

# 36 • Cartography in the Central Italian States from 1480 to 1680

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The purpose of this chapter is to document the considerable cartographic activity that took place in a two-century period in the central Italian states. These states were bordered to the north by the Republic of Genoa, the Duchy of Milan, and the Venetian Republic, and in the south by the Kingdom of Naples. The region of Emilia comprised the Duchies of Parma and Piacenza (under Farnese rule since 1545) and Modena (which, under Este rule, also controlled Ferrara until 1598) (fig. 36.1). Other

states and duchies of central Italy included the Papal States (which after 1631 also included the Duchy of Urbino), the Grand Duchy of Tuscany, the Republic of Lucca, and other smaller political entities (the Republic of San Marino, the Principality of Piombino, and the *presidii* under Spanish control, such as Orbetello, and Talamone).

The maps produced in these regions fall broadly into three general categories based on their practical function: administering the social infrastructure of regions, borders, cities, and communication routes; recording and controlling land ownership; and managing natural resources for agriculture and industry. None of these categories is exclusive, and the functions of the maps and projects described might fall into two categories or all three. This is particularly true when discussing military uses of maps or the rhetorical functions of scholarship, politics, and religion that infuse these categories. Canals, for example, can be used for irrigating agricultural crops as well as providing transportation; the maps involved in their planning could be discussed under social infrastructure or management of agricultural resources. The structure of this chapter, therefore, follows a broader treatment by type of map: administrative general maps of single regions (the “chorographies”), special-purpose maps (those drawn to facilitate the management of hydrological projects, border disputes, woodland resources, road building, and mining interests), cadastral maps, and town maps and views. The emphasis is on manuscript maps, usually preserved in local archives. Only passing references are made to the printed map trade that developed in Florence, Rome, and Venice, a subject discussed in chapter 31.

## MAPS FOR GENERAL ADMINISTRATION (REGIONAL CHOROGRAPHIES)

Although regional mapping for general state and military purposes became well developed in the central Italian states only toward the end of our period, its roots are found in the more scholarly motives of humanistic learning in the fifteenth century. Sometime between the 1450s and the 1470s, Piero del Massaio drew *tabulae novae* (new maps) of the Tyrrhenian coast between the Magra



FIG. 36.1. REFERENCE MAP OF THE CENTRAL ITALIAN STATES.

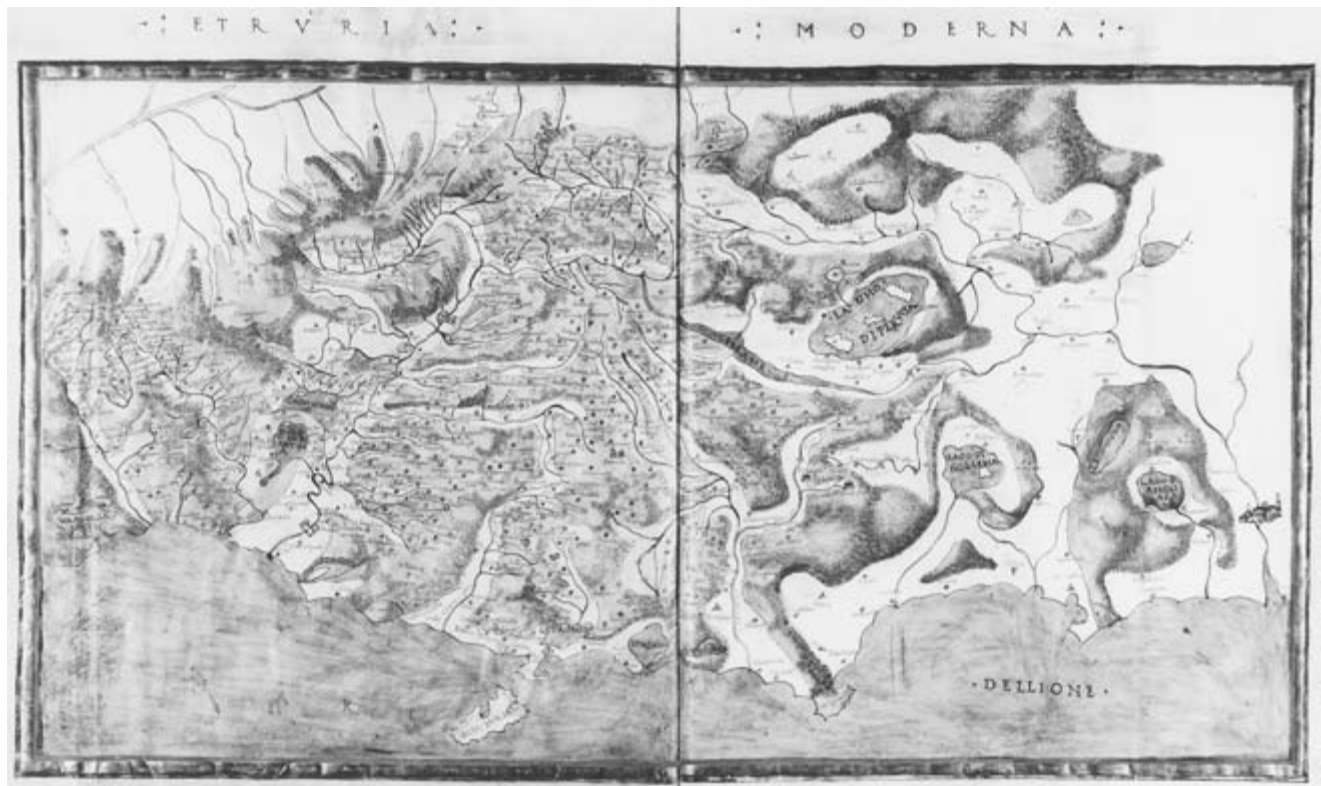


FIG. 36.2. PIERO DEL MASSAIO, “ETRVRIA MODERNA,” 1469.

Photograph © BAV (Vat. Lat. 5699, fol. 121v-122r).

and the Tiber as illustrations for Florentine codices of Ptolemy’s *Geography*.<sup>1</sup> This region, reflecting the Regio VII of Emperor Augustus’s day, comprised Tuscany and the northern part of modern-day Lazio (the idealized territory of Etruria), a total abstraction that in no way reflected the political fragmentation of central Italy at the time.<sup>2</sup> The association of Massaio’s maps with the *Geography* relates to Ptolemy’s concern that the art of chorography or regional mapping of a small part of the earth’s surface requires the skills of the painter.

Massaio’s three chorographical maps, “Tuscia novela,” “Etrvria moderna” (fig. 36.2), and “Descriptio Etruriae nova,” are drawn to an approximate scale of 1:400,000 and date from 1456, 1469, and 1472, respectively<sup>3</sup> (though there are some doubts about the dating of the first map). With only slight differences in the location of settlements and place-names, they served as map archetypes of the region until Girolamo Bell’Armato drew his map of 1536. Although the influence of nautical cartography is clear in the exaggeration of promontories and the longitudinal compression of the coastline, these chorographies were undoubtedly based partly on new observations. They reveal a rich and detailed knowledge of the mountains, watercourses, and distribution of settlements, and in them Massaio used a style of cartographic representation with consistent scale. The hydrography is very detailed,

the location of bridges precise, and the signs for places both numerous and ranked to represent three sizes of settlement.<sup>4</sup>

Massaio’s map of Etruria was directly copied by Leonardo da Vinci around 1503. Leonardo’s focus was

Abbreviations used in this chapter include: ASF for Archivio di Stato, Florence; BAV for Biblioteca Apostolica Vaticana, Vatican City; MCV for Roberto Almagià, *Monumenta cartographica Vaticana*, 4 vols. (Vatican City: Biblioteca Apostolica Vaticana, 1944–55); MIC for Roberto Almagià, *Monumenta Italiae cartographica* (Florence: Istituto Geografico Militare, 1929); and *Tusciae* for Leonardo Rombai, ed., *Imago et descriptio Tusciae: La Toscana nella geocartografia dal XV al XIX secolo* ([Tuscany]: Regione Toscana; Venice: Marsilio, 1993).

1. Mirella Levi D’Ancona, *Miniatura e miniatori a Firenze dal XIV al XVI secolo: Documenti per la storia della miniatura* (Florence: L. S. Olschki, 1962), 220–23, and Naomi Miller, “Mapping the City: Ptolemy’s *Geography* in the Renaissance,” in *Invisioning the City: Six Studies in Urban Cartography*, ed. David Buisseret (Chicago: University of Chicago Press, 1998), 34–74.

2. Leonardo Rombai, “La nascita e lo sviluppo della cartografia a Firenze e nella Toscana Granducale,” in *Tusciae*, 82–159, esp. 144 n. 1.

3. For manuscripts of the *Geography* by Massaio, see p. 932, note 104, in this chapter.

4. Roberto Almagià, “Una carta della Toscana della metà del secolo XV,” *Rivista Geografica Italiana* 28 (1921): 9–17; Leonardo Rombai, *Alle origini della cartografia Toscana: Il sapere geografico nella Firenze del ’400* (Florence: Istituto Interfacoltà di Geografia, 1992), 39–43; and Rombai, “Cartografia a Firenze,” 88–89.

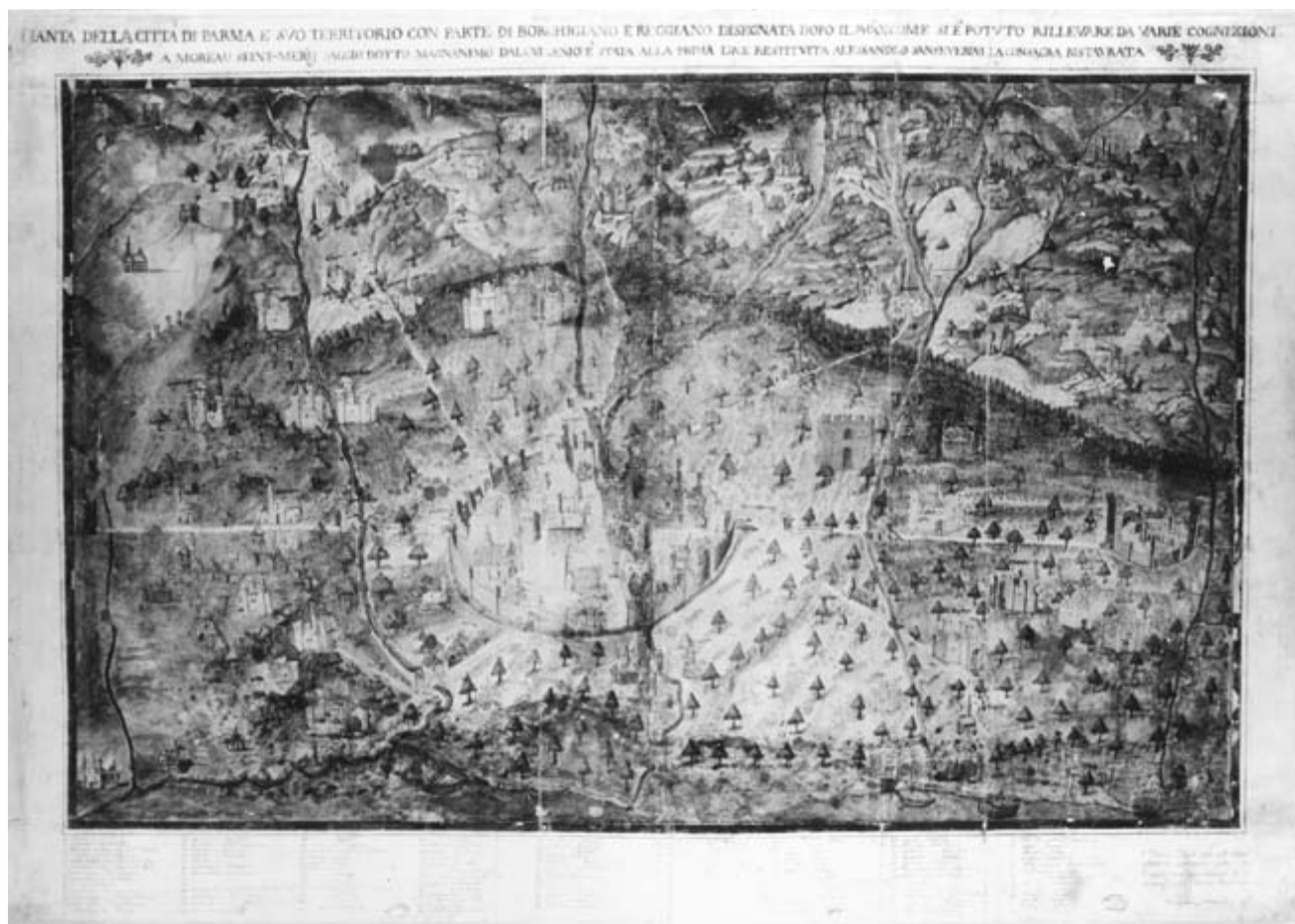


FIG. 36.3. MAP OF THE PARMA AREA. Second half of the fifteenth century, painted on parchment. Size of the original: 59 × 90 cm. Photograph courtesy of the

Archivio di Stato, Parma (Raccolta di Mappe e Disegni, vol. 2/85). Reproduced with the kind permission of the Archivio di Stato, Parma (prot. 2282, 06.01.06).

clearly on the rich network of watercourses and topographic relief, and he supplemented Massaio's map by thorough on-site inspections and the use of a compass and other surveying equipment to calculate distant elevations and the gradient of terrain, although, at the time, there was no systematic use of triangulation.<sup>5</sup> However, Leonardo's map remained in manuscript form (see fig. 36.5 below) and was unknown until the nineteenth century, so it had no immediate influence.

Massaio's maps differed from contemporary regional maps, which tended to center around an out-of-scale depiction of the city that was the dominant political power in the area. An example of the latter is a parchment map of the Parma region that dates from the second half of the fifteenth century (fig. 36.3), which is less regular than Massaio's maps in its treatment of geometrical proportions, with Parma dominating the center. The map covers the plain between the Po, the Stirone, the Croistolo, and the Apennines. The rivers, Via Emilia, and the main settlements were clearly based on new observations.<sup>6</sup>

Apart from some view-based representations of a few small areas of Tuscany that figured largely in late fourteenth- and fifteenth-century paintings,<sup>7</sup> it appears that no other maps on either a regional or a topographical scale were produced in the central Italian states until the sixteenth century.

5. Mario Baratta, *Leonardo da Vinci e la cartografia* (Voghera: Officina d'Arti Grafiche, 1912).

6. *MIC*, 9.

7. See, for example, the painted maps from the first half of the fifteenth century in the Capitoli or Libri delle Sentenze of the Republic of Lucca, now in Lucca, Archivio di Stato (Capitoli, 9; Offizio sopra i Paduli di Sesto, 59; and Deputazione sopra il Nuovo Ozzeri, 3). They cover the area of the marshland lake of Bientina or Sesto and the surrounding zones bordering on Florentine territory toward the Arno. For further description, see Margherita Azzari, "La nascita e lo sviluppo della cartografia Lucchese," in *Tusciae*, 160–93, esp. 161–67. Another example is the map of the area around Volterra bordering on Campiglia Marittima giving the site of the numerous alum mines and borax basins in the area in the 1470s (Volterra, Archivio Comunale, Atti del Cancelliere, D nera IV, 1); see Margherita Azzari, "Vedutismo pittorico e car-

Several sixteenth-century printed maps of regions in the central Italian states were of such originality and importance that for a long time they served as models for later maps.<sup>8</sup> At the same time, these maps served as instruments of geopolitical policy, marking the advent of official cartography. Providing the regional governments of the day with ever more detailed knowledge of the territory over which they aimed to exercise military, economic, and fiscal control, these maps were seen as serving strategic, military, and administrative purposes.<sup>9</sup>

As examples, we may discuss two well-known Tuscan maps that were produced as the result of on-site topographical surveys and then served as models for all similar regional maps issued by the great map publishers of Italy and Europe from the second half of the sixteenth century and the early years of the seventeenth. The first of these is the *Chorographia Tusciae*, drawn in 1536 by the Siense military engineer Girolamo Bell'Armato and printed as a woodcut in Rome. Though it may reflect some wishful thinking in its exaggeration of the area between Magra and the Tiber in a period when the Medici were hurriedly pushing to establish a regional state, the map is the result of direct observations, notations, and measurements taken while traveling on horseback over the greater part of the area. Drawn to a scale of approximately 1:325,000, the map abounds in place-names, roads, and bridges. The size of the town symbols varies with the number of inhabitants (information useful for military billeting and conscription), and special attention is focused on fortified centers. Bell'Armato's dedication to the Medici condottiere Valerio Orsini leaves no doubt that the map was intended as a tool of military planning.<sup>10</sup>

The second example is a pair of maps of the Medici state, *Dominio Fiorentino* and *Dominio Senese*, showing the two components of the Grand Duchy of Tuscany. Drawn to a scale of about 1:500,000 by Stefano Buonsignori, cosmographer to the Grand Dukes Francesco I and Ferdinand I from 1576 to 1589, the maps were printed in 1584. Though the project did not involve on-site measurements of terrain, the works are clearly an improvement on the Bell'Armato model in their overall depiction of the region, but the density of detail is less than in their predecessor, given that they are limited to only the most important settlements and watercourses (although the location of these is generally more accurate). The higher density of information in some areas of north-western Tuscany is clearly due to the greater availability of original source material relating to these border areas of key strategic importance.<sup>11</sup>

Buonsignori painted versions of these two maps in the Sala delle Matematiche in the Galleria degli Uffizi for Grand Duke Ferdinand I (1589) as mural maps that give much more detailed information on watercourses and settlements than the originals (the paintings are twelve times

the size of the engraved versions). What is more, the larger scale used enabled some of the main forest areas along the coasts and on the slopes of the Apennines to be represented.<sup>12</sup> The role of such mural maps (which is fully discussed in chapter 32) was thus far from derivative.

Another example of a mural map that was used as a source for later maps is Egnazio Danti's *Etruria* (1580–82) in the Vatican's Galleria delle Carte Geografiche, which was drawn to a scale of 1:65,000. In some ways, this recalls Bell'Armato's map in the extent of the territory covered and in the emphasis on watercourses, particularly in the Valdichiana. But it adds numerous corrections and improvements to the depiction of settlements and the road network; other features (such as the plotting of the northern part of the coastline and the course of the Arno) seem to echo Buonsignori's work, which Danti may have seen in manuscript form. If these similarities to Buonsignori's map are not considered among the additions to Danti's murals made by Giovanni Guerra and Pietro Oldrado in the 1580s, one might explain them by saying that both the Florentine and the Perugian cartographers drew on earlier government maps.<sup>13</sup>

Bell'Armato, Buonsignori, and Danti were clearly the inspiration for the Veronese geographer and historian Leonida Pindemonte, who in 1596 dedicated to Ferdi-

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tografia locale nella Toscana del Quattrocento," in *Il mondo di Vespucci e Verrazzano: Geografia e viaggi, dalla Terrasanta all'America*, ed. Leonardo Rombai (Florence: L. S. Olschki, 1993), 93–101, esp. 98–99, and Rombai, "Cartografia a Firenze," 83–86.

