

49 • French Cartography: The *ingénieurs du roi*, 1500–1650

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INTRODUCTION: THE SIXTEENTH CENTURY

The title “engineer” was well known during the Middle Ages, whether as *ingeniator* in Latin, *engigneor* in Old French, or *engyneour* in Middle English. But such persons were primarily concerned with “engines” like the ones used to hurl missiles or scale ditches. At that time, large towns were responsible for their own fortifications, using officials known in English as “masters of works.” In late fifteenth-century France, this responsibility began to change when Louis XI established a coherent line of defense in Burgundy and Charles VIII took in hand the defenses of Guyenne.¹ By 1510, Jean de Cologne, *valet de chambre du roy*, could be sent to report on the fortifications of Bayonne, and in 1520 is described as the “general master of the fortifications and repairs of the region and duchy of Guyenne.”²

From the late fifteenth century, then, the outline of a service of fortifications was beginning to emerge. But at that time the officers worked on what were essentially developments of medieval fortifications, including many high curtain walls and round towers. What seems to have given the administrative structure a decisive push in the direction of a formal organization was the coming of the *trace italienne*, the method of defending towns and strongpoints with a system of interlocking walls and bastions so as to resist the newly powerful artillery.³ To lay these structures out, the kings of France had to employ specialists who had received their training in Italy, and from the 1520s onward, we find such Italians in the service of the French crown. At first they had a variety of titles, but from about 1550 on they were often called *ingénieurs du roi*.⁴

In the course of the sixteenth century, up to the accession of Henri IV in 1589, we have some knowledge of about thirty of these Italian engineers and one or two Frenchmen who were their colleagues. But the names of many of these people are scarcely more than passing references; we only know something of the life and work of about a dozen of them. During the reign of Henri IV the numbers increase slightly to about thirty and from 1610 to 1650, to about fifty; most of these were French. Alas, we know very little about how any of these technicians were trained. We may presume that in such towns as Naples, Bologna, Turin, Siena, Urbino, and Venice there

were adequate schools, although in every case the final formation of an engineer took place through apprenticeship in the field. Much the same must have been true of the French engineers. In the course of the seventeenth century, many would have emerged from those Jesuit high schools that laid a certain emphasis on applied mathematics, but at that time there was no concept of a central school to which all would go; this idea was not to come until the early eighteenth century. Their position in regard to the king was much the same as that of the contemporary *architectes, géographes, mathématiciens, and topographes*. None had attended anything like a centralized technical school, and all were appointed by kings who wished to make the most of such talents as existed in their kingdoms.

The laying out of a *trace italienne* demanded not only skilled engineers, who thus began to form a rudimentary fortifications service, but also required entirely new techniques. In particular, to ensure that the fortifications offered covering fire from every angle of the fronts and bastions, the whole system had to be mapped, bearing in mind the range of the defensive weapons available. Wolfe has described in detail how such a bastion was constructed, setting out the way in which the engineers and masons relied on three types of written plan: the (textual) description, the (sketched) figure, and the (finished, drawn) *poutraict*. The first two were working documents, and the *poutraict* was “a sort of presentation piece” designed for royal or municipal authorities.⁵ We can follow the way in

1. Henri Drouot, *Mayenne et la Bourgogne: Étude sur la Ligue (1587–1596)*, 2 vols. (Paris: Auguste Picard, Éditeur, 1937), 1:7; and Paul Roudié, “Documents sur la fortification de places fortes de Guyenne au début du XVI^e siècle,” *Annales du Midi* 72 (1960): 43–57.

2. Quoted in Roudié, “Documents,” 44–45.

3. Well described by Christopher Duffy in *Siege Warfare: The Fortress in the Early Modern World, 1494–1660* (London: Routledge and Kegan Paul, 1979), 23–42.

4. See David Buisseret, *Ingénieurs et fortifications avant Vauban: L’organisation d’un service royal aux XVI^e–XVII^e siècles* (Paris: Éditions du C.T.H.S., 2002). Wishing to give an account of members of the service of fortifications, I have deliberately omitted some peripheral figures, such as Pierre Boyer, sieur du Parc, Hugues Cosnier, and Adam de Crappone.

5. Michael Wolfe, “Building a Bastion in Early Modern History,” *Proceedings of the Western Society for French History* 25 (1998): 36–48, esp. 40.

which such works were undertaken during the sixteenth century for such provinces as Guyenne, Provence, Burgundy, Champagne, Picardy, and Normandy.⁶

In 1540, for instance, Girolamo Bell'Armato (Jérôme Bellarmato), “an Italian gentleman, an engineer,” was paid a considerable sum “for the estimates [*devis*] that he has been ordered to draw up for repairs to the fortifications of different towns”; these *devis* surely accompanied visual representations of the work to be done.⁷ Similarly, he was called to Paris in 1550 to consult with the king and the mayor on an extension of the city to the southeast. On this occasion, the mayor was instructed to call upon “our trusty and well-beloved Jhéromme Bellarmato, one of our engineers [*l'ung de noz ingenyeulx*], to consult, advise and consider the said plan and estimate.” After the consultation, Bell'Armato had to “make the drawing, set out and mark the limits” of the extension, and then put everything together, “carefully written down and related to the map.”⁸

Evidently, the king used Bell'Armato not only to assess previous *pourtraicts* and set boundaries out on the ground, but also subsequently to compile a map of the proposed work. Note that the king refers to him as *l'ung de noz ingenyeulx*; clearly by this time he was one of a number of engineers who were mostly assigned to work in the frontier provinces. Unfortunately, it is easier to find references to the maps constructed by these engineers than to track down surviving examples. This paucity is curious, because in England it has been possible to find many similar maps of frontier fortifications drawn by the engineers of Henry VIII.⁹ We may suppose that those drawn by the Italian engineers for the French kings were very similar in style and perhaps spread the notion of drawing maps to scale in France, as they probably did in England. But at present, all that leads us to this conclusion is the collection formed by the duke of Savoy.¹⁰

After the death of Henri II in 1559, royal services in general suffered from the period of increasing anarchy that ensued. But even at this time, we can trace the activity of the engineers, and sometimes uncover what seems to be their mapping work. In 1573, for instance, the Italian engineer Scipione Vergano was serving in the royal army that was besieging La Rochelle. It seems very possible that a map of La Rochelle drawn at this time was either his work or that of his colleague, Agostino Ramelli of Pesaro.¹¹ Ramelli remained in the service of the kings of France, as did most of his colleagues, but some of the Italian engineers were remarkably peripatetic. One such was J.-B. Guerini, who was born in 1525 and accompanied his father on the expedition by the emperor Charles V against Tunis in 1535.¹² In 1542, he came to France first serving François I and then Henri II. After the latter died in 1559, Guerini, now known as Roche Guerin, converted to Protestantism and went to serve the elector John George of Brandenburg. In 1578, he became *Baumeister* of the fortress of Spandau,

just outside Berlin. He drew a most precise and detailed plan of this fort, in which he transformed the scaled utilitarian drawing into a work of art.¹³ Guerini, then known as Rochus Guarini, *graf von Lynar*, died in 1596.

There were, then, a good many *ingénieurs du roi* in sixteenth-century France, even if they remained rather informal in their operations, and very few of their maps seem to have survived. Most of them confined their building activities to fortifications, although they were often polymaths who could also construct machines, make mathematical calculations, and design bridges. During the sixteenth century, they were nearly all Italians who had been trained in Italy following courses that remain obscure. Judging from the surviving maps drawn by their contemporaries in Italy, Spain, and Germany, they were skillful at making scaled drawings of small areas, although as yet they showed no sign of undertaking the larger mapping projects characteristic of the next generation of engineers.¹⁴

THE ENGINEERS OF HENRI IV (1589–1610)

Many of the *ingénieurs du roi* who became prominent under Henri IV had fought alongside him during his long struggle for the French throne (1589–98). Probably the most famous of them was Jean Errard of Bar-le-Duc.¹⁵ He

6. Even during the sixteenth century, for each of these provinces we can often identify a specially assigned *ingénieur du roi*.

7. *Collection des ordonnances des rois de France: Catalogue des actes de François I^{er}*, 10 vols. (Paris: Imprimerie Nationale, 1887–1908), 4: 104.

8. Gaston Bardet, *Paris: Naissance et méconnaissance de l'urbanisme* (Paris: S.A.B.R.I., 1951), 127–28.

9. See, for instance, R. A. Skelton and John Newenham Summerson, *A Description of Maps and Architectural Drawings in the Collection Made by William Cecil, First Baron Burghley, Now at Hatfield House* (Oxford: Roxburgh Club, 1971), and Marcus Merriman, “Italian Military Engineers in Britain in the 1540s,” in *English Map-Making, 1500–1650: Historical Essays*, ed. Sarah Tyacke (London: British Library, 1983), 57–67.

10. See Corradino Astengo, “Piante e vedute di città (Una raccolta inedita dell’Archivio di Stato di Torino),” *Studi e Ricerche di Geografia* 6 (1983): 1–77.

11. BNF, *Cartes et Plans*, Rés. Ge A 1113, “Plan of the siege of La Rochelle.”

12. Thomas Biller, “Architektur und Politik des 16. Jhs. in Sachsen und Brandenburg: Leben und Werk von Rochus Guerini Graf zu Lynar (1525–1596),” in *Architetti e ingegneri militari italiani all'estero dal XV al XVIII secolo*, ed. Marino Viganò (Rome: Sillabe, 1994), 183–205.

13. Reproduced in Buisseret, *Ingénieurs et fortifications*, 45–46.

14. An exception is Girolamo Bell'Armato, whose *Chorographia Tusciae* (1536) appeared in all editions of Abraham Ortelius's *Theatrum orbis terrarum*; see Robert W. Karrow, *Mapmakers of the Sixteenth Century and Their Maps: Bio-Bibliographies of the Cartographers of Abraham Ortelius, 1570* (Chicago: For the Newberry Library by Speculum Orbis Press, 1993), 78–80.

15. For his biography, see Marcel Lallemend and Alfred Boinette, *Jean Errard de Bar-le-Duc, “premier ingenieur du tres Chrestien roy de France et de Navarre Henry IV”: Sa vie, ses œuvres, sa fortification (Lettres inédites de Henri IV et de Sully)* (Paris: Ernest Thorin, Libraire, 1884).

