

CHAPTER FOUR

Dissertation II on the Waters and Aqueducts of Ancient Rome

To the most eminent and reverend Gaspare Cardinal Carpegna, vicar of the city, his most gentle master, Raffaello Fabretti, son of Gaspare, of Urbino, sends greetings.

I. INTRODUCTION

Whoever has said that it is not at all necessary to give an account of one's leisure must have thought, when he said these things, of a man living for himself alone and focused on his own affairs. Far different, indeed, is the case of those whose course of life established by right counsel cannot be under their own control, especially those who must live or must direct their times for both working and being idle at another's bidding. This has most certainly been my experience, most eminent prince. After I declared myself among your servants and those of your office, next to the highest in the Roman church, and dedicated my effort and, at the same time, my industry to this task, I ceased to be my own man altogether. I became subject not only to your authority and will but also to your judgment. For this reason, I think it the special duty of my life to be approved by the one alone by whom I can be praised.

I therefore understand that I must make the greatest effort that you not think that the leisure you most generously grant me to interrupt my tasks

in your service has been undertaken rashly and foolishly, its moments uselessly wasted. This, then, will be the result if I show you that I have advantageously spent my periods of time withdrawn from more serious concerns in the pursuit of more humane letters and careful thought, having followed you as my weightiest and greatest authority in this matter. I cite you, I say, most eminent prince, since I see that constant concerns about the special business of the Christian state have been no obstacle for indulging these same pursuits from time to time.

To you, therefore, I will give an account of those repeated excursions made in spare hours—or even sometimes during entire holidays—that make up the sum total of my leisure: the things I observed when I was setting forth toward Marsian territory on your orders—hurriedly, as you know, and on other business—and the thoughts that came into my mind from recently repeated inspection of the topography and that seemed worth knowing about the sources of the Aqua Marcia and the Claudia and about the more accurate course of the Via Valeria. I ask that you receive them kindly, as is your custom, and that you favor my enterprise, such as it is, and permit it to shine in the brightest light of your name. The result will be that the very neglect, squalor, and shadows that the injury of time has poured over the constructions and monuments providing the subject matter in my treatise will remain cast off and scattered.

2. MAP OF THE UPPER ANIO VALLEY

We have thought we should first present a topographic map [fig. 17], completed not with much skill, to be sure—modesty forbids us to praise our endeavors to the extent that others are accustomed to praise their own—but certainly with much effort. We found all the maps published thus far to be so incorrect and, if I may say so, carelessly done that they were no help at all in this presentation we are undertaking. Therefore, in comparison with very bad maps, this one perhaps may be able to seem not inattentively executed.

I bear witness that all these things have indeed been “discovered by me through direct inspection,” and I am not sorry not to have believed at all the very learned Lucas Holste, who boasted the same thing in his *Annotaciones* on Clüver.¹ Instead, I have called back for a new assessment the

1. Holste, 165.

knowledge of all things that Holste decided himself with great and excessive (as I shall make clear) authority. Indeed, in these things, which concern scholarly knowledge of antiquity, I am confident that I will find no one better than myself. As a result, I have happily and freely put back on this map the channel of the Digentia and the shrine of Vacuna (just as elsewhere [fig. 1]), Lake Regillus and the town Labicum, and many other things, in agreement with Holste himself—indeed, some of them as a result of his arguments. However, in describing the topography itself and establishing the distances, I wish to be able to differ with so great a man and, since truth furnishes courage and strength, both to attack his interpretations frequently and to refute them.

3. DETERMINING ANCIENT MEASUREMENTS

a. The Mile

For us to have corrected the map has not seemed enough unless (after we have entered this competition) we bring the mile measurement, through which distances of places are set off, back to a fixed and unchanging calculation. Up to this point, it is nodding and wavering, as you will see.

Under the administration of Luca Peto in the preceding century, all the measurements that Rome uses were inscribed and set forth on a marble plaque on the Capitoline. Since Peto had noticed that the *palmo* of modern engineers (what they call the architectonic) does not correspond exactly to the *spithama*, or three-fourths of the ancient geometric foot, he warned his reader concerning this four times in his work *On Weights and Measures* and indicated the discrepancy in detail, first in these words at the end of his book 1: “Likewise, I also want you to know the following, that the *palmo*, which architects at Rome today use, if examined and compared with the *dodrans* (three-fourths of the legal ancient foot, i.e., nine inches), is found to be longer by one and one-third *scripula* (as much as two-ninths of an inch of the aforementioned foot), that is, one-sixth of an inch plus one and one-third *scripula*.”² He speaks along the same lines at the very beginning of his book 2 and again within it.³ Then, since Peto wanted the matter to be not at all hidden (as if knowing beforehand the common error of this century), he concludes that book in fixing the measure of the