8. The standard descriptions of these archetypal maps are found in Roberto Almagià, *L' "Italia" di Giovanni Antonio Magini e la cartografia dell'Italia nei secoli XVI e XVII* (Naples: F. Perrella, 1922); idem, *MIC*; idem, *MCV*, vol. 2; idem, *Documenti cartografici dello Stato Pontificio* (Vatican City: Biblioteca Apostolica Vaticana, 1960); and, more recently, Luciano Lago, ed., *Imago mundi et Italiae: La versione del mondo e la scoperta dell'Italia nella cartografia antica (secoli X–XVI)*, 2 vols. (Trieste: La Mongolfiera, 1992), and Giorgio Mangani, *Carte e cartografi delle Marche: Guida alla cartografia storica regionale (sec. XVI–XIX)* (Ancona: Il Lavoro Editoriale, 1992).

9. Rombai, "Cartografia a Firenze," 100.

10. Rombai, "Cartografia a Firenze," 91; the map is illustrated on 93.

11. Rombai, "Cartografia a Firenze," 98.

12. However, as early as 1573, the Medici functionary Orlando Malavolti drew a chorographical map of the Stato Senese that hung in a room of the Palazzo Pubblico in Siena but was lost in the nineteenth century. As far as we can tell from a seventeenth-century copy, this was largely an original work that marked a real advance on Bell'Armato's 1536 print of *Etruria* in the charting of watercourses, settlements, and road networks (ASF, Regie possessioni, scaff. C, palch. 2, carta n. 49). See Leonardo Rombai, "Una carta geografica sconosciuta dello Stato Senese: La pittura murale dipinta nel Palazzo Pubblico di Siena nel 1573 da Orlando Malavolti, secondo una copia anonima secentesca," in *I Medici e lo Stato Senese, 1555–1609: Storia e territorio*, ed. Leonardo Rombai (Rome: De Luca, 1980), 205–24.

13. Leonardo Rombai, "La formazione del cartografo nella Toscana moderna e i linguaggi della carta," in *Tusciae*, 36–81, esp. 74, and idem, "Cartografia a Firenze," 97–98 and 144 n. 6; Danti's *Etruria* is illustrated on 96.

nand I a large volume of antiquarian geography and a large chorographic map on a scale of 1:140,000. The map lay unpublished and unknown in the grand duke's library.<sup>14</sup> Compiled on the basis of practical experience and observation, the map contains rich information on place-names, ancient settlements, watercourses, and a dense network of roads, for the first time including side roads (probably drawing on the road census of Florentine Tuscany compiled in the 1580s for the Capitani di Parte Guelfa).

Other chorographical maps drawn for administrative purposes but remaining unpublished manuscripts include a large map of Elba (1575) that showed the Medici court the approximately two-mile boundary around the city of Portoferraio. This boundary was laid down by the Treaty of London in 1557, when Philip II, in his efforts to curb the ambitions of Duke Cosimo I de' Medici, granted Jacobo VI d'Appiano rights over Piombino and Elba, allowing Cosimo to keep his new city and the land for two miles around it. The map also includes numerous place-names and the main geographical features of the island, information that remained superseded until the Napoleonic geodetic surveys.<sup>15</sup>

For the state of Lucca, in 1569 the Milanese engineer Alessandro Resta drew a chorographical map as a result of disputes with Florence over the control of border territory.<sup>16</sup> Further improvements were made by the Lucca engineer Marco Antonio Botti at the beginning of the seventeenth century. Sizeable parts of the interior of Botti's map are simply left blank, suggesting that it was made specifically for the defense of Lucca's territorial borders and the main approaches to the city.<sup>17</sup>

The Duchy of Parma and Piacenza is represented by the large-scale map painted in the library hall of the Parma monastery of San Giovanni Evangelista by the Bolognese artists Antonio Paganino and Ercole Pio in 1574–75. The layout is that of a pictorial panorama, showing the course of Via Emilia and a number of settlements of exaggerated size.<sup>18</sup>

Considerable cartographic activity took place in Parma during the reign of Duke Ranuccio I (1569–1622), who drew on the services of such distinguished local engineers as Smeraldo Smeraldi and Paolo Bolzoni. Smeraldi's extant work, conserved in Parma, Archivio di Stato, includes a meticulously rendered map of Parma and many drawings of various sections of the Po, the Enza, and other watercourses, together with a map of the border area between the Duchy of Parma and Piacenza and the territory under the dominion of Cremona, drawn in 1588–89. Smeraldi's map of the entire duchy has been lost, although a copy of it was given to Giovanni Antonio Magini sometime before 1600 and formed part of the source material for his own printed chorographical map of the region.<sup>19</sup>

Paolo Bolzoni's extant works include maps and partial drawings of the course of the Po, including a map produced for the duke in 1587–88 that was intended to illustrate the Farnese's territorial claims over the area.<sup>20</sup> However, we no longer have a large general map of the Piacenza area that he had promised to Magini, which probably included a drawing of the upper part of the Val di Nure and another of the fiefdom of the Landi family.<sup>21</sup>

In the states ruled by the Este family (Modena and Ferrara), mapmaking was particularly tied to two projects: the detailed measurement and survey of the border with Bolognese territories carried out in 1579 and work on the large land reclamation projects supported by Duke Alfonso II and concluded in 1580. These projects were the context in which the duke's engineer and mathematical practitioner, Marco Antonio Pasi, produced a map of the entire duchy to a scale of 1:65,000 in 1580. Used extensively by both Danti and Magini, Pasi's map included a particularly faithful rendition of inhabited areas.<sup>22</sup>

After the state of Ferrara became part of the Papal States in 1598, its chorographical map was compiled largely due to the efforts of Giovan Battista Aleotti, a hydraulic engineer active at the turn of the century. His various maps and gradient profiles, together with the manuscript draft of the "Corografia dello stato di Ferrara" (fig. 36.4), published in Ferrara (1603), are still conserved in Ferrara. The chorography is of great value to historians because it reflects over a decade of meticulous measured surveys of the region's hydrography, its indication

14. Florence, Biblioteca Moreniana, Fondo Palagi, map 29. See Riccardo Francovich, "Una carta inedita e sconosciuta di interesse storico e archeologico: La 'Geografia della Toscana e breve compendio delle sue historie' (1596) di Leonida Pindemonte," in *Essays Presented to Myron P. Gilmore*, 2 vols., ed. Sergio Bertelli and Gloria Ramakus (Florence: La Nuova Italia, 1978), 2:167–78, and chapter 29, note 36 (p. 723).

15. Rome, Istituto Storico e di Cultura dell'Arma del Genio. See Leonardo Rombai, "La rappresentazione cartografica del Principato e territorio di Piombino (secoli XVI–XIX)," in *Il potere e la memoria: Piombino stato e città nell'età moderna*, ed. Sovrintendenza Archivistica per la Toscana, exhibition catalog (Florence: Edifir, 1995), 47–56, esp. 49–50.

16. Lucca, Archivio di Stato, Fondo Stampe, n. 464. See Luigi Pedreschi, *Una carta cinquecentesca del territorio lucchese* (Rome: Tecnica Grafica, 1954), 8, and Azzari, "Cartografia Lucchese," 175–76.

17. Lucca, Archivio di Stato, Acque e Strade, f. 749, sez. LXXXIV, c. 1. See Azzari, "Cartografia Lucchese," 176–77.

18. Antonio Boselli, "Pitture del secolo XVI rimaste ignote fino ad oggi," *Archivio Storico per le Province Parmensi* 4 (1895–1903): 159–74, and *MIC*, 40. On the paintings in the monastery, see pp. 820–22, especially figures 32.7 and 32.8.

19. Marzio Dall'Acqua, "Il principe ed il cartografo: Ranuccio I e Smeraldo Smeraldi. Pretesto per appunti sugli interessi cartografici dei Farnese nel secolo XVI," in *Cartografia e istituzioni in età moderna*, 2 vols. (Genoa: Società Ligure di Storia Patria, 1987), 1:345–66.

20. Parma, Archivio di Stato, Raccolta farnesiana, vol. XXVIII, c. 2.

21. *MIC*, 41 and 58.

22. *MIC*, 42.

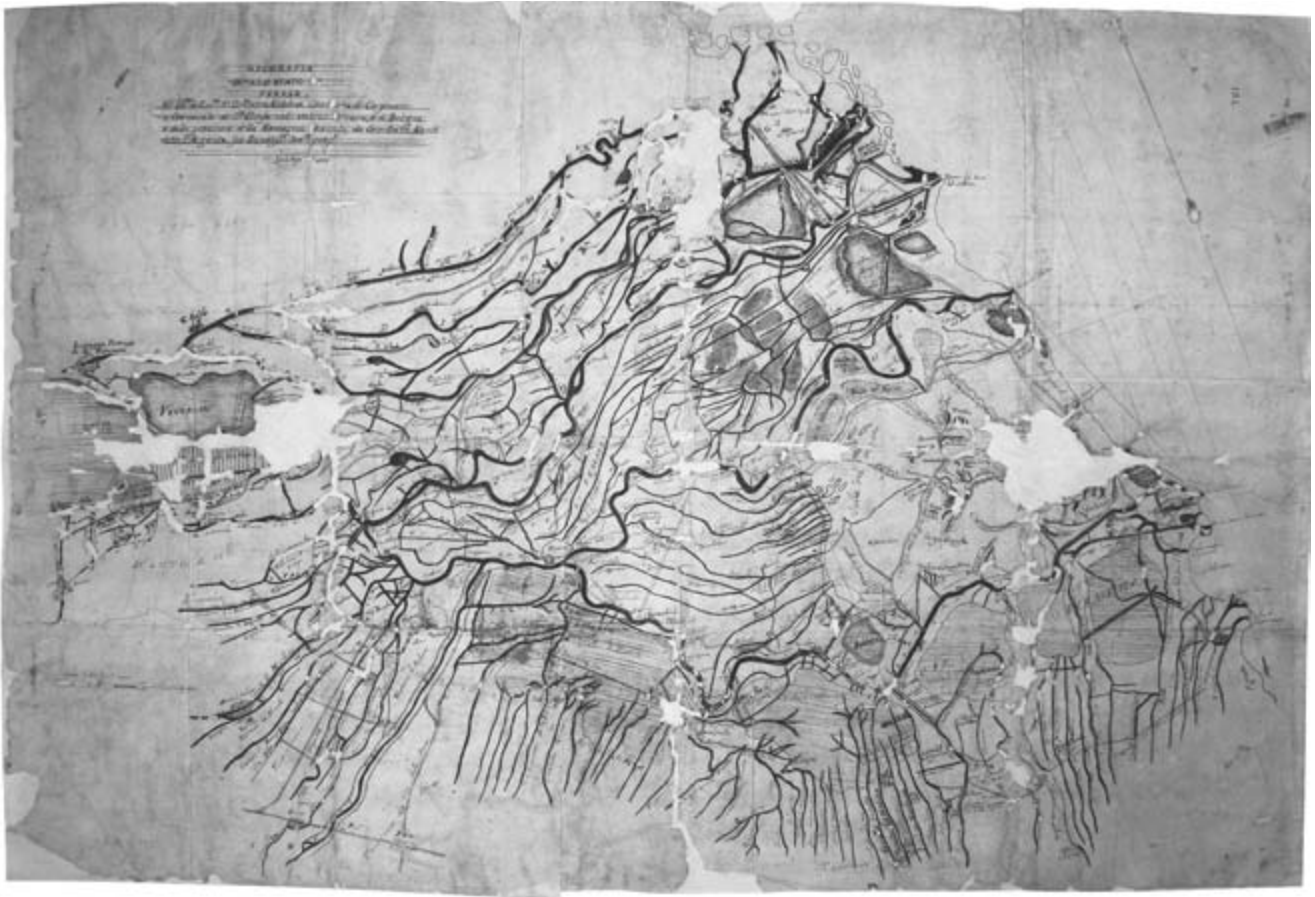


FIG. 36.4. GIOVAN BATTISTA ALEOTTI, "COROGRAFIA DELLO STATO DI FERRARA." Manuscript sketch, end of the sixteenth century. Published in Ferrara in 1603.

Photograph courtesy of the Biblioteca Comunale Ariostea, Ferrara (MS. Cl. I. 763, c. 184).

of numerous inhabited areas, and the general overview it gives of the Po Delta and the Ferrara area bordering it.<sup>23</sup>

The main chorography of the Bologna area was the large geographical painting (complete with a map of the city of Bologna) done by the Tuscan Giovanni Alberti of Sansepolcro for the Sala di Bologna of the Vatican in 1575. Commissioned by Pope Gregory XIII, this enormous work—it measured  $8.5 \times 6.75$  meters—was based on official source material supplied by Scipione Dattili (or Dattari) on behalf of the Bolognese senate. It deteriorated badly in the nineteenth century and is no longer extant.<sup>24</sup>

The key work of Renaissance cartography in the Marches is the map of the Duchy of Urbino compiled by local military engineer and mathematician Giovanni Battista Clarici between 1564 and 1574 to a scale of approximately 1:90,000. Compiled from on-site inspections, this work is not only the oldest official representation of the state's borders but also an invaluable detailed account of the region's watercourses and distribution of settlements, with the latter graded according to importance and function.<sup>25</sup> As in the case of many chorographies that we have

discussed, Clarici's map clearly had an influence on the chorographical maps drawn by Danti and Magini.

More or less contemporary with Clarici's work is another map that focuses on a smaller area of the Duchy of Urbino—the northwest region comprising the upper valleys of the Foglia and the Meltauro—which gives a number of rivers and about a hundred settlements (from towns to religious houses).<sup>26</sup> One should also mention the early seventeenth-century perspective map of the state of Urbino by the otherwise unknown Marco Ferrante Ger-

23. MIC, 42; Almagià, *Documenti cartografici*, 29–30 and pl. I; and Maria Gioia Tavoni, ed., *L'uomo e le acque in Romagna: Alcuni aspetti del sistema idrografico del '700*, exhibition catalog (Bologna: CLUEB, 1981), 13.

24. MCV, 3:31.

25. Angela Codazzi, "G. B. Clarici e la sua carta del Ducato d'Urbino," in *Atti dello XI Congresso Geografico Italiano*, 4 vols. (Naples, 1930), 2:280–88, and Almagià, *Documenti cartografici*, 12–13 and pls. XV–XVI.

26. Francesco Bonasera, "Due carte manoscritte delle Marche settentrionali," *Rivista Geografica Italiana* 89 (1982): 133–35.

lassa, which carefully records borders with the Della Rovere principality.<sup>27</sup>

In 1577, Egnazio Danti produced one of the most analytical and precise of all sixteenth-century chorographical maps, the “Descrittione del territorio di Pervgia, Avgvsta,” for the government of his native Perugia. After twenty-eight days of careful surveying and measuring in the summer of that year, he produced a detailed map of the city “fifteen feet in size, with the hills shaded in and then watercolored and all the main streets colored white and all the divisions between the different districts shown by red lines, etc.” It hung in the main hall of the Palazzo del Governatore in Perugia but has since been lost. However, Mario Cartaro published a print of it in Rome in 1580—a work that Danti himself referred to when preparing his Vatican murals soon afterward.<sup>28</sup>

For the Lazio region, there were no chorographic-scale administrative maps before Danti’s mural maps of Lazio in the Vatican, the *Patrimonium S. Petri* and the *Latium et Sabina*. They were entirely redone during the 1630–37 work supervised by Lucas Holstein, with the quality and quantity of the information contained in them noticeably improved.<sup>29</sup> The previously published map of the Roman Campagna, drawn to a scale of approximately 1:41,000 and known as *Il paese di Roma* (Venice, 1547), by the Florentine Eufrosino della Volpaia, had a rather more specialized function.<sup>30</sup> It was intended for use not by the central political power of the state but by the landed nobility and bourgeois who liked to hunt in the coastal areas of Lazio. The map appears to have been the result of detailed on-site inspections and partial measurements, which allowed Volpaia to give a detailed picture of the landscape and man-made features of the territory. It pays particular attention to towers, inns, farmhouses and other rural buildings, ancient ruins, springs, roads, and wild woodland areas, which are clearly distinguished from cultivated land. It covers an area that runs from Arrone and Ariccia to well past Rome and is further enhanced by bucolic scenes of rural life involving hunters, fishermen, peasants, shepherds, and travelers.<sup>31</sup> For a long time this was the unchallenged model for the image of the region. It was used by the Slav bishop Ivan Tomko Mrnavić in his large 1629 geographical painting of the Roman Campagna for the salon of the Villa Sacchetti in Castelfusano (later Villa Chigi). That work covers an even more extended area, reaching as far north as Maccarese, as far south as Farfa, and then inland as far as the mountains. It is enriched with a number of firsthand observations and material derived from sources other than Volpaia.<sup>32</sup>

Holstein and the Narni typographer Jacopo Oddi were responsible for two manuscript maps, one of Lazio and the surrounding regions (lost in the nineteenth century) and one of the Patrimonio di San Petri. The latter was based on fourteen months of on-site surveying and mea-

surements and was drawn sometime between 1628 and 1636–37. Commissioned by Cardinal Francesco Barberini of the Sacred College, it is certainly more detailed than the painting of the same area, above all in its mapping of watercourses and settlements.<sup>33</sup> The latter are mapped so extensively that even ancient ruins are given, identified by the letter *d* (for *diruto*, “in ruins”), so the map is a valuable source for the archaeologist and for the study of the settlement history of the region.

## SPECIAL-PURPOSE MAPS

The chorographical maps already described contain general information for use in the administration of a region, but often the reasons for which a map was drawn were more specific. To use an early example, the legend on a mid-fifteenth-century map of the lower course of the River Esino informs us that the map was drawn to settle a border dispute between Ancona and Jesi over territory in the Chiaravalle area.<sup>34</sup>

Special-purpose mapmaking was by far the most significant and prolific branch of sixteenth- and seventeenth-century cartography in the various states considered in this chapter, particularly in those Tuscan and Po Valley states that established a bureaucracy to administer technical issues. These maps were made for specific practical

27. Mangani, *Carte e cartografi*, 57, and Daniele Diotallevi, “Il caso di Marco Ferrante Gerlassa: Un’ ‘Officina’ cartografica nel Ducato di Urbino agli inizi del XVII secolo,” in *Gerardo Mercatore: Sulle tracce di geografi e viaggiatori nelle Marche*, ed. Giorgio Mangani and Feliciano Paolo (Ancona: Il Lavoro, 1996), 69–72.

