associated with words such as “portrait,” “description,” and “picture” in the cartouches or explanations attached to such images.

During a trip to Italy with his friend Ortelius, Georg Hoefnagel drew a collection of views of the Campania region especially for the Civitates, upon Hogenberg’s commission. To prove that he had experienced the sights and personally checked the legends existing about them, Hoefnagel portrays himself with his friend in some of the pictures as if scanning the horizon (Fig. 3). A few lines are engraved to describe this and sometimes even the Greek word 
\[\text{αυτοφυεύω},\]
from the eyewitness, is inscribed in order to emphasize the artist’s direct participation.\(^{15}\)

Each statement is not, of course, necessarily true, but what is interesting here is the use of such language to make contact with the public.

In the relationship between the view and the world seen, however, the final result was apparently much more important than the starting point. The contents are constantly offered to the eye of the spectator—“spectantium oculis,” “ob oculos tibi ponitur”—with a tighter link than that already established for geographical maps.\(^{16}\)

This feature is outlined by Braun’s use of the words “ad vivum.” The expression is ambiguous and cries out for discussion. A misinterpretation of this puzzled A. E. Popham, who tries to explain the inscription in the cartouche of the view of Bilbao.\(^{17}\) The first meaning of the Latin expression is “lifelike,” not the world seen as a starting point, as one might believe, but most of all the world seen as a point of arrival.\(^{18}\) This concept, too, had already been expressed a few years before, in Antoine du Pinet’s Plantes, pourtraits et descriptions de plusieurs villes et forteresses, tant de l’Europe, Asie, Afrique que des Indes et Terres Neuves. In commenting on Ptolemy’s words about the aims and purposes of Chorography, Du Pinet stressed the role of the eye as an addressee of the image, and he introduced the concept of “lifelike” as a special feature of it. He said that Chorography aimed to “show exclusively to the eye, in as lifelike a way as possible, the form, the position, the outskirts of the place it paints.”\(^{19}\)

At this point the concepts of the “lifelike” and the “true” coincide and were used as interchangeable terms for a number of portraits, and it was by virtue of the coincidence

\(^{14}\) “Vero disegno.” An abstract of the document is published by Schulz, 473.


\(^{16}\) The connection between maps and the eye had already been established by Ortelius, in the introduction to his Theatrum: “Tabulis his quasi rerum quibusdam speculis nobis ante oculos collocatis” (fol. A 4r). See also Alpers, 147.

\(^{17}\) A. E. Popham, “Georg Hoefnagel and the Civitates orbis terrarum,” Musa Finiguerra, 1, 2–3, 1936, 192. The inscription reads: “Venusta Hogenbergii manu ad vivum delineata, ob oculos tibi ponitur, sa forma, qua anno Christi MDXLIV conspiciatur, Caius eleganti iconi opus hoc nostrum beavit . . . Joannes Mufflin.” Popham, interpreting “ad vivum” as “from life,” is right in pointing out the contradiction between the assertion that Hogenberg drew the view from life and that Mufflin, one of his learned friends, had provided it. At the beginning of his introduction to the first book, Braun confirms that Hogenberg and Novellanus rendered “ad vivum” the towns, part of which they themselves painted, and part of which they had obtained already painted by others.

\(^{18}\) The translation “real” or “coming from reality” for the word “vivus” in Latin is inaccurate. The possible meanings are “living,” “alive,” “having the appearance of life,” “lifelike,” “native,” “full of movement.” See Oxford Latin Dictionary, ed. P. G. W. Glare, Oxford, 1982. Moreover, the Latin construction “ad” and the accusative mean toward something, not from something.

\(^{19}\) Du Pinet (as in n. 3), xiv: “De monstrare seulement à l’œil, le plus près du viv qu’elle peut, la forme, l’assiette, et les dependances du lieu qu’elle depeint . . .”
that from then on "ad vivum" was used and read as "from life."20

Likelikness is a pleasure for the eye, but deeper consideration of the matter plants the doubt that it could also be deceptive; well may one ponder over which is felt more deeply by the artist: the challenge of reproducing the truth or of simulating it, of pursuing the taste of truthfulness or that of deception. This, then, is the question: what is the truth that is expected to be seen in a lifelike representation and what is the technique through which such a truth can be embodied?

Remarks about the richness of the vision offered by the views in the Civitates are scattered throughout each volume. It is a major subject for the author. In the third book he first outlines information about spatial features: "In such an image . . . all the building blocks, main streets, buildings, empty areas are spread out before the eyes";21 and a few lines later he points out architectural features, like the look of different buildings, city walls, and ramparts. In the first book he stresses that the painters maintained the exact proportion between the single parts and the distribution of the building blocks.22

To sum up, the view is expected to give a total knowledge of the town, allowing one to check the whole and every part of the whole. It must bring together in what appears to be a record of one glance all the glances that the eye can take from different points of view, searching through the most hidden folds, enjoying the architectural features, perceiving the global shape and the balance between the built-up and the empty spaces. In a word, the portrait must be truer than truth itself.23 The final result of the artist’s skillful work, he writes with pride, is that not images or flat figures, but actual towns spring from the page to the eye of the spectator.24

Townscape painting is unable to bear the onus of creating such a portrait; for it captures only a fleeting moment of human experience. Braun is definite in his rejection of all two-dimensional maps, both pictorial and scale, together with their respective inadequate burdens of truth.

Nor can linear perspective vision settle the matter. Such a wide and complex object cannot be anchored to one specific viewpoint and to one central visual ray. Nothing more is known about the Vinea in prospectio e San Marco, drawn by Leon Battista Alberti, than Vasari’s mention of it in his list of his paintings.25 Appareently it is lost. A small woodcut representing Ferrara at the end of the fifteenth century (Fig. 4), which is also disappointing, shows how impracticable is the method of assembling a town view around a single centralized vista, a square and its perspectively grided pavement.26

Attempts at portraying a whole town using direct observation from life were developed between the fifteenth and sixteenth centuries in two different directions according to basically different notions of representation.

The profile view is a representational mode belonging to a sea-based culture. Approaching the coast and learning to recognize it from a distance, from offshore or across the river while sailing, is a common practice among seamen. The sailor trusts his instruments, like the compass, but most of all he trusts his eyes when the outline of the coast begins to take

20 I wonder if the meaning "vividly descriptive or lifelike" associated with the meaning "drawn with a pencil or pen" in the English word "graphic," as noted by Alpers, 137, might date back to that time. The meaning is not shared, however, by the correspondent Italian word grafico.

21 "... Ea forma exhibebantur, quae vicus omnem, plateas, aedificia, areas spectatori manifeste ob oculos ponat" (Civitates, iii, Georgius Braun, Agrrippinas, Benevole Lectoribus s.d., unnumbered folios).

22 "Partium singularum proportione et vicorum ordine ad amussim observato" (Civitates, i, fol. D 2v).

23 On the totalizing character of urban imagery in the Renaissance in relation to the strong, central political power that was rising at the time over the bourgeois communities of the medieval town, see L. Gambi, in Gambi and Guozzi (as in n. 4), 55-55.

24 "... Mirifica quaedam industria, tam accurate & ad vivum expressurum ut non icones et typi urbium sed urbes ipseas, admirabilis caetera artificio, spectantium oculos subiectus apparent" (Civitates, i, fol. D 2v-v). The word typo also raises an interpretational problem, because it means both "as a base-relief" and "a surveyor’s ground plan." The context seems to suggest rather the second meaning, which is also confirmed by contemporary use in the geographical field. See, for instance, Oretius’s world map titled Typus orbis terrarum.