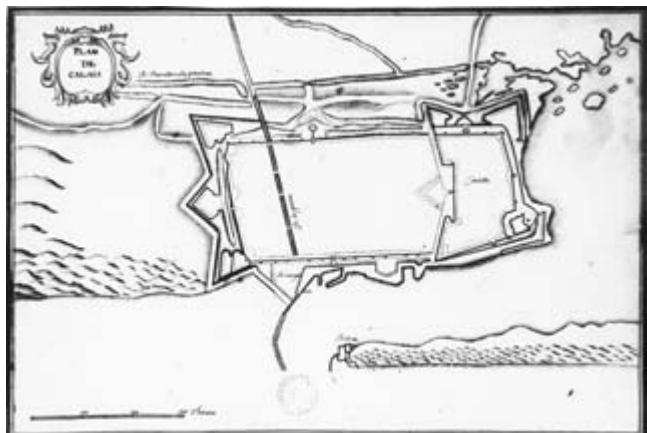


FIG. 49.1. JEAN MARTELLIER, “PLAN DE CALAIS.” This drawing, ink on paper, derives from a plan by Martellier, drawing master for Jean Errard of Bar-le-Duc. Similar examples of the style are seen in figures 49.6, 49.8, 49.11, 49.17, and 49.19; although now widely dispersed in the archives, they must have been generated in the same drawing office. Photograph courtesy of the BNF (MS. Picardie 107, fol. 10).

spent his early years in Lorraine, probably learning his trade under Philippe Errard, and perhaps working under Jérôme Citoni in the fortification of Nancy. By 1595, he had entered the service of Henri IV, who ordered him to attend to the fortifications of Amiens, in Picardy. Errard soon produced a plan of the old fortifications, on which he also marked his proposal for a new bastioned trace. This plan is entirely unremarkable, but it does show Errard’s mastery in measuring and portraying a rather large area.¹⁶ In fact, Amiens soon fell into the hands of the Spaniards (March 1597), but after an arduous siege, Henri IV took it back the following November. Errard played a leading part in the engineering work of the siege, and when the town was recovered, he proposed a new fortification plan, including a very large and entirely new citadel. This work, with its bastions in Errard’s characteristic style (the bastions sharply angled to the adjacent face), was rapidly completed and survives to this day much as he drew it in 1597.¹⁷

Errard then became *ingénieur du roi* for Picardy, a post that he held until his death in 1610. While responsible for the fortification of this province, he had under his command Jean Martellier, the *conducteur des dessins* (drawing master) who was, in effect, his cartographer. Together they drew up a remarkable cartographic inventory of the province that delineated Picardy in an entirely original way, using paired town plans and local maps.¹⁸ For Calais, for instance, there was the “Plan de Calais,” showing the town and the works (fig. 49.1), and “La carte dv gouvernement de Calais et Pais reconquis,” showing the main features of the adjacent countryside (fig. 49.2; *gouvernements* were military divisions that became numerous during the sixteenth century). Until the early seventeenth cen-

tury, France had been mapped by the traditional provinces, as in Maurice Bouguereau’s *Le théâtre françois* (Tours, 1594). It is not clear what induced Errard and Martellier to adopt this novel coverage, but we may guess that it was the best way to show not only fortified places but also the surrounding area that would need to be defended against an enemy. Of course, in the process of compiling the *gouvernement* maps, the cartographers showed features that were of more than mere military interest.

Eventually, the *gouvernement* maps thoroughly covered Picardy (fig. 49.3), in the end permitting the engineers to draw up a map of the entire province that was much more detailed and accurate than anything that had hitherto been drawn (fig. 49.4). Errard’s activity was not confined to Picardy, for as the leading French expert and author of *La fortification réduite en art et démontrée* (Paris, 1600), he was called upon to work at Bayonne, Langres, and Verdun. But the plans that he drew of these places have not survived, and it is unlikely that they marked any particular advance on the work undertaken in Picardy.

Errard’s neighbor to the south was Claude Chastillon, named *topographe du roi* about 1591.¹⁹ Like Errard, he served Henri IV during the turbulent years of struggle after 1589 and by 1598 was high in the king’s confidence. For in that year we find the king writing that he wants Chastillon to come to a conference, “bringing the plans of all my frontier towns so that I can see where work is needed.”²⁰ It is unlikely that such plans existed as early as 1598, but one of the achievements of the reign, as we shall see, was to draw them up. It is unclear whether Chastillon was primarily a topographer or an engineer, but perhaps he was both, and indeed an architect as well. It is certain that he eventually received the title of *ingénieur du roi* of the province of Champagne, with the territories of Metz, Toul, and Verdun.²¹ We do not have a precise paper trail for Chastillon’s cartographic activity as *ingénieur du roi* in Champagne, but the BL possesses a set of maps of the province that precisely match those of Picardy in the BNF,

16. BNF, Cartes et Plans, Rés. Ge C 5129; reproduced in David Buisseret, “Les ingénieurs du roi au temps de Henri IV,” *Bulletin de la Section de Géographie* 77 (1964): 13–84, esp. 24.

17. It is one of fourteen plans of Picardy towns drawn exclusively by Errard in the manuscript atlas BL, Add. MS. 21117, fol. 26r; see Buisseret, “Les ingénieurs du roi,” 26 for a reproduction, 82–83 (fols. 21r–29r) for the full list.

18. The originals are now preserved within atlases in four manuscript copies: one at the BL (Add. MS. 21117), two at Chantilly, Musée Condé (MS. 1325 and 1326), and a final one at the BNF (Picardie 107); see the list in Buisseret, “Les ingénieurs du roi,” 82 (fols. 3r–20v).

19. See the long and closely argued article of Josette Proust-Perrault, “Claude Chastillon, ingénieur et topographe du Roi (v. 1559–1616): Notice biographique et étude de sa bibliothèque parisienne,” *Cahiers de la Rotonde* 19 (1998): 115–44.

20. BNF, Manuscrits, Dupuy 407, fol. 45v, 11 May 1599 letter from the king to Sully, in charge of fortifications.

21. Proust-Perrault, “Claude Chastillon,” 119.



FIG. 49.2. JEAN MARTELLIER, "LA CARTE DV GOVVERNEMENT DE CALAIS ET PAIS RECONQVIS." This manuscript map by Martellier was drawn in 1602 to facilitate the program of fortification on the northeastern frontier. The artist shows woods

and hydrographic features on land, but cannot resist sketching in a considerable variety of merchant and naval ships as well. Size of the original: 33 × 42.8 cm. Photograph courtesy of the BL (Add. MS. 21117, fol. 3v).



FIG. 49.3. APPROXIMATE COVERAGE OF THE GOUVERNEMENT MAPS OF PICARDY IN THE BL, ADD. MS. 21117.

showing the terrain in a series of about twenty town plans and *gouvernements*.²² It is plain that this series of large-scale plans covered much of the province (fig. 49.5) and allowed the author, presumably Chastillon, to draw up a remarkably accurate general map (fig. 49.6) using the same *gouvernement* subdivisions as those for Picardy. As part of his work in Champagne, Chastillon also conducted a meticulous survey of the boundary between the kingdom of France and the Holy Roman Empire, plotting on a map

22. These maps and plans are scattered in several volumes of the King's Topographical Collection; see the list in David Buisseret, "The Manuscript Sources of Christophe Tassin's Maps of France: The 'Military School,'" forthcoming in *Mélanges Lisette Danckaert*. Some of the material is reproduced in Michel Desbrière, *Champagne septentrionale: Cartes et mémoires à l'usage des militaires, 1544–1659* (Charleville-Mézières: Société d'Études Ardennaises, 1995), 79–96.



FIG. 49.4. JEAN MARTELLIER, "CARTE DE LA PROVINCE DE PICARDIE, BOVLONOIS, ARTOIS ET PAIS RECONQVIS." This provincial map by Martellier was presumably drawn up using information generated from the *gouvernement* maps of Picardy; it provided the prototype from

which Christophe Tassin derived several of his maps of the province.

Size of the original: 30 × 38.5 cm. Photograph courtesy of the BL (Add. MS. 21117, fol. 3r).

what had previously only been known through verbal descriptions.²³

Chastillon did not confine his work to Champagne. He seems often to have been consulted on hydraulic matters, so that in 1606, he drew a plan for the canalization of the Vesle River, between Villeroy and Reims, which has been lost, and in 1615 drew a map to suggest the way in which a canal might be led around Paris, for both military and sanitary reasons.²⁴ In the end the scheme was not adopted, but it shows the way in which Chastillon adapted mapmaking to current needs. Much of his manuscript work has been lost, including a plan of 1608 for constructing a bridge at Rouen. But his "Recueil de géométrie et de mécanique," containing many diagrams for military devices, such as armored vehicles and mobile bridges, still survives.²⁵ Many of his drawings survive, too, in the *Topographie françoise*, published in

1641, long after his death. These precise perspective engravings, which form a sort of inventory of the main buildings in northern France, lead us far into the visual world of early seventeenth-century architecture. They show how Chastillon could use all manner of images—maps, plans, drawings, and architectural sketches—to recreate the world in which he lived and acted.²⁶

23. See David Buisseret, "The Cartographic Definition of France's Eastern Boundary in the Early Seventeenth Century," *Imago Mundi* 36 (1984): 72–80.

24. Reproduced in Hilary Ballon, *The Paris of Henri IV: Architecture and Urbanism* (Cambridge, Mass.: MIT Press, 1991), 205.

25. BNF, Estampes, 1a2, fols. 384–88.

26. For a recent assessment of his representational skills, see Ballon, *Paris of Henri IV*, 244–47. The *Topographie françoise* has received little study and indeed would merit a closely edited facsimile.