2. Peto, 6 (= Graevius, 11:1619D–E).

3. Peto, 15, 18 (= Graevius, 11:1621D, 1623F).

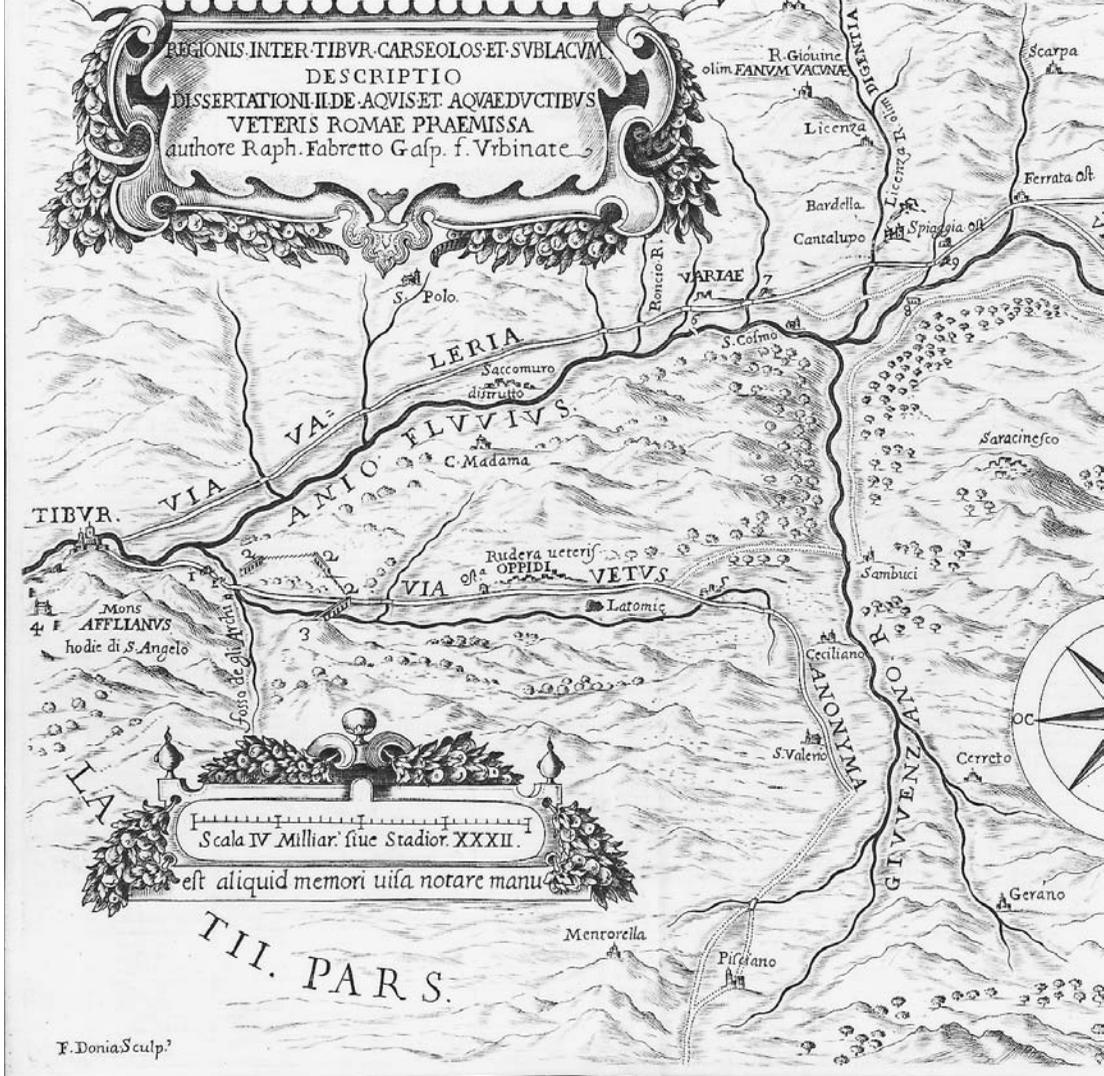
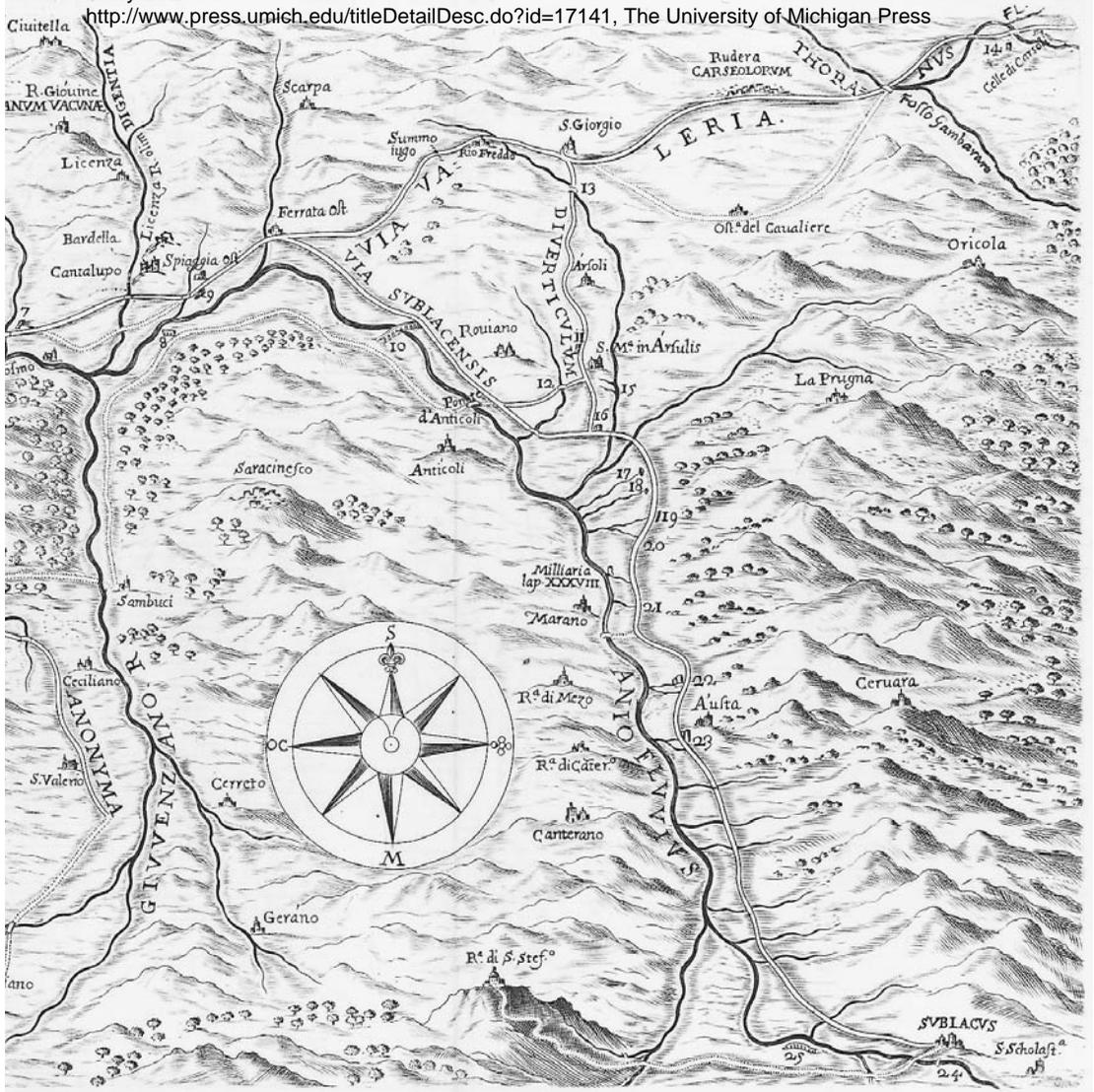


Fig. 17. Topographical map of the upper Anio Valley between Tivoli and Carsoli

1. Arch of the Aqua Claudia, appearing first. There follows the arch of the Anio Novus, toward the east. There follows the Arch of the Marcia, in the streambed itself.
2. Three sections of arcade of the same Anio Novus
3. Place where the same aqueduct emerges from the side of the mountain
4. Channel of these same three aqueducts, showing themselves at the west side of Monte S. Angelo, near the Madonna di Carciano
5. Ruins of a huge structure, perhaps above the channel of the Anio Novus, which emerges below at no. 3
6. Bridge below Vicovaro, above the remains of an ancient aqueduct
7. Traces of another ancient aqueduct, drawn off from the nearby hills from the north side
8. Aqueduct on the north side of the mountain under Saracinesco
9. Another aqueduct, near the Osteria della Spiaggia, perhaps the same as that seen under the Osteria della Ferrata in the wine cellar
10. Another, carrying the Anio Novus across from right to left under Roviano and taking itself straight into the mountain
11. The site of Somnula, where the thirty-eighth milestone of the side road from the Via Valeria into Subiaco was found