25 Vasari-Milanesi, ii, 547.

26 Il disegno di Ferrara vecchia nel 1490, woodcut, Modena, Biblioteca Estense.
shape on the horizon, out of which a forest of vertical landmarks emerges from the flat expanse of the sea. The profile view was very common in Northern Europe, but not practiced in Italy, as demonstrated by the Northern production of sailing books between the sixteenth and seventeenth centuries. Though what is most commonly referred to as a portulan is a written book, as distinct from a nautical chart, the portulan from the late sixteenth century begins to contain illustrations among the detailed instructions for sailing or landing. The words that explain "la connoissance," how to recognize the coast, are translated into very simple engravings so that the sailor may confirm what he sees.

From the very artless woodcuts by the Breton sailor Pierre Garcie, the profile coastal views developed into the painstakingly accurate engravings of Cornelis Anthonisz (Figs. 5–6), and those of Blaeu's widely known The Light of Navigation.27 Short captions comment on the figures, confirming the appearance of each part of the dry land as seen from one specific cardinal point. The Italian portulans, on the other hand, continued to present only written and mathematical data, and the Mediterranean coasts had to wait for a Northern draftsman to show them in profile.28

The idea of describing visual reality in profile and, most of all, the value attributed to the profile vision as a form of knowledge of the world are deeply rooted in the North, which, after the discovery of the New World, became even more a sea-based culture. This was especially so in Flanders and the Netherlands, where the geographical appearance of the completely flat land, where on occasion the sea itself became land, maintained one's perception and viewpoint.29

The profile is not a mathematical abstraction of visual reality; rather, it might be compared to the image exposed in a slowly unwinding film as the viewer moves by. The town itself, perceived and represented as a profile, both pictorially and topographically, as a very rich and fruitful subject for painting and engraving, became a constant reference for Northern urban imagery, not only beside but also inside other representational systems (Fig. 7).30

It is obvious that the mere profile is a very limiting means of describing the complex body of the city. It can, of course, be expanded in length, along the horizon line, but it does not allow one to see anything other than the foreground, where the buildings tend to flatten into a two-dimensional strip. The other parts of the city can be discovered only through the addition of other representations to the profile view, made at the expense of the view's peculiarity.

A strong example of this is the view of Venice in Bernard von Breydenbach's pilgrimage book, a long sheet folding out of the book (Fig. 8). The view is made up of partial offshore views stitched to one another, while the single focal points stand out in the long strip. The inner strips of the town and the arcs of the mountains are superimposed on the foreground in the medieval system of additive perspective.

The profile is also a basic component of an elaborated system of additions, established as a personal technique of drawing by the Flemish draftsman Anthon van den


28 W. Barenen, Caertboek Van de Midlandse Zee, Amsterdam, 1596, and in a French edition, Description de la mer Mediterranee auquel sont decrite et descript de ses facettes les coûts de la mer Mediterranee par Guillaume Bernard Pito (the only copy known is in Paris, Bibl. Nat., 1608). Il portolano del mare, published in Venice, 1584, by F. Rampazetto's publishing firm, can be useful for a comparison with the contemporary Italian production of portulans.

29 The most fascinating and stimulating discussion about Northern visual culture is offered by Alpers. Profiles are also taken into account by Russell, in chapter 2, on the painter-cartographers.


11 A. van den Wyngaerde, study of the wall of Valencia. London, Victoria and Albert Museum (courtesy board of trustees)
Wyngaerde. He was commissioned by Philip II of Spain to make a complete pictorial report on Spanish towns, while professional surveyors were at the same time entrusted with the ground plans. To gather a systematic documentation of the country, the king understood that visual control was as important as metric control.

The making of the drawing is scanned very well in different phases when the subject is a big town, like Granada or Valencia, that required a longer and more accurate preparation (Fig. 9). The town is opened, sectioned off, and studied from different approaches. The first step, or possibly the last, is a global sketch from life, to control the proportionate relation between the parts and the whole. The intermediate steps consist of partial sketches, or studies, ranging from the minimum size—an architectural detail, a group of buildings—to wider sections of the town. It is not difficult to
point is not possible. The presence of the draftsman in the picture, far from being a "flight of whimsical fancy," is a widespread convention—sometimes drawn as a conventional figure, sometimes a real self-portrait that doubles the signature. In this way, Flemish artists marked the main observation point in the picture and advertised the act of direct observation at the same time (Figs. 13–14). In the draftsman's sheet, the outline of the Florentine walls is just

35 The expression is Harvey's. Schulz, 431, also seems to consider the draftsman only as a warrant of observation from life. The convention of showing a figure sketching to mark the approximate observation point appears prominently in Northern paintings and maps for more than a century. See Russell, 35–37. To cite only a few of a great number of examples: Netherlandish School, A River among Mountains, ca. 1530, London, National Gallery; River Landscape with Two Drovers, after Peter Brueghel, Beaune, Musée des Beaux-Arts et Archéologie; several of the Spanish views by Georg Hoefnagel in the Civitates (see n. 21) and by A. van den Wyngaerde (see n. 32); Amstelodamum, engraving by P. Bast; a drawing of Constantinople by Melchior Loris, Leiden, Universiteitsbibliotheek; see also the engraving Warhaftige Contrafactur der böhlichen Reichsstat Nuremburg, gegen dem Niedergang der Sonnen, by the German draftsman Hans Lautensack, London, Brit. Lib., Map Lib.
find among them the profile approach, a horizontal strip of emergent vertical landmarks, or the city walls in the foreground (Figs. 10–11). The final view of the whole town is the result of a delicate work of assemblage, entrusted to the artist’s eye and to his draftsmanship, as is still revealed by the fragile structure of the long sheet, sometimes more than one meter long, made up by pasting together many irregular pieces of paper. When unfolded and spread out, the Spanish towns were offered to their king like a movie camera’s film strip, alternating the use of zoom and wide-angle lenses.

The second type of view from life, though very close in appearance to some of Van den Wyngaerde’s compositions, starts with a geometrically controlled organization of the visual space. This type needs a more elevated and distant viewpoint which allows a wide visual field encompassed by a high horizon, and provides complete command of the town and a broad stretch of surrounding landscape. These features might also describe contemporary Flemish landscape painting. It was in “the Flemish style” that Pinturicchio made frescoes of the Italian capitals—Florence, Genoa, Milan, Naples, Rome, and Venice—at the end of the fifteenth century. Vasari dismissed them. The paintings were successful, he argued, but only because of their novelty value.

It would not be absurd to hypothesize the contribution of a Flemish hand in the work that is commonly referred to as the first modern town view, the well-known image of Florence framed with a chain (Fig. 12). The original engraving, of which the Berlin woodcut is the only known faithful version, although a reduced one, has traditionally been attributed to the Florentine Francesco Rosselli, as the most specialized engraver and map seller of geographical subjects of the time.

The map with the chain shows a very interesting detail. Was it added by the engraver who reduced the Florentine version like the chain itself, or was it already in the original drawing, of which Rosselli might only have been the engraver? Since the original is lost, the answer to this query remains a mystery. The viewpoint is southwest of the town, approximately where a draftsman is sitting, somewhere in the surrounding hills between Bellosguardo and Monte Oliveto, though the identification of any real topographical
Taking form: this detail also belongs to the same conventions, that game of allusions and crossed connections between the whole view and its image on the artist’s sheet, the whole sheet and its picture.