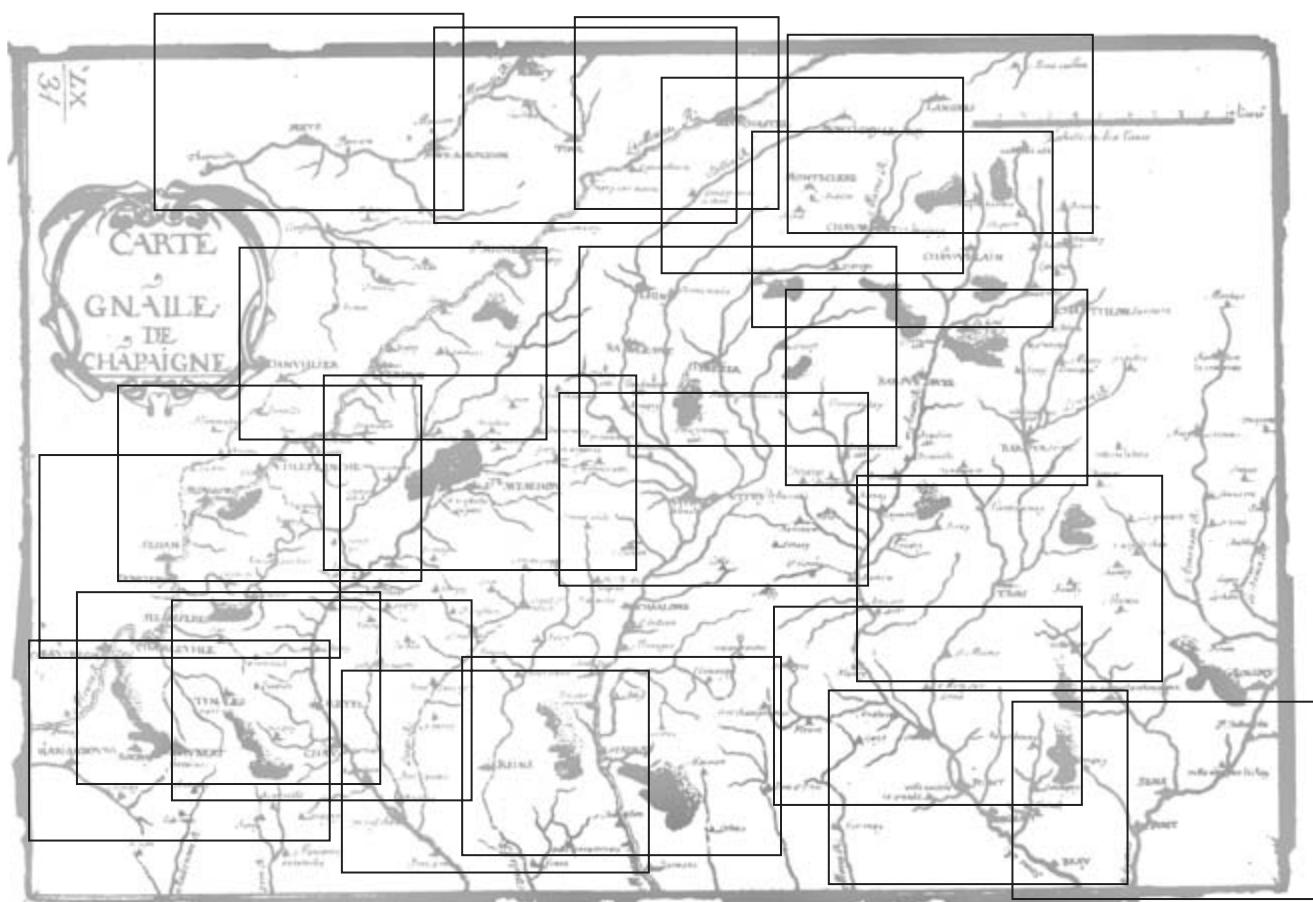


FIG. 49.5. APPROXIMATE COVERAGE OF THE GOUVERNEMENT MAPS OF CHAMPAGNE IN THE BL,

KING'S TOPOGRAPHICAL COLLECTION.

In Burgundy, the *ingénieur du roi* Chateau Duboys seems to have been relatively inactive; we know nothing about his origins or life. But farther south comes Dauphiné, and here the *ingénieur du roi* was Jean de Beins, another veteran of the later phase of the religious wars. At first he worked under Raymond de Bonnefons, who also looked after Provence. But after the death of Bonnefons in 1606, Beins became *ingénieur et géographe du roi* in Dauphiné. Earlier that same year Beins had drawn up and presented to the king maps of the country of Dauphiné and of Bresse, and these may very well be the maps now preserved in the BL.²⁷ Plotted on a map of the area, they show that he could delineate the country at a bewildering variety of scales and orientations, often using a valley to form the framework of his image.²⁸ Figure 49.7 shows his “Carte des vallées de Seissel et la Michaille” of 1606. It is oriented roughly northward and shows the topography, forests, rivers, and settlements in considerable detail and accuracy. As Dainville observed, after a minute study of Beins’s maps, he laid the foundations for a cartographic understanding of Dauphiné that would last for a century and a half.²⁹

The maps of Dauphiné in the atlas at the BL that I have been describing are not organized in quite the same way as the comparable maps for Picardy and Champagne. Rather than paired town plans and local maps, these Dauphiné maps were given a variety of titles, including *plans*, *profils*, and *cartes*. Much more similar to the work in the other provinces is another anonymous manuscript atlas also held in the BL.³⁰ This work consists of about twenty maps of the *gouvernements* of Dauphiné in the same size and style as the maps of Picardy and Champagne in the atlases discussed above. Figure 49.8 shows the map of the *gouvernement* of Grenoble. It is hard to resist the conclusion that this atlas was drawn up in sim-

27. Add. MS. 21117, fols. 30–81, listed in Buisseret, “Les ingénieurs du roi,” 83–84; see the assessment of Beins’s work by François de Dainville, *Le Dauphiné et ses confins vus par l’ingénieur d’Henri IV, Jean de Beins* (Geneva: Librairie Droz, 1968).

28. *Tableau d’assemblage des cartes de Jean de Beins*, insert before plate 1, in Dainville, *Le Dauphiné*.

29. Dainville, *Le Dauphiné*, 89–90.

30. See the maps in Harley MS. 4864 listed in Buisseret, “Manuscript Sources.”

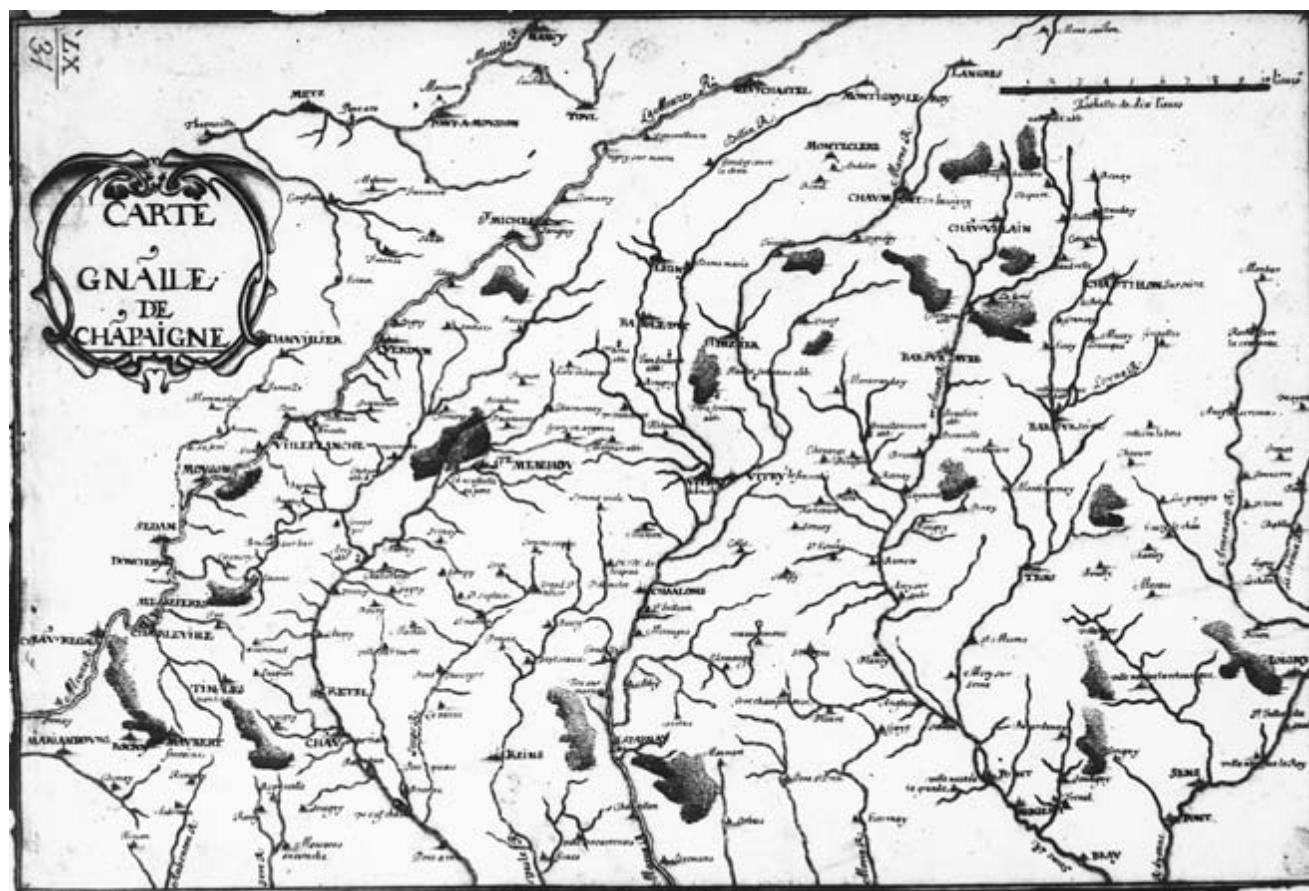


FIG. 49.6. CLAUDE CHASTILLON, "CARTE G[EN]ERALLE DE CHA[M]PAIGNE." This map, the base map for figure 49.5, uses the original work of Chastillon, en-

gineer for the province of Champagne.

Size of the original: 23 × 36 cm. Photograph courtesy of the BL (Maps K. Top. 60.31).

ilar circumstances and probably by Jean de Beins, as the places depicted fell within his jurisdiction. The general map from this collection draws together a large amount of information and closely resembles the printed *Carte de Dauphiné* produced by Jean de Beins.