28. MIC, 44–45, and Alessandro Bellucci, “L’antico rilievo topografico del territorio perugino misurato e disegnato dal p. Ignazio Danti,” *Bollettino della Società Geografica Italiana* 40 (1903): 328–44. It is in the BAV, MSS. Archivio Barberini, Confini, 27, f. 675. See Almagià, *Documenti cartografici*, 19 and pl. XXIII.

29. MIC, 61; MCV, 3:43–45; Lago, *Imago mundi et Italiae*, 2:430–35; and Lucio Gambi and Antonio Pinelli, eds., *La Galleria delle Carte Geografiche in Vatican / The Gallery of Maps in the Vatican*, 3 vols. (Modena: Franco Cosimo Panini, 1994), 2:201–383.

30. Eufrosino della Volpaia, *La campagna romana al tempo di Paolo III: Mappa della campagna romana del 1547*, intro. Thomas Ashby (Rome: Danesi, 1914).

31. Roberto Almagià, “La cartografia del Lazio nel Cinquecento,” *Rivista Geografica Italiana* 23 (1916): 25–44, and Amato Pietro Frutaz, ed., *Le carte del Lazio*, 3 vols. (Rome: Istituto di Studi Romani, 1972), 1:20–22 and vol. 2, pls. 25–30.

32. Roberto Almagià, “Le pitture geografiche nel Palazzo Chigi di Castelfusano (Roma),” *Atti del IX Congresso Geografico Italiano* (Genoa, 1925), 2:316–17; Lando Scotoni, “La Campagna Romana in una pittura geografica del 1629,” *Rivista Geografica Italiana* 78 (1971): 204–14; and Frutaz, *Le carte del Lazio*, 1:31–32.

33. There are two versions, one in the BAV, Cod. Barb. Lat. 9898, and one in the Archivio Segreto Vaticano. See MIC, 61, and MCV, 3:42–43 and pl. XIX.

34. Francesco Bonasera, “Due antiche carte manoscritte della media e bassa valle dell’Esino (Marche centrali),” *Rivista Geografica Italiana* 90 (1983): 574–77.

purposes by the various civil engineers and architects in the service of central or provincial authorities and institutions. Much more rarely, they might have been the work of private scholars or technicians. Such maps were always concerned with the management and possible modification of territorial resources. The thousands of extant examples meet very high standards of precision and reliability; even those works that follow more pictorial canons of representation were often the result of careful on-site observations and measurements.

#### MAPS OF WATER RESOURCES

The Tuscan and Papal States and the various other administrative authorities in the Po Valley produced a vast body of maps covering the plains traversed by large rivers, together with drawings and pictures focusing on individual watercourses and swamps that were the object of consolidation schemes or land reclamation. Given that political and legal boundaries often coincided with watercourses and rivers, these maps were also frequently of great significance for border disputes, and the changing position of the watercourses often had profound economic implications.

We have already introduced Leonardo da Vinci's 1503 map of Etruria (fig. 36.5), derived from the regional chorography of Piero del Massaio. The detail in the rendering of the region's rich network of watercourses is so extensive that one is led to suppose that the map was designed to show completed and future hydraulic projects.<sup>35</sup> This map and other perspective renderings of various individual areas of Tuscany, such as the map of the north-eastern part of the region showing the projected waterway from Florence to the sea via Pistoia and Valdinevole,<sup>36</sup> the map of the Tuscan coastline between Lucca and Campiglia,<sup>37</sup> and that of the Valdichiana, complete with the Lake of Trasimeno,<sup>38</sup> all provide very early examples of Italian administrative hydraulic cartography rendered in Leonardo's strikingly plastic style.<sup>39</sup>

Other maps drawn by Leonardo about the same time include the schematic map of the area of Lazio (between Acquapendente and Rome), in which the hydrographical focus is clear from the fact that the watercourses and marshlands are shown in much greater detail than human settlements;<sup>40</sup> the map of the upper course of the Arno (between the streams of Mensola and Africo) and the map of the lower course of the river (between the Mugnone stream and the Cascine di Firenze);<sup>41</sup> and the map showing the area where Leonardo was born (between Montalbano and the Arno), complete with the torrents of Lecceto and San Lorenzo indicating the project for an artificial reservoir.<sup>42</sup> All these works were drawn around 1502–3 and were related to projects for the management of river and water resources.<sup>43</sup>

Between 1513 and 1516, Leonardo drew a map of the coastal area around Circeo and the Pontine marshes for Giuliano de' Medici in order to outline a vast land reclamation project for the region. Though the depiction of the coastline is rather schematic, the map gives an accurate picture of the various lakes, rivers, man-made watercourses, and projected canals, together with the mountain terrain that encloses the plain to the north, northeast, and east; the dense woodlands of the plain areas; the course of Via Appia; and the main settlements and some isolated villages on the coast, all depicted with Leonardo's usual elegant draftsmanship.<sup>44</sup>

The output of maps dealing with water management issues in Tuscany during the sixteenth century was immense. One of the most striking dates from the 1550s and covers the lower Valdarno from Pontedera to the sea (fig. 36.6). Drawn to a scale of 1:50,000, the map gives a finely detailed picture of the unimproved network of watercourses that would soon be revolutionized by the

35. A very similar sketch is in Milan, Biblioteca Ambrosiana, Cod. Atlantico, f. 910r. See Mario Baratta, "La carta della Toscana di Leonardo da Vinci," *Memorie Geografiche* 5 (1911): 3–78, esp. 54; idem, *Leonardo da Vinci*, 23; Rombai, *Cartografia Toscana*, 36; and idem, "Cartografia a Firenze," 90–91.

36. Windsor, Royal Library, 12685r. See Mario Baratta, ed., *I disegni geografici di Leonardo da Vinci conservati nel Castello di Windsor* (Rome: Libreria dello Stato, 1941), 38 and pl. 4.

37. Windsor, Royal Library, 12683; see Baratta, *I disegni geografici*, 44 and pl. 15. Two other 1503 maps outlining the project for the shipping canal—one relating to the territory between Florence and Le Cerbaie, the other to the westernmost area of Pisan territory—can be found in Madrid, Biblioteca Nacional, MS. II-8936, ff. 22v–23r and 52v–53r.

38. Windsor, Royal Library, 12278r; see Baratta, *I disegni geografici*, 41–42 and pl. 12. The same codex contains the map of Arezzo and the northern part of Valdichiana that gives distances between one center and another (Windsor, Royal Library, 12682; p. 42 and pl. 13). A map of one part of the Valdichiana (the area of Castiglion Fiorentino), again complete with road distances, is in Milan, Biblioteca Ambrosiana, Cod. Atlantico, f. 918r.

39. Baratta, *Leonardo da Vinci*, 17.

40. This map does not appear to be an autograph but was drawn by one of Leonardo's followers. It was probably connected with his 1513–16 stay in Rome; incisive pen strokes indicate the Via Cassia itinerary taken by the artist-scientist. Now in Milan, Biblioteca Ambrosiana, Cod. Atlantico, f. 336 R.b. See MIC, 20 and pl. XXI, and Frutaz, *Le carte del Lazio*, 1:15–16 and vol. 2, pl. 21.

41. Windsor, Royal Library, 12679 and 12678; see Baratta, *I disegni geografici*, 40 (pl. 8) and 39 (pl. 7), respectively. The same codex contains a schematic 1515 map of Florence outlining a project for straightening the course of the Arno in the stretch beyond the city (Windsor, Royal Library, 12681; p. 45 and pl. 17).

42. Milan, Biblioteca Ambrosiana, Cod. Atlantico, f. 952r.

43. A 1504 map outlining a plan for draining the marsh of Piombino by means of a large, almost circular, canal and a whole network of minor canals is in Paris, Bibliothèque de l'Institut de France, MS. L, fols. 77–84. See Rombai, "La rappresentazione cartografica," 47.

44. Windsor, Royal Library, 12684. See MIC, 21, and Baratta, *I disegni geografici*, 44 and pl. 16.





FIG. 36.5. LEONARDO DA VINCI, ETRURIA, CA. 1503. This depiction shows the region from the Apennines to the Tiber.

Size of the original: ca. 31.7 × 44.7 cm. Photograph courtesy of the Royal Collection © 2006, Her Majesty Queen Elizabeth II. Royal Library, Windsor (RL 12277).

work on the Arno and other rivers commissioned by Cosimo I.<sup>45</sup>

From the second half of the sixteenth century, we have a number of examples: the map signed by Giovanni Antonio Spezza outlining the hydraulic project to protect the “washhouses” of the grand duke’s estate at Alberese from flooding by the river Ombrone; a map of the Cinque Terre area of the lower Valdarno, complete with the results of the land reclamation and allotment carried out under the Medici and Albrizzi; and the maps of the swamp lake of Bientina and the upper Valdinievole showing projects for the rebedding of various watercourses.<sup>46</sup>

Examples from the seventeenth century include the works of the architect Gherardo Mechini of the Valdichiana focusing attention on the extensive marshland, the ever greater areas of reclaimed land, and the farmhouses built by the grand duke and other private estate owners.<sup>47</sup> In 1622, Francesco Fantoni illustrated a project for channeling water from the swamp lake of Castiglione with a fine perspective map of the Valley della Bruna in the Gros-

seto area that clearly distinguishes between the hills with their ancient fortified settlements and the deserted marshland plain. Another example from this period was the 1634 map of the plain between Anghiari and Sansepolcro in Valberina showing the area as flooded by the Tiber, with extensive damage to the road system.<sup>48</sup>

The complex network of watercourses in the Emilia-Romagna and Bologna areas created a need for both ad hoc and long-term consolidation of the river system. The schemes illustrated by the maps involved the control or redirection of the river Po and its rather unpredictable tributaries, as well as the drainage of the marshlands scat-

45. Rombai, “Cartografia a Firenze,” 100.

46. ASF, Miscellanea di piante, n. 5, n. 204/a, n. 204/b, and n. 470/c.

47. ASF, Miscellanea di piante, n. 498; Prague, Statni Ustredni Archiv, Toskansckych Habsburku, 261/a; and ASF, Miscellanea di piante, n. 752, respectively.

48. ASF, Pianta dei capitani di parte guelfa, cartone XIV, c. 36. See Carlo Vivoli, *Il disegno della Valtiberina: Mostra di cartografia storica (secoli XVI–XIX)* (Rimini: Bruno Ghigi, 1992), 72–73 and pl. XIV.

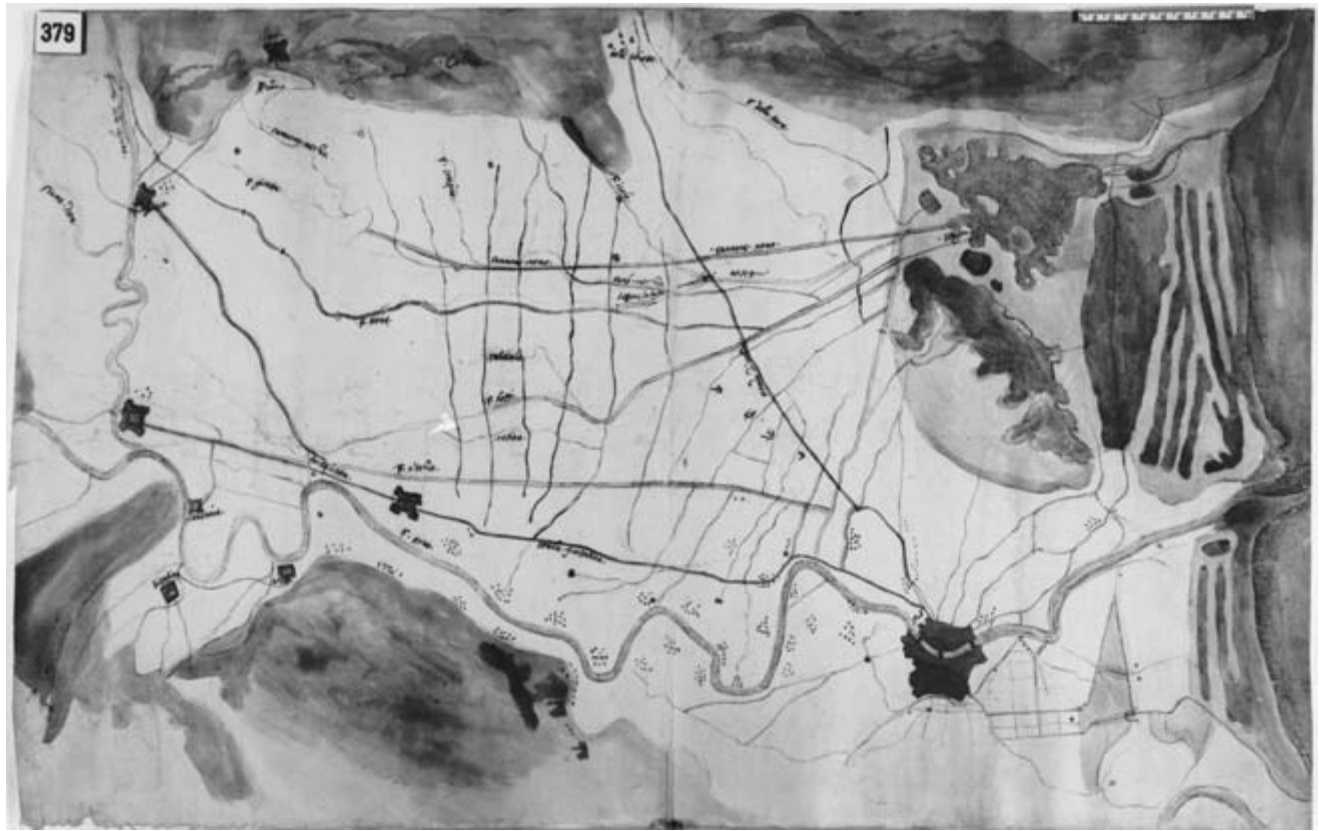


FIG. 36.6. MAP OF THE LOWER VALDARNO FROM PONTEDERA TO THE SEA, CA. 1550s. Drawn to a scale of 1:50,000; south is at the top.

Size of the original: ca. 46.9 × 74 cm. ASF (Miscellanea di piante, n. 379). By concession of the Ministero per i Beni e le Attività Culturali.

tered across the plain. This work required updating existing maps and undertaking new measurements and surveys to monitor the dynamic interaction between land and water resources. In Reggio Emilia, maps dealt primarily with questions relating to the embankment and control of the river Secchia and the reclamation of the lower plain areas or with matters relating to border disputes with Parma and Mantua.<sup>49</sup>

The example of the states of Parma and Piacenza is also significant, given their strategic position in relation to the existing road network. The states' northern borders coincided with the Po, the resources of which had to be shared with their neighbors. The river was not only an important waterway but also an importance source of fish and of water power for mills. The problems raised by the changes in the course of the Po (due to burst banks, flooding, and silting) made continual adjustment of boundaries necessary, which naturally gave rise to complicated disputes. Matters were made even worse by the continuing survival in the state of the feudal rights of certain ecclesiastical bodies and noblemen, who were continually involved in jurisdictional disputes with the state or municipal authorities.<sup>50</sup>

Of particular interest are two perspective drawings of sections of the Po and its surrounding territory by the Far-

nese court's engineer Smeraldo Smeraldi, the greatest expert on hydraulic and territorial science in the duchy, who set up a school for land surveyors, cartographers, and engineers that worked in close collaboration with the court. The first, dating from 1589, covers the stretch of the Po from Castelnuovo Bocca d'Adda to Cremona (fig. 36.7). The result of four hundred days of on-site surveying, it provided an effective instrument for monitoring river embankments, river channels and canals, land reclamation of low-lying marshland, and the excavation of shipping canals. The map provides very detailed information on watercourses, road networks, settlements, agricultural land, woods, unfarmed areas, and the great landed estates. The second map (1588–90) covered the stretch of the Po from Brescello to Castelnuovo Bocca d'Adda. It is similar in content, but gives more attention to decoration and reflects greater care in the perspective rendition of the

49. Gino Badini, "La documentazione cartografica territoriale reggiana anteriore al 1786," in *Cartografia e istituzioni in età moderna*, 2 vols. (Genoa: Società Ligure di Storia Patria, 1987), 2:825–32, esp. 827–29.

50. Franca Miani Uluhogian, ed., *Oltre i confini: Strategie di genti e di poteri* (Parma: PPS Editrice, 1996), 12–13.

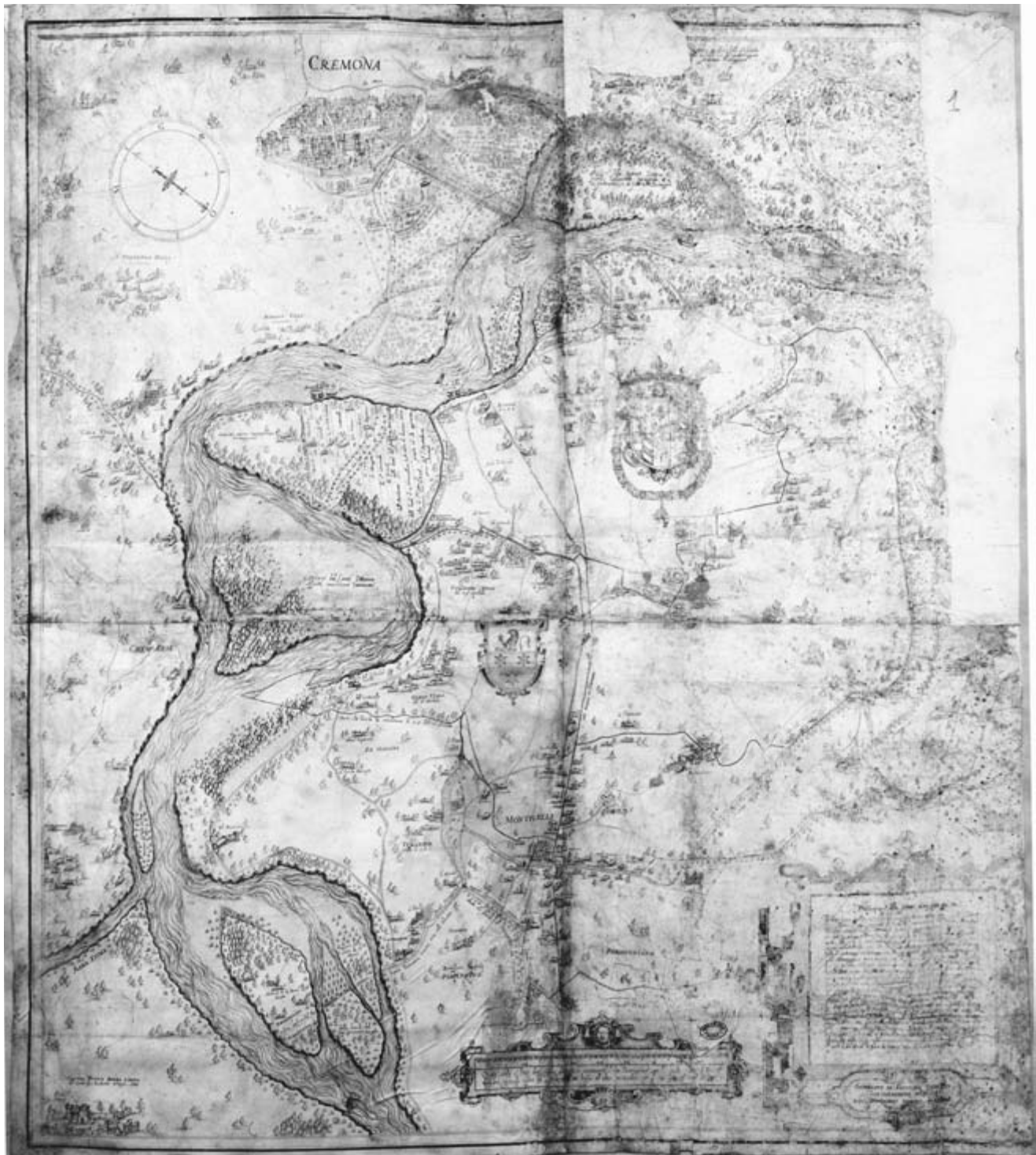


FIG. 36.7. SMERALDO SMERALDI, MAP OF THE PO, 1589. The Po River and surrounding territories between Castelnuovo Bocca d'Adda and Cremona. Photograph courtesy of the Archivio di Stato, Parma (Ufficio

dei Confini, Mappe e Disegni, vol. 31/1). Reproduced with the kind permission of the Archivio di Stato, Parma (prot. 2282, 06.01.06).