12. The Pons Scutonicus of ancient construction, called "Stratonicus" by Holste
13. Another bridge, equally of ancient construction, below S. Giorgio
14. The column of the forty-first milestone near Cellae
15. Very abundant springs under the Church of S. Maria—in our opinion, the sources of the Aqua Marcia
16. A dedication of Augustus, at the junction of the branch from the Via Valeria toward Subiaco cited earlier [no. 11]
17. Ruins of a structure, at the source of the aqueduct emerging underneath them
18. Ruins at the source of the aqueduct, called Lake of S. Lucia
19. Substructure, perhaps of the Anio Novus before its channeling from the lake, set against the side of the mountain; under substructure, the source of the aqueduct called Serena
20. Another channel of an aqueduct, also called Serena
21. Aqueduct, called Casa di Lemme
22. Forma della Mola, consisting of most abundant sources
23. Channel under the settlement of Agosta, the most abundant of all
24. Remains of the lakes, from the second of which the Anio Novus was drawn by Nerva, the name of Trajan having been inscribed
25. Aqueduct of the same Anio Novus, twenty feet higher than the bed of the river itself



ancient mile, understood in modern *palmi* of architects, or reeds [*cannae*] of ten palms in length: “The mile, which I said in the earlier book consists of five thousand feet, through that calculation by which we showed the *palm* to be three-fourths of a foot plus one-sixth of an inch plus one and one-third *scripula*, will today be the measure of 649 reeds, nine palms, and three digits.”⁴

But while Peto believes that he has applied medicine, he has administered poison. First, there is an insignificant error in calculating the total of his reeds, which ought to be stated not as 649 reeds, nine palms, and three digits, as he thinks, but as 650 reeds, six palms, one *sextula*, and one and one-third *scripula*, as can be seen in the following summary.

A *palm* of nine inches, one *sextula*, and one and one-third *scripula*, reduced to so many thirds to avoid fractions, makes 664 thirds, as follows:

$$\begin{array}{r} \text{nine inches} = 648 \\ \text{one } \textit{sextula} = 12 \\ \text{one } \textit{scripulum} = 3 \\ \text{one-third of a } \textit{scripulum} = \underline{1} \\ \hline 664 \text{ thirds.} \end{array}$$

An ancient foot consists of twelve inches, or seventy-two *sextulae*, or 288 *scripula*, or 864 thirds of a *scripulum*. When multiplied by five thousand feet (which are one thousand geometric paces), the result is 432,000 thirds. Divide a mile, that is, 432,000 thirds, by its own palm, that is, 664 thirds:

$$432000/664 = 6506.$$

The result will be 6,506 palms plus sixteen thirds more (i.e., five and one-third *scripula*), which is the same as we have said already, one-sixth inch plus one and one-third *scripula*.

In addition to this error, Peto has committed a far more serious mistake in indicating the length itself of the modern *palm* (i.e., the length of the already mentioned nine and one-sixth inches plus one and one-third *scripula*). From his own Capitoline marble, comparing not the inscribed foot with a *palm* but a ten-foot length with an entire reed, we find that a reed

4. Peto, 20 (= Graevius, 11:1625B–1626A).

contains seven feet, six inches, five *sextulae*, plus one *scripulum*, with three seventeenths of a second *scripulum*, or (that which demands a shorter mathematical operation) seven feet six inches and fifteen-seventeenths of a second inch. Thus, the discrepancy of the modern *palmo* with respect to three-fourths of the ancient foot is $15/170$ inch. From this, we have established that the distance of a mile is that of 660 reeds, one palm, eleven inches, and one and one-half minutes, as in the following summary.

A *palmo* of 9 and $15/170$ inches, reduced to so many units of 170, produces $1545/170$ in this way:

$$\begin{array}{r} \text{Inches nine} \quad 1530 \\ \text{Fifteen remaining} \quad \underline{15} \\ 1545. \end{array}$$

An ancient foot (i.e., $2040/170$) multiplied by five thousand feet produces $10200000/170$. Divide a mile (i.e., $10200000/170$) by its equivalent in palms (i.e., by $1545/170$):

$$10200000/1545 = 6601.9300.$$

The result will be 6,601 palms and $1455/1545$. Multiply the figure by twelve inches, and when that figure is divided by the denominator, the result will be eleven and $465/1546$. Again, when the figure is multiplied by five minutes—for one inch is divided into five minutes—and the result is divided by the denominator, the result will be one and $780/1545$ minutes. When each number is divided by fifteen, the number by which the fraction is reduced to smaller numbers, the result is $52/103$, which we accept as very close to a half-minute.

Holste neither paid attention to Peto nor sought the truth, here not lying hidden in a well but open on the map; he instead embraced that well-worn and treacherous practice of surveyors. As a result, just as he had posited this figure in many places in his other writings, Holste announced in his dissertation *On the Golden Milestone* that the ancient mile contained somewhat less than 667 reeds.⁵ This assumes that the modern architectural *palmo* would indeed be the same as three-fourths of a foot, or an ancient *spithama*, as the following summary demonstrates.

5. L. Holste, *De milliaro aureo, error popularis, quem omnes fere antiquarii errant, explosus* (= Graevius, 4:1805–6).

A mile contains five thousand feet, or sixty thousand inches. Divide by nine inches, that is, by a *dodrans* or three-fourths of a foot:

$$60000/9 = 6666.$$

The result will be 6,666 $\frac{2}{3}$ *dodrantes* or three-fourths feet, or (according to Holste's hypothesis) 6,666 and two-thirds palms, that is, 666 reeds, six palms, and eight inches.

Another measurement of surveyors is through *catenae*. A *catena* contains fifty-seven and one-half palms, that is, ten *staioli*, each of which therefore comprises five and three-fourths palms. Multiply, therefore, by 116 (for surveyors wish a mile to be made up of this many *catenae*); there are 6,670 palms, in this way:

$$\begin{array}{r} 116 \quad 580 \\ \underline{57 \frac{1}{2}} \quad \underline{58} \\ 812 \quad 6670. \end{array}$$

That is, there are 667 reeds of ten-palm length, or senatorial paces.

So that the fruit of the labors of the distinguished Holste not be ruined by an unnoticed error, it has been my pleasure to note these things for enlightenment, not criticism.

b. The Foot

Moreover, there have been different sorts of confusion about the legal foot. Some people prefer that of Statilius, others that of Cossutius or the porphyry foot to the others. However, I now am satisfied with the Capitoline foot, after I had rejected it for a long time or, rather, had believed that I had rejected it. Indeed, a strange thing happened to me in this regard; once on the Via Ostiensis near the tenth milestone, in certain ruins of an elegant villa, I had discovered the remains of a floor paved from pieces of different marble, very well fitted. As I am held by this habit, either an interest or a disease, of searching out antiquities most carefully, I extracted a piece more complete than the others and took it with me. Its two sides matched each other in a most exact way: the longer side exceeded the foot that Luca Peto represented as legal⁶ by one and one-half *sextula*, and the

6. Peto, 88 (= Graevius, 11:1674).

shorter one was reduced in size by exactly half that amount. I realized that this fragment was so precisely similar to many other pieces of pavement that I reconstructed my foot from it, after it had been transferred onto a bronze sheet. It matched all the thicknesses of the walls, the widths of the flat columns, and all the larger measurements, without any fraction of *sex-tulae* or minutes.

As a result, although other measurements were ordered to be valid, I preferred this one. Moreover, in fixing a comparison of the Capitoline foot with the reed, I found that this foot of mine was of indistinguishable similarity with that on the Capitol. Either Peto did not faithfully reproduce it in his book, or—what I rather think—the model, incised in bronze and stamped on wet paper, contracted when the paper dried out. As a result, it is now my task to accept the Capitoline foot as my own and defend it.