Our approach to the town is, in this case, filtered through the artist, and we have to consider his presence, his hand and his eye, as a key to reading and understanding the making of the picture itself. What results, however, is not a simple landscape view from life. This image is really the first attempt to merge direct observation, perspective system, and control by measuring instruments of the correct spatial relationship between known landmarks. A recent study, comparing the view with modern surveys and aerial photographs, came to the conclusion that the most likely observation point from which to check the alignment of major topographical features must have been the bell tower of the church of Monte Oliveto, which in those very years was under restoration (Fig. 15). In pinpointing the location of the landmarks, and showing them as prominent in the thick urban fabric, the draftsman turned some façades toward the observer and artificially raised the visual angle slightly. The central visual axis, which is assumed as the central axis of the view, passes through Monte Oliveto and two other possible observation points, S. Rosa tower and Brunelleschi’s dome. In this way, the field of the picture is divided into two equal squares, and while one coincides approximately with the actual visual field on the left, on the right the second has been contracted considerably to fit the sheet.

Almost one century later Vasari painted in fresco a view of Florence in the Palazzo Vecchio showing the city during the siege of the year 1550 (Fig. 16). Here is an exceptional case in which the author himself explains his methods. Vasari pretends he is conversing with his prince, Francesco de’ Medici:

Look you, Your Excellency, at this painting, in which Florence is portrayed in a lifelike manner from the mountain side and measured in a way that hardly differs from reality. . . . Know you, that it was difficult to compose it only through a natural view of the eye, as we are used to do when we render towns and landscape in free-hand drawing, as the eye beholds them, given that the higher objects do not allow us to see the lower ones. So it happens that if you are on top of a mountain, you cannot draw all the plains and valleys and the mountain’s roots. . . . As it happened to me when I wanted to portray Florence, to draw this very view, to see how the army was camped at that time in Pian di Giullari, in the mountains all around, and in Giramonte, I began to draw it from the highest point I could reach, and even on top of a house, to discover not only the nearest spots, but also S. Giorgio, S. Miniato, S. Gaggio, and Monte Oliveto. And Excellency, you know that, even though I was so high, still I could not embrace the whole of Florence, because the Gallo and the Giramonte mountains obstructed the view of S. Miniato and S. Niccolo’s wall gates, and the Rubaconte bridge and many other urban sights, as they were located at the foot of the mountains. To make my drawing sharper and inclusive of everything that was in that terrain, I let myself be helped by craft where nature was lacking: I fixed the compass on the roof of that house and I took a sighting in a straight line to the north because from here I started.

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36 Fanelli, 77, explains the graph in Fig. 15 and I paraphrase: Upper part: The table of the map is XY. P. V. A, B, C, D, E: locations of the most important landmarks. If one assumes the axis passing through the cupola as the vertical axis of the view, one can determine the 60° visual cone, whose side limit lines pass through significant landmarks (the Pitti Palace and the Faenza wall gate). In the table topographical points A, B, C, D, E are projected into A’, B’, C’, D’, E’. We can see that if A’ and B’ coincide with the correspondent landmarks A” and B” in the map with the chain, and D’ and E’ turn out to be rather close to D” and E”. However, C’ would be completely out of the table XY. The author of the map, by bringing back C’ to C”, strongly contracted the quarter beyond the Arno River, which is much closer to the observer PV and tends to escape the visual cone. Lower part: Diagram of the location of the most important landmarks in the map with the chain (B) and in the real view (A). The double line segment corresponds to the width of the visual cone from the Monte Oliveto vantage point. The more evident discordances are to be found in the group numbers 4, 5, 6, 12, 13, 14 and in the group 19, 20. The segment 21–23 has been strongly contracted.
drawing mountains, houses, and places near at hand, and I pointed it to the top of those places one after the other to obtain a wider view. It helped me a lot that as I made the plan in a radius of one mile around Florence, and I put it [the plan] together with the view of the houses along the line pointing north, I reduced more than twenty miles of terrain into six braccia of measured plan. When that was done, it was easy to portray the distant places in the mountains of Fiesole beyond the town. . . .

Direct observation from a superior viewpoint, enlarged by the use of instruments, while the eye retains the role of

Vasari-Milanese, vii, 173–175. "Or guardi Vostra Eccellenza questo quadro, nel quale è ritratta Firenze dalla banda de’ monti al naturale, e misurata di maniera che poco diverrà dal vero . . . ma ha da saper che nude agevolmente si poteva far questa storia per visti da veduta naturale, e nel modo che si sogliono ordinariamente disegnare le città e i paesi, che si ritraggono a occhiate del naturale, attesoché tutte le cose alte tolgo la vista a quelle che sono più basse; quindi avviene che, se voi siete in su la sommità d’un monte, non potete disegnare tutti i piani, le calchi e le radici di quello; perché la scoscesa della montagna, benché spesso topogia le altezze di tutte quelle parti che sono in fondo occupate dalle maggiori altsezze, come avviene a me ora, che voli, per far questa appunto, ritrarre Firenze in questa maniera, che per veder l'esercito come s'accampò allora in piani di Guazzari, sui monti, ed intorno a monti, ed a Giramonte, mi posa a disegnarlai nel più alto luogo potéi, ed anch'io in sul tetto di una casa per scoprire, oltre le luoghi vicini, ancora quelli di S. Giorgio, e di S. Miniato, e di S. Gaggio, e di Monte Oliveto. Ma Vostra Eccellenza sapienza, ancorché io fussi sì alto, io non poteva vedere tutta Firenze perché il monte del Gallo e del Giramonte mi toglievan il veder la pora S. Miniato e quella di S. Niccolò ed il ponte di Ricasonte, e molti altri luoghi della città, tanto sono sotto i monti. Dove per fare il mio disegno venisse più appunto, e comprendesse tutto quello che era in quel paese, temsi questo modo per aiutare con l'arte dove ancora mi mancava la natura; presi la bussola e le fermi sul tetto della quella casa, e traggendi con una linea per il dritto a tramontana, che di quivi aveva cominciato a disegnare, i monti e le case, e i luoghi più vicini, e la facevo battere di mano in mano nella sommità di quante luoghi per la maggior veduta; e mi aiutò assai che avendo levato la pianta d’inverno a Firenze un miglio, accompagnandola con la veduta delle case per quella linea di tramontana, ho ridotto quel che viene visti miglia di paesi in sei braccia di luogo misurato . . . fatto questo, mi fu poi facile di là dalla città ritrarre i luoghi lontani dei monti di Fiesole, dell’Eccellato e, così la spettanza di Settignano, col piano di S. Salvi, e finalmente tutto il piano di Prato, con la costiera dei monti fino a Pistoia."

arbiter of the whole composition: this formula is very close to the one hypothesized for the map with the chain. For a whole century Florence became the main subject and the main place where all the possibilities rooted in observation of widening the perspective representation system were explored in order to represent a town. Iconographic inertia led to repetition of the same approach, and at least two other views of the period portrayed Florence from the hills, reflecting it as if seen in different distorting mirrors (Fig. 17). The first picture of Florence in a new representational system dates from 1584, very late in this history. The importance of choosing a specific superior viewpoint to penetrate the heart of a town had been stressed earlier, in 1537, in a very different context. The Englishman Richard Benes wrote:

The name of a Surveyor is a frenche name and is as much to say in Englyshe, as an overseer. Than it wolde be knowen howe a surveyor shulde oversee or survey a towne or a lordshyp. As if the cite of London shulde be surveyed, the surveyor maye not stande at Hygate, nor at Shoters hylle, nor yet at the Blackecketh, nor suche other places, and overlooke the cite on every syde. For if he do, he shall not see the goodly stretes, the fayre buildings,

37 The assumption that it is up to the eye, especially the eye of a painter, to interpret, to synthesize, even to correct instrumental data was widespread and long-lived in Italian culture. Michelangelo’s words: “You need to have compasses in your eyes and not in your hands, because the hand’s work and the eyes judge...” are confirmed by Vasari: “You do not need any other measurement better than the judgment of the eye...” (Vasari-Milanese, ii, 20 (see F. Negri Arnoldi, “Tecnica e scienza.” Storia dell’arte italiano. Ricerche spaziali e tecnologie, Turin, 1980, 205–206, and the whole of para. 8, “L’occhio e la mente”).