Beins worked not only in Dauphiné, but also in Provence and sometimes in potentially hostile areas of Italy, making plans of Fort Fuentes (near Lake Como) and of the city of Milan. In addition to being an excellent engineer-cartographer, he was also a very skillful artist. His "Paysage de Grenoble" not only shows the city with the bastions that he designed, under the direction of François de Bonne, duc de Lesdiguières, but also offers the viewer a remarkable image of the plain of the river Drac (a tributary of the Isère)—whose tumultuous course he attempted to control.³¹ No wonder the duc de Lesdiguières employed him to design battle scenes (which still survive) for his château at Vizille, just outside Grenoble; he had very extensive representational skills.³²

When he began working in Dauphiné, Beins had been under the direction of Raymond de Bonnefons, and this

engineer was the founder of a veritable dynasty in Provence.³³ In this province, Bonnefons adopted a slightly different method of showing the fortifications by making for each of seven sites both a conventional plan and also a *vue*, which covered less area around the site than did the northern *gouvernements*. Like Beins, the *conducteur des dessins* for Bonnefons was a considerable artist, as his image of the Tour de Bouc, well sited at the mouth of the Étang de Berre, shows.³⁴ For Toulon, we have an additional small plan preserved among the *Papiers de Sully*.³⁵

31. Reproduced in Dainville, *Le Dauphiné*, pl. IX.

32. Two of these eight large oil paintings drawn by Beins and painted by Antoine Schanaert, are reproduced in the Archives Nationales catalog, *Henri IV et la reconstruction du royaume*, exhibition catalog (Paris: Editions de la Réunion des Musées Nationaux et Archives Nationales, 1989), 111.

33. Their work is described in Buisseret, *Ingénieurs et fortifications*, esp. 56–63 and 91–93.

34. Reproduced in Buisseret, "Les ingénieurs du roi," 71.

35. Paris, Archives Nationales, 120 AP 48, fol. 75; see Robert-Henri Bautier and Aline Vallée-Karcher, *Les papiers de Sully aux Archives Nationales: Inventaire* [Paris, 1959], 76 and pl. II.



FIG. 49.7. JEAN DE BEINS, "CARTE DES VALLEES DE SEISSEL ET LA MICHAILLE," 1606. This manuscript map shows the extraordinary topographical skill of Beins. He uses a style midway between the planimetric and the perspective view to show the Rhône River as it flows southward to Yenne.

Since the treaty of Lyons (1601) the land to the west belonged to the king of France, and the land to the east to the duke of Savoy.

Size of the original: 44.5 × 31.3 cm. Photograph courtesy of the BL (Add. MS. 21117, fol. 34v).

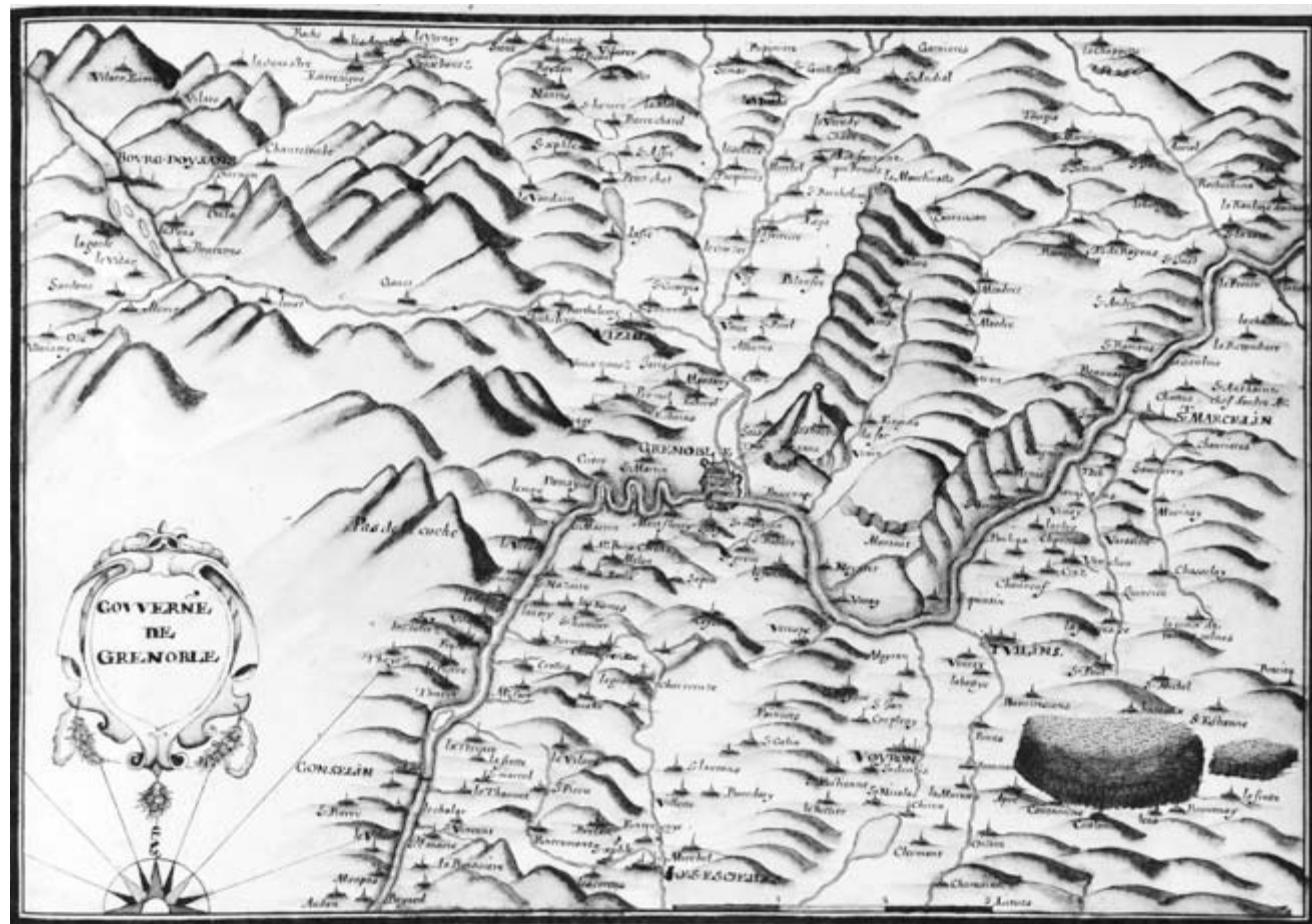


FIG. 49.8. JEAN DE BEINS, "GOVVERNE[MENT] DE GRENOBLE." This manuscript map, in the same style as figures 49.1, 49.6, 49.11, 49.17, and 49.19, almost certainly derives from Beins, whose work in this region laid out the

main lines of maps for many decades to come.
Size of the original: 26.8 × 35.1 cm. Photograph courtesy of the BL (Harl. MS. 4864, fol. 18r).

This efficient-looking map is annotated in his hand and guided the development of Toulon as a great naval base from 1609 on. Raymond de Bonnefons was killed in 1606 in a cannon explosion and was succeeded by his son Jean, from whom no maps are known to survive. A further Bonnefons, Honoré, was active as a cartographer during the reign of Louis XIII; he was probably also an engineer.³⁶

In Languedoc, the activities of the engineer Jean Donnat were hampered by the opposition of the provincial estates, who were steadfast in their resistance to royal enterprises in the province, which had long been semi-independent. Probably as a result of this opposition, Donnat seems to have drawn no maps. Guyenne, to the north, was between 1609 and 1614 the responsibility of the engineer Benedict de Vassallieu dit Nicolay. He was another veteran of the later stages of the wars, first noted as *ingénieur du roi* in 1585, and he drew a wide range of maps.³⁷ He seems to have visited the Low Countries during the late 1590s and there drew a series of six plans of Flemish citadels in a con-

ventional style. In 1614, no doubt as part of his duties as engineer in Guyenne, he drew a fine map of the harbor and town at Saint-Jean-de-Luz.³⁸ His skill as a conventional mapmaker was, however, far exceeded by his talent as a delineator of cities, shown in his 1609 plan of Paris. Here he completely renewed our image of the city, turning it from a static west-east vision, with the river as a central axis, and transforming it into a lively version of the bastioned capital, with all the major buildings—the Bastille, the Louvre, the place Royale—accurately located.³⁹ Vassallieu seems to have had remarkable visual gifts, because

36. Many of his maps are preserved in the remarkable atlas held at the Bibliothèque du Génie of the Service Historique de l'Armée de Terre at Vincennes; Atlas cfA2 France.

37. See Ballon, *Paris of Henri IV*, 220–33.

38. "Le havre de Soccova et les bovrgs de St Jean de Lvz et de Sibovle," preserved in the BNF, Cartes et Plans, Ge. C 1758, and reproduced in Buisseret, *Ingénieurs et fortifications*, 53.

39. Ballon, *Paris of Henri IV*, 222–23 (fig. 151).

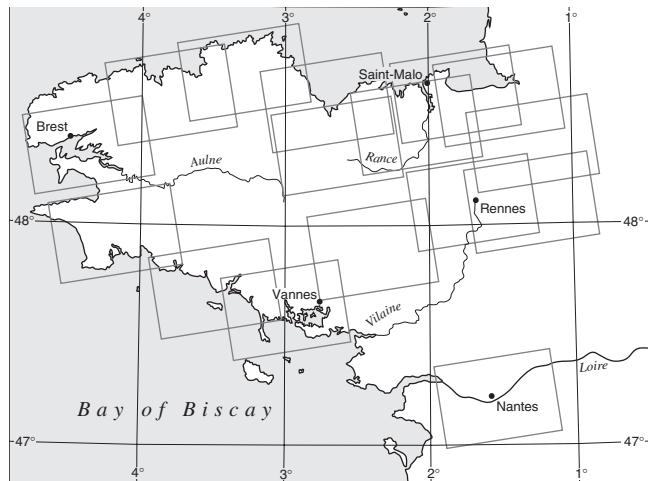


FIG. 49.9. APPROXIMATE COVERAGE OF THE GOUVERNEMENT MAPS OF BRITTANY IN THE BIBLIOTHÈQUE DE L'ARSENAL, MS. 3921.

as *ingénieur ordinaire de l'artillerie* of France he also applied his talents to producing an illustrated manual of the construction and operation of field pieces. This artillery manuscript, the “Recueil du reiglement general de l'ordre et conduitte de l'artillerye,” offers a wealth of drawings showing all the gun parts to explain the workings of the artillery in highly visual terms; the manuscript survives in two copies.⁴⁰

It is also probable that Vassallieu was responsible for drawing up an atlas of the fortified places of Brittany. In June 1604, Maximilien de Béthune, Duke of Sully and chief minister of Henri IV, responsible among other things for the finances and artillery, requested that Vassallieu and “Bois” make a survey of the coast between Poitou and Normandy. He duly carried out this commission, to judge by the payment of 1607 made “both to him and to Estienne Boys, master mariner at Le Havre de Grace, for their voyage . . . from Paris along the coasts of Normandy and Brittany, to visit and reconnoiter the situation of the ports in the said country.”⁴¹ It seems very likely that the maps and plans of Brittany mentioned in a letter of 1607 from Henri IV to Sully were the fruit of this journey,⁴² and it even seems possible that a manuscript atlas now preserved at the Bibliothèque de l’Arsenal in Paris contains this work.⁴³ For this atlas, with maps of exactly the size and style as those of Picardy, Champagne, and Dauphiné in the other atlases described in this chapter, contains a sequence of plans, views, and *gouvernements* covering the area of Vassallieu’s trip (fig. 49.9) that contributed to a general map of Brittany (fig. 49.10). We have no record of any other mapping venture in Brittany at this time, and it seems likely that this atlas was yet another compiled for the information of Henri IV and Sully. Figure 49.11 shows the *gouvernement* of Nantes, setting out the rivers, woods,



FIG. 49.10. “CARTE GENERALE DE BRETAIGNE.” This map of the province of Brittany was presumably derived from the various large-scale studies set out in figure 49.9. It is a delineation that Christophe Tassin followed in several of his publications.