Certainly (so that I not be charged with vanity for attributing anything to my observations), there is threefold evidence by which Peto confirmed his measurement, namely, the number of three different bronze feet taken together, of the same length, so shaped for use and found in different places.⁷ This evidence takes precedence by far over those memorials that were carved on the two funerary monuments of Cn. Cossutius and T. Statilius. They serve to indicate the profession held by the man whose ashes are conserved within rather than to show the exact measure of a foot. This can be observed in the following foot of Aebutius [fig. 18].

Marcus Aebutius, the freedman of Marcus, Macedo, father, Marcus Aebutius, the freedman of Marcus, Callistratus, son, Marcus Aebutius, the freedman of Marcus, Eros, Julia, the freedwomen of Lucius, Berenice, Julia, the freedwoman of Lucius, Hesuchium, Pomponia, the freedwoman of Lucius, Selene. Clodia, the freedwoman of Gaius, Antiocis, vowed it. [CIL VI, 10588]

On this inscription on a stone that lies in the Orti Mattei, among other construction tools, the tools themselves are quite distorted, since the carpenter's square is out of proportion, and the obtuse angle and the legs of the right angle are in error. On it, I say, not only is precise measure lacking in the foot—it exceeds the Capitoline foot by three *scripula*, the same length by which another, published by Gruter, clearly falls short⁸—but

7. Peto, 5 (= Graevius, 11:1619A–B).

8. Gruter, dcxliv.3.

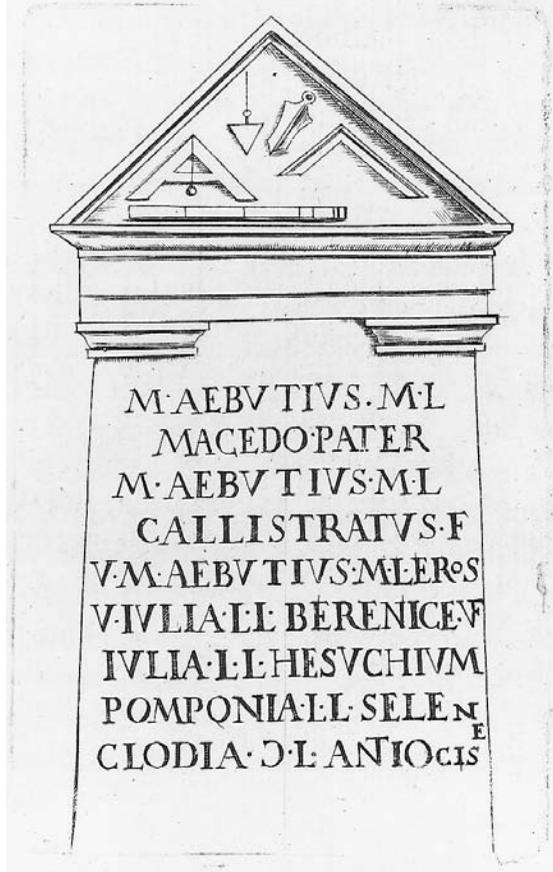


Fig. 18. Cippus of M. Albutius [CIL VI, 10588]

also a careful division of the parts is lacking. This is especially true because neither do the other two earlier feet, those of Cossutius and Statilius, agree at all, as Philandrier argued,⁹ but there is a discrepancy (albeit modest) between each, as Peto noticed.¹⁰

The most distinguished and most careful Fr. Juan Bautiste Villalpando has reconstructed the measurement of the Roman foot from the Farnesina *congius*—not, indeed, from its height, as Oisel thought,¹¹ but from two

9. Philandrier, *Annotations*, 117–18; cf. Lemerle, *Les "Annotations,"* 165–66.

10. Peto, 5 (= Graevius, 11:1617A–D).

11. Oisel, 561–66.

lines drawn on the vessel at an angle toward each other.¹² For his commentary, Villalpando has deservedly won the greatest praise from all, in his table where he sets forth “an instrument for increasing or diminishing bodies in a given scheme.”¹³ But [in his measurement of this *congius*] he has won little credibility or none at all from us. Indeed, we cannot be persuaded that the bronze Farnesina vessel, established for measurement of liquids, through so many fine points would also have been applicable for measuring distances. Its dimensions do not rise up in a straight line, and—what is especially important—no circle and no projection of the vessel indicate the dimension of a half-foot. To corroborate the first, we will examine “another *congius* quite similar to this Farnesina vessel, held by a man unknown then and up to this time,”¹⁴ as if brought on by divine intervention, better than the vessel Villalpando has shown.

The single most important factor that weakens the credibility for us of this measurement is its notable excess, that of one and one-fourth *sextulae* or 5/288 over our Capitoline foot, attested by surer evidence and confirmed a thousand times from daily measurements of ancient buildings. These discrepancies resulting from this measure and from fractions of it—already fragmentary and unmeasurable, if I might say so—would escape notice if Villalpando’s foot were adopted. Moreover, there is a very easy explanation of this inscription on the Farnesina *congius*:

Vespasian Caesar, consul for the sixth time, and Titus Caesar, son of Augustus, consul for the fourth time, measures fixed [MENSURAE EXACTAE] in the Capitol, ten pounds. [ILS 8628]

If the phrase “MENSURAE EXACTAE” should be interpreted as nominative plural, it would then have to be inferred that “in one measure only, reference is being made to fixed measures, so that a scheme of all measures should be sought from this measurement alone.”¹⁵ Clearly and in plain

12. J. Prado, S.J., and J. B. de Villalpando, S.J., *In Exechielem explanationes* (Rome, 1604), 3:499–502.

13. Prado and Villalpando, *In Exechielem*, 3:316.

14. Cf. Prado and Villalpando, *In Exechielem*, 3:499C–D: “cum casu illac pertransuit vir quidem mihi tunc ignotus, qui simile quoddam vas inter pretiosa maximi cuiusdam principis . . . asseruaret” [when there passed by chance a man at that time unknown to me, who was keeping a watch on a certain similar vessel among the treasures of a certain prince . . .].

15. Cf. Prado and Villalpando, *In Exechielem*, 3:500: “Iam, ni fallor, aperte videre potuit lector, quomodo hoc uno vase mensurae omnes contineantur, ac pondera” [The reader has been able to see now, unless I am mistaken, how in this one vessel all the weights and measures are contained].

Latin, we interpret the phrase as genitive singular, as if the name of the *congius* vessel itself were understood and the inscription had denoted “a *congius* of fixed measure.” In this way, the phrase is clearly to be interpreted in an inscription cited by Gruter, “of fixed *stater* on the Capitol.”¹⁶ The word “pound,” “ounce,” or something similar, as if superfluous, is supplied by the context. So, likewise, in another inscription, “of fixed *sextarius* . . . of our lords Arcadius and Honorius,”¹⁷ we see the word “measures” omitted, like the word *congius* here, for the sake of brevity and elegance in the Latin; and in the inscription that precedes it,

C. Umbrius Edrastus Fortunatus, quattuorvir, legal measures of the city at his own expense . . . [CIL IX, 980]

the word “renewed,” “set up,” or something similar, which the grammarians call “principal,” is lacking.