various settlements, each depicted with the coat of arms of the ruling family.<sup>51</sup>

Smeraldi was also responsible for two hydrographic maps of the border area between the Farnese territory and Modena, the other main duchy in the Po Valley. A 1612 map has a predominantly territorial focus, showing the course of the Enza, the areas fronting it between Mamiano and Coenzo, and the contested line that arose despite a boundary agreement in 1588. The information on the map is accompanied by a detailed account of the use of watercourses for transport and irrigation, together with a depiction of the efforts to defend the land against river incursions, showing dried riverbeds, meadows, roads, bridges, and settlements (down to individual farmhouses, mills, inns, and ruined castles, each indicating ownership).<sup>52</sup> A less comprehensive 1625 map focuses on the course of the lower Enza from Coenzo to Brescello, where it flows into the Po. The map shows islands and areas of fluvial deposits (some shown as wooded, others as cultivated, with ordered lines of trees), ports, riverside towns, and villages.<sup>53</sup>

During the course of the seventeenth century, a more technical and geometric cartographic language was established, providing for less expressive ways of depicting the landscape than in the combination planimetric and perspective maps produced by Smeraldi and his assistants. As an example, one might cite the precise but detached 1669 map of the course of the Po between Sacca and Mezzano Rondani drawn by the industrious engineer Giovanni Battista Barattieri in the second half of the century. Here, attention is focused exclusively on hydrological matters. The information is given in the sparsest form without concession to visual aesthetics or interest in rendering other features of the landscape.<sup>54</sup>

The Papal States also had to attend to the question of the hydrological imbalance in the marshlands and *valli* (marsh ponds and inland lagoon areas) in their Adriatic and Tyrrhenian territories, given that there was a constant danger of flooding.<sup>55</sup> Two maps relating to land reclamation and river consolidation are particularly outstanding. The “Disegno delle valli di Comacchio” (fig. 36.8) was drawn by the Ferrara hydraulic engineer Bartolomeo Gnoli sometime between 1630 and 1650 as an illustration for his “Topografia della città e provincia di Ferrara.” For a long time, it was the most accurate and detailed rendition of this complex area, a dense mix of marshlands, embankments, fields, woods, coastal dunes, roads, and settlements.<sup>56</sup> The second map is an early seventeenth-century map of the Pontine marshes from the coast to the Lepini Hills, complete with numerous settlements and the dense and complicated system of watercourses as they were during the 1580 visit by Pope Sixtus V.<sup>57</sup>

Only a very small proportion of these private or government-sponsored maps were published, either in travel guides or in ponderous treatises and memoranda

relating to hydraulic engineering. Instances include the map of the Pontine marshlands drawn by state-employed technicians in 1678 and that of the plain of Pisa drawn in 1680–85 by Giuliano Ciaccheri and Vincenzo Viviani. Both maps were intended to illustrate projects for land reclamation and the consolidation of watercourses carried out by Dutch hydraulic engineer Cornelis Meyer (Mejer, Meijer) and published in his 1685 *L'arte di restituire a Roma la tralasciata navigazione del suo Tevere*.<sup>58</sup> Other published maps included the *Carta corographica della Valdinievole* (ca. 1675), by the grand duke's field officer Benedetto Guerrini and the engineer Giuliano Ciaccheri, and the *Pianta del Padule di Fucecchio* (1679), by Captain Giuseppe Santini. Both were published by the natural scientist Giovanni Targioni-Tozzetti in his 1761 treatise on the unhealthy nature of the air in the Valdinievole.<sup>59</sup>

#### MAPS OF BORDERS

Much of the mapping of river courses was related to border disputes. But other boundary issues, particularly those in the mountainous areas of the Apennines, also frequently arose between states as well as issues with internal lines of jurisdiction between private estates. During the course of the sixteenth century, all the main states—first Tuscany and Lucca, then Parma and Modena—set up special offices to deal with such matters, the Magistrature dei Confini. Boundary experts and surveyors made frequent on-site visits, not only to recognize formally the actual lines of jurisdiction but also to describe and draw them, surveying and measuring the surrounding terrain as accurately as possible. The presence of woods, paths, and even roads did not help to fix precise borders because pillars, milestones, or other boundary markers could be moved or eliminated altogether, thus giving rise to disputes and conflict.<sup>60</sup>

Boundary cartography was most prevalent in the states of the Po Valley (from the Este Duchy of Modena and

51. Miani Uluhogian, *Oltre i confini*, 14–15.

52. Miani Uluhogian, *Oltre i confini*, 182 (no. 174).

53. Miani Uluhogian, *Oltre i confini*, 188 (no. 187).

54. Miani Uluhogian, *Oltre i confini*, 130 (no. 69).

55. MIC, 63. The resulting maps are now in the Vatican Archives; Rome, Archivio di Stato; the BAV; and Ferrara, Biblioteca Comunale Ariostea.

56. Almagià, *Documenti cartografici*, 32 and pl. LIII (lower).

57. Rome, Archivio di Stato, P. 16. See MIC, 62.

58. Frutaz, *Le carte del Lazio*, 1:69–70 and vol. 2, pl. 159, and Rossella Valentini, “Lo spazio extramoenia e la cartografia tematica,” and Pietro Crini, “La cartografia tra pubblico e privato,” both in *Tusciae*, 244–303, esp. 273, and 360–87, esp. 366.

59. Giovanni Targioni-Tozzetti, *Ragionamento . . . sopra le cause, e sopra i remedi dell'insalubrità d'aria della Valdinievole*, 2 vols. (Florence: Stamperia Imperiale, 1761).

60. Miani Uluhogian, *Oltre i confini*, 19.



FIG. 36.8. BARTOLOMEO GNOLI, "DISEGNO DELLE VALLI DI COMACCHIO," 1630–50.

Photograph courtesy of the Biblioteca Comunale Ariostea, Ferrara.

Reggio to the Duchy of Parma and Piacenza) and in the Tuscan states of Florence and Lucca. The main focus of border maps was the disputes over the Apennine borders of the Este family in Emilia Romagna with the Republic of Genoa and the Grand Duchy of Tuscany. This was the case in the Borgotaresse area, where the imperial fiefdom of the Landi family straddled the Apennines from Val di Taro to Lunigiana, giving rise to a territorial dispute with the grand duke of Tuscany that went on from the end of the sixteenth century to the second half of the seventeenth. Among all the various maps intended to illustrate the problem, one stands out: a perspective picture drawn by Ottavio Farnese toward the middle of the sixteenth century and printed about a century later. This map aimed to provide a clear outline of the problem, indicating all the most important peaks, together with the different watercourses, settlements, and lines of jurisdiction cited by the different parties to the dispute.<sup>61</sup>

Another key area was Garfagnana, the boundary territory of which was divided between the Este state of Ferrara (subsequently Modena), Lucca, and Florence. It provides a perfect example of how continual border disputes were reflected in cartography, as one can see by studying the extant works in the archives of Modena, Lucca, Genoa, and Florence. The state governments were unfail-

ingly attentive to the conflicts between neighboring communities over the ownership of such resources as woodlands and pastures.

Outstanding among these pictorial/landscape renditions are a number of general maps drawn for the Este court. Some, such as the anonymous works of the late sixteenth and early seventeenth century, use a pictorial style to render settlements, while the maps drawn by the engineer Francesco Porta in 1588 and by Sigismondo Bertacchi in 1613 are drawn in a more precise engineering style and include such territorial features as woodlands.<sup>62</sup> Among the maps drawn for the Florentines, we might mention the perspective plan of the area of Galliciano and Barga, complete with the disputed Monte di Gragno, over which ran the boundary line between the territory of Lucca and Florence (fig. 36.9). This plan was sent to Duke Cosimo I by the commissario of Barga, Francesco Zati, in 1539.

61. Parma, Archivio di Stato, Raccolta di mappe e disegni, vol. 8, n.1, and see Dall'Acqua, "Il principe ed il cartografo," 350–52.

62. Giordano Bertuzzi and Riccardo Vaccari, "Fonti cartografiche relative ai territori estensi d'Oltreappennino, in particolare la Garfagnana, conservate presso l'Archivio di Stato di Modena," in *La Garfagnana: Storia, cultura, arte*, ed. Giordano Bertuzzi (Modena: Aedes Muratoriana, 1993), 307–60, esp. 309 and 313.



FIG. 36.9. FRANCESCO ZATI, PERSPECTIVE VIEW OF THE AREA OF GALLIGNANO AND BARGA. A map showing the Monte di Gragno border that was the object of a dis-

pute between Lucca and Florence, 1539. ASF (Archivio de Confini, vol. 80, cas. V, cap. 16, n. 4). By concession of the Ministero per i Beni e le Attività Culturali.

From at least the 1530s, several maps began to appear that were produced in Lucca and covered the coastal area through which ran part of the state's boundaries with Florentine territory and the Duchy of Massa and Carrara. The most exceptional of these is a work showing the whole plain of Camaiore from the hills to the sea, complete with roads, watercourses, settlements (including isolated buildings), and the disputed boundary lines enclosing the territory of Pietrasanta.

For the Apennine borders between the Republic of Genoa and the Grand Duchy of Tuscany, the maps are much sketchier due to the obvious difficulties in surveying such mountainous terrain. Examples are the sixteenth- and seventeenth-century maps relating to the age-old territorial dispute between Borgo Val di Taro and Pontremoli in Lunigiana (which were under the jurisdiction of Parma and Tuscany, respectively). One anonymous seventeenth-century map covers the area between the rivers Magra and Taro, showing the two settlements and rendering the spatial distribution of roads, inhabited areas, and watercourses.<sup>63</sup>

The border cartography for Florence or the later Grand Duchy of Tuscany comprises thousands of maps drawn from the second half the sixteenth century onward. Most are pictorial, which enables them to achieve striking three-dimensional effects but somewhat hinders their planimetric accuracy. An illustration of this is the schematic view of the territory around the fortified castle of Badia Tedalda, the very center of which is occupied by an exaggerated depiction of the castle.<sup>64</sup> This can be compared to the 1643 map of the Lunigiana area, in which only the mountains are shown pictorially, while the rest of the information—settlements, roads, watercourses, divisions between different feudal fiefdoms—is shown planimetrically; other examples include the equally precise topographical map of the Marquisate of Fosdinovo and Gragnola (1650) and the perspective drawing of the border territory between Aulla and Terrarossa (1647), which carefully plots the mountain stream of the Taverone, complete with mills, fields, and woodlands.<sup>65</sup>

The various state Magistrature dei Confini could draw on the services of highly skilled technicians who were, at one and the same time, land surveyors and topographical cartographers. As examples of these talented individuals one might mention Gabriello Ughi (who drew the 1622 perspective map of the territory of Apuano and Versilia to illustrate a dispute between Florence, Lucca, and Massa) and Cosimo I's personal engineer, Giovan Francesco Cantagallina, who in 1616 drew numerous masterful pictorial renditions of the border area verging on the Principality of Piombino. His map of the Maremma coastal area of Pian d'Alma and Punt'Ala uses an oblique view to illustrate in detail the area's watercourses, settlements, and morphology (fig. 36.10).<sup>66</sup>

Border disputes between communities in the same state were illustrated by an enormous number of maps. An example is the centuries-old dispute between Todi and Baschi, illustrated by various maps from the end of the sixteenth century onward.<sup>67</sup> Another such internal dispute was that between the Tuscan communities of Montemignaio and Battifolle in Casentino, illustrated in 1600 by *capomastro* (master builder) Michele Ciochi in a map that clearly highlights the contested area.<sup>68</sup>

#### MAPS OF FRONTIERS

Fewer maps were designed to facilitate the exercise of military, customs, or health control over land and sea frontiers by providing the relevant information on coastlines, ports, fortifications, and watchtowers. An example is a late-sixteenth-century perspective view of the Gulf of Piombino-Follonica that focuses with particular care on all the fortified structures, especially those along the coast, and the various iron foundries with their related water and woodland resources, found in the border area between the Grand Duchy of Tuscany and the Principality of Piombino.<sup>69</sup> Another example is a 1604 map of the Spanish enclave of Longone on the island of Elba. Drawn by an unnamed Spanish architect in the suite of Don Pedro di Mendoza, this indicates the fortress (still under construction) and focuses attention on the points of strategic importance: not only does it show the main fortification and the two smaller structures at the extreme points of the bay; it gives a detailed rendering of the orography of the area, indicating land points for the location of artillery and zones in which it was possible for ships to dock.<sup>70</sup>

63. Parma, Archivio di Stato, Ufficio dei confini, 46/13. See Miani Uluhogian, *Oltre i confini*, 169–70 (no. 148).

64. ASF, Corporazioni religiose soppresse dal governo francese, f. 78, c. 435. See Vivoli, *Il disegno della Valtiberina*, 54–55 and pls. VIII and IX.

65. ASF, Piante antiche dei confini, 72; Genoa, Archivio di Stato, B.6.285; and ASF, Piante antiche dei confini, 81. See Nicola Gallo, *Cartografia storica e territorio della Lunigiana centro orientale* (Sarzana: Lunaria, 1993), 58–59, 100–101, and 206–7.

66. Various copies in ASF including, in addition to figure 36.10, Archivio vecchio dei confini, casella III, maps n. 38, c. 14. See Rombai, "La formazione," 54 and 80 n. 24.

67. For example, Todi, Archivio Storico Comunale, Disegni e piante, n. 178; Giovanna Giubbini and Luigi Londei, *Ut bene regantur: La visita di mons. Innocenzo Malvasia alle comunità dell'Umbria (1587)* (Perugia: Volumnia Editrice, 1994), 185–87.

68. ASF, Piante dei capitani di parte guelfa, cartone XV, c. 8; Rombai, "La rappresentazione cartografica," 52–53.

69. ASF, Piante di ponti e strade, n. 68.

70. ASF, Miscellanea Medicea, f. 105, c. 12. See Leonardo Rombai and Gabriele Ciampi, eds., *Cartografia storica dei Presidiosi in Maremma (secoli XVI–XVIII)* (Siena: Consorzio Universitario della Toscana Meridionale, 1979), 274–75.

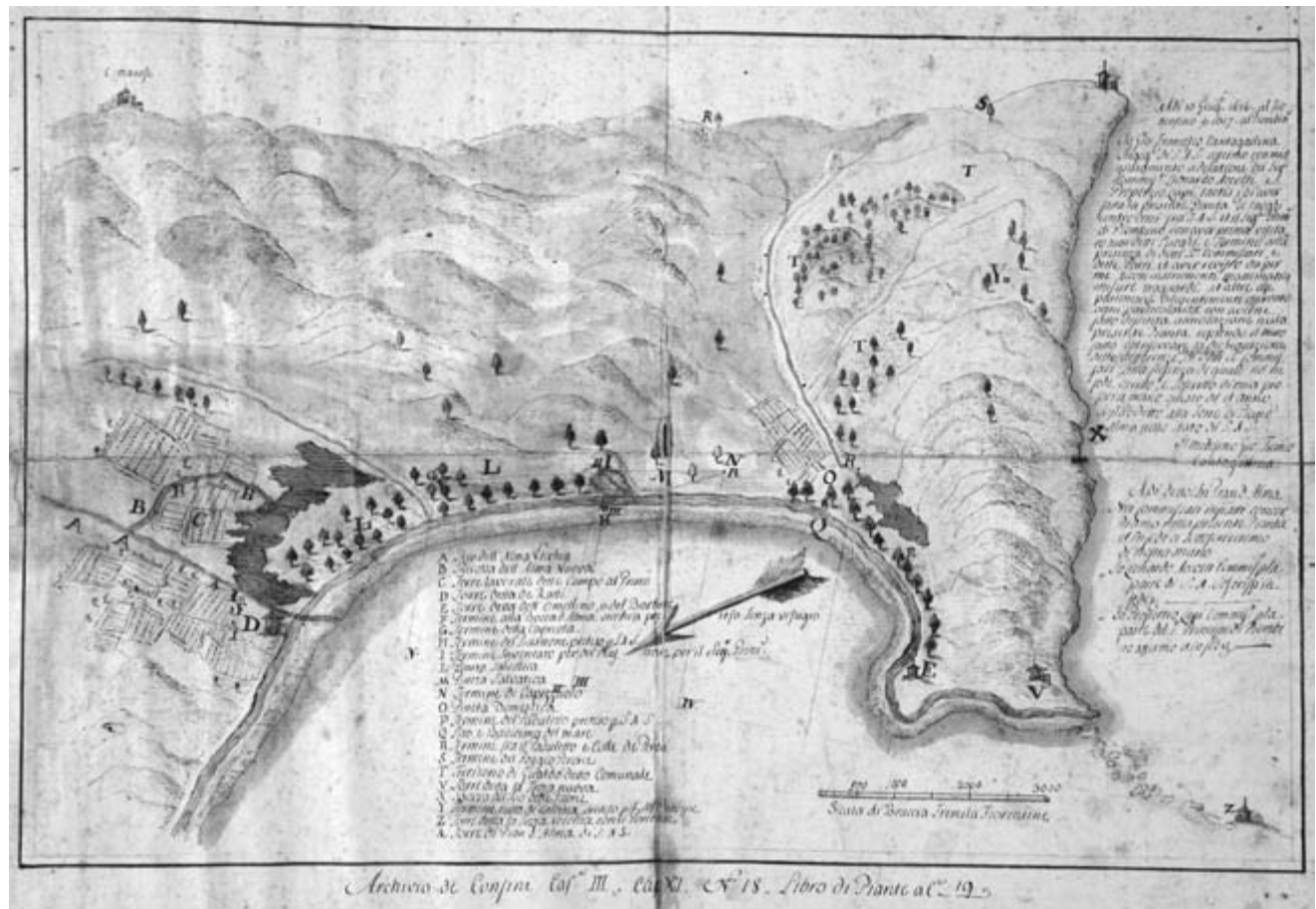


FIG. 36.10. GIOVAN FRANCESCO CANTAGALLINA, PERSPECTIVE MAP, 1616. The map shows the Maremma area of Pian d'Alma and Punt'Ala, with the border between the grand

duchy and the Principality of Piombino. ASF (Archivio de Confini, casella III, cap. XI, n. 18). By concession of the Ministero per i Beni e le Attività Culturali.