Size of the original: 20 × 28 cm. Photograph courtesy of the BNF, Bibliothèque de l’Arsenal, Paris (MS. 3921, fol. 1).

and towns in very much the same way as in the other atlases noted here.

The cartographic work of the *ingénieurs du roi* under Henri IV was much more varied than that of the sixteenth-century engineers, who confined themselves chiefly to the delineation of fortified places. This new generation of engineers could draw maps of large areas of countryside, as seen in the collections of *gouvernement* maps. These came to influence the way in which many generations of French people “saw” their country. Some, like Vassallieu and Chastillon, could compose splendid perspective views both of existing places and of projects; Beins applied the same talents mainly to images of the Alpine countryside. Their visual sense spilled over into other areas; Errard and Chastillon composed manuals concerning the use of war machines—such as armored chariots, mobile bridges, and explosive devices—in which the illustrations were prominent, and Vassallieu did the same for artillery operations. They were encouraged in their cartographic ventures by the king and Sully, both of whom were primarily *visuels*, who tended to take in information best when it was

40. At the BNF and BL; for reproductions of some of these drawings, see David Buisseret, “Henri IV et l’art militaire,” in *Henri IV: Le roi et la reconstruction du royaume* (Pau: Association Henri IV 1989; J & D Éditions, 1990), 333–52, esp. 339–44.

41. Paris, Archives Nationales, 120 AP 5, fol. 102r.

42. *Nouvelle collection des mémoires relatifs à l’histoire de France depuis le XIII^e siècle jusqu’à la fin du XVIII^e siècle*, 34 vols., ed. Joseph Fr. Michaud and Jean-Joseph-François Poujoulat (Paris: Didier, 1857), 17:199–200.

43. Arsenal manuscrit 3921; this manuscript is described in Buisseret, “Manuscript Sources.”

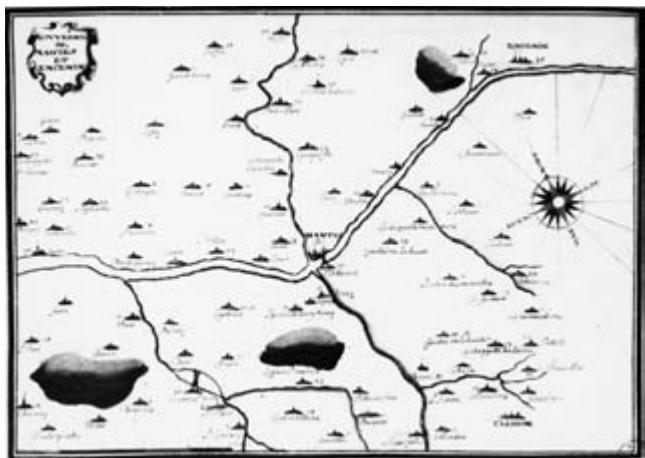


FIG. 49.11. "GOVVERNE[MENT] DE NANTES ET ENCENIX." This manuscript map is almost certainly the result of a journey made to Brittany in 1607 by Benedit de Vassallieu dit Nicolay, who also drew remarkable maps of Saint Jean de Luz and of fortresses in the Netherlands.

Size of the original: 22.5 × 30.5 cm. Photograph courtesy of the BNF, Bibliothèque de l'Arsenal, Paris (MS. 3921, fol. 3).

couched in visual terms.⁴⁴ By 1610, the work of these engineers had laid the foundations for an enhanced cartographic vision of France.

THE INGÉNIEURS DU ROI DURING THE REIGN OF LOUIS XIII (1610–1643)

At this time, the number of *ingénieurs du roi* steadily grew, although they still did not form part of a formally organized corps, with standardized training, promotion, and so forth.⁴⁵ During these thirty-odd years, we can identify about fifty engineers for the twelve most important provinces in which they often produced maps. However, this cartographic output did not take the shape of the widespread coverage by *gouvernements* that I have examined for the previous reign; rather, it consisted of individual efforts to close various gaps and to produce specialized maps for specific purposes. We know of only one surviving engineer's commission, and this was for Jehan Bachelier, who was sent into Normandy in 1613. This document clearly sets out the cartographic responsibilities of the engineer, who is to "keep an eye on the works in progress and draw plans of them and make all kinds of drawings."⁴⁶

In Picardy, the first successor of Jean Errard was Jacques Alleaume (Aleaume), who had been associated with Claude Chastillon in at least one urban project in Paris. Alleaume produced a fine atlas of the frontier towns of Picardy, but it was essentially a continuation of what had gone before, keeping the king up to date on the progress of fortification work.⁴⁷ Alleaume was more remarkable for his interest in the theory of human perception, pro-

ducing a work called *La perspective spéculative et pratique* and another on the *Compas de proportion*.⁴⁸

Among the eight or so other engineers assigned to Picardy during this period, the most celebrated was no doubt Pierre de Conty, sieur de La Mothe d'Argencourt.⁴⁹ Initially a Protestant, he changed religion in the 1620s and thereafter fought in numerous engagements on France's eastern and southern frontiers. He built many forts and drew many plans, of which some fine examples survive at the BL. But his work, although clear and accurate, made no new contribution. More innovative was the mapping of the engineers Le Rasle and Lenin (or Le Nain), both active in Picardy.⁵⁰ In July 1639, for instance, Le Rasle produced for Armand Jean du Plessis, Cardinal Richelieu "a very special map . . . of all the reconquered land around Ardres and in this neighborhood." Richelieu was then chief minister to Louis XIII, in charge of military affairs, and this map, which he lent to the French field commander, the marshal Charles de La Meilleraye (La Meilleraie) showed the rivers and dikes in great detail and would be useful in case the French needed to fall back on Calais.⁵¹ Clearly, Le Rasle had produced a specially composed map for the current military situation. He continued to work in this area, producing in 1637 a printed *Plan au vray de la ville et siège de Corbie*, engraved at Paris by Melchior II Tavernier.

The sieur Lenin was one of Le Rasle's colleagues in Picardy, and having fought in the wars of the late 1630s on the northeastern frontier, he was in 1644 commissioned to make a report on the defensive possibilities of the river Somme, roughly 125 miles from its source to the sea. He therefore produced a "Livre des plans de passages," which in forty-three maps set out every bridge, ford, and cross-

44. Dainville, *Le Dauphiné*, 8.

45. This eventual transition is described by Anne Blanchard, *Les ingénieurs du royaume de Louis XIV à Louis XVI: Étude du corps des fortifications* (Montpellier: Université Paul-Valéry, 1979), 33–70.

46. BNF, Manuscrits, manuscrits français 4014, fols. 84–85, "Provision de maître ingénieur en Normandie."

47. See his collection of "Plans des villes frontières de Picardie pour M. le duc de Longueville gouverneur de la province," BNF, Estampes Id27.

48. See "Aleaume (Jacques)," in *Dictionnaire de biographie française* (Paris: Letouzey et Ané, 1933–), vol. 1, col. 1371; and "Alléaume ou Allaume (Jacques)," in *Nouveau dictionnaire biographique et critique des architectes français*, by Charles Bauchal (Paris: André, Daly fils, 1887), 5.

49. See the extensive entry for "Argencourt (Pierre de Conty, seigneur de La Mothe d')," in *Dictionnaire de biographie française* (Paris: Letouzey et Ané, 1933–), vol. 3, cols. 518–20.

50. For Le Rasle, see his "Mémoire des places frontières de Champagne donné par M. le Rasle ingénieur en fevrier 1644," Paris, Archives Nationales, KK 1069, fol. 86; and for Lenin, see the "Royal instruction to le sieur Lenin," 25 May 1639, Vincennes, Service Historique de l'Armée de Terre, A152, fol. 243.

51. Armand Jean du Plessis, duc du Richelieu, *Lettres, instructions diplomatiques et papiers d'état du Cardinal de Richelieu*, 8 vols., ed. Denis Louis Martial Avenel (Paris: Imprimerie Impériale, 1853–77), 6: 448–50, esp. 449.

ing, with an accompanying commentary.⁵² This atlas, which contains maps of uniform size but at different scales, goes into enough detail for us to identify individual buildings at certain crossings (plate 60); it is a remarkable example of a cartographic delineation tailored to a highly specific purpose.

Another of Le Rasle's colleagues in Picardy was Pierre Le Muet, whose skills were rather different. He was described in 1623 as *architecte ordinaire du roi* and *conducteur des dessins* of the fortifications of Picardy.⁵³ He composed a good many books on architecture and in 1616 had made a model of the newly built Palais du Luxembourg for the architect Salomon de Brosse (also an *ingénieur du roi*). Clearly, at this time, before the days of a specialized engineering corps, the engineers included a wide variety of talents and competences.

In Champagne, Claude Chastillon had died in 1616, but his work was carried on by his sons Hugues and Pierre. Apart from their work on fortifications in Champagne, Pierre seems to have traveled to La Rochelle in 1627, where he produced some unremarkable maps of the siege and the region. The tradition of making maps of the region as a whole seems to have passed at this time to a civilian, Jean Jubrien.⁵⁴

Burgundy, as we have seen, had not been mapped along with the other eastern provinces during the reign of Henri IV. It would seem that Richelieu made a deliberate attempt to correct this omission, judging from the magnificent atlas of 1638 with his arms on the cover.⁵⁵ However, this atlas covered only the major fortified sites and made no attempt to delineate the surrounding countryside in the fashion of the *gouvernement* plans.