Now, as an appendage, let us indicate some accurate representation of the Capitoline foot to foreigners and outsiders; it is found nowhere else more accurately and, moreover, divided into its *sextulae* than in the work of the same Fr. Villalpando, precisely in 72 of those 125 spaces in which he divided diameter AB of his semicircular instrument.¹⁸ To avoid error, they should not trust in this regard the reconstruction of Fr. Giambattista Riccioli in his *New Almagest* [Comprehensive Treatise] more than is right.¹⁹ They should observe, I ask, that Riccioli’s half-foot exceeds our Capitoline half-foot by three-eighths of an inch. They should not think a deviation of one-sixteenth in a whole foot, or an entire digit in a foot, something very small or negligible. Again, they should consider that the same Riccioli sets forth in his *Revised Geography and Hydrography* another variant from his own (one not at all different from the Farnesina measure, which he believes he is following), two *sextulae* longer than the Capitoline foot.²⁰ But, finally, let us return to our subject.

16. Gruter, ccxxii.8.

17. Gruter, ccxxiii.2.

18. Prado and Villalpando, *In Exechielem*, 3:316.

19. G. B. Riccioli, S.J., *Almagestum novum astronomiam veterem novamque complectens* (Bologna, 1651), 58.

20. G. B. Riccioli, S.J., *Geographiae et hydrographiae reformatae nuper recognitae et auctae libri duodecim* (Venice, 1672), 32.

4. TOPOGRAPHY OF THE UPPER ANIO

In a different way, in that outstanding work on the aqueduct system—we owe the one copy of it surviving barbaric devastation to the diligence of the Florentine Poggio [Bracciolini], who witnesses in the *Description of the Ruins of the City of Rome* that he “found this book shortly before hidden away and concealed in the Casino monastery”²¹—in a different way, I say, does Frontinus speak about the source of these aqueducts. In designating the sources of the Aqua Marcia, Frontinus cites the Via Valeria and the side road from it onto the Via Sublacensis. However, in discussing the sources of the Aqua Claudia, he cites only the Via Sublacensis: he says, “The Marcia begins on the Via Valeria at the thirty-third milestone on a side road for those coming from Rome three miles to the right on the Via Sublacensis, first paved during Nero’s principate, at the thirty-eighth milestone on the left, within a distance of two hundred paces, bounded by substructures, almost standing still, with a very dark green color” [Aq. 7.6–7], and “The Claudia takes its beginning on the Via Sublacensis, at the thirty-eighth milestone, on a side road to the left within three hundred paces, from two very abundant and beautiful springs, the Caerulean, which is named from its appearance, and the Curtian” [Aq. 14.1].

a. Holste’s Theories

Holste paid no attention at all to that careful statement of Frontinus, nor in any way to the Marcia’s distance from the city, shorter than that of the Claudia. In his *Annotations* on Clüver, he indiscriminately locates the sources of each aqueduct on the Via Sublacensis,²² indeed, for the Claudia, assigning the Aqua Serena (no. 20 on our map) as the Curtian spring and the Lake of S. Lucia (no. 18) as the Caerulean and allotting confidently as source to the Marcia the Forma della Mola (no. 22), which issues a full mile above the Serena. Holste in fact says that the name of the Aqua Augusta still remains in a certain very rich source (no. 23) that issues in a double spring under a settlement called L’Austa.²³

21. P. Bracciolini, *Historiae de varietate fortunae libri quatuor* (Forni, 1969), 16.

22. Holste, 130–31.

23. Holste, 129–30.

Frontinus, however, refutes him in this, expressing the distance of the source of the Augusta in these terms [*Aq.* 12.1–2]: “Likewise, whenever dry spells required assistance for resupply of the Marcia, Augustus brought another source of water of the same high quality by underground conduit to the Marcia’s channel, which is called the Augusta from its builder. The Augusta arises beyond the source of the Marcia, and its conduit, until it reaches that of the Marcia, runs eight hundred paces.” Indeed, in very fact, that source of the L’Austa settlement, even when each of its springs is taken at its origin—although Frontinus fixed his measurement from the source of the Augusta not to that of the Marcia but to its conduit—is not five hundred whole paces distant from the other spring of the Mola (which, according to Holste, is the Marcia). From another argument to be made later, both the Marcia and the Augusta itself must be established as coming toward Rome and the Via Valeria below the sources of the Claudia.

I might concede that the locality L’Austa could contribute something of importance in another context; however, we should not think the name of the Aqua Augusta is surely detected in it, with other better conjectures scorned. Holste himself notes how little faith, indeed, one should have in those common names of places in the case of the town Arsoli, which Clüver assigns to the Colonia Carseolana, an error for which Holste scolds him.²⁴ We have by obvious demonstrations corrected Holste elsewhere—indeed, in a letter on his *Annotationes* just cited to the distinguished Lorenzo Panciatichi, that portent of erudition and memory while the fates allowed. Holste moves the site of Laurentum to the Torre S. Lorenzo because of the similarity of name,²⁵ and indeed, shortly afterward, he pushes in S. Anastasio too, having contradicted Clüver and himself at the same time.²⁶ Apart from this, this two-syllable word *L’Austa* has some similarity in spelling with the word *Augusta* but none in sound and derivation. The inhabitants render it in such a way that we would pronounce it “hausta,” that is, “a channeled aqueduct.” From this perhaps is more closely derived the name for the place and the spring.

So that I not seem to be suppressing by cleverness the things that can be claimed in support of Holste, let me say also that in a certain constitution of Clement III in the year 1189 (included in the new *Bullarium casinense*), mention is made of an Aqua Augusta and of a settlement of

24. Holste, 165.

25. Holste, 172.

26. Holste, 202.

Augusta, in the following words: “Concerning the lake or the river flowing from it, let no one, apart from the permission of the abbot and the brothers, be allowed to fish or to build a millwork up to the arch that is called ‘de Ferrata’ in the territory of Roviano. In addition, concerning the ancient conduit that brings water from the river to the congregation of S. Lorenzo, from this aqueduct, which is called the Augusta, let no one, apart from your permission, be permitted to draw water, except as much as is sufficient for irrigating lands and replenishing the baptismal font in the same church”;²⁷ and later, among different possessions of the Subiaco monastery is listed “the settlement of Augusta, with its farms and dwellings.”²⁸ All this is repeated word for word in another bull of Honorius III of the year 1217. No, indeed, these provisions are said to be derived in part from a certain higher source, from a privilege granted by the Most Holy Pontiff Gregory the Great, in which the same Aqua Augusta is named. I have seen it on page 2 of the copy taken from the registry of the holy monastery of Subiaco, kindly shown to me by the Most Reverend Abbot Cornelio Margarini, the compiler and editor of the *Bullarium* cited earlier.

But not for this reason will I withdraw from attacking Holste’s opinion. Indeed, these apostolic documents or similar indulgences of proven note—for concerning the authenticity of this one, which is attributed to Gregory I, you will summon someone else than me as a supporter—include whatever territory lies from the monastery itself up to the arch of Roviano. (This, I believe, is the same aqueduct that is seen to cross the Anio below Roviano, no. 10 on the map.) As a result, in so wide a territory, they therefore leave uncertain the location of the source or the conduit of the Aqua Augusta itself, to the extent that they made reference to the Augusta mentioned by Frontinus, according to both our reasoning and other arguments.