38 The reference is to a drawing by H. van Cleef of about 1560. Rome, Istituto Nazionale per la Grafica (see Mori and Boffito [as n. 34], 55) and to the engraving Florentia, ca. 1570, Florence, Biblioteca dell’Istituto di Storia di Architettura e Restauro dei Monumenti (see Fanelli, 107–109).

39 It is signed by Stefano Bonsignori and dedicated to Francesco de’ Medici; gazitting at it, the author writes, Francesco will be able to see “in only one glance” all the embellishments made by his father Cosimo (see Fanelli, 122).
nor the greate substance of rychese contained in them, for then he may be called a disceyer, and not a surveyor.\textsuperscript{41}

Although Vasari's prince declared he was satisfied with the result, the oblique view above was still limiting and not easy to practice. A main vantage point from a distance, from no matter what direction, created an unequal balance among the different parts, and consequently compressed the more internal elements. The lower buildings and the layout of the streets were swallowed up by the thick urban weave, and not every point was visible to the eye. Most of all, the formula of an oblique view could not be applied in every situation. For example, Florence is circled by a very convenient balcony of hills and the draftsman can walk up and draw, but Venice in its lagoon, in a stretch of water surrounded by small islands, lacks any high and distant observation point.

The challenge to sixteenth-century artists was to invent a completely new representational system, a way to overcome the limits of topographical conditions and permit the creation of a fully satisfactory town portrait. Although both profile and oblique views were produced at the time and appeared in the Civitates, what Braun explicitly refers to in his comments is another kind of image. Besides the two features I have already discussed, he points out a third one. The extraordinary views that appear in his book, so rich in information, are composed, according to the author, by a union between two representational modes, the geometrical and the pictorial.\textsuperscript{42}

The coupling of these two terms was bound to have a resounding echo. In 1574 Edoardus Bredin put the words “Geometrica depinxit” beside the signature in his “Vray portrait of the ville de Dijon,” an image in which the pictures of scale bar and compasses live together with buildings drawn in elevation.\textsuperscript{43}

At the end of the seventeenth century, Frederick de Wit, the editor of one of the last town books to follow the pattern of the Civitates, thought it right to specify in his title that it was a collection of “urbiun tam iconographiæ quam conspicut delineatarum.”\textsuperscript{44}

Braun sees the two modes as basically separated, and therefore the world of linear perspective, which aims to apply the rules of geometry to pictorial vision, is out of his range. His reference is, once more, to Ptolemy's authority and to his notion of two different cartographic languages, the mathematical and the pictorial, as typical of two different branches of representation of the world, Geography and Chorography, whose aims and purposes Ptolemy distinguished at the beginning of his Geographike Ufègesiæ.

That distinction lay at the basis of the geographical culture in the Renaissance. It was stressed and widely discussed by the editors of the Civitates and echoed in the literature on the theme as a compulsory opening keynote. For more than two centuries, Geography and Chorography were intended to stand on their own separate grounds, in opposite roles. In this attitude, they are portrayed by Claus Jansz Visscher in the cartouche painting in his seventeenth-century map of the Seventeen Provinces, two females turning their backs to each other rather mistrustfully: on the left Geography with her measuring instruments, on the right Chorography with her brushes and a roll of paper, unwound enough to show one of her products, a town view (Fig. 18).\textsuperscript{45}

The two strongest passions of sixteenth century, the love of measurement and the love of visual images, and the two distinctive languages of Geography and Chorography, offering the best of their expressive potentials, were embedded in a lifelike image of the world as seen. Starting from measure, coming to lifelikeness: a view of Norwich, “as the forme of it is,” used by William Cunningham in his The Cosmographical Glasse as a visual explanation of the meaning of Chorography, fits in perfectly as an explanation of the new representational language. In the background the town stands out in three-dimensional illusionism: in the foreground the author portrays himself at work. The key to the making of the image is not pencil and paper, but the surveying instrument called a “playne table” (Fig. 19).\textsuperscript{46} From here on I will refer to this kind of image as a perspective plan, because in my opinion this term expresses its two basic components.

\begin{footnotesize}
\begin{enumerate}
\item “In quo [the book] topographicae urbiun oppidorumque descriptiones tam geometrīca quam perspectīva pingendi ratione, cum genuina siti, locorum, moeniorum, publicorum ac privatorum aedificiorum observatione, singularis ars industria atque presidio sunt delineatae” (Civitates, 1, fol. Ev).
\item F. de Wit, Theatrum praecipuarum totius Europæi urbiun tam iconographiæ quam conspicut delineatarum, Amsterdam, n.d. [possibly 1689–95].
\item Claus Jansz Visscher, The Seventeen Provinces, Paris, Bbl. Nat. Another version of the map is kept there, the 1651 edition of the one first printed by J. Blaeu in 1608. The two figures in the cartouche differ in some details. The map was painted by Vermeer in the Art of Painting. See J. A. Weil, “Vermeer: His Cartographic Sources,” Art Bulletin, 1/10, 4, 1975, 536–540.
\item Cunningham (as in n. 10), woodcut inserted between pp. 7 and 8.
\end{enumerate}
\end{footnotesize}
During the sixteenth and the seventeenth centuries, mercantile plans continued to be produced and improved, principally for military and administrative purposes. Very few of them were engraved and in any case they were not popular. The pleasure found in diagramming the abstract essence of three-dimensional reality may have been greater, as the rich imagery of the subject shows (Figs. 20–21), but even greater was the fascination for paintings that
incorporated measurement. The anonymous author of the text in the cartouche in a view of Genoa by Anton van den Wyngaerde explains:

Among all the joys that the delightful and ingenious art of painting has to offer, there is not one that I hold in higher esteem than the representation of sites: because it [the representation] has to know not only human proportion, but also perspective, sculpture, and architecture, to survey the heights of mountains, the depressions of gorges, the depths of caves, the fertility of fields, and the waves of the rivers and the sea. So one can see in this description of the city of Genoa, and more could see, if the hands of the one who drew and engraved it had endeavored to enliven it by color.  