Like Burgundy, Lyons and the Lyonnais had been long resistant to Henri IV in the 1590s, and perhaps for this reason had not been mapped during his reign. However, from about 1630 on the engineer Simon Maupin was active there, eventually producing a detailed and accurate "Carte generalle du pais de Lionnois" about 1650.⁵⁶ Maupin also drew sketches of such engagements as the siege of Alez and a remarkable *Description de la Ville de Lion* (Lyons, 1635).⁵⁷ His life is not well known, but he was a versatile cartographer who could work at a variety of scales.

Jean de Beins continued to work in Dauphiné, living to the end of the reign and continuing the work that, as we have seen, laid the foundations for our cartographic knowledge of the region. His son Laurent succeeded him as *ingénieur et géographe du roi*. To the south, we left Provence in the hands of Jean de Bonnefons, but it was Honoré de Bonnefons (his brother?), who was most active in delineating the fortifications and their surroundings during the 1630s.⁵⁸ A little later (1651), the whole area was carefully drawn by Pierre Blondel, whose "Plans, profils et devis des places maritimes de Provence" survives

in two copies.⁵⁹ Blondel was known as *ingénieur ordinaire de la marine*, although there was as yet no clear institutional distinction between the various types of engineers.

Languedoc had been neglected in the days of Henri IV, but under Richelieu it became the object of intensive mapping in the course of military campaigns against the Protestants. Jean de Beins was involved in this activity and so was Antoine Sercamanen, who in 1628 produced an extensive and original *Carte des Sevennes*, showing a region until then hardly known.⁶⁰ The veteran Jean Fabre also produced a *Carte des Sévennes*, which was published by Melchior II Tavernier in 1629; there was a burst of mapping in this area during the wars of the 1620s.⁶¹

Another engineer active in the area was Jean Cavalier, apparently a native of Agde. Some of his work consisted of making plans of fortifications, but he was also commissioned by the estates of Languedoc, as *géographe du roi*, to make a map of the entire province.⁶² No doubt the lesser maps that he made contributed to the making of this general map: work like the long sheet covering the "great post-road" from Narbonne to Castelnau-dary or the "Carte particlyiere de la comté de Rossillon" (fig. 49.12). The latter map exemplifies his distinctive style very well and shows how, like Jean de Beins, he could bring out the distinctive features of a large area of very mountainous countryside.

Just to the south of Languedoc, Catalonia was the scene of military campaigns between 1640 and 1642, during which Richelieu made use of the cartographic skills of Sébastien de Pontault de Beaulieu. The latter participated in many campaigns under Louis XIII, and drew a number of maps that have remained manuscripts.⁶³ He was se-

52. See the article by Wilbert Stroeve and David Buisseret, "A French Engineer's Atlas of the River Somme, 1644: Commentary on a Newberry Manuscript," *Mapline* 77 (1995): 1–10.

53. See "Le Muet (Pierre)," in *Nouveau dictionnaire biographique et critique des architectes français*, by Charles Bauchal (Paris: André, Daly fils, 1887), 359–60.

54. See the work of Michel Desbrière, *Jean Jubrien, cartographe de la Champagne (v. 1570–1641)* (Charleville-Mézières: Société d'Études Ardennaises, 1991).

55. BNF, Cartes et Plans, Ge DD 2662.

56. BNF, Cartes et Plans, Ge C 2042.

57. BNF, Cartes et Plans, Ge DD 960.

58. See p. 1512, note 36.

59. Vincennes, Service Historique de la Marine (SH 86), and BL (Harley MS. 4421) both of the same title and year. There is an entire study to be made of the way in which these atlases found their way into the hands of hostile powers.

60. François de Dainville, *Cartes anciennes du Languedoc, XVI^e–XVIII^e s.* (Montpellier: Société Languedocienne de Géographie, 1961), 27–30.

61. Dainville, *Cartes anciennes du Languedoc*, 30–34.

62. Archives Départementales de la Haute-Garonne, C2303, fol. 67, deliberations of the Estates.

63. See for instance his atlas of "Plans, cartes et profiles . . . de Catalogne, Cerdagne et Roussillon" of about 1643, preserved at the Biblio-

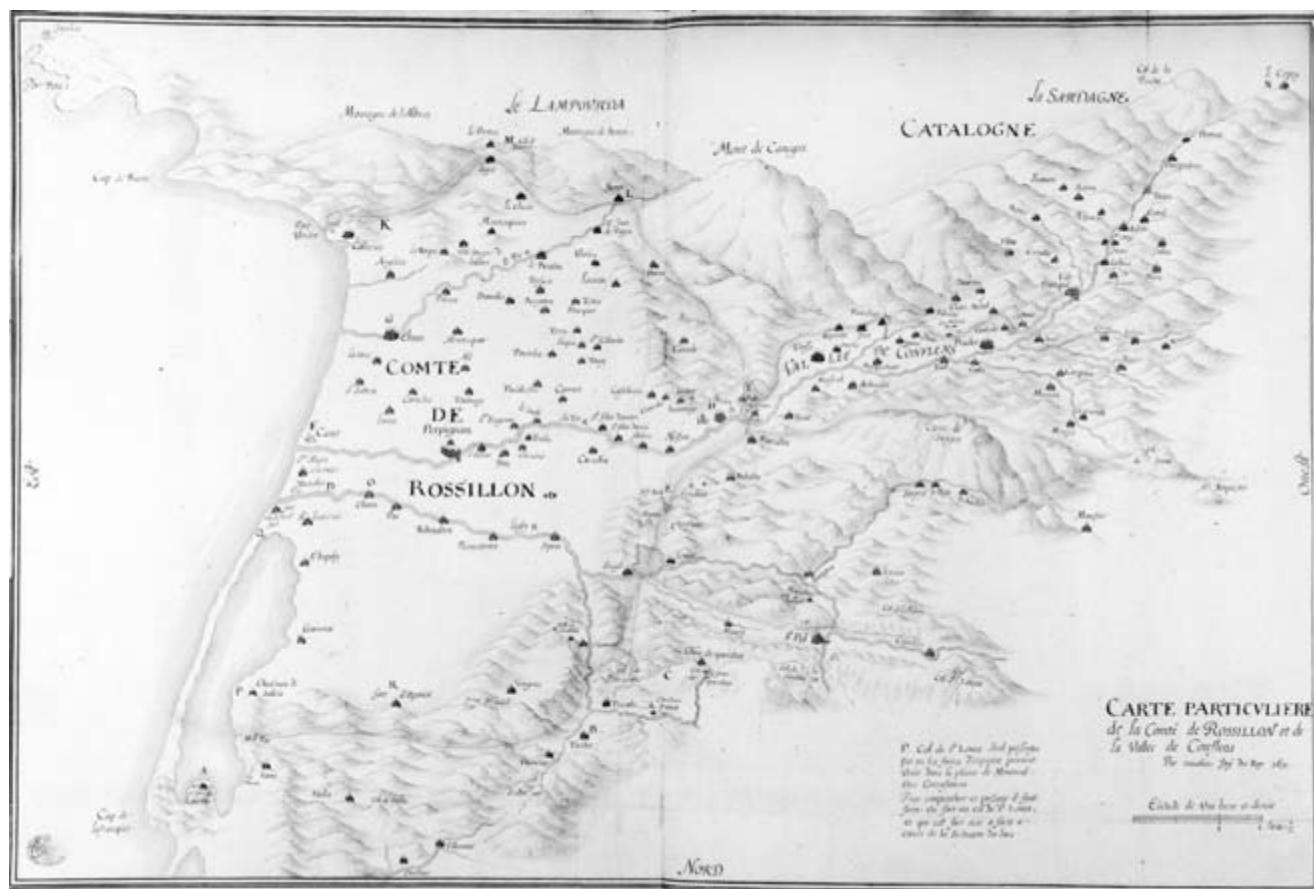


FIG. 49.12. JEAN CAVALIER, "CARTE PARTICULIERE DE LA COMTÉ DE ROSSILLON ET DE LA VALLEE DE CONFLENS," 1635. This manuscript map was drawn by Cavalier, engineer for the province of Languedoc. His style is rather like that of Jean de Beins in that he is concerned to indicate the

topography and cultural features—rivers, towns, and mountains—clearly with a view to military operations.

Size of the original: 46 × 71 cm. Photograph courtesy of the BL (Maps K. Top. 70.70).

verely wounded in 1644, and after that time produced a huge number of printed maps, grouped in the "petits Beaulieu," atlases covering fourteen French provinces, and in the atlas called *Les glorieuses conquêtes de Louis le Grand*. The latter atlas was not published until 1694, and the former ones in about 1670. But the "petits Beaulieu" are important because they contain much material generated by the *ingénieurs du roi* in the first half of the seventeenth century. Like Christophe Tassin, whose work I shall consider below, Beaulieu brought to the attention of a very wide public sequences of maps that would otherwise have been neglected.

Guyenne and Poitou were the site of much military activity during the early part of the reign of Louis XIII, particularly around the Protestant strongholds, of which the chief was La Rochelle. Many of the *ingénieurs du roi* were concerned with mapping the great siege of 1628, as was N. Du Carlo, *ingénieur et géographe ordinaire du roy* in the region. Perhaps his most interesting map was the small-scale survey completed in 1625 and showing the

French west coast, from the Cotentin Peninsula to the Spanish border (fig. 49.13). It is a careful work, with orientation and scale, and seems to have been prepared to give the king some idea of the area in which the war against the Protestants would soon be waged. Du Carlo was much engaged in the fortification of Brouage during the 1620s, and drew several plans of it.⁶⁴ Once La Rochelle had been captured, however, engineering and cartographic activity ceased to be concentrated in this area.

The overseas ambitions of Richelieu caused him to look to the area of Brest, where he hoped to establish a great naval base. He therefore sent his cousin Charles de Combtout to work on a site identified by the report of Louis le Roux, sieur d'Infréville, in 1639. Until 1621, the person in charge of fortifications in Brittany had been Charles I

thèque Municipale, Perpignan, in addition to much material in the various departments of the BNF.