It is indeed clear that the bulls cited above move each aqueduct far from these places around the thirty-eighth milestone and bring it close to the monastery itself: the conduit, which is said to bring “water from the river to the congregation of S. Lorenzo” (just like another Augusta) is said “to bring water from the lake” in an older bull of John VI of July 21, 704. I will cite its words more willingly for the reason that they lead to an understanding of the origin of the Augusta settlement built at a distance from here: “. . . the settlement that is called Augusta, with its entire mountain,

27. C. Margarini, O.S.B., ed., *Bullarium casinense, seu constitutiones summorum pontificum* (Todi, 1670), 218.2.2.

28. Margarini, *Bullarium casinense*, 219.1.



for construction of a fortress. Likewise, the entire Aqua Augusta and the ancient aqueduct, commonly called the conduit, through which water is drawn from the lake and flows into the river at the Church of S. Lorenzo, which is called 'of the people,' so that no one at all should have the opportunity of drawing water from it, except for the baptismal font, or the irrigation of gardens, or useful purpose" Here, indeed, there is by chance a certain mention of this settlement of Augusta, far distant from that Aqua Augusta about which the bulls speak; the proximity of each aqueduct line and the congregation of S. Lorenzo to the lakes or Simbruine pools is also assumed.

But on this point, we might take confirmation from Holste himself, who makes reference as follows in his *Annotations* about the second and higher conduit of the Anio Novus—after its water was drawn "from the lake, which is above the Neronian villa at Subiaco," according to Frontinus [*Aq.* 93]—and about the lakes themselves: "The traces of this aqueduct are seen now below Subiaco itself, and it is commonly called 'il buco della Cartiera'; it runs from there below the Osteria of S. Antonio and from this point continuously along the left bank of the river. Its height at this time is twenty feet higher than the bed of the river itself; from this, one may conjecture about the height of the lake. However, those three lakes were not at all natural but artificial, the first, indeed, under the monastery of S. Scholastica, the very narrow mouth of which was closed around by a very strong wall of eighteen or twenty feet. From here, water flowed down into a second lake, which afterward received the first, the mouth of which seems to have been somewhat more open. The third lake was under the town of Subiaco itself, where even now a large part of the Anio is dammed by a wall, for driving various mills. Here, the Church of S. Lorenzo, built by Narzio under Pope Damasus, rises above it; the church used to be called 'at the high waters,' as ancient documents of donations of the Subiaco monastery bear witness. However, the lakes were destroyed in the huge flood of the river on February 20, 1305."²⁹

Moreover, if the bulls must be thought to refer to an Aqua Augusta below a settlement with the same name, we shall understand that they are concerned not with the aqueduct about which we are speaking, which Octavian named from himself, but with another, which Antoninus Augustus added to the Marcia.

29. Holste, 128–29.

[We make] one last point: because all those names have been suggested by the monks themselves, who perhaps at leisure made up modern names as a substitute for ancient erudition, there is no reason why a papal document should be presented as an argument against us. The Holy See ought to be concerned not with the authenticity of some names set forth for itself but about showing in the best way its generosity most broadly and the Christian state in a most deserving order. Indeed, not here alone have papal writers, having followed common phraseology, been deceived in these minute and secondary matters. The famous Pietro Bembo, the glory of letters and restorer of Latin purity, in his eagerness to gratify the Flascionians, cites them in the name of Pope Leo X among the Faliscans many times.³⁰ How incorrect he is in doing this Massa will prove in his *Book on the Origin and History of the Faliscans*,³¹ with confirmation from the younger Nardini in his very learned *Apologetic Discourse*.³² Moreover, to avoid looking for an example at greater distance, you will find errors in a bull of Pope Paul V concerning the Aqua Traiana, a most well known work of the same emperor, in which it [the Aqua Traiana] is attributed to Caesar Augustus and in which the same aqueduct is confused with the Aqua Alsietina.³³ Indeed, there are wrong statements in a bull of Pope Sixtus V concerning the Aqua Appia and the restoration of the Marcia restored to Rome, aqueducts from different regions combined into one and the same channel of the Acqua Felice, although their conduits are separated.³⁴ You will wonder, indeed, and you will confess that the words here do not agree with the accepted facts of antiquity. Yet you will not be offended by these very slight blemishes when more very important things shine brightly, namely, the greatness of public benefit and foresight, combined with scarcely believable magnanimity. In view of this, it comes to the minds of readers to bless eternally the memory of the lawmakers, rather than, like critics, to make a judgment concerning words of a law adopted

30. P. Bembo, *Opere* (Venice, 1728), 4:103 (*Epistolarum Leonis Decimi pont. max. nomine scripturarum libri 12.9*).

31. A. Massa, S.J., *De origine et rebus Faliscorum liber* (Rome, 1546), 4.

32. N. Nardini, *La cattedra vescovile di S. Timoleo in Nepi: La pentapoli Nepesina e il vero sito degli antichi Veienti, Falisci, e Capenati* (Rome, 1677), 120–30.

33. L. Cherubini, ed., *Magnum bullarium romanum* (Lyons, 1692), 3:307 (inter Constitutiones Pauli V ad annum VIII, 1612, quae incipit, “In Sede B. Petri.”)

34. Cherubini, *Magnum bullarium romanum*, 2:681–82 (inter Constitutiones Sixti V ad annum V, 1590, quae incipit, “Suprema cura Regiminis.”)



inadvertently, not over the substance of the matter, but over a certain ornamentation.

Even though we have said that these very small things must be overlooked in the writers of bulls, it is nonetheless not appropriate to have the same indulgence toward those for whom the sum of their work consists of learned discourse. As a result, we will not permit to escape censure Dumolinet, the author of the *History of the Supreme Pontiffs Taken from Coins*, who in more than one place mixes very well known facts with blatant errors. With respect to the Aqua Alsietina, climbing to the top of the Janiculum, he

lay down on the skins spread out and sought sleep,

[Verg. *Aen.* 7.88]

on a coin of Pope Paul V,³⁵ where in fact reference was made to the Acqua Felice. By his own correction, Dumolinet reduced to an impossibility the declaration of a bull of Sixtus concerning the restoration of the Aqua Marcia to the city (not, indeed, impossible, since the Marcia, at the beginning of the conduit of the Acqua Felice, surpassed this aqueduct in altitude and crossed over to that point). In place of “Marcia” he proposed the emendation “Virgo,” citing an aqueduct far distant from here and lying hidden in a very low region, as we observed in our first dissertation [I.3], contrary to the evidence of Fr. Kircher’s topographical map.

No, indeed, Dumolinet does not fear to take away from a most generous pope the glory of having introduced an aqueduct—how great has been his pride—and having constructed a new bridge on the Tiber near the ancient Via Flaminia below Ocriculum, when he [Dumolinet] says concerning a coin, “The Aqua Virgo is indicated, which Sixtus V brought into the city in greater capacity and called the Felice from his own first name.”³⁶ Afterward, on other coins, he tells us that the reconstruction of a bridge below the Janiculum is represented.³⁷ So much for historic credibility and a most scrupulous author of the greatest affairs of Rome!