Examples from the Papal States of this period are the 1624 map of the Spiaggia Romana and the 1631 map of the coast from Ancona to Sinigallia. The former occupies three sheets depicting the Lazio coast from Ansedonia to Gaeta, listing all the numerous ports and watchtowers and indicating the distances between the various features.<sup>71</sup> The latter is a perspective rendering that was originally a decorative panel over a wood architrave in the Ancona monastery of San Domenico; it gives a view of the Ancona coast and of the various ports of the Marches.<sup>72</sup>

#### DIOCESE MAPS AND MAPS SHOWING RELIGIOUS PROPERTIES

Other specialized forms of maps included those focusing on monastery estates and other church-owned areas. As far as we know, the most complete collection of this second group of maps in the central states is that of the various vicariates constituting the Diocese of Piacenza. Entitled "Atlante della Diogesi di Piacenza," this collection

was produced in 1620 by the Farnese engineer Alessandro Bolzoni, the brother of the more famous Paolo, and contains some twelve maps of vicariates (complete with demographic information relating to the year 1618), a summary map of all the vicariates, and an alphabetical index of place-names. The maps are furnished with a square grid, in which each square corresponds to one square mile, to make it easier to locate places. Numerous settlements are located by name, generally with great accuracy, reflecting on-site surveying and firsthand knowledge of the area.<sup>73</sup> Another Po Valley diocese, Reggio

71. BAV, Cod. Barb. Lat. 9898, n. 10. See Frutaz, *Le carte del Lazio*, 1:44–45 and vol. 2, pls. 57–59.

72. Ancona, Museo Nazionale. See Olinto Marinelli, "Primi materiali per la storia della cartografia marchigiana," *Rivista Geografica Italiana* 7 (1900): 353–70, esp. 357–58.

73. It also includes the "Pianta dell'antichissima et nobilissima città di Piacenza et con tutte le sue chiese e strade"; Piacenza, Biblioteca Comunale, MS. 60, and also Naples, Biblioteca Nazionale. See *MIC*, 58–59.



Emilia, is the subject of a map drawn on the occasion of the pastoral visit by Bishop Marliani in 1683.<sup>74</sup>

Also falling within this genre is the so-called “Atlante dei Cappuccini,” compiled in 1632 by the Franciscan monk Silvestro da Panicale and an unnamed assistant for the vicar general of the order, Father Girolamo da Narni.<sup>75</sup> The atlas comprises forty-nine plates of the order’s “provinces” in Italy. Although each map aims to convey geographical information relating to hills, rivers, bridges, and cities, especially if the seat of a Capuchin monastery, the main focus is clearly on the charmingly rendered figures of people and famous personages, of animals such as lions and wolves, and of hunters, peasants, and itinerant friars. The “Atlante” also includes general maps of France, Spain, Germany, and Italy, apparently inspired by Abraham Ortelius’s *Theatrum orbis terrarum* and other printed maps. The coverage of the Italian provinces includes maps of Bologna, the Marches, Tuscany, Umbria, and Lazio, also based on printed sources. Nevertheless, the atlas does make an original contribution through its delineation of the boundaries between the various religious provinces (plate 31).<sup>76</sup>

Silvestro da Panicale’s compilation triggered a whole series of printed maps produced by Capuchin friars, especially after the new vicar general, Giovanni da Moncalieri, arrived in 1643. Moncalieri realized the great practical utility of Silvestro’s atlas and appointed three monks—Bernard of Bordeaux, Maximinus of Guchen (who had almost certainly had a hand in Silvestro’s atlas), and Ludovico of Montereale—to produce a new atlas of forty-five plates based on Silvestro’s manuscript. It was published in Rome in 1643 under the title *Chorographica descriptio*.<sup>77</sup>

#### MAPS OF ROADS AND CANALS

The state authorities showed great interest in mapping communication networks. Though the focus was mainly on the road systems, waterways were not ignored, as we can see from the sixteenth-century map of the Bientina basin showing the Serezza and Altopascio shipping canals, and another map of the Arno from Caprona to Pisa showing the Ripafatta shipping canal.<sup>78</sup> Similar interest was also shown in plotting such related infrastructures and sites of services as bridges, fountains, inns, hostleries, post houses, customs houses, and ports. It may come as some surprise that, given the number of navigable waterways, especially in the Po valley, the only precise map to deal with them was Camillo Sacenti’s map of the entire course of the river Reno. Printed in 1682, this was drawn in relation to the creation of an important shipping canal.<sup>79</sup>

As far as we know, the largest and most important collection of special-purpose road maps at this time, in Italy or elsewhere, was the “Piante dei popoli e strade dei Capitani di Parte Guelfa.” Compiled in the 1580s by nu-

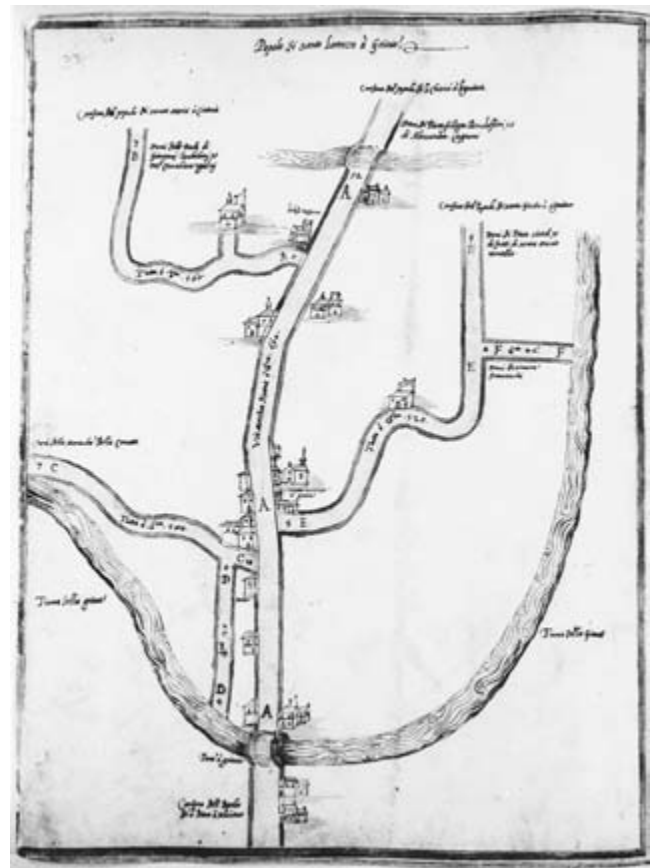


FIG. 36.11. GHERARDO MECHINI, “POPOLO DI SANTO LORENZO À GRIEVE” (FLORENCE). From the “Piante dei popoli e strade,” 1580–86.

ASF (Piante dei Capitani di Parte Guelfa, t. 121-1). By concession of the Ministero per i Beni e le Attività Culturali.

merous technicians working for the Florentine authorities under the supervision of the architect Gherardo Mechini, these maps are the oldest examples of a completely integrated road map with the well-defined aim of documenting the public road system with a view to its modernization (fig. 36.11). The finished work covered around five hundred *popoli* (a *popolo* was a basic administrative unit; when several were joined together, they formed the provincial entity of the *plebato*). Each was mapped planimetrically after lengthy on-site observations and some

74. Badini, “La documentazione,” 828.

75. Rome, Museo Franceseano, inv. n. 1288, annexed to Rome, Archivio dell’Istituto Storico dei Cappuccini. For a facsimile of the atlas, see Silvestro da Panicale, *Atlante Cappuccino: Opera inedita di Silvestro da Panicale*, 1632, ed. Servus Gieben (Rome: Istituto Storico dei Cappuccini, 1990).

76. A. Melelli, “L’Atlante Cappuccino: Notazioni storico-geocartografiche,” in *Silvestro Pepi da Panicale e il suo Atlante*, ed. Anselmo Mattioli (Perugia: Biblioteca Oasis, 1993), 181–209.

77. See Mattioli, *Silvestro Pepi*, 14.

78. ASF, Miscellanea di piante, n. 470/c and n. 43.

79. Almagià, *Documenti cartografici*, 28 and pl. XLVII.



FIG. 36.12. MAP OF THE VIA FLAMINIA, 1659–61.

Photograph courtesy of the Archivio di Stato, Rome (Presidenza delle Strade, Catasto Alessandrino, 433/IV).

new land surveying. Of varying orientation and scale, the maps cover not only roads and bridges over watercourses but also the administrative division of districts, complete with pictorial representations of various settlements. This careful and complete account of the road system depicts not only all the main centers, but also a number of isolated religious buildings, villas and estates of the nobility, peasant houses, mills and workshops, hostleries, and other businesses that served the road traffic.<sup>80</sup>

The maps of the major roads fanning out from Rome, compiled between 1632 and 1662 by Domenico Parasacchi, Francesco and Domenico Contini, Tommaso Zanoli, Domenico Legendre, and various other experts and technicians, also form a sizeable corpus. Complete with valuable information on the road network, these maps give a fair amount of topographical information, particularly with regard to settlements and watercourses. They trace the course of nearly all the major roads that started from the capital: the Via Latina (from Rome to Ceprano), the Via Appia (from Rome to Frattocchie), the Via Salaria (from Rome to Passo di Corese), the Via Nomentana (from Rome to Monterotondo), the Via Prenestina (from Rome to Ponte di Nona), and the other roads leading to Civitavecchia, Paludi Pontine, Fara, Sabina, Viterbo, and Maccarese, respectively.<sup>81</sup>

Other road maps had more of an antiquarian function. Between 1628 and 1636–37, the archaeologist Lucas Holstein compiled maps of the ancient Roman roads in Lazio for Cardinal Barberini. Limited to the road network alone, these maps included representations of the Via Cassia from Rome to Veio, the Via Salaria and Via Nomentana from Rome to Fosso al Corese, the Via Prenestina from Rome to Ponte di Nona, part of the Via Latina and the Via Appia from Rome to the border with Naples, and the Via Flaminia from Narni to Foligno.<sup>82</sup>

A particularly interesting anonymous map of the entire length of the Via Flaminia, from Rome to Grotta d'Orlando (Narni), was compiled in 1659–61 for the *maestri di strade* Domenico Jacovacci and Giacinto del Bufalo (fig. 36.12). In order to cover the branching roads along this famous consular route, the unknown mapmaker included about five kilometers on either side of it, accu-

80. ASF, Piante dei capitani di parte guelfa, t. 121/I–II. See Giuseppe Pansini, ed., *Piante di popoli e strade: Capitani di parte guelfa, 1580–1595*, 2 vols. (Florence: Olschki, 1989), and Valentini, “Lo spazio extramoenia,” 260.

81. BAV, Cod. Barb. Lat. 9898, and in Rome, Archivio di Stato, Presidenza delle strade, Catasto Alessandrino. See Frutaz, *Le carte del Lazio*, 55–63 and vol. 2, pls. 78–153.

82. BAV, Cod. Barb. Lat. 9898. See MIC, 61.

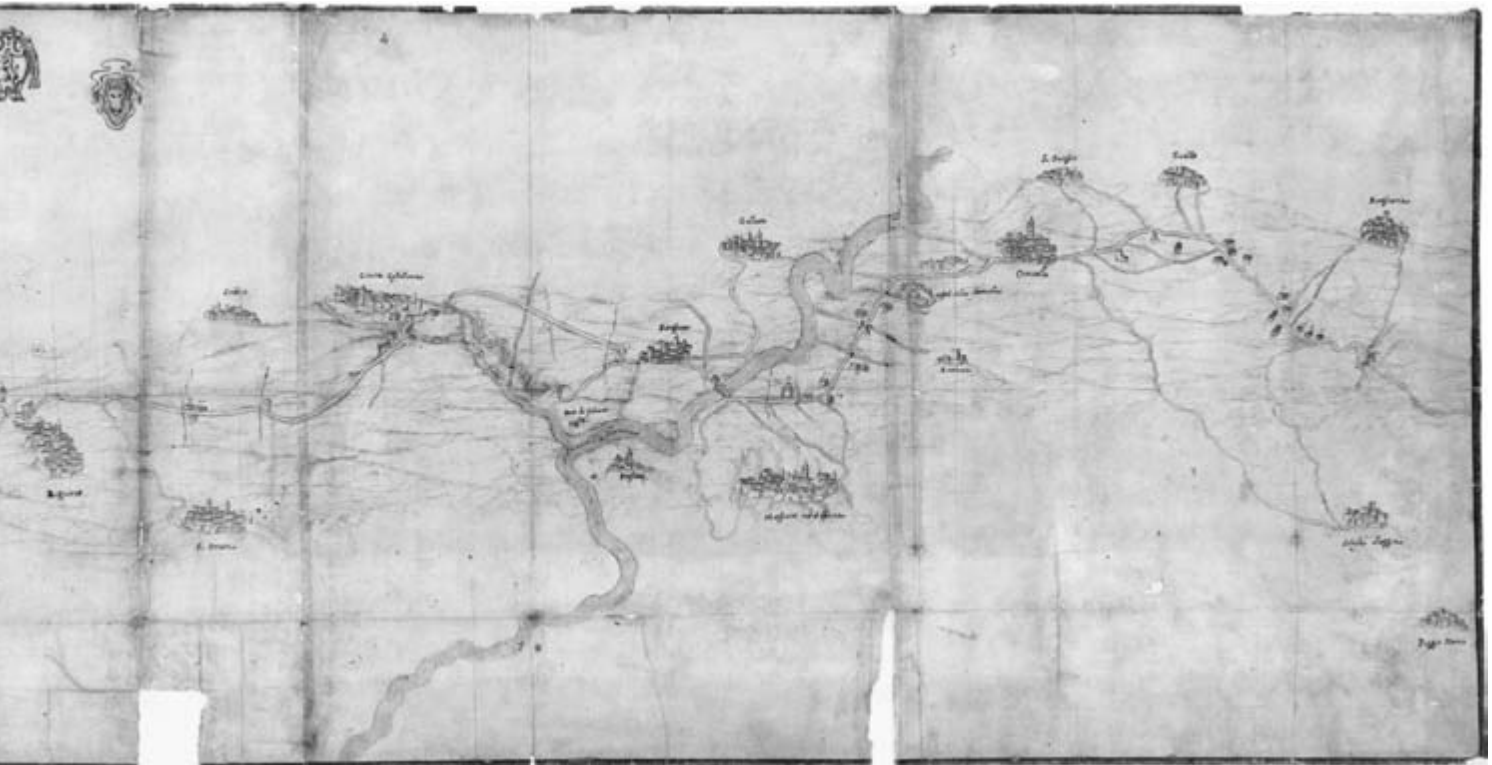


FIG. 36.12. (continued)

rately plotting watercourses and even the most isolated settlements, as well as paying some attention to the rendition of mountain terrain and local vegetation.<sup>83</sup>

#### AGRARIAN CADASTRAL CARTOGRAPHY

Another prolific branch of cartography concerned the cadastral mapping of estates and landownership. This was important for establishing the boundaries of public terrain, ecclesiastical and aristocratic estates, and private plots of land. Landownership maps were crucial in guaranteeing rights to properties (be they residential or manufacturing, such as mills and workshops), as well as land resources (farmland, fields, woods, and pasture).

To a large extent, these maps are part of a widespread tradition of agrarian land surveying. Dating from the middle of the sixteenth century, they were constructed on the basis of a simplified form of triangulation by both rural and urban technicians. They initiated a type of cartography that lasted until the beginning of the nineteenth century when the first public land registers were compiled on the basis of more rigorous geometrical methods.

From at least as early as the 1560s, the municipal and state authorities in the Este duchy established tests in geometry and arithmetic, along with practical exams, for

would-be agricultural land surveyors (*pubblici agrimen-sori*). At the same time, there can be no doubt that much of the knowledge of surveying in most areas of central Italy was passed down from father to son.<sup>84</sup>

An example is the “Rilievo di un podere,” dated 27 February 1607 (fig. 36.13). Its author, Smeraldo Smeraldi, was at pains to stress the geometrical rigor of the map as well as its accurate rendering of the topographical and landscape features of this small family farm of tree-lined fields. With regard to the geometrical measurements, he points out that the surface area is “divided into eleven triangles, marked by red lines, done so as to be able to measure the terrain correctly.”<sup>85</sup>

83. Lando Scotoni, “Una sconosciuta carta manoscritta della Strada Flaminia (1661),” *Rendiconto dell’Accademia Nazionale dei Lincei, Classe di Scienze Morali, Storiche e Filologiche*, ser. 9, vol. 2 (1991): 79–101.

84. Walter Baricchi, “La cartografia rurale nei territori estensi di Reggio Emilia: I riferimenti storici, gli autori, le tecniche,” in *Le mappe rurali del territorio di Reggio Emilia: Agricoltura e paesaggio tra XVI e XIX secolo*, ed. Walter Baricchi (Casalecchio di Reno: Grafis Edizioni, 1985), 19–25, esp. 19.

85. Pietro Zanlari, “Formazione del cartografo e figurazione urbana e territoriale nei ducati farnesiani tra i secoli XVI e XVII,” in *Cartografia e istituzioni in età moderna*, 2 vols. (Genoa: Società Ligure di Storia Patria, 1987), 1:437–63, esp. 462.