64. See, for instance, BNF, Cartes et Plans, Rés. Ge D 13849 and D 4226.



FIG. 49.13. N. DU CARLO, “CARTE HIDROGRAPHIQUE DES COSTES DE BRETAIGNE, GUIENNE, ET DE PARTIE DE LESPAGNE,” CA. 1625. The sieur Du Carlo drew this map of the west coast of France about 1625, taking care to indicate for Richelieu not only the site of the future naval base at Brest, but also the region round the Protestant stronghold at La Rochelle, which Richelieu would besiege three years later. Photograph courtesy of the BNF (Cartes et Plans, Ge D 13855).

Errard, but in that year, this painter and architect—evidently related to Jean Errard—was replaced by Jérôme (Hiérosme) Bachot, who was his son-in-law. Bachot's father Ambroise had been a well-known engineer, and the Errard-Bachot alliance was one of a number of such dynastic unions, common during the ancien régime. Jérôme Bachot, *ingénieur et géographe du roi* in Brittany, drew a number of maps of Breton towns.⁶⁵ In 1624, no doubt in anticipation of Richelieu's interest in the Brest site, he drew a map of Le Conquet (fig. 49.14). Devoid of soundings, it nevertheless shows how the town of Le Conquet commands the entrance to the port, with the town on the eastern side and a bastioned “petit fort” on the western side. A scaled and precise drawing of this kind would have been invaluable to Richelieu and the king in deciding where the main port needed to be developed and how it should be defended.

In 1639, Richelieu decided to take in hand the whole question of where the best site for an Atlantic naval port

would be, as Brouage was silting up. He appointed a four-member commission, one of whom was d'Infréville, the *commissaire général de la marine*. Another was Regnier Janssen (Jenssen) the younger, son of another engineer of that name, and perhaps a “Janszoon” originally. It was the business of Janssen to draw the maps of the various sites; these eventually numbered fourteen, and the plans are preserved in two copies.⁶⁶ They accompany a closely-argued commentary that allowed a rational choice of site to be made.⁶⁷ Eventually the choices chiefly fell upon Le Havre and Brest, which received huge sums of money so that they could be transformed into the main commercial and naval ports of the region.

Although most of the *ingénieurs* were assigned to provinces and spent most of their time there, a number of them seem to have been based in Paris. One of these was Salomon de Caus, whose range of talents was extraordinary even for that age. Born in France, he served the courts of Brussels, Whitehall, and Heidelberg, writing books about mechanics, perspective, music, and gardens and often putting his theories into practice.⁶⁸ He returned to France about 1619 and was appointed *ingénieur du roi*; it was no doubt in this capacity that he composed a map of Italy in 1624. This map formed part of an atlas that apparently belonged to Richelieu and probably contained maps of the regions that were most politically important.⁶⁹ Another engineer active at Paris was Jacques Gomboust. He seems to have been compiling plans of French northern cities, including Paris, during the late 1640s and published about seven of them around 1650.⁷⁰ His work is remarkable for its elegance, precision, and detail, but we know nothing about his life or the circumstances in which he worked.

We are equally ill informed about the life of Christophe Tassin, another *ingénieur et géographe du roi*.⁷¹ We do know much about his publications, though, and here he

65. See “Bachot (Hiérosme),” in *Nouveau dictionnaire biographique et critique des architectes français*, by Charles Bauchal (Paris: André, Daly fils, 1887), 25.

66. BNF, Manuscrits, manuscrits français 8024, and Vincennes, Service Historique de la Marine, SH 81.

67. One of these maps is shown in David Buisseret, “Monarchs, Ministers, and Maps in France before the Accession of Louis XIV,” in *Monarchs, Ministers, and Maps: The Emergence of Cartography as a Tool of Government in Early Modern Europe*, ed. David Buisseret (Chicago: University of Chicago Press, 1992), 99–123, esp. 118 (fig. 4.12).

68. See “Caus (Salomon de),” in *Dictionnaire de biographie française* (Paris: Letouzey et Ané, 1933–), vol. 7, cols. 1467–68.

69. For a reproduction of this map and description of the atlas, see Buisseret, “Monarchs, Ministers, and Maps,” 113 and 114 (fig. 4.9).

70. Perhaps the fullest commentary is in Jean-Marc Léri, “Le Marais par Jacques Gomboust, 1652 (Paris, 1983).

71. For what little is known, see Mireille Pastoureau, *Les atlas français, XVI^e–XVII^e siècles: Répertoire bibliographique et étude* (Paris: Bibliothèque Nationale, Département des Cartes et Plans, 1984), 437–68.



FIG. 49.14. JÉRÔME BACHOT, "CARTE PARTICULLIERE DE L'ISLE ET BOURG DV CONQUEST," 1625. This rather hasty manuscript map of the area around Le Conquet was drawn by Bachot to acquaint Richelieu with the approaches to

the future naval base at Brest. Richelieu seems to have been a master of commissioning maps of strategic locations. Photograph courtesy of the BNF (Cartes et Plans, Ge DD 2987B [1151A]).

was in effect the chief diffuser of the engineers work in printed form. During 1633 and 1634, he published two atlases covering the French provinces in roughly sixty maps each and also a set of atlases titled *Les plans et profils de toutes les principales villes et lieux considérables de France*, covering seventeen provinces with a total of over four hundred maps. It is the *Plans et profils* that most clearly show their origins in the work of the *ingénieurs du roi* of Henri IV, particularly in the case of the provinces of Picardy, Brittany, Champagne, Lorraine, and Dauphiné—186 maps in all.

It is impossible here to offer complete comparisons, but I shall take six examples from three provinces. Figure 49.15 shows the town of Péronne from Jean Errard's atlas of the places and *gouvernements* of Picardy. Note its very close similarity to Tassin's engraved "Péronne" from the *Plans et profils* (fig. 49.16). Tassin's artist has added a fish weir (also found on one of the manuscript copies)

and suppressed some of the detail, but his work is virtually a copy of that of Errard, or rather Jean Martellier.

We find the same similarity between the *gouvernement* of Rennes in the Arsenal manuscript (fig. 49.17) and Tassin's version in the *Plans et profils* (fig. 49.18). The two images cover almost exactly the same area (although here, as is often the case, the printed version omits some of the area shown in the manuscript version) and show the features in a very similar way; in the delineation of the woods, in particular, the printed version follows the manuscript very closely. The same thing could be shown for the "places" of Brittany, but I take the third example from Champagne.

The "Plan de Langres" (fig. 49.19) clearly inspires the *Langres* of Tassin (fig. 49.20). The delineation of the surrounding hills, the course of the river, the external roads, and the streets in the town are all very close. When we consider that the manuscript maps of Picardy, Cham-

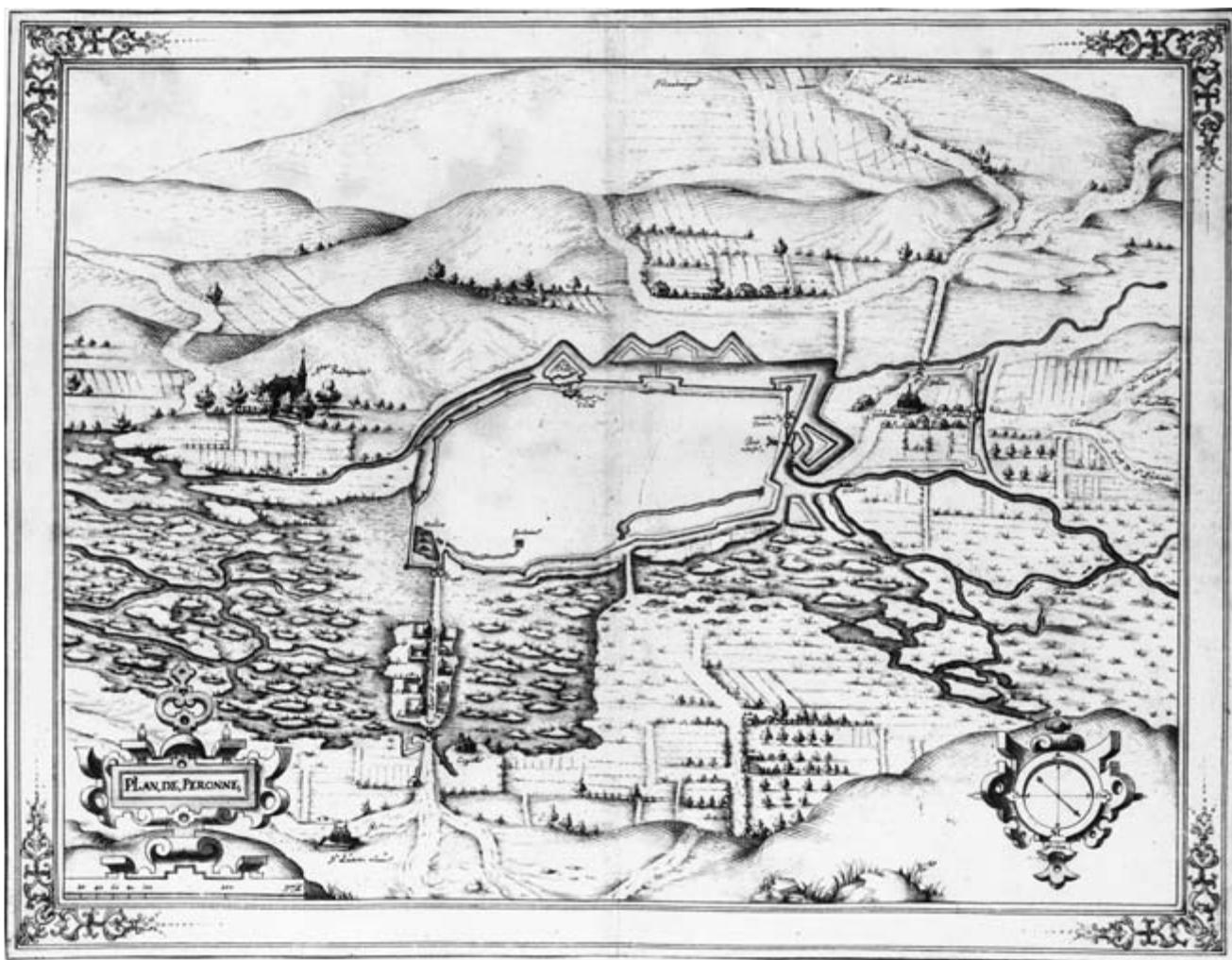


FIG. 49.15. JEAN MARTELLIER, “PLAN DE PERONNE,” CA. 1602. This manuscript map was drawn by Martellier during the course of a survey of all the strongholds and *gouvernements* of Picardy. It is more precise than figure 49.16, which is

Tassin’s engraving of the same site. The engraving manifestly derives from the manuscript map, but is more generalized. Size of the original: 32.8 × 42.3 cm. Photograph courtesy of the BL (Add. MS. 21117, fol. 13r).

pagne, Brittany, Lorraine, and Dauphiné in atlases composed under Henri IV—although now scattered in different libraries of London and Paris—are the same size and were compiled with the novel arrangement of places and *gouvernements*, it is clear that they formed part of a general program. It is also evident that Tassin had access to the atlases that had been assembled, and this allowed him to popularize the work of his comrades.⁷²

Another curious fact confirms the impression that Tassin had access to some major cartographic source assembled in the course of the engineers’ work. Claude Chastillon had compiled a large number of manuscript images (roughly four hundred) of French towns and other sites. This corpus was not published under the name of Chastillon until 1641, when the first edition of the *Topographie françoise* came out, and yet Tassin had al-

ready included some of these views in his *Plans et profils* of 1634. Obviously, he had privileged access to a variety of manuscript material.