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27 Cuzco, from G. Braun and F. Hogenberg, Civitates orbis terrarum, IV, Cologne, 1586 (photo: Pisa, Dip. St. Arti)

47 The only impression known is in the Royal Library of Stockholm (see I. Collin, "Magnus Gabriel de la Gardie’s samling af äldre stadsver och historiska planscher I Kungl. Biblioteket," Stockholm Kungliga Bibliotekets Handlingar, XXX, 1915, 20). The text of the cartouche reads: "Fra tutti quei piaceri che la delectevole & artificiosa pittura ha in se non v'è nissuna che più lo stimi: che la descrizione di luoghi; conciossa che la non debba solamente conoscere la proporzione humana, anzi de cognoscere la perspettiva, scultura, & architettura; per saper rilevare le altezze delle monti, la depressione dell'valloni, l'embraggi di grotte, la fertilità delle campi et l'onde delle fiumate torrenti & della marina. Come si può vedere in Quella descriptione della Cità di Germa, & tanto più si viderrebbe se quella manie del autore chi la fece & stampò vi fosse adoperata, per illustrarla di colore. Perché albori si mostrarebbe il desegno tanto vivido nelle roche, pietre, boschi, grotte, monte, lumi, campi, vigne, giardini, cassine & palazzi, et si viderebbero così perfettamente il porto il molo li bollervardi che si direbbe certamente che giano non cessi questa stancia di tanta nobile città per se solo, anzi la ricercò di accomodarla a Giove, a plutone a Neptune, a Marte, a pane & a gli altri dei." It is published in Haverkamp Begemann (as in n. 92).
A singular and precocious attitude is displayed by the author of one of the first plans of Paris, dated 1533. The purpose of the mapmaker was to "draw a portrait and plan of the town by the craft of geometry and true measurement, using only a little bit of perspective representation, because the whole could not be seen, nor appear as it is." Drawing in elevation is limited and dismissed as an obstacle, not an advantage, in discovering the truth. But neither was this artist able to do completely without three-dimensional illusionism.

Two centuries later, this attitude had become definitive. An eighteenth-century plan of Bologna has the statement: "Maybe it will appear useless . . . that at this point we show a mere plan, but it has been done this way because we don't want to create confusion and give false measures, which could not be completely avoided if we superimposed the buildings that constitute the town onto streets, alleys, and squares." 49

The rationalist culture of the eighteenth century finally succeeded in removing the Ptolemaic distinction and employing only one cartography, only one language. The representational system changed. Exactitude took over from lifeliness in the expression of truth and there was a general move toward the expulsion of pictorial language from maps. 50

Until this happened, however, the perspective plan swept all before it. Rather surprisingly, I have not yet been able to find the smallest description of how to make a perspective plan in contemporary literature. During the sixteenth and seventeenth centuries, there was a boom in the production of town views which inundated the market. Large numbers of manuals gave detailed descriptions of the measuring instruments and instructions for all the technical operations, such as gauging the height of a tower, the depth of a gorge, and the angle of a rampart, involved in the making of a town view. Not one of them, however, considered the perspective plan as a whole as a subject, and although it would doubtless be interesting to investigate the reason for this, at the moment imagery remains the principal agent in achieving comprehension of its making.

The artificial view was composed on the draftsman's desk, where the pursuit of the geometrical mode took its first step, the outline of a ground plan. The pictorial mode was brought in second to complete the picture, as both the plans of Paris and Bologna seem to confirm. The two different phases of production might even be carried out by different persons, as happened in the creation of nautical charts or the first Ptolemaic maps, where the chart maker and the miniaturist, or the engraver, often worked independently of each other. 51

49 "... Mettre en portraiture et en plate forme la dit ville par art de géométrie et vraie mesure sans user de perspective que bien peu, a cause que le tout ne se fut vue ne monstre comme il faut." The original plan, called "de la Grand Gouache," was destroyed by fire in 1871 and now is known only through copies. The text was published in A. Franklin, Les Anciens Plans de Paris, notices historiques et topographiques, Paris, 1878, i, 13. It is quoted by Schulz, 437. J. Bouvier maintains that the correct reading is geometrie and not geometrie as rendered by historians, connecting it with the use of gramma, an ancient surveyor's instrument ("Cartographies urbaines dans l'Europe de la Renaissance," in Le Plan de Lyon 1548-1552. Edition critique des 25 planches originales du plan conserve aux archives de la ville de Lyon, Archives Municipales de Lyon, Lyon, 1990, 27).

50 For further discussion, see F. Farinelli, "Dallo spazio bianco allo spazio astratto: La logica cartografica," Paesaggio immagine e realtà, Milan, 1981, 199-207; Bouvier (as in n. 43); Ricci, 287; J. Pinto ("Origins and Development of the Ichnographic City Plan," Journal of the Society of Architectural Historians, xxxv, 1, 1976, 55-50) assumes that the ichnographic plan evolved during the 15th century to overcome the limitations of oblique perspective views. Flat ground plans based on measurement existed before, and had coexisted for two centuries with oblique views and perspective plans. The choice of one of them depends only on which basic notion of representing a town is dominant.

ous testing in military operations such as sieges. Measuring became a game that almost everyone was able to play, according to the instructions of a widespread literature on this subject which proliferated all over Europe.\textsuperscript{53}

The draftsman could take the plan just as it was, or foreshorten it, in an attempt to simulate a view from an intermediate angle, from thirty to sixty degrees. Thus began the game of illusion. On this basis, as on a canvas, the draftsman built up the illusion of the town, representing the image to the observer as part of the world seen. He might keep the same angle for plan and buildings, or raise the buildings directly on the zenithal, ninety-degree flat plan and draw them in perspective, as if they were seen from a lower angle. The lower the angle, the harder the task. Perspectival distortions had to be straightened out and the suture lines masked. In all cases, the draftsman constantly had to change the visual angle as needed.

When the viewer is supposed to stand almost at the zenith of the town, for example, he is permitted a very distinct view of the layout of the streets and the line of the roofs, but he cannot see the façades and the distinctive features of the main buildings. The churches, the palaces, and the surrounding areas therefore had to be drawn from an intermediate angle, and the small houses all around seem to be looking up, as though wishing to be seen by the camera. The task of raising the buildings, too, could be more or less dependent on direct observation from life. The draftsman might give a detailed portrait of several of them, or just draw the main buildings, and fill in the blank spaces of the blocks serially, with invented modules for common houses, no different from the conventions in medieval portraits of towns. This serial filling-in of the blanks of a ground plan is very clear in some cases, especially where the painter could count only on a rough drawing of a town he had not seen personally, notwithstanding Braun’s assertion.

A comparison of the image of Verona published in the \textit{Civitates} with its source, which had appeared a few years before in an Italian book, demonstrates that Hogenberg’s engraving is derived from a very clever work, but without any further observation from life (Figs. 22-24).\textsuperscript{54} The second image gives an impression of the world seen but no more information about the town than provided by the first image.

In the second book of the \textit{Civitates} we come across one of the first representations of Moscow (Fig. 25): it was very precious, because of the difficulty of obtaining it, but it was probably produced on the basis of a sketch, together with information from verbal or written accounts.\textsuperscript{55} The painter, of course, was not acquainted with the general aspect of towns and building techniques in such a distant country. He

\textsuperscript{52} Vasari-Milanesi, vi, 61-62. The story is confirmed in B. Varchi, \textit{Storia fiorentina}, Florence, 1838-41, n. 52.


\textsuperscript{54} T. Sarayna, \textit{De origine et amplitudine civitatis Veronesa}, Verona, 1540.