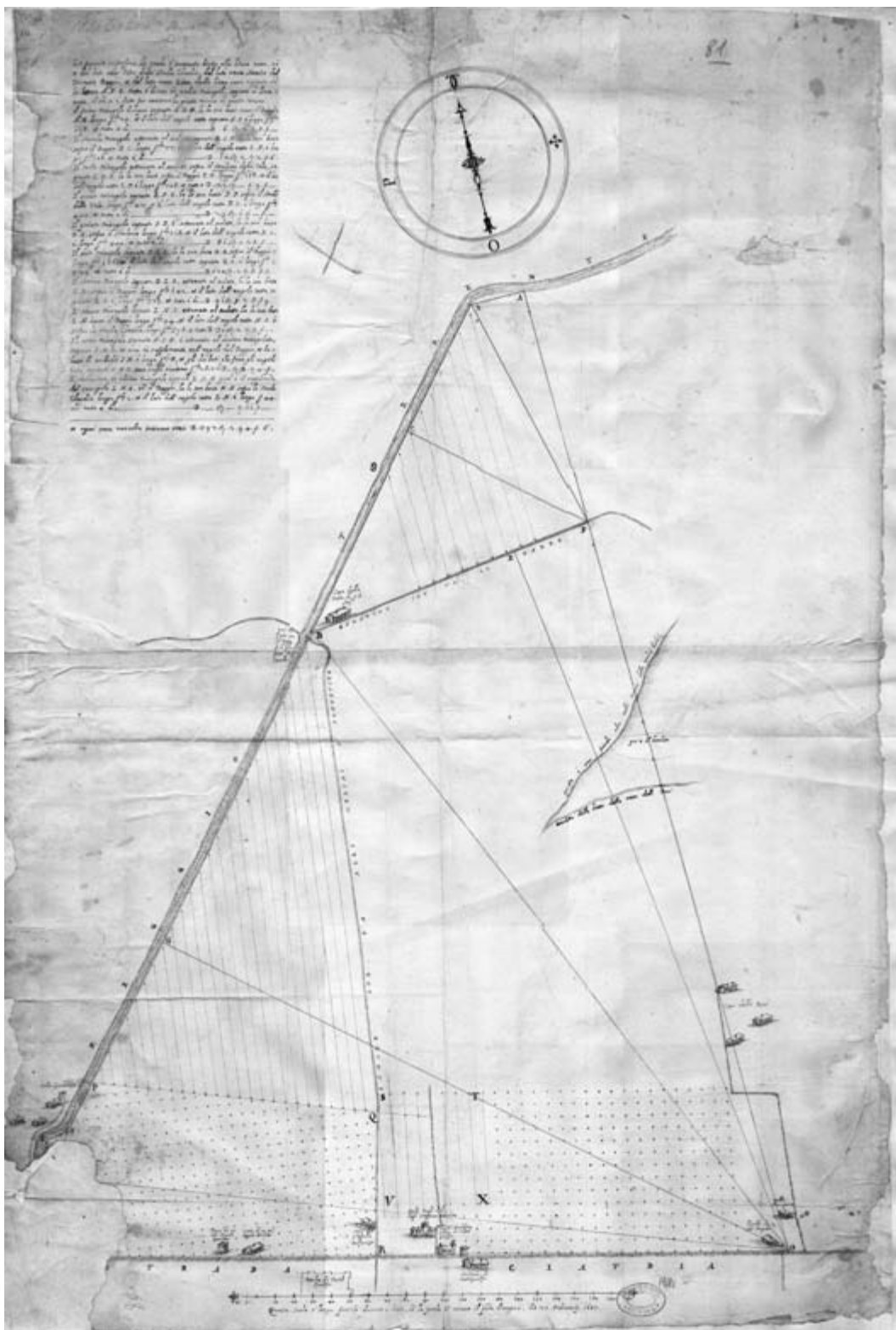


FIG. 36.13. SMERALDO SMERALDI, "RILIEVO DI UN PODERE SITUATO SULLA STRADA CLAUDIA [L'EMILIA] PRESSO IL CASTELLO DI PONTETARO (PARMA)," 1607.

Photograph courtesy of the Archivio di Stato, Parma (Raccolta di Mappe e Disegni, vol. 19/81). Reproduced with the kind permission of the Archivio di Stato, Parma (prot. 2282, 06.01.06).

Most of this agrarian cartography comes from the Po Valley and Tuscany. From the Po Valley, for example, there are numerous maps of landed possessions (*mappe dei beni*) dating from the sixteenth and seventeenth centuries. These cover single plots of land or buildings that were generally the property of parishes, religious foundations, or religious charity funds, and are now to be found, often gathered in volumes, in the libraries and archives of Modena and Reggio Emilia.<sup>86</sup> Most are spare drawings with little decoration. The only crops to be specifically identified are fruit and other trees. Buildings are shown in approximate perspective or with two sides flattened out. Generally, these works are complemented with a planimetric map that makes it possible to understand the whole layout. An example is the “Possessione alla Castilla” map drawn in 1616 by Prospero Ferrarini for the collegiate church of San Prospero in Reggio Emilia.<sup>87</sup> Another agricultural land map worthy of note is that prepared by the notary Giovan Stefano Melli in 1606 to map all the common land of Reggio Emilia.<sup>88</sup>

Cadastral cartography flourished particularly in the regions around Lucca and Florence. This was due not only to the large number of rural properties owned by city dwellers but also to the more commercial organization of local agriculture that had been initiated in the Renaissance. Here, a market orientation resulted predominantly in a sharecropping system that involved a dense network of farms and holdings. A large number of these cadastral maps, sometimes known as *martilogi*, *terrilogi*, *campioni*, and *effetti di beni*, are to be found not only in public and private libraries throughout Tuscany, but also in numerous archives (particularly the state archives of Lucca and Florence).<sup>89</sup>

Among the oldest and most significant are the 1550 *martilogi* of the properties of two Lucca families, the Garzoni and the Guinigi.<sup>90</sup> Other important examples are the *campioni* of the farms of the Florentine Ospedale di Santa Maria Nuova, prepared by Michelangelo di Pagnolo in 1565; the map of the grand ducal farm estate in Cascine di Firenze of around 1580;<sup>91</sup> and the land survey of the Medici farm estate at Cafaggiolo, elegantly drawn in 1628 by the family’s local agent Frosino Zampogni (fig. 36.14).

Thanks to the involvement of such artist-architects as Giovanni Pinamonti, Giulio and Alfonso Parigi, and Giovannozzo Giovannozzi, Tuscan maps depicting rural estates abound in well-executed pictorial representations that bear comparison with fine paintings. This is definitely the case with the cycle of splendid perspective lunettes that the Flemish landscape artist Giusto Tutens painted for Grand Duke Ferdinand I in 1599. Clearly intended to advertise the power of the Medici family, these works depict many of the family villas (Castello, Petraia, Poggio Imperiale, Lappoggi, Marignolle, Poggio a Caiano, Cafaggiolo, and Ambrogiana) nestling among gardens and parks and

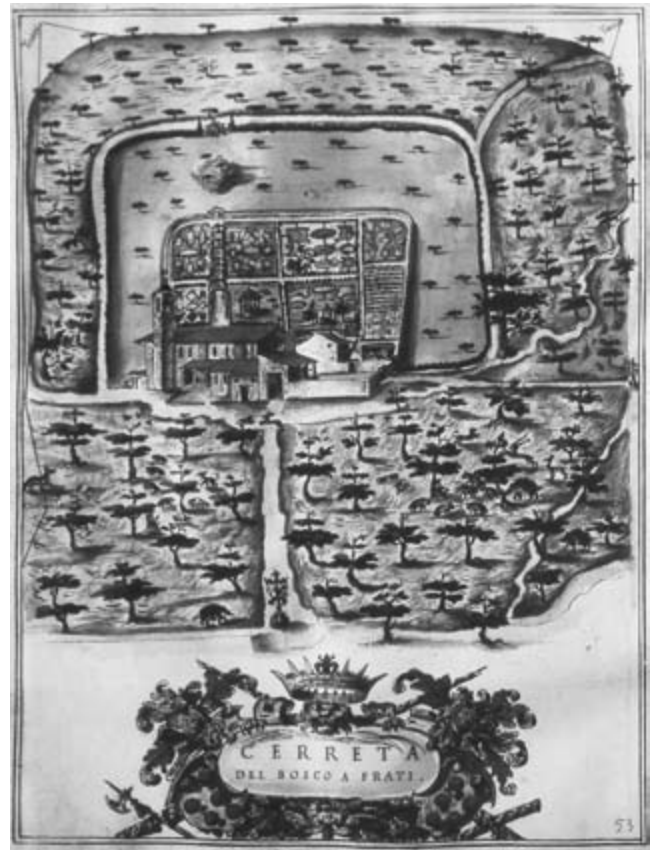


FIG. 36.14. FROSINO ZAMPOGNI, VIEW OF THE BOSCO DI FRATI, 1628. From the land register of the Medici farm estate of Cafaggiolo.

ASF (Pianta Scrittoio R.R. Possessioni, t. 5, n. 53). By concession of the Ministero per i Beni e le Attività Culturali.

surrounded by a landscape organized on a sharecropping basis with farms and tree-lined fields.<sup>92</sup> Other significant works include the elegant “Stratto Pitti,” a book containing finely drawn maps of the fifty-seven farms making up the estates of the important Florentine family of the Pitti (1594–1603), attributed to the architect and artist Giulio Parigi and his son Alfonso.<sup>93</sup>

86. Baricchi, *Le mappe rurali*.

87. Modena, Archivio di Stato, Corporazioni religiose soppresse, Communa Generale n. 2584, mappa 5. See Baricchi, “La cartografia rurale,” 24 and illustration on 86.

88. Badini, “La documentazione,” 829.

89. Leonardo Ginori Lisci, *Cabrei in Toscana: Raccolte di mappe, prospetti e vedute, sec. XVI–sec. XIX* (Florence: Cassa di Risparmio, 1978); Azzari, “Cartografia Lucchese,” 175; and Valentini, “Lo spazio extramoenia,” 293–98.

90. Lucca, Archivio di Stato, Garzoni, n. 47, and Guinigi, n. 143.

91. ASF, Spedale di Santa Maria Nuova, n. 582, and *Miscellanea di piante*, n. 458.

92. Now in the Museo di Firenze Com’era.

93. Private collection in Florence. See Renato Stopani, “Lo ‘Stratto Pitti’: Un cabreo inedito della fine del XVI secolo,” *Il Chianti: Storia, Arte, Cultura, Territorio* 1 (1984): 21–61.

A number of maps referred to the economic management of woodlands, which may have been privately owned but whose exploitation was rigidly controlled by the government. This was the case, for example, with the famous *bandite*, woodlands reserved for the exclusive use of the grand ducal shipyards in Pisa and the iron foundries around Magona del Ferro in the Maremma area. In 1634, the *provveditore* to the Pisan shipyards, Giorgio (or Zorzi) de' Negri, drew a number of strikingly pictorial perspective plans of the main forest areas along the Tyrrhenian coast (Segalari, Bogheri, Castagneto, Collemezzano, Vada, Alberese, Stiaccianese, Collechio, Marsiliana, and Capalbio) that supplied the yards with timber.<sup>94</sup>

Special maps were also drawn of industrial properties, particularly those relying on streams as a source of power. Examples include the very effective perspective view of the mills of Monterecci a Fiesole drawn in 1611 by the master builders Jacopo dell'Incisa and Giovanni Frilli,<sup>95</sup> and the Medici's architect Giovan Francesco Cantagallina's 1618 perspective maps of the Principality of Piombino's iron foundries in Val di Pecora (the Follonica plant) and Val di Cornia (the Cornia di Suvereto plant). Both detailed the causes of a dispute over water rights between that principality and the grand duchy.<sup>96</sup> Another significant map is the 1623 "Pianta della tenuta di Campiglia" showing the Medici iron foundries at Caldana di Campiglia Marittima in the Maremma and all the various workshops along the Fossa Calda. A slightly later map gives a fine picture of the various features of the Maremma: its malarial marshlands, its vast areas of common land and woodlands reserved for pasture, and its isolated islands of cultivated land, carefully fenced in against depredations by wandering livestock.<sup>97</sup>

In Lazio and the Papal States, for which we have less material, the main concern of cadastral maps was to outline the main topographical features; little interest was shown in pictorial decoration. As examples one might cite Orazio Torriani's 1603 map of Porto property; Bernabeo Ligustri's 1609 maps of the properties of Allumiere, Tolfa, and Valle Marina;<sup>98</sup> and the land surveyor N. Pettoralis's "Pianta del Casale di Torrenova." Compiled sometime between 1634 and 1647, this map is on a scale of about 1:15,000 and shows simply the main resources of an estate of more than 1850 hectares, with pastures, open cropland, farmhouse, villa, garden, and small vineyard, all of which had once belonged to the Aldobrandini but then passed to the Pamphili as part of a marriage dowry.<sup>99</sup>

As with other genres of maps during this period, the stylistic trend by the second half of the seventeenth century was to use less decoration and fewer pictorial features. An example is a map of the vast landed properties of the rich Florentine family of the Riccardi. Amounting to a total of about 2300 hectares around Rome, these estate properties of Falcognani Vecchi and Falcognani

Nuovi comprised a number of scattered "quarters" and "farmhouses," all of which were mapped in a rather abstract geometrical way that gave precise information about boundaries, land use, and buildings rather than focusing on pictorial decoration.<sup>100</sup>

Such a stylistic trend anticipates the spare language of the land registry that Pope Alexander VII commissioned in 1660, a document that was intended to facilitate the collection of taxes and the imposition of victualing laws, as well as enable the pontiff to shift the heavy financial burden of road maintenance onto the estate owners themselves. This is the oldest extant example we have of a cadaster accompanied by maps.<sup>101</sup> However, the 377 maps accompanying the land register vary a great deal, given that they were commissioned from a total of 865 different land surveyors and there were no binding specifications with regard to surveying techniques or scale. Indeed, some of the landowners did not even commission new maps but handed in earlier maps dating from as far back as the previous century. Nevertheless, given the huge scale of many of them (1:3000/4000),<sup>102</sup> these watercolor maps give a fairly detailed account of the large number of landed estates in the Roman Campagna (fig. 36.15). They show permanent and temporary settlements (conventionally depicted by means of elevation drawings), boundaries, place-names, roads, watercourses, springs and fountains, and agricultural divisions. On some maps, this land use information is not very

94. Pisa, Biblioteca Universitaria, ins. 641.

95. ASF, Pianta dei capitani di parte guelfa, numeri neri, f. 1021, c. 661.

96. ASF, Miscellanea Medicea, f. 534, c. 234, and f. 546, cc. 1–24, esp. cc. 23r, 15r, and 3r.

97. ASF, Pianta delle R. Possessioni, n. 401 and t. 4, c. 26, respectively. See Valentini, "Lo spazio extramoenia," 302; Riccardo Francovich and Leonardo Rombai, "Miniere e metallurgia nella Toscana preindustriale: Il contributo delle fonti geo-iconografiche," *Archeologia Medievale* 17 (1990): 695–709, esp. 707; and Leonardo Rombai and Carlo Vivoli, "Cartografia e iconografia mineraria nella Toscana settecentesca," in *La miniera, l'uomo e l'ambiente: Fonti e metodi a confronto per la storia delle attività minerarie e metallurgiche in Italia*, ed. Fausto Piola Caselli and Paola Piana Agostinetti (Florence: All'Insegna del Giglio, 1996), 141–63.

98. Frutaz, *Le carte del Lazio*, 1:43–44.

99. Rome, Archivio Colonna, cassetta XCVII. See Fabienne O. Vallino and Patricia Melella, "Tenute e paesaggio agrario nel suburbio romano sud-orientale dal secolo XIV agli albori del Novecento," *Bollettino della Società Geografica Italiana* 120 (1983): 629–79, esp. 635–36 and fig. 3.

100. Private collection in Florence. See Leonardo Rombai, "Palazzi e ville, fattorie e poderi dei Riccardi secondo la cartografia settecentesca," in *I Riccardi a Firenze e in villa: Tra fasto e cultura, manoscritti e piante* (Florence: Centro Di, 1983), 189–219.

101. Rome, Archivio di Stato, Presidenza delle strade, Catasto Alessandrino, vols. 428–33 bis.

102. Vallino and Melella, "Tenute e paesaggio agrario," 636.

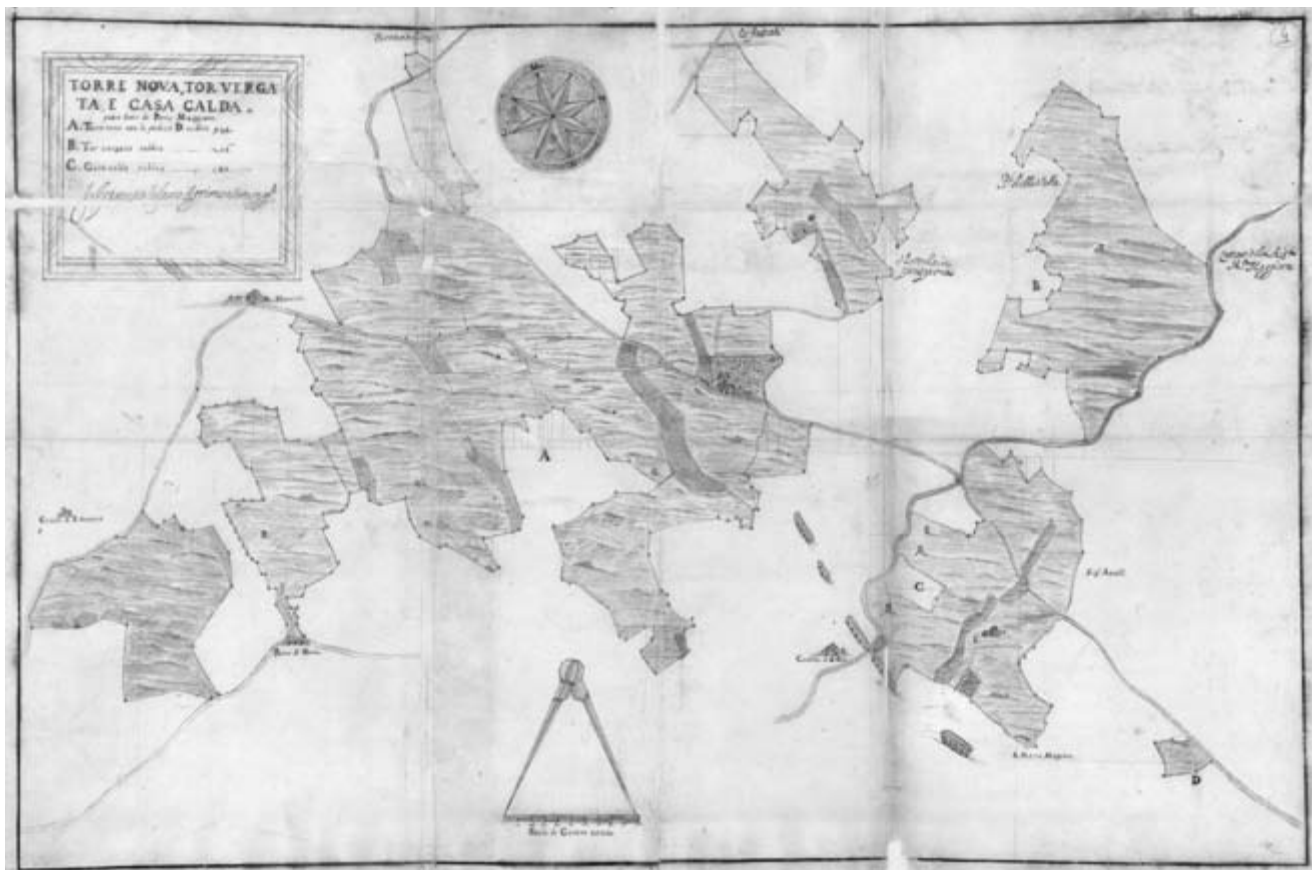


FIG. 36.15. "TORRE NOVA," 1660. An agrarian example from the Codex Alessandrino.