35. C. Dumolinet, *Historia summorum pontificum a Martino V ad Innocentium XI per eorum numismata* (Paris, 1679), 147–48.

36. Dumolinet, *Historia*, 118.

37. Dumolinet, *Historia*, 120.

b. Course of the Via Valeria

But finally, to return to Holste, the particular cause of error for him was his ignorance of the ancient course of the Via Valeria, a subject on which he differs and is self-contradictory. At one place, he recognizes the crossroad of the Via Sublacensis and a side road from it at the Osteria della Ferrata, at which he by chance made sacrifice for his safe journey.³⁸ Elsewhere, he moved the Via Valeria back to the Osteria “la Spiaggia,” which is almost eleven stades before the side road.³⁹ Afterward, on the same page and in the same context,⁴⁰ he extends the Via Valeria almost four milestones after the crossroads established by himself, within the area of the Via Sublacensis and, indeed, the area of the side road from it onto the Valeria, when he says that traces of it appear below Roviano, in the bridge that he himself calls the “Stratonicus” [fig. 17, no. 12], and he identifies as the Via Valeria itself the entire connecting road and the side road of the Valeria onto the Sublacensis. We will prove Frontinus was thinking about this road when he indicated the intake of the Aqua Marcia [Aq. 7.6].

Indeed, a man of admirable learning and most experienced in antiquities ought never to have believed that the ancient Romans would have sought a somewhat wider and curving course where they could lay out a road in a straight line and would have extended over a short course the length of a road by more or less three miles. All the roads throughout the Roman world can be an example of the straightness with which their engineers were accustomed to plan them, as Plutarch witnesses that Caius Gracchus once established. “In rebuilding of roads,” he says, “he applied special care, having a plan both of usefulness and beauty and charm. The roads used to be led out straight through regions, paved partly with rock that had been cut and hewed for this purpose and partly with heaped up piles of sand. Empty spaces were filled; where they might be interrupted by valleys or torrents, they were connected by bridges, and having reached the same height on each side, they were especially beautiful to see. In addition, he set off individual miles, measured carefully, with stone columns” [C. Gracch. 7.1].

Persuaded by this argument, I and a young man cultivated in Latin and

38. Holste, 165–66.

39. Holste, 35.

40. Holste, 165.

Greek learning, Giuseppe de Giuli, with hard work climbed the ridge that you see noted on the map—to be sure, at an unsuitable time of the year, since the heat of the oncoming summer scarcely permitted a journey on foot. Indeed, the horse, over a steep and continuous climb of two and one-half miles, was hardly able to draw himself and the carriage. With the greatest admiration and joy, we found sure traces of the road over the ridge and through the settlement “di Riofreddo,” in the terracing of the slopes, ambitious and truly most worthy of Roman spirit, and in the excellent bordering of the road in its lower part, and elsewhere also in the paving of the basalt. An enthusiasm quite similar for each of us deceived our exertions: de Giuli himself was searching for a better attested branch of the Via Valeria, that very road, indeed, that at a short distance opens itself from the consular roads into the territory of the Aequicolae, the Marsi, the Peligni, and the Marrucini. He is writing their history and that of the surrounding peoples, so that he might revive memories of his native soil, greatly confused in the works of other authors.

Therefore, over this true and straight Via Valeria, from Tibur to the shrine of S. Giorgio (beneath which the side road to Subiaco descends), there are sixteen miles and three stades besides; you may attribute them to the somewhat different orientation of the modern road from the ancient, especially beneath Cantalupo. Tibur is said to be twenty miles distant from Rome, both by Antoninus [*It. Ant.* 309.1] and by the Peutinger Table correctly amended (as is done by Clüver in his *Italy*),⁴¹ as well as by Martial in these verses to Faustinus [4.57.3–4]:

You inhabit the kingdom of the Argive settler, Faustinus,
Where the twentieth milestone leads from the city . . .

That side road from the Via Valeria to the Via Sublacensis must therefore be put back at the thirty-sixth milestone, and the number “XXXIII” of Frontinus [*Aq.* 7.6] must be emended to “XXXVI,” by joining the first two units of the number “III” at the bottom. On this point, many arguments are persuasive.

Persuasive, I say, is the distance already cited from Tibur of sixteen

41. Clüver, 955. *Tab. Peut.* IV.5 gives the distance as sixteen miles. Cf. L. Bosio, *La Tabula Peutingeriana* (Rimini, 1983), 84; O. A. W. Dilke, *Greek and Roman Maps* (Ithaca, N.Y., 1985), 113–18.

miles, the measure of which we correctly fixed by a device attached to the wheel of the wagon. Although this measurement is not at all consistent with mathematical precision, I learned that it is very close to and not significantly different from the truth.

Two further proofs openly establish the matter. The first is the milestone erected at no. 14 [fig. 17] near the town called “Le Celle di Carsoli,” in front of the doors of the Church of the Blessed Virgin de Carmelo, with an inscription indicating the forty-first milestone. A transcription of it can be read there, for it is damaged on top and eaten away:

. . . of tribunician power, consul for the third time, undertook the building of the Via Valeria, milestone forty-one. [CIL IX, 5966]

Indeed, by the modern road that turns off by the Osteria del Cavaliere, from the intersection to Cellae, there are more than five and one-half miles; by straight path, through the ruins of the Colonia Carseolana, there will be five miles exactly, which, added to the well-known “XXXVI” of Frontinus [Aq. 7.6], as corrected by us, correspond exactly to the number “XXXXI” of this milestone.

Another proof is supplied by the thirty-eighth milestone on the side road itself from the Via Valeria to the Via Sublacensis, once standing at the Fons Somnulae, as Gruter reports, but now erected in the piazza of the nearby settlement of Arsoli, with this inscription:

Milestone thirty-eight. The emperor Nerva Caesar Augustus, pontifex maximus, with tribunician power, consul for the third time, father of his country, undertook its construction. [CIL IX, 5963]

Indeed, the site of Somnulae, even now retaining the same name, is exactly two miles distant from the intersection below S. Giorgio. As a result, the crossroad is fixed correctly at the thirty-sixth milestone.

Gruter also wrote that that milestone stood in front “near the spring of Somnula along the Via Valeria,”⁴² nevertheless by the authority of Ercole Ciofano⁴³ (I wish this to be stated for the sake of excusing the very distin-

42. Gruter, clv.4.

43. E. Ciofano, *In omnia P. Ovidii Nasonis opera observationes* (Antwerp, 1581–83), 127, reprinted in *Publii Ovidii Nasonis opera omnia*, ed. P. Burmann (Amsterdam, 1727), 3:643 (at Tr. 4.10.4).

guished Gruter). Ciofano, with Clüver himself,⁴⁴ believed that the town Arsoli, very close by there, came from the ancient Carsioli. There is no support at all for this identification, according to Holste, who quite rightly observed the ruins of the ancient colony at approximately one mile beyond the Osteria del Cavaliere on a slightly elevated hill, to the left of the Via Valeria for those going from Rome, as he sets forth at great length in his treatise.⁴⁵ However, not with equal accuracy but with the same error through which he extended the Via Valeria by leading it over the Pons Scutonicus and through Arsoli, Holste, from the itineraries, fixed the distance of Carsioli from the city at forty-two or forty-three miles.