CONCLUSION

The *ingénieurs* emerged in the early sixteenth century and at that time were mainly responsible for fortification plans. Their numbers grew somewhat in the time of Henri IV, and they undertook a greater variety of cartographic projects, like city views and town plans. Most remarkably, though, they also began mapping France at a large scale, using the joint system of *gouvernements* and town plans. The engineers of Louis XIII then extended their

72. Pastoureau, *Les atlas français*, 437.

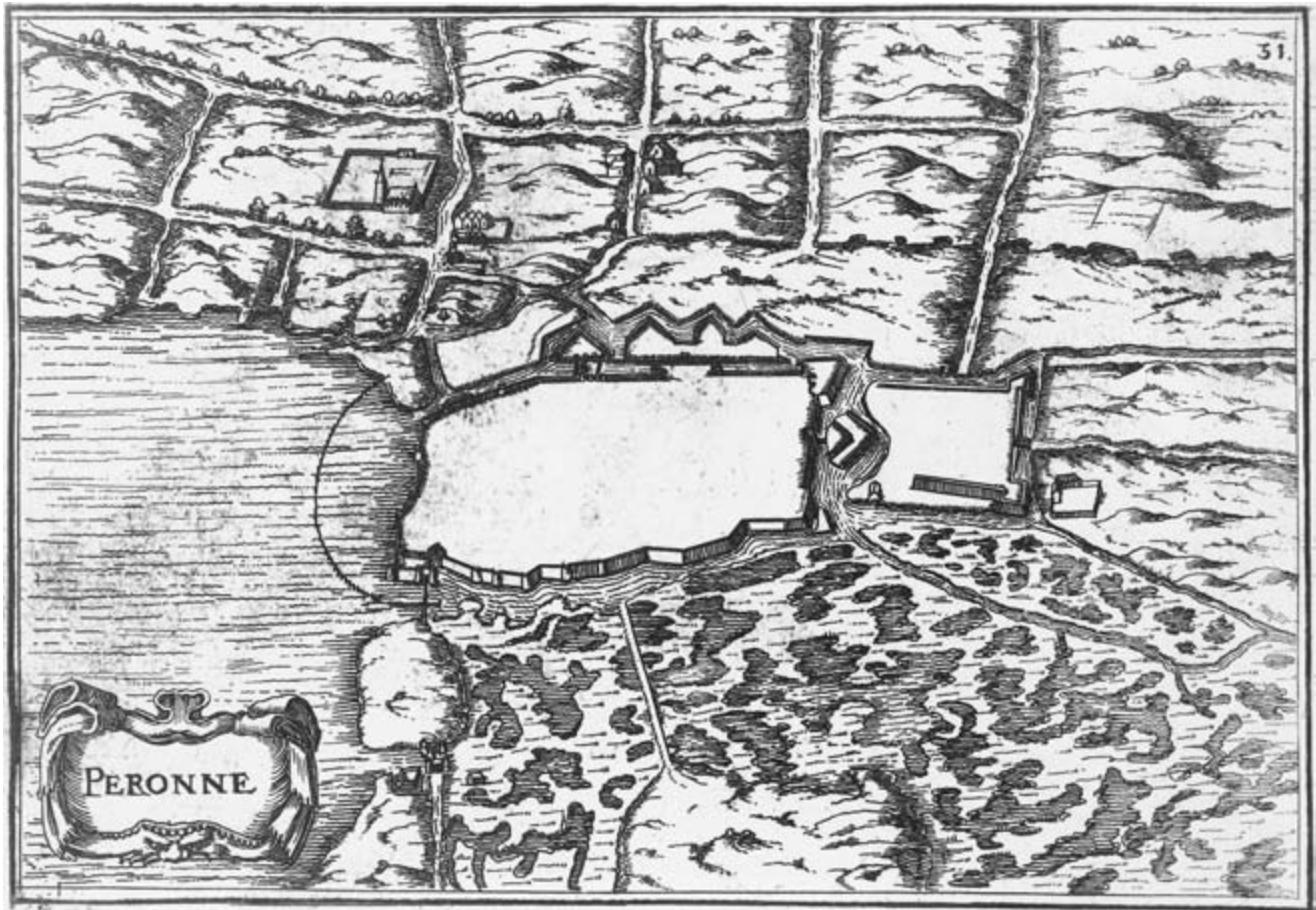


FIG. 49.16. PERONNE, 1634. This engraving comes from the series *Les plans et profils de toutes les principales villes et lieux considerables de France* published by Christophe Tassin at Paris in 1634. It has clearly copied the manuscript version of

figure 49.15 with the rather curious addition of a fish-trap in the water (the river Somme) to the west of the town.
Photograph courtesy of the Newberry Library, Chicago.

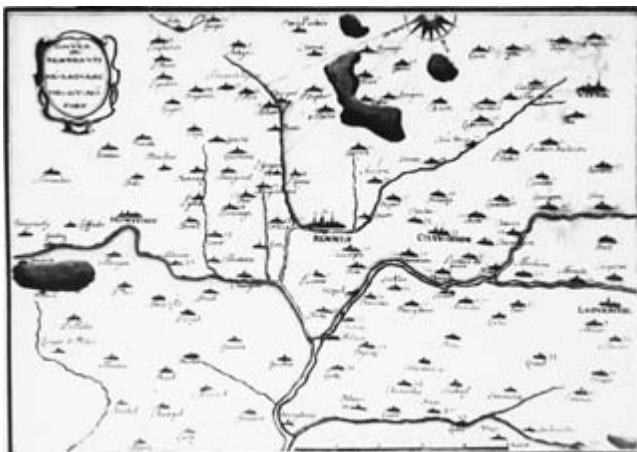


FIG. 49.17. "GOVVER[NEMENT] DE RENNES." This map no doubt derives from the survey carried out by Benedit de Vassallieu dit Nicolay about 1606. The cartographer takes care to indicate the main towns and villages, as well as the main woods and rivers.

Size of the original: 22.5 × 30.5 cm. Photograph courtesy of the BNF, Bibliothèque de l'Arsenal, Paris (MS. 3921, fol. 25).



FIG. 49.18. GOVVERNEMENT DE RENNES, 1634. This engraved map was published by Christophe Tassin in his *Plans et profils* of 1634 and should be compared with figure 49.17. The way in which Tassin has copied the woods is particularly compelling evidence of the derivation of the engraved map.
Photograph courtesy of the Newberry Library, Chicago.

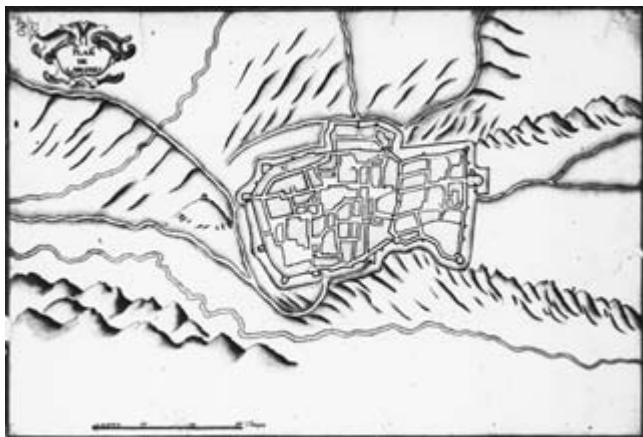


FIG. 49.19. CLAUDE CHASTILLON, "PLAN DE LANGRES." This manuscript plan almost certainly derives from the set of maps generated by Chastillon in covering Champagne, the province of which he was *ingénieur du roi*. He is at pains to delineate not only the complicated street pattern, but also the way in which the town stands on top of an escarpment. Size of the original: 23 × 33 cm. Photograph courtesy of the BL (Maps K. Top. 60.80).



FIG. 49.20. LANGRES, 1634. This map is the third in the series comparing the manuscript work of the engineers with the engravings of Christophe Tassin in his *Plans et profils*. This time the engraver has faithfully copied Chastillon's map, but has "improved" on the topography as well as introducing the usual perspective view element. Photograph courtesy of the Newberry Library, Chicago.

mapmaking activity by undertaking the special projects that I have noted for Janssen, Le Rasle, and Lenin. But above all it was during the reign of Louis XIII that the work of the earlier engineers found its way into the printed repertoire of maps of France.

It is striking to consider the cartographers identified by Pastoureau in her *Les atlas français*. Of the six functioning between 1610 and 1640, two were engineers: Sébastien de Pontault de Beaulieu and Claude Chastillon. Two others, Petrus Bertius and Jean IV Leclerc, seem to have been in the civilian tradition begun by Bouguereau and to have had no contact with the military engineers.

But of the other two, Tassin borrowed very heavily from his colleagues, and Melchior II Tavernier, as Pastoureau points out, found his first authors among a group of about half a dozen military engineers.⁷³ The work of Tassin and Tavernier was probably the most widely spread of all cartographic publications of the time in France, so that the work of the engineers indirectly influenced an entire generation of French map readers.

73. Pastoureau, *Les atlas français*, 13–54 (Beaulieu); 98–124 (Chastillon); 65–66 (Bertius); 295–301 (Leclerc); 437–68 (Tassin); and 469–80, esp. 469 (Tavernier).