Photograph courtesy of the Archivio di Stato, Rome (Catasto Alessandrino, Presidenza delle Strade, 430/4).

clear, but on others the difference between cultivated woodlands and sown crops is clearly shown.<sup>103</sup>

### URBAN MAPS AND VIEWS

For a discussion of the cartographic representation of cities in the central Italian states, as with other regions, it is common to draw a distinction between the functions of town views and maps as celebratory on the one hand and administrative on the other. To some extent, the encomiastic function depended less on accurate measurement and observation of the town's bare geometry than on an artist's skill in choosing and emphasizing the characteristics of a city that reflected its power and glory. Because recognition of individual buildings was presumably important, a profile or oblique view of the city might well be more effective. The administrative function, which might be based on measured surveys for the construction of fortifications, lay more in the realm of technical drawing and lent itself to an orthogonal plan. Immediate objections to this apparently clean division can be raised, however, not least of

which is that measured accuracy and verisimilitude were also often powerful tools of the celebratory function. A chronological or evolutionary implication is also often drawn, that the encomiastic view progressed into the measured plan, which may or may not have been true in specific cases and misses the point of the two functions. Despite these shortcomings of the dichotomy, this section is organized along these lines, allowing exceptions to be discussed in specific examples as they arise.

### THE CITY VIEW AS ENCOMIUM

Toward the middle of the fifteenth century, there emerged a genre of cartography exemplified by the town views in

103. Lando Scotoni, *Le tenute della Campagna Romana nel 1660: Saggi di ricostruzione cartografica* (Tivoli: Società Tiburtina di Storia e d'Arte, 1986), 194–216, and Marcello Ricci, "Il Catasto Alessandrino: Primo approccio per una ricerca geostorica," in *La geografia delle sfide e dei cambiamenti: Atti del XXVII Congresso Geografico Italiano*, 2 vols. (Bologna: Patron, 2001), 1:137–43.

the Florentine codices of Ptolemy's *Geography* illustrated between 1456 and 1472 by Piero del Massaio. That work contained nine portraits of Italian and Mediterranean cities, including Florence and Volterra (Rome made its appearance only later, presumably in celebration of Lorenzo [the Magnificent] de' Medici's conquest of the city in June 1472).<sup>104</sup> Massaio's views—like a number of contemporary and later city views usually defined as celebratory—drew on techniques of painting and miniature illumination that employed nonsystematic perspective in order to make it possible to show more than one side of an object, although the use of several vanishing points and a slightly raised point of observation still maintained the impression of spatial depth, focusing interest on certain points yet also offering an overall view.

Massaio's bird's-eye views show the walled cities at the center of the surrounding territory at an exaggerated scale and in circular or elliptical form. However, within the walls this idealized geometric representation gives way to a more naturalistic, if incomplete, portrait. Only the structural or infrastructural components that are most characteristic of the city are included: rivers with bridges, roads, and buildings that were the seat of political, religious, or civic power (public and private *palazzi*, churches and monasteries, hospitals, and markets). The importance of such buildings is heightened by the empty space around them.<sup>105</sup>

Although it is likely that Massaio's depiction of Florence and Volterra is all his own work, it has been suggested that he borrowed his depiction of Rome from the plan that geographer Flavio Biondo drew—or had drawn—in 1446 to illustrate his treatise *Roma instaurata*. Certainly, Massaio's Rome is very different from such largely imaginary predecessors as Masolino da Panicale's 1453 fresco in the baptistery of the collegiate church of Castiglione Olona (Varese), in which only the inclusion of a few famous historical monuments makes it possible to recognize that the painter was actually intending to depict Rome.<sup>106</sup>

The most famous example of Massaio's type of fifteenth-century city portrait is the view known as the map of Florence with a chain (because of its frame in the form of a chain and padlock). It is important to recognize that there were at least three versions of this view, a painting probably by Francesco Rosselli (to whom is attributed a similar one of Naples); a copper engraving, of which only one sheet survives, probably also by Rosselli; and the best-known version, a large woodcut probably cut around 1472 by Ludovico degli Uberti.<sup>107</sup> In the lower right section of the view, we find the figure of a draftsman, complete with pen and paper, who appears to be sketching the city from the Villa di Bellosguardo on the hills to the southwest of the city; however, that device was probably included simply to emphasize the exactitude of the work, because the main vantage point from which the drawing

was taken was the bell tower of Monte Oliveto; this view was combined with other secondary points of view to create a composite image.

Undoubtedly, the language and content of this view of Florence make it into a celebration of the city—an official image with which the Medici and the rich Florentine bourgeoisie who supported them could establish the reputation and credibility of the city in the eyes of foreign politicians and merchants.<sup>108</sup> Though not precisely to scale, the picture is very detailed and gives a fair overall impression of the city, establishing reasonably exact relations of size between the various buildings and the surrounding walls. City and surroundings are both shown, with details of both the urban fabric and numerous villas in the surrounding countryside. This new way of representing the city is related to a new awareness of the urban fabric as such: the various noteworthy points of the urban area (which might well include such private buildings as the residence of the richer merchants) are not just scattered at random but placed with some precision within an extended topographical representation.<sup>109</sup>

With a few rare exceptions, right up to the end of the seventeenth century, depictions of cities and even small towns continued to favor perspective views. City murals usually relied solely on visual observation and the painterly technique of perspective, without any resort to technical measurement. An early example of this is the

104. The 1456 codex is in the BNF, Parigino Lat. 17542 ex 4802; those dating from 1469 and 1472 are in the BAV, Latino 5699 and Urbinate 277, respectively. The latter gives maps of Florence, Volterra, and Rome on fols. 130v, 134v–135, and 131, respectively. Amato Pietro Frutaz, *Le piante di Roma*, 3 vols. (Rome: Istituto di Studi Romani, 1962), 1:19.

105. Rombai, *Cartografia Toscana*, 42–44, and idem, “La formazione,” 42–43.

106. Frutaz, *Le piante di Roma*, 1:20, and Juergen Schulz, “Jacopo de' Barbari's View of Venice: Map Making, City Views, and Moralized Geography before the Year 1500,” *Art Bulletin* 60 (1978): 425–74, esp. 456 and 458 n. 114, Italian translation in idem, *La cartografia tra scienza e arte: Carte e cartografi nel Rinascimento italiano* (Modena: F. C. Panini, 1990), 13–63, esp. 33 n. 114.

107. Cesare de Seta, “La fortuna del ‘ritratto di prospettiva’ e l'immagine delle città italiane nel Rinascimento,” in “*A volo d'uccello*”: *Jacopo de' Barbari e le rappresentazioni di città nell'Europa del Rinascimento*, ed. Giandomenico Romanelli, Susanna Biadene, and Camillo Tonini, exhibition catalog (Venice: Arsenale, 1999), 28–37, esp. 28.

108. Giuseppe Boffito and Attilio Mori, *Piante e vedute di Firenze: Studio storico topografico cartografico* (1926; reprinted Rome: Multi-grafica, 1973), XX and 12–21.

109. Giuseppina Carla Romy, *Descrizioni e rappresentazioni della città di Firenze nel XV secolo* (Florence: Libreria Editrice Fiorentina, 1976), 17–22, and Rombai, *Cartografia Toscana*, 30–31. One should bear in mind that sometime between 1478 and 1490, Rosselli engraved a view of Rome. Though this work is now lost, its influence can be seen in various prints—ranging from the 1490 print by Jacopo Filippo Foresti da Bergamo to the 1550 print by Sebastian Münster—and in the anonymous view painted sometime after 1538 and now hanging in Mantua, Saletta delle Città in Palazzo Ducale. See Frutaz, *Le piante di Roma*, 1:20.



cycle of paintings produced by Cosimo I's court artist Giorgio Vasari around 1560; these works, in various parts of the Palazzo Vecchio in Florence, celebrate the Medici duke's victories with portraits of Florence and numerous other Tuscan cities. One particularly important work is *La veduta generale di Firenze da sud al tempo dell'assedio dell'esercito imperiale of 1529–30* in the Sala Clemente VII. This view elaborates on and corrects Rosselli's view of Florence, using a raised southern point of view that makes it possible for the eye to take in the whole city and its surroundings (the inclusion of the Arno winding across the wide plain of Prato gives the whole picture a certain breadth of landscape). The other pictures in the cycle clearly give more importance to the figurative, celebratory features than to topographical accuracy, but this particular work aims to give a rather faithful and well-documented picture of the 1530 siege, as can be seen from the inclusion of buildings that had been either modified or demolished in the thirty years since.<sup>110</sup>

Other significant painted works include the fine perspective views of Rome in the *salone* of the Palazzo Petri-gnani di Amelia (painted in the last decade of the sixteenth century by an unknown artist);<sup>111</sup> Giovanni Battista Ragazzini's view of Fano from around 1556 on a wall of the church of San Domenico in Fano;<sup>112</sup> the view of Sassuolo in the Spezzano Castle in the Modena area (dating from the second half of the sixteenth century);<sup>113</sup> the late sixteenth-century panoramic view of Montepulciano in the city's Palazzo Ricci; and, above all, the 1574 group of perspective views of Farnese cities and fiefdoms commissioned by Cardinal Alessandro Farnese for the Sala dei Fasti di Ercole in the family palace at Caprarola. Based on original drawings by Orazio Trigini de' Marii, these finely painted works by Giovanni Antonio Vanosino from Varese constitute a mural map cycle covering Parma, Piacenza, Isola, Ronciglione, Fabrica, Capodemonte, Castro, Marta, and Canino.<sup>114</sup> The bird's-eye view of Parma seen from above the duke's scenographic gardens to the north is particularly significant, given that it formed the city's official celebratory portrait for the modern period. The same genre of promotional city views also produced the magnificent volume of one hundred plates that the Pesaro artist Francesco Mingucci painstakingly created for the duke Della Rovere of Urbino in 1626.<sup>115</sup>

Examples of this sort of urban encomia were common in the central Italian states. A map of Ferrara drawn by Giovan Battista Aleotti in 1605 and published the following year was an obvious celebration of the passage of the city from the duchy of the Este family into papal hands. Aleotti, at the time responsible for the building work on the Ferrara fortress, specifically addressed his map to General Francesco Borghese, given that it offered a precise outline of the city, an account of the fortification work that had been under construction since 1599, and a

description of the dangers that might be posed to those defenses if the Po River was redirected into its old course. (Aleotti himself had, during the time of the last Este duke, Alfonso II, worked on the project that had actually shifted the course of the river farther to the south.) His 1605 map also includes an outline of the measures that might be taken if the river were rerouted.<sup>116</sup>

Other examples include Paolo Ponzoni's extremely detailed map of Parma published in Piacenza in 1572 and the Florentine Antonio Tempesta's large engraved view of Rome of 1593. The map of Parma, clearly a celebration of Farnese power, was probably an official work based on a (now lost) aerial perspective view of the city in the Regia Biblioteca Parmense.<sup>117</sup> Tempesta's map portrayed the city from one imaginary viewpoint high above ground level and provided the inspiration for numerous other cartographers, including Giovanni Maggi, who produced a number of large perspective prints between 1600 and 1630.<sup>118</sup>

Many of the painted maps in the Galleria delle Carte Geografiche in the Vatican are clearly based on such official city portraits, with additions or updates added. For example, it is clear that Egnazio Danti referred to Ponzoni's 1572 map of Parma,<sup>119</sup> to Domenico Tibaldi's 1575 painting of an axonometric view of Bologna (which hangs in the Sala di Bologna in the Vatican itself),<sup>120</sup> to the 1555 picture of the siege of Siena (plus Orlando Mala-

110. Here is Vasari's own account of the painting of his view of Florence: "I set to drawing it from the highest possible viewpoint, even up on the roof of a house, so that beyond the places in the immediate vicinity I could also see San Giorgio, San Miniato, San Gaggio, and Monte Oliveto. However, Your Excellency should know that although I was high up I could not see all of Florence, because Monte del Gallo and Monte del Giramonta cut out the view of the city gates of San Miniato and San Niccolò, as well as the Rubaconte bridge and many other parts of the city." See Giuseppina Carla Romby, "La rappresentazione dello spazio: La città," in *Tusciae*, 304–59, esp. 327–29, quotation on 358–59 n. 1.

111. Frutaz, *Le piante di Roma*, 1:23.

112. Roberto Panicali and Franco Battistelli, *Rappresentazioni pittoriche, grafiche e cartografiche della città di Fano dalla seconda metà del XV secolo a tutto il XVIII secolo* (Fano: Cassa di Risparmio di Fano, 1977), 28–29.

113. Raffaella Ferrari and Stefano Pezzoli, "Materiali per un'iconoteca dei documenti storici dell'ambiente costruito e naturale dell'Emilia-Romagna," in *I confini perduti: Inventario dei centri storici, terza fase, analisi e metodo*, exhibition catalog (Bologna: CLUEB, 1983), 19–83, esp. 65 (fig. 70).

114. Dall'Acqua, "Il principe ed il cartografo," 353–56.

115. BAV, Cod. Barb. Lat. 4434. See MIC, 60–61, and Mangani, *Carte e cartografi*, 20.

116. Francesco Bonasera, *Forma veteris urbis Ferrariæ: Contributo allo studio delle antiche rappresentazioni cartografiche della città di Ferrara* (Florence: Olschki, 1965), 22–23.

117. Franca Miani Uluhogian, *Le immagini di una città: Parma, secoli XV–XIX*, 2d ed. (Parma: Casanova, 1984), 23–27.

118. Frutaz, *Le piante di Roma*, 1:24.

119. Gambi and Pinelli, *Galleria*, 2:201–384.

120. Miani Uluhogian, *Parma*, 27.

volti's 1573 printed map of the city),<sup>121</sup> to Vasari's 1561–62 fresco of Florence in the Palazzo Vecchio,<sup>122</sup> and to the large 1626 perspective rendering of Urbino by Francesco Mingucci.<sup>123</sup> Pesaro, on the other hand, is depicted much more summarily, with no account given of the urban expansion beyond the square walls that the Sforza had built during the sixteenth century (when the city was ruled by the Della Rovere); if Danti himself was not aware of this shortcoming, his sixteenth-century restorer certainly was, because he added an inscription beneath the view that refers to it as being “wilfully fanciful.”<sup>124</sup>

On the other hand, there were also town views in the galleria that were either wholly or partially original. Totally original works include the map of Perugia giving all the main secular and religious buildings and the main streets and squares and the map of Comacchio (painted by G. B. Magni between 1647 and 1650), in which nearly all the buildings are recognizably depicted, together with roads along the narrow river banks, winding canals, the small port, the fish farms, and numerous sailing craft.<sup>125</sup> Partially original works include the view of Ferrara, shown enclosed within walls and complete with its large fortress (on which work began in 1599; hence its presence here is due to Magni's restoration work) and including roads and squares, perfectly recognizable main buildings, the Po and canals, and the river port of Borgo San Giorgio.<sup>126</sup> Another partially original work is the semiperspective map of Rome, which was completely reworked by Simone Lagi during the restoration work directed by Lucas Holstein in 1631–32.<sup>127</sup>

Danti himself is credited with the evocative perspective views in the 1578 “Disegni di alcuni castelli del Bolognese.” All the fortresses depicted are situated in the plain around the city; they include Budrio, Castel d'Argile, Castel Guelfo, Castelfranco, Crespellano, Crevalcore, Dozza, Medicina, Sant'Agata, Spilamberto, Minerbio, Nonantola, Piumazzo, San Cesario, San Giovanni in Persiceto, and Castel San Pietro.<sup>128</sup>

#### THE CITY PLAN AS ADMINISTRATIVE AND MILITARY TOOL

Another genre of urban cartography sprang from a different source: planimetric representation using the surveyor's and military engineer's methods and instruments for the geometrical measurement of space. Although these methods would make their effects felt on such master artists as Leonardo da Vinci and Raphael during the late fifteenth and early sixteenth centuries, this genre continued to be looked on as a sort of technical drawing. And the products of such technical drawing would continue to be seen as the specialist preserve of princes, governments, and military decision makers through the emergence of the first public land registers in the eighteenth century. In-

deed, given the great strategic value of the information they contained, it is no surprise that the few such works that were made were jealously kept in the archives from which they have only recently emerged.<sup>129</sup>

A significant forerunner of these works was Leonardo's 1502 map of the city of Imola (fig. 36.16). The general precision, the proportions between individual blocks and sections of the city, and the depiction of the overall topography of the territorial context are all features that reveal the measurement of distance and direction and lead one to suppose that the map was produced with some strategic end in mind.<sup>130</sup>

In 1529, when papal and Spanish troops besieged Florence, which had rebelled against and ousted its Medici rulers for the last time, Pope Clement VII commissioned what was intended as a model on which the siege campaign could be planned out. This work (since lost) was created after secret on-site compass readings by Benvenuto della Volpaia and Niccolò Tribolo, who were also responsible for work on the actual construction in cork (which was then transported to Rome by mule in great secrecy).<sup>131</sup>

A particularly significant body of town maps with an administrative military function is that relating to the fortified centers along the Tuscan border of the Este duchy (Garfagnana, Lunigiana, and the Apuan area of Massa Carrara). These numerous works usually give a very spare rendition of topographical information,<sup>132</sup> but one map that stands out is the large sixteenth-century perspective

121. Leonardo Rombai, “Siena nelle sue rappresentazioni cartografiche fra la metà del '500 e l'inizio del '600,” in *I Medici e lo Stato Senese, 1555–1609: Storia e territorio*, ed. Leonardo Rombai (Rome: De Luca, 1980), 91–109, esp. 107. On Malavolti's map, see p. 912, note 12, in this chapter.

122. See p. 933, note 110, in this chapter.

123. BAV, Cod. Barb. Lat. 4434. On Danti's Urbino, see MCV, 3:71 and pl. XLIII (lower), and Nando Cecini, *La bella veduta: Immagini nei secoli di Pesaro Urbino e Provincia* (Milan: Silvana Editoriale, 1987), 140–41.

124. MCV, 3:71 and pl. XLIII (upper), and Cecini, *La bella veduta*, 53.

125. MCV, 3:72 and pl. XLV (upper), and 3:70 and pl. XLI (lower).

126. MCV, 3:70 and pl. XLI (upper), and Bonasera, *Forma veteris urbis Ferrariæ*, 55.

127. MCV, 3:73 and pl. XLVII, and Frutaz, *Le carte del Lazio*, 1:47–49.

128. Bologna, Biblioteca Comunale dell'Archiginnasio. See Ferrari and Pezzoli, “Materiali per un'iconoteca,” 43 (fig. 31).