\textsuperscript{55} The tremendous difficulty of obtaining a map of Moscow is witnessed by the account given by Isaac Massa. See J. Keuning, "Isaac Massa, 1586-1643," \textit{Imago Mundi}, x, 1953, 67. For another, although rather rough, example of turning a mapped plan into something close to the perspective plan, see the view of Temesvitan (Mexico City) published in G. B. Ramusio, \textit{Terzo volume delle navigazioni e viaggi}, Venice, 1556, fol. 300v. It was based on the mapped sketch, enclosed with Cortés’s third letter from Mexico (H. Cortés, \textit{La prachura narrativa di Ferdinando Cortese della Nuova Hispagna}, Venice, 1524). In Ramusio’s view, most of the words disappear, and the flat façades of the buildings rise up as if seen from only one point of view, while the buildings themselves take shape.
created only one module, possibly inspired by the image of a wooden isba, and he used it in such a flat and uniform way that the whole image looks like an abstract arabesque.

Not very different are the reconstructions of Mediterranean towns that Northern artists based on their notion of building: these images display long rows of strange peaked and sloping roofs and conical hood-shaped bell towers (Fig. 26).\(^{36}\) Indeed, an entire town of the New World, El Cazco, was invented on the basis of similar conjectures. The Spanish officers’ reports described it as being divided into squares, with a large central square, but their words were misinterpreted and the town itself was represented as a square (Fig. 27).\(^{37}\)

Making a lifelike portrait using a ground plan narrowed the view to the measured area, whose boundaries were usually set by the city walls. The division between the depictions of inside and outside is prominent. The landscape or seascape outside the boundaries became an option used to fill in the field of the picture, like the cartouche decoration. It was completely entrusted to the draftsman, who could render it in a purely conventional way or descend to an even lower visual angle and ignore consistent scale, giving full evidence of all the pictorial details, such as ships, trees, or bushes. Certainly the making of such views was not as simple as it may appear in a summary explanation. At times preparatory materials were already available, at other times the work had to be started from scratch.\(^{38}\) Patience and, above all, skill in pictorial representation can throw a completely deceptive veil over the evidence of the game of illusion, which is played rather openly in small, hasty, and less accurate compositions.

Sometimes the sequence of execution, the combination of the two components, was interrupted halfway. Within the precise outline of the streets, only a few isolated buildings, usually the major monuments, were drawn in elevation on the surface of the blank blocks, as occurred in the lost plan of Paris. A quicker, more straightforward process still admitted the fully evident projection of the landmarks from a precise spatial framework. This type of approximate, openly hybrid, and selective representation remains one of the most commonly used modes of depiction in some present-day tourist maps (Fig. 28).

Given the combination of plan and elevation in sixteenth-century views, what was the fifteenth-century concept of a town upon which the development of this procedure was based? The track seems to lead back to the Florentine milieu, where two ancient prototypes representing Rome and Con-

\(^{36}\) It is the same process of drawing on the basis of known models described by E. Gombrich, *Art and Illusion*, Washington, D.C., 1959.


\(^{38}\) As for Venice, a map of the town “prout jacet, et situta est,” had just been printed before Kolb’s woodcut. See the record in Schulz, 429.
stantinople reappeared at the very beginning of the fifteenth century.\textsuperscript{39} The two images, emerging from a long darkness with respect to town representation, were immediately propagated in a host of copies and worked on as iconographical models for a group of town images made in miniatures and frescoes during the first half of the century.\textsuperscript{40} At this stage, the town is pictured as a roughly shaped outline inscribed by the city walls, and the walls themselves and some of the most distinctive buildings scattered inside are shown in elevation, without coherent spatial relationships between them, or a scale reference. The image suggests a vision from above, with sketches merely of the key points of the built framework (Fig. 29). Only one map of this group is advanced enough to associate the outline of the walls with a metric code, by including a scale bar at the bottom of the image.\textsuperscript{51}

\textsuperscript{39} It would take too long to discuss here the history of the two images, because it mingles with the legend. Their existence, however, is constantly confirmed during the Middle Ages in written documents. A map of Constantinople appears in C. Buondelmonti's \textit{Liber insularum archipelagi}, written in 1420, and it was immediately spread by a number of copies. As for Rome, four versions of the same prototype come out at almost the same time: the miniature in the manuscript \textit{Les Très Riches Heures du Duc de Berry} by the Limbourg brothers, Chantilly, Musée Condé (1411–16); the fresco by Taddeo di Bartolo in Siena, Palazzo Pubblico (1413–14); the anonymous miniature in a codex of Sallustio's work, private collection, beginning of the 15th century; the anonymous miniature in a codex of Diamando, Paris, BnF, Nat. (1447). See Frutaz, i, 123, 125–127, 129–130 and ii, pls. 148–150, 153.

\textsuperscript{40} I include in this group the images illuminated by Pietro del Massaio, cited in n. 4, together with the following images, fully described with bibliography in the references in parentheses. For Rome: Alessandro Strozzi, 1474, pen and ink, Florence, Biblioteca Medicea Laurenziana, and anonymous, after 1558, tempera on linen, Manua, Palazzo Ducale (Frutaz, i, 140–141, 151; ii, pls. 159, 167–169); for Florence: 1472, miniature in Codex Urb. lat. 491, Vatican City, Biblioteca Apostolica Vaticana; for Parma: the anonymous miniature, 2nd half of the 15th century, tempera on parchment, Parma, Archivio di Stato (F. Miani Ulibhogian, \textit{Le immagini di una città: Parma [secoli XII–XIX]}, Parma, 1983, 71); for Padua: 1465, F. Squarcione, pen and watercolor on parchment, Padua, Museo Civico (L. Puppi and M. Universo, \textit{Padova, Bari}, 1982, 82, 96).

\textsuperscript{51} It is the Albertini map of Vienna, about 1420, known from a later copy in Vienna, Historisches Museum. See also Harvey, 80.
A second step forward on the road toward the perspective plan is the attention to the features of the blank spaces, the plot of streets and squares, inside the framework of the built-up areas. There is evidence of this in two images of Constantinople illuminated in two different codices of Buondelmonti’s *Liber insularum archipeloghi* (Figs. 30–31). Each miniaturist gave his own interpretation of the prototype, and the resulting images are somewhat different from each other.

In Figure 30, a very rough and rather flat image, the miniaturist introduced a network of winding lines between the blocks to suggest the street system. In Figure 31, a more sophisticated technique is displayed. The rows of buildings are lined up along the street fronts, confirming the features of the unbuilt space. In both cases, the layout of the streets is only approximate, but what is interesting is that the idea of these two elements, the built and unbuilt areas, as basic components of the complex urban body, has been fully developed.

In the year 1500 the idea found its first artistic expression of high quality in the wonderful woodcut of Venice attributed...
to Jacopo de' Barbari (Fig. 32). The work matches Braun's description perfectly; the analysis of the town went as far as it could. The buildings and the dynamic sequence of the roads, indeed every single part of the town, are dominated equally from an impartial viewpoint, one that is completely external and superior to it. The three years taken to finish the woodcut—by how many collaborators is unknown—were required by its great size and the extraordinary result. Rather surprisingly, this view of Venice was at the same time the first finished product and the unexcelled model of a perspective plan. The emergent personality of the artist responsible for the overall composition led the illusion game on so far that its starting point in measurement was almost obscured. In this respect, the view really can be defined as a unique, unrepeatable creation, a "work of art." The representation might seem completely the result of the artist's freehand drawing in the field, if S. Marco's bell tower, located at the center of the shortened compass rose, did not stand out as the center of the measured town that underlies the vision (Fig. 33). The imaginary viewpoint is located elsewhere and outside, high above the island of S. Giorgio. De Barbari's Venice still keeps the secret of its making, though it