129. Miani Uluhogian, *Parma*, 19.

130. MS. L in Paris, Bibliothèque de l'Institut de France, contains two preliminary sketches for Leonardo's maps of Cesena and Urbino. On the Imola map, and the not universally accepted alternative attribution, see Zanlari, “Formazione del cartografo,” 453–54.

131. Rombai, “Siena,” 102.

132. Modena, Archivio di Stato, Mappario estense, Topografie di città, n. 2, 20–25. See the inventory in Bertuzzi and Vaccari, “Fonti cartografiche,” 314–18.



FIG. 36.16. LEONARDO DA VINCI, MAP OF IMOLA, 1502. Size of the original: ca. 44 × 60.2 cm. Photograph courtesy of

the Royal Collection © 2006, Her Majesty Queen Elizabeth II. Royal Library, Windsor (Cod. Atlantico 12284).

map of the city of Massa and the surrounding area. Rich in naturalistic landscape detail, this work seems to have heralded later administrative maps, which would show a city as an integral part of an overall picture and not as some separate entity depicted using an inflated scale that was intended to be a visual indication of the political, socioeconomic, and cultural hegemony it exercised over the surrounding area.<sup>133</sup>

To accommodate the planimetric representation of elements in a city, mapmakers made the viewpoint higher, making it possible to outline the urban layout showing public spaces, open roads, porticoes, squares, fountains, canals, green areas (fields, gardens, and vegetable gardens), enclosed private courtyards, and such monumental features as bell towers, churches, and towered aristocratic palaces (often depicted with a certain emphasis) on a reasonably realistic scale alongside city gateways and other defensive structures (such as bastions and ramparts). However, the more plebeian areas of the city continued

to be depicted as an undifferentiated checkerboard of buildings, courtyards, and open spaces.

A good example of a map seen from a higher perspective is the view of Florence by the Medici's cosmographer, Stefano Buonsignori. *Nova pulcherrima civitatis Florentiae topographia accuratissima delineata*, produced in 1584, manages to show minor buildings in some detail while maintaining their scale relative to city walls and the major public and private structures, using a mixed axonometric-perspective technique to render reliably both architectural detail and urban layout.<sup>134</sup> A few years

133. Modena, Archivio di Stato, Grandi mappe, Mappe in telaio, panel N. See Bertuzzi and Vaccari, "Fonti cartografiche," 349.

134. Buonsignori probably used an official planimetric map, perhaps the special survey drawn by the technicians of the Capitani di parte guelfa toward the end of the sixteenth century, to reorganize roads, drains, and sewers. ASF, Miscellanea di piante, n. 101; see *Documenti geocartografici nelle biblioteche e negli archivi privati e pubblici della*

later, in 1595, the painter Francesco Vanni produced an equally effective map of Siena. The print of his axonometric map acknowledges that it was drawn “by the good graces and will” of His Majesty Ferdinand I after months of studies and surveying in order to render the urban fabric—complete with all the unbuilt areas within the city walls—in fine detail “with all due accuracy of measurement.”<sup>135</sup> Before cadastral maps of Siena were compiled, later views of the town marked no real improvement on Vanni’s representation, even if they included other details of only modest importance. For example, the large perspective map of the city drawn in 1609–10 by the painter Rutilio Manetti at the behest of the important Siennese authority the Quattro Conservatori shows the rich travertine facing of the Porta Camollia, which was added in the first years of the seventeenth century.<sup>136</sup>

The maps of both Buonsignori and Vanni are well known because printed versions were made available, something that serves to remind us that, as in the case of territorial maps, relatively few city views and urban plans were printed and sold. When they were, it was generally at the explicit command of a prince or ruling authorities who clearly intended the map to be a celebration of their city.

Cipriano Piccolpasso di Durante’s city maps of Umbria are another good example of the merging of the encomiastic and administrative functions of maps. Between 1565 and 1579, Piccolpasso, a military engineer who was head of fortifications for the Papal States, worked “with great diligence, using the topographical compass during a total of four months’ on-site surveying,” to produce his “Piante et ritratti delle città e terre dell’Umbria.” Commissioned by the government of Perugia, this work comprises some fifty-six drawings that range from territorial maps through schematic outlines of urban areas to more significant city maps and perspective views of a total of twenty-six major and minor settlements in Umbria.<sup>137</sup> The map of Perugia is an accurate outline of the city’s overall form, together with indications of the important buildings, the main blocks that constituted the urban fabric, and the areas of open ground, some tilled (fig. 36.17). However, Piccolpasso puzzlingly indicated a small fort “built by Paulo l’Orsino” in the Porta San Pietro area, a construction that does not appear in later maps or in other historical source material. An overall view of the work is that “each perspective view is lively and animated, with great care being taken with the details”; each plate is framed “mainly with arboreal motifs and various scenes of local life, often with a strongly bucolic air.”<sup>138</sup>

The early seventeenth-century perspective plan of Carrara is another measured work that clearly illustrates a celebratory intent. The foreground of the view, drawn at the behest of Alberico Malaspina, is occupied by the fortification and other structures, such as the Porta della Lugnola, giving onto the *strada del marmo* (so called be-

cause of the fame of Carrara’s marble), the new city square, and Via Alberica, which had been constructed by Alberico himself.<sup>139</sup>

Lucca produced a number of maps relating to city planning schemes (involving fortifications, roads, and buildings). One example is the large axonometric perspective view of the city from the south dating from 1600, which gives a strikingly accurate account of the urban fabric.<sup>140</sup> There are also a number of fine city views and planimetric maps dating from the second half of the sixteenth century, drawn by such competent engineers as Iacopo Seghizzi, Francesco da Pesaro, Baldassarre Lanci, Francesco Paciottio, Pietro Vagnarelli, Alessandro Resta, Ginese Bresciani, Vincenzo Civitali, and Flaminio Saminati.<sup>141</sup> Alessandro Resta’s map drawn between 1563 and 1590 gives a careful account of the urban fabric in the immediate vicinity of the city walls and gateways (while leaving the rest of the enclosed area empty), so it seems likely that this map was intended to serve some military purpose.<sup>142</sup>

These manuscript city views are only the tip of the iceberg, given that during the sixteenth and seventeenth centuries each region produced an incalculable number of maps of even the least important towns and fortified settlements (down to such individual structures as isolated towers). Worthy of mention is the late sixteenth-century perspective view of Fano, which was drawn so accurately that all the streets and major religious and secular buildings can be identified,<sup>143</sup> and Aleotti’s early seventeenth-

*Toscana*, vol. 2, *I fondi cartografici dell’Archivio di Stato di Firenze*, pt. 1, *Miscellanea di piante*, ed. Leonardo Rombai, Diana Toccafondi, and Carlo Vivoli (Florence: L. S. Olschki, 1987), 108.

135. Rombai, “Siena,” 97–99 and 107–8, and Romby, “La città,” 337.

136. Framed in a room in Siena, Archivio di Stato; Rombai, “Siena,” 101 and 108–9, and in color in Romby, “La città,” 338.

137. *MIC*, quotation on 44. Together with the city views, there is a rather summary chorographical map of Umbria (c. 143v–144r) and a more original perspective view of Lake Trasimeno and surroundings, complete with the main settlements (c. 117v), which serves to illustrate a text on the battle between Hannibal and the Romans. The collection is in three codices: Perugia, Biblioteca Comunale Augusta, MS. 3064; Rome, Biblioteca Nazionale Centrale, MS. 550; and BAV, Cod. Urb. Lat. 279. See Adriana Giarrizzo, “Il lago Trasimeno: Appunti storico-cartografici,” *Rivista Geografica Italiana* 78 (1971): 170–203, esp. 188–89.

138. Eugenia Bevilacqua, “I ritratti di città e terre dell’Umbria di Cipriano Piccolpasso,” *Bollettino della Società Geografica Italiana* 85 (1948): 242–43.

139. Romby, “La città,” 330.

140. Lucca, Archivio di Stato, Fortificazioni della città e dello stato, f. 43.

141. Azzari, “Cartografia Lucchese,” 171–75.

142. Lucca, Archivio di Stato, Fortificazioni della città e dello stato, f. 42, c. 5.

143. Framed in the Pinacoteca di Fano. See Panicali and Battistelli, *Rappresentazioni pittoriche*, 48–49.



FIG. 36.17. CIPRIANO PICCOLPASSO DI DURANTE, MAP OF PERUGIA. From the manuscript "Il primo libro delle Piante et ritratti delle città e terre dell'Umbria sottoposte al governo di Perugia," ca. 1579.

Size of the original: 64 × 42.6 cm. Photograph courtesy of the Biblioteca Comunale Augusta, Perugia (MS. 3064, c. 37v–38r).

century map of Comacchio,<sup>144</sup> together with the small collection of fairly detailed realistic views of the various castles and towns that made up the feudal state of the Landi, located in the Appennines between Pontremoli and Borgo Val di Taro. Dating from 1617, these views and maps clearly served a political purpose.<sup>145</sup>

Toward the middle of the sixteenth century, the use of the surveyor's compass and other optical instruments encouraged the inclusion of more detail in the simple outline planimetric maps concerned mainly with city walls, gateways, and fortifications,<sup>146</sup> a change that reflected the growing need to recognize individual buildings and areas within the city. However, there were numerous cases in which planimetric maps of urban areas were drawn to meet the pressing needs of government; this practice was exemplified in various Tuscan cities during the second half of the sixteenth century. Characteristic cases are those of the 1550 plan of Empoli drawn by the master builder to the Capitani di Parte, Francesco di Donnino, who was sent to the area to draw plans for defenses against flooding by the Arno and carefully mapped the right-angled grid of the city's streets and squares, focusing attention on the main church at the center,<sup>147</sup> and the 1553 map of San Giovanni Valdarno showing the geometrically laid-out walled area in the northeast that had been severely damaged by the flooding of the Arno (the reconstruction of which was the task of the anonymous archducal technician who drew the map).<sup>148</sup>

Various sixteenth-century orthogonal maps that show the whole city are noteworthy both for their topographical accuracy and their richness of detail. A characteristic case is that of the map of Parma drawn between 1589 and 1592 by the Farnese engineer Smeraldo Smeraldi for Duke Ranuccio I. The map was probably in some way related to Duke Alessandro Farnese's plan for a pentagonal citadel and was ahead of its time in its use of improved surveying instruments, such as a bronze surveying compass with a lodestone. The map shows the entire road and street system, city walls, and street blocks in outline.<sup>149</sup> It was very different from the 1574 mural in the Palazzo Farnese in Caprarola with its bird's-eye view of Parma, which aimed to celebrate the city and highlight the seats of ducal power.<sup>150</sup> Another such work was the map of Piombino that the Duke of Alcalá, Perafan de Ribera, sent to the king of Spain; drawn in 1570, it carefully traces the urban fabric and gives a detailed account of the existing and planned defenses of this important fortress on the Tyrrhenian coast.<sup>151</sup> The most influential of all was the

145. Rome, Archivio dei principi Doria Landi Pamphili; it was published under the title *Descrizione degli stati e feudi imperiali di Val di Taro e Val di Ceno* in 1977. See Dall'Acqua, "Il principe ed il cartografo," 352–53.

146. Many general maps of walled cities are found in the collected papers and maps of sixteenth-century military architects and engineers. Examples include the papers of Bartolomeo de Rocchi (ca. 1552), now in Florence (Gabinetto dei disegni e delle stampe, Galleria degli uffizi, n. 4177 A), or those of Francesco de Marchi in the 1550–77 collection *Piante di fortezze*, now in Florence (Biblioteca Nazionale Centrale, Magliabechiano, II.I.281). Military planimetric maps made using surveying instruments include the 1512–13 map of Pisa (attributed to Giuliano da Sangallo) drawn to chart the defenses ordered by Florence (now in Gabinetto dei disegni e delle stampe, Galleria degli uffizi, n. 1971/A); the map of Parma from about 1526 attributed to Giorgio da Herba (Parma, Archivio di Stato, Raccolta di mappe e disegni, 3/43; see Miani Uluhogian, *Parma*, 16–19); and the de Marchi map of Siena, drawn during the 1554–55 siege (Florence, Biblioteca Nazionale Centrale, Magliabechiano, II.I.281; see Rombai, "Siena," 94 and 106). The contemporary maps of Siena, one initialed FF, the other anonymous (now in the Gabinetto dei disegni e delle stampe, Galleria degli uffizi, n. 2615 and n. 1971/A) are similar in character, as are the various depictions of the important fortified town of Port'Ercole in Monte Argentario, which a few years earlier had passed under Spanish control (the maps are now in several locations including Florence, Gabinetto dei disegni e delle stampe, Galleria degli Uffizi, n. 1577/A, n. 2342/A, and n. 2343/A; see Rombai and Ciampi, *Cartografia storica*, 230–41).

147. ASF, *Piante dei capitani di parte guelfa*, numeri neri, f. 957, cc. 247v–248r. See Walfredo Siemoni, "L'immagine della città," and Anna Guarducci and Leonardo Rombai, "Il territorio: Cartografia storica e organizzazione spaziale tra tempi moderni e contemporanei," both in *Empoli: Città e territorio, vedute e mappe dal '500 al '900*, exhibition catalog (Empoli: Editori dell'Acero, 1998), 115–61, esp. 119 (fig. 53), and 35–113, esp. 36, respectively.

148. ASF, *Cinque del contado*, f. 258, c. 602 bis.

149. In the 1601 dedication to Ranuccio, Smeraldi gives an interesting explanation of the iconography used: "so that, should he want, he [Ranuccio] may know the correct measure of any street, borough or other place therein, which would have been very difficult had I used perspective." Formerly in Parma, Biblioteca Palatina, the original drawing was lost in 1944; there remain archival photographs and three eighteenth- or nineteenth-century copies in Parma, Archivio di Stato, Raccolta di mappe e disegni, 2/61 and 2/15, and Museo Archeologico Nazionale (hanging in the corridor to the curator's offices). See Miani Uluhogian, *Oltre i confini*, 14–15; idem, *Parma*, 28–31 and 81–84; and Zanlari, "Formazione del cartografo," 460–61.

150. Dall'Acqua, "Il principe ed il cartografo," 355–56, and Miani Uluhogian, *Parma*. One should not forget that in 1588–89 Smeraldi drew the "Disegno Reale della pianta di Monticelli d' Ongina," of a small town that fell under the jurisdiction of both the duke of Parma and the feudal lords of the area, the Pallavicino. The map is rigorously orthogonal, even if the cartographer was interested only in the urban fabric as a whole, showing the moat, the unbuilt areas, the church, and a few other buildings. A few years later Smeraldi started work on a planimetric sketch of Busseto, subsequently completed by a "pupil, perhaps by his son Marc'Antonio." The two drawings are in Parma, Archivio di Stato, Raccolta di mappe e disegni, vol. 36, c. 25/3, and *Mappe di strade e fiumi*, vol. 9, c. 19. See Zanlari, "Formazione del cartografo," 458–59 and 461–62.

151. Archivo General de Simancas, *Mapas, planos y dibujos*, 2 vols., by Concepción Álvarez Terán and María del Carmen Fernández Gómez (Valladolid: El Archivo; [Madrid]: Ministerio de Cultura, Dirección General de Bellas Artes, Archivos y Bibliotecas, 1980–90), 1:820; Rombai, "La rappresentazione cartografica," 48; and Ilario Principe et al., eds., *Il progetto del disegno: Città e territori italiani nell'Archivio General di Simancas* (Reggio Calabria: Casa del Libro, 1982), no. 38.

144. Manuscript of the Pinacoteca di Fano. Other relatively similar maps are the contemporary (anonymous) map of Cento in Ferrara, Biblioteca Comunale Ariostea, and the 1661 map of Imola drawn by A. F. G. da Matelica, now in Imola, Biblioteca Comunale. See Ferrari and Pezzoli, "Materiali per un'iconoteca," 45–46 (figs. 35 and 38).

plan of Rome that was drawn, printed, and no doubt published by Leonardo Bufalini in 1551.<sup>152</sup>

#### SEVENTEENTH-CENTURY EXAMPLES

During the seventeenth century, the output of planimetric city maps was much more substantial, including such works as C. Soldati's 1625 "Disegno di Castel San Giovanni"<sup>153</sup> and the local architect Giovanni Giorgi's 1658 "Pianta della città di Fano."<sup>154</sup> Initially, the surrounding areas were given mainly for decorative purposes, but gradually the focus outside the city walls was on a more realistic rendition of the actual topographical and natural setting of the city or town that was the political and economic hub of the whole area (with cartographers showing surrounding areas, isolated buildings, roads, and watercourses and distinguishing between land used for agriculture and for forestry).<sup>155</sup>

The "Pianta della città di Ferrara con tutte le strade in propria forma," drawn by the local hydraulic engineer Bartolomeo Gnoli between 1658 and 1662, is one of the most striking seventeenth-century city maps. Using over one hundred numerical or alphabetical labels to identify churches, monuments, and special sites, it gives a clear account of the road system and indicates the tourist potential of what was by then a firmly established cartographic tradition. This portrayal of Ferrara is accompanied by another map Gnoli produced at around the same time: the

"Sito d'intorno alla città di Ferrara," which gives a clear account of the city walls, surrounding areas, and the dense network of watercourses.<sup>156</sup>

Though the various planimetric maps and perspective views of individual cities or towns are heterogeneous in terms of cartographers, date, technique, and language, they are clearly homogenous with regard to intent: the government and control of territory, which often involved provision of fortifications and adequate urban development, the plans for which were what made such mapping and surveying necessary.

152. A detail of this map is shown in figure 27.3. An anonymous manuscript copy, known as the Cuneo manuscript, is in Rome, Biblioteca Nazionale, P.A.1ter. The best work based on this is Etienne Du Pérac's 1577 map for Antonio Lafreri, which shows the elevation of all the main buildings. See Leonardo Bufalini, *Roma al tempo di Giulio III: La pianta di Roma*, intro. Franz Ehrle (Rome: Danesi, 1911), and Frutaz, *Le piante di Roma*, 1:21–22.

153. Parma, Archivio di Stato. Published in Ferrari and Pezzoli, "Materiali per un'iconoteca," 52 (fig. 44).

154. Jean Vallery-Radot, *Le recueil de plans d'édifices de la Compagnie de Jésus conservé à la Bibliothèque Nationale de Paris* (Rome: Institutum Historicum S.I., 1960), no. 50, and Panicali and Battistelli, *Rappresentazioni pittoriche*, 70–71.

155. Ferrari and Pezzoli, "Materiali per un'iconoteca," 42.

156. Ferrara, Biblioteca Comunale Ariostea. See Bonasera, *Forma veteris urbis Ferrariæ*, 30–31 and 48–49, and Alberto Penna, *Atlante del Ferrarese: Una raccolta cartografica dei Seicento*, ed. Massimo Rossi (Modena: Panini, 1991), 91–92 and 95–96.