64 I agree with Schulz's comments and disagree with his conclusion. I believe that the most likely procedure used in the creation of the woodcut is the one he describes at p. 437 as "hybrid, constructed of heterogeneous information." No doubt de Barbari's view of Venice is the outcome of the vision of a single artist. That is why, I think, any attempt to discover a regular pattern, a system, a key to the perspective distortions is bound to fail. The method is lost with the eye of the artist, who went through the process, as Schulz suggests, of "continual revision," and introduced corrections and improvements as needed from time to time. The map is really "a studio fabrication." Certainly the artist drew separate views and possibly took further sightings from different vantage points to pinpoint the main landmarks. But this does not undervalue the indication of the foreshortened wind rose pinned on the S. Marco bell tower: it reconstructs, even if in distorted form, the radial plans drawn from a central point by a transit dial with magnetic compass, as in Portsmouth, Brit. Lib., Cotton ao Augustus i. 181, and in the Italian plans described by Pinto (as in n. 50) and GedoI (as in n. 4, 186-195). Schulz notices that "when fitting topographical details to their individual sites on the ground," the artist was forced to accept innumerable distortions. That means to me that a constant reference to the global shape of the town, even if distorted or not completely correct, guided the vision and demanded a proportion that was constant, if notmetrically exact, between the whole and the single parts. Given that the shape could not be attained by direct sighting, it had to be an abstract one, constructed by measurement.
has even passed through computer screening to ascertain its system, as have other famous and accurate perspective plans.

One of these is the view of Amsterdam, painted in 1538 and then translated into woodcut (Fig. 34).\(^{55}\) The author of both works was the skilled Amsterdam painter and engraver, Cornelis Anthonisz. This image shows its debt to Venice, and virtually acknowledges it, by putting Neptune on the right, above the clouds.\(^{65}\) However, in choosing a higher visual angle, the artist set himself an easier task than the artist of Venice.

In a recent study, this image of Amsterdam was compared with an aerial photograph taken from approximately the same viewpoint; for the purposes of the study, both images were printed at the same scale. The author concluded that consistent perspective is lacking in the woodcut, as the more important edifices are represented on a larger scale than the buildings surrounding them in order to make them more visually prominent.\(^{57}\)

But I would ask, is this a feature that detracts from the value of the piece, or is there a particular skill on the part of the artist in presenting exactly what he wishes the eye to see?

Water surrounds Amsterdam, just as it does Venice, giving way to a flat stretch of cultivated land, where perspective coordinates can easily be lost. The water in the foreground is not only a flat surface but a pictorial field, crowded with seamen, boats anchored at the docks, and sailing ships, some of which head toward the spectator, free themselves of perspective rules, and pass by in a profile view.

The lifelike appearance of the original painting, which is partly lost in the engraving, is revived in a seventeenth-century rendition by Jan Christiaen Micker (Fig. 35). The scene is plunged into broken sunlight, and the clouds that Neptune leaned on in the woodcut shift to project their shadows upon the town. Local colors are altered by different shades of light.\(^{68}\) Anthonisz had painted the map of the town, then he changed it back into topography: Micker paints it again, stressing the illusion that his image is a fragment of the world seen, caught at a particular moment of time.

The world is seen, but who is the observer? What is the cultural matrix of the vision of the earth that is offered to the eye of the spectator? The world is looked on from above,

from such an elevated angle that it can be embraced completely, but not so high as to prevent appreciation of detail. It is a vision that has similar expressions in different languages—a vista de pajaros, a volo d'uccello, a volo d'oiseau, in vogelvlucht—and is commonly connected with the "bird's eye" or the "bird's flight."\(^{69}\) The bird's-eye view was not something that one could have experienced, even by chance, in the sixteenth century, but could only dream of: an ancient dream, dating from Greek culture.\(^{70}\)

In his Geographik \textit{Ufjegesis}, Ptolemy teaches the geographer how to accomplish his task, to draw a picture of the inhabited part of the earth, the "oiokomene." Such a picture is intended to be a "schema kat analogon," an abstract shape linked with the real world through measurement analog. The geographical image skips sensorial input to use only the mathematical data collected by geographers and thus to display a superior level of knowledge. The result is a mimesis of a reality not seen. Ptolemy insists on the quality of that picture. The Chorographer, he wrote, must be a good draftsman, the Geographer, on the contrary, a good mathematician because he expresses himself in points and lines.\(^{71}\)

The geographical map is the product, the point of arrival of a scientific work, but it is also a cultural stimulus. It poses a problem to the eye. For a spectator presented with a map, the act of observation involves the memorization and subsequent recognition of a series of different shapes.

Speculation about the real shape of the \textit{oiokomene} and every part of it deeply permeated Greek culture. Strabo devotes a great deal of consideration to describing shapes by words and to finding evidence for a comparison with known objects: the British island is a triangle, Peloponnese looks like a plane leaf, and the Iberian peninsula like the skin of an ox.\(^{72}\) The eye, looking at the map, will forget the mathematical essence of the shapes and claim its own authority while trying to recover the process of knowledge from real to abstract. It will demand an actual vantage point from which to take a real view of the map's shapes. As the only possible

\(^{65}\) Seven editions of this map seem to exist, with slight differences in the address and the text, five of them already described by A. C. Knippers, \textit{Catalogue der Amsterdamsche Blauwgronden}, Amsterdam, 1954, 14–15. See F. W. H. Hollstein, \textit{Dutch & Flemish Etchings, Engravings, and Woodcuts 1450–1700}, Roosendaal, 1991. About this map, too, there is a large literature, but the most interesting discussion is in Dubiez (as in n. 27); the whole of his chapter 4 is dedicated to the plans of Amsterdam.

\(^{66}\) Venice is under the patronage of Mercury and Neptune. For Neptune, lord of the seas, this is possibly his first appearance, while Mercury, patron of commerce, that is, urban life, had already been associated with an urban view. Florence perhaps, in an engraving of the Seven Planets series (A. H. Hind, \textit{Early Italian Engravings}, London, 1938, t., pl. 125–126). This symbolic presence was used again in the anonymous woodcut of Antwerp, City Archive of Antwerp (1513), and in Norwich by W. Cunningham (see n. 30).

\(^{67}\) L. S. P. Scheller, \textit{De Dienst P. W. (VII)}, Stadsontwikkeling. Werk in Uitvoering Organisatie van de Publieke Werken Amsterdam, 1, 1951, 139–141. The existence of a ground plan, drawn by Anthonisz two years before, is also discussed by Dubiez (as in n. 27).

\(^{68}\) The painting is commented on by Russell, 40, and Alpers, 157–158.

\(^{55}\) The expression dates very late, and is by no means contemporary with the perspective plan. The first mention I have been able to find so far in Italy, "veduta dall'alto, come a volo d'uccello," is in a text concerned with Roman painting; see P. Marconi, \textit{La pitura dei Romani}, Roma, 1928, 68. The term is discussed in relation to ancient paintings in G. Wataghini Cantino, "Veduta dall'alto e scena a volo d'uccello. Schemi compositivi dell'Ellenismo alla tarda antichità," \textit{Rivista dell'Istituto Nazionale di Archeologia e Storia dell'Arte}, n.s., xvi, 1969, 30–107.

\(^{57}\) At the beginning of the 20th century, the perspective from the sky was so familiar that it was proposed as a viewpoint not only for reading the town but also for planning it. F. Marinetti, A. Mazzoni, and M. Somenzi wrote in a provocative article ("Manifesto Futurista dell'architettura aerea," \textit{Sant'Elia}, ii, 3, 1934) that ancient towns, built by men who knew nothing about the flight, look like a mountain of rubble when seen from above. The city of the future should be a continuous line of buildings, conceived to be admired during air travel.

\(^{71}\) I don't agree with Alpers on this interpretation of the Ptolemaic perspective grid, and closely approximates panoramic views by Dutch artists, because both lack a positioned viewer. Ptolemaic maps lack any viewer at all, because they are not representations of the world seen, but of the mathematical essence of the world. They do not appeal to the eye as the sense organ of knowledge. On that ground they are to be distinguished from perspective representation, which is based on a mathematical grid as well, but addresses real vision.

viewpoint is far above, where the gods live, the demand becomes a dream. This is an interesting line of rereading the myth of Dedalus, as linked with Greek geographical culture. Menippus has just come back to the earth from a sky trip, wearing the right wing of an eagle to fly and to discover the truth about the universe. Charon, forced to live in the dark, wishes to see the earth from above only once. Hermes helps him, by creating an extraordinarily high mountain as a privileged observation point. However, as soon as the two heroes succeed in seeing the earth from a distance, they are disappointed. "I can't see anything plainly from on high," Charon says. "What I wanted was not just to look at cities and mountains as in a picture, but to observe men themselves." Hermes remedies that for him, with these verses: "Lo, from your eyes I have lifted a veil that before was upon them. / So that your sight may be sure to distinguish a god from mortal." And Charon becomes more sharp-sighted than Lynceaus.

Menippus remarks that from above the earth looked very small, much smaller than the moon. "I was long uncertain where the big mountains and the great sea were, and if I had not spied the Colossus of Rhodes and the lighthouse on Pharos, I vow I shouldn't have known the earth at all. But as it was, the fact that they were high and prominent and that the ocean glinted in the sun showed me that what I saw was the earth." He is not able to distinguish anything else, on account of the height, and is downcast until the philosopher Empedocles comes along and helps him. Menippus asks him "to take the mist" from his eyes, but Empedocles remembers he is wearing an eagle's wing. Of course, Menippus says, "but what is the connection between wings and eyes?" "This," says Empedocles, "the eagle so far surpasses all the other creatures in strength of sight that he alone can look square at the sun, and the mark of the genuine royal eagle is that he can face its rays without winking an eye. . . ." It is in your power this minute to have one eye royal, for if you choose to stand up a moment, hold the vulture's wing still, and flap only the other one, you will become sharp-sighted in the right eye to match the wing." And while Empedocles gradu-

ally dissolves into smoke, Menippus sets about doing as he advised. "No sooner had I flapped the wing than a great light broke upon me and all that was formerly invisible was revealed. Bending down toward earth, I clearly saw the cities, the people, and all that they were doing. . . ." Thus the role of the eye is stressed in these Greek dream stories.

The impact on the Florentine culture of Ptolemy's rediscovered "Geographike Uegekhis was striking. It dropped into a milieu prepared to absorb its fascinating suggestions and develop its implications.

The search for a view of the earth from above started from this point. Depictions of Florence and Venice offer two basically different solutions to the problem. The first was interrupted halfway. The draftsman, climbing the hills around the town, is still looking for a profitable vantage point, for a real view from which to work. The second creates its own viewpoint.

In hundreds of sketches and accounts, Leonardo da Vinci took note of his observations about the flight of birds and he designed machines to carry out his ambitious plan. "The big bird," he wrote, "will fly up . . . and fill the universe with astonishment. . . ." As everybody knows, the big bird didn't fly up. Neither could Leonardo or anybody else of his era feel the ecstasy of taking off from the ground and gazing down at the earth from above.

Nevertheless, at the beginning of the first book of the "Citizates," before the author's introduction, two characters argue about an amazing and unusual image of the earth stretched out before their eyes. This appears in the presentation poem, written by one of Brahm's learned friends. The two characters seem to come straight out of the Greek world. The first is Thaumastes, the one who wonders, the second Panoptes, the one who is able to see everything. Thaumastes is amazed:

The thick fog that darkens human sights and obstructs the view to the eyes was wiped off and dissolved: that is why an unknown astonishment pervades all the limbs. What can I say? Or perhaps a misleading image is deceiving my eyes? No, I do see, it is amazing to say, very clearly under me all the countries all over the earth, and unknown cities and unnamed peoples lying on them; and kingdoms that are far away from ours; citadels built on hills, sumptuous towers, temples of the celestial gods, crowded city centers, houses made with marble, ornamented palaces of great kings, long paved streets and coasts, and high vaulted bridges, and ports and dockyards for decorated ships.

I do not believe I see less than Jupiter when he looks down from the vault of star-bearing heaven and focuses upon the earth underneath, watching from above, while


he is looking round for the human world and undertakes the care of everything.\textsuperscript{27}

Thaumastec recognizes the towns of countries he is familiar with, Flanders and the Netherlands, and asks Panoptes to illustrate all the others. Town after town, they go through the whole world, as they turn over all the pages of the book.

What is the truth that Braun promised to his readers, if not the mental truth of this ancient dream? And why was this kind of image immediately accepted and acknowledged as true, although only a few isolated elements could be verified by the eye, if not because it fulfilled the expectations of sixteenth-century culture?

The perspective plan offered not only a substitute for a real trip, but more important the substitute for a long-dreamed-of trip. The eye can dominate the entire reality, and not only in two dimensions, as in a geographical map; it can go through it and appreciate the slightest details; it can go on seeing in three dimensions.

In the same years other inventions marked a change in the vision of the world and in the whole system of representation. As Thomas More's Utopia claims the authority of the human intellect in creating an out-of-this-world world, a rational, planned paradise, the perspective plan claims the authority to create its own view of the gods.

Constantly, but in vain, the travellers of the sixteenth and seventeenth centuries, like Montesquieu or Charles de Brosses coming to Italy, faced hard climbs up bell towers, attempting to experience directly, as eyewitnesses, the kinds of views, the kinds of perceptions, of the towns they were accustomed to seeing in the images of the atlases.\textsuperscript{28} Even if they had succeeded in rising as high as we have in the twentieth century, they would not in any case have seen all that such an image permits, as it uses all its tricks to satisfy the eye by deception and to give body to the truth of its illusion.

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Frequently Cited Sources


\textsuperscript{27} "At quae rara mens nunc o pulcritatina rerum Subjicitur facies oculis? Miranda repente unde haec, haec unde in terris apparent imago? Ecquis portendit subita haec mutatio? Nam quae mortales hebetat visus caliginis aura Prospectamque oculis sudum quae crassa tuenti Erith, en penitus nostris abscessa recessit: Hinc mentem, cunctosque novos stupor occupat artus. Quid referam? an fallax oculos sic ludit imago? Non hercle: video, dictu mirabile, claris luminibus, nostro atque alto sub sole inacensis Subiectas terras, medisque, impositaque terris oppida & haud notas sine nomine gentes: Regnum Magnum, longarum amplissima strata viarum Littoraeque, & celsos curvato fornice pontes, Et portus, piscis navaleaque apta carinis. Nec video minua ante oculos haec cernere, caeli Jupiter astrigero quam cum sublimis ab axe Despictat, atque immutat lumina terris, Desuper aspectans, cum res hominumque labores respicit, & rerum curam cum conceptioni omneem."

\textsuperscript{28} See Nuti (as in n. 1), 3--4.