Our correction of Frontinus, as a result of which the side road to Subiaco is fixed at the thirty-sixth milestone, two miles this side of Carsioli, also makes necessary the following correction of the Peutinger Table:⁴⁶

From the city on the Via Tiburtina to

Aquae Albulae	16
Tibur	4
Varia	8
ad Lamnas	5
Carsioli	5
	<hr/>
	38

Despite Holste, however, the author of the *New and* (if we believe him) *Exact Map of Roman Territory Published in the Year 1674* keeps the wild nourishment of the ancient acorn, even though soft food has already been discovered. While avoiding the mistakes of earlier writers, he runs in a different direction. Tricked by the sound of its name, he has moved Carsioli to the other side of the River Turano and in that very place where today we declare that the Celle di Carsoli and the forty-first columnar milestone stand. Yet we know that Holste's work was not unknown to this man (although to an equal extent badly understood): he steals the name *Lake Regillus*, which Holste correctly attributed to that lake that is seen under Monte Falcone and the town Colonna, without acknowledging his debt, so that he may rashly apply it to another, the Lake of S. Prassede, which Holste names Buranus and Gabinus.⁴⁷

44. Clüver, 475.

45. Holste, 164.

46. *Tab. Peut.* IV.5 (cf. Bosio, *La Tabula Peutingeriana*, 84).

47. Holste, 192.

With the same neglect, the recent author of *Latium*, in his “Most Accurate Delineation of Sabina Ancient and Modern” (as he himself names it), puts Arsoli (formerly Carsioli) not far from the Anio and above Agosta, and he so identifies it everywhere.⁴⁸ To be sure, I am quite disturbed that this author, who treats similar subject matter, either did not read or ignored such a man as Holste, the praise of his Germany, who has contributed many excellent comments on the ancient *Latium* of Clüver. In other respects, this author did not begrudge in the least to admit and even insert, up to the point of excess, written accounts of the destruction of Ampliglione,⁴⁹ old tales about Evander’s Palatium, and confusions of Lanuvium with Lavinium, from the accounts of the archbishop of Albano and an epistolary report from a doctor of Castel Gandolfo, a most wise investigator of antiquities who used to catch their breezes between the vineyards.⁵⁰

If, indeed, following Holste,⁵¹ scholars have said that the thirty-eighth milestone near Somnula must be counted by a turn to the left from the bridge of Anticoli and over the “Pons Stratonicus” [fig. 17, no. 12], this is refuted for many reasons. First, Holste posits that the Pons Scutonicus there—which he calls the “Stratonicus,” honoring it by a Greek name—is on the Via Valeria, an argument we have proved to be false from the course of the Valeria shown earlier. Moreover, Holste computes an incorrect measurement of its route, since from Vicovaro to the Osteria della Ferrata, which he himself declares as the fifth mile—even though, as we have shown earlier, Holste’s mile measurements are looser than is accurate—there are no more than four miles and since there are just as many, more or less, at the Pons Scutonicus. Beyond this bridge, there once stood, not a whole mile distant, the thirty-eighth columnar milestone along the road, at the spring of Somnula. With this sum subtracted, at that point, the thirty-seventh milestone was not yet reached. Add the fact that the Via Valeria, which Strabo (who lived under Augustus) mentions [5.3.11], is older than the Via Sublacensis itself, “first paved under the emperor Nero,” as Frontinus describes it [Aq. 6.1]. Moreover, the Via Valeria was important among the roads in Italy, namely, that which stretched to the mouth of the Aterno and the Adriatic. From the Via Valeria, rather than from the Sublacensis, which could be called its appendage, it is right that

48. Kircher, 188, 208.

49. Kircher, 176–82.

50. Kircher, 52–54.

51. Holste, 165–66.

the milestones of side roads be counted, from one to the other. Finally, since the figure from the *Via Valeria*, taken from the crossroad below S. Giorgio to the right, corresponds splendidly, whereas the figure from the *Via Sublacensis* appears to be twelve stades short, it seems that nothing must be sought further or left to be in doubt.

Last of all, there is added a clear demonstration of the matter, which could not have occurred to Holste, since it came to light just recently, namely, that of a second thirty-eighth columnar milestone of the *Via Sublacensis*, three miles (less a stade) distant from the intersection of the side road already cited, that which joins the *Sublacensis* with the *Valeria* beyond the Anticoli bridge [CIL IX, 5971]. Through the location of this newly discovered column, it is clear that this intersection was at the thirty-fifth milestone, and therefore the number thirty-eight does not, as Holste himself wrongly believed, agree with the column at the spring of *Sonnoletta*, a mile and one-half distant from here over the side road and the *Pons Stratonicus* (to the extent that we, with Holste, would call that road the name *Via Valeria*).

This new column of the thirty-eighth milestone, about which we are speaking, still stands in the bed itself of the river, fixed on top of its base, receiving the force of the current—the course of the *Via Sublacensis* has been changed because of flooding—with the following inscription on the upstream side.

The emperor Caesar Trajan Augustus, son of Nerva, Germanicus Dacicus, pontifex maximus, with tribunician power, imperator for the fourth time, consul for the fifth time, undertook the rebuilding of the road, milestone thirty-eight. [CIL IX, 5971]

Evidence of this I freely confess that I owe to Giovanni Battista and Pietro de Massimi, the sons of Fabrizio, a gentleman of the town of Arsoli and one to be counted among the patricians of traditional integrity. They, with that generosity with which they excel, offered themselves as guides of my journey and comrades of labor in freeing the column from the mud and cleaning it, not without danger of the floods of the Anio below us; we were scarcely a palm's length from the river itself, on slippery and wet ground, holding on to the branches of nearby trees.

Therefore, with the *Via Valeria* and *Via Sublacensis* having been separated, with the discovery of the side road from the one road to the other taken by Frontinus as designating the *Aqua Marcia*, and with the column

of the thirty-eighth milestone remaining even now, the result is a plain and easy understanding of Frontinus and an appropriate determination both of these aqueducts and of the sources of the Augusta.

c. Sources of the Aqua Claudia

Indeed, if you should look for the sources of the Claudia at the thirty-eighth milestone (now certain), “within three hundred paces to the left,” with Frontinus, they cannot be other than those “very extensive and attractive springs” (so one may call them with the same Frontinus) marked nos. 19 and 20 on our map [fig. 17]. I do not know why Holste omitted the second of them (for both are called by the common name *Acqua Serena*).⁵² Each is most abundant, and they are 120 paces distant from each other, emerging at the side road to the left, more or less within three hundred paces. It is hardly strange that no further trace of this side road remains, if we consider the huge buildup of that level ground, which extends almost two miles in length and width. As a result, the column, which certainly ought to have stood along the road, now does not emerge from the water except in the great dry season of the year.

Which of the two springs was the *Caeruleus* and which the *Curtius*, however, I will leave undecided. The genius of the spring, or the naiads inhabiting it, were not so favorable to me—even though I am most devoted to water and for a long time abstemious, in the same way as Holste, a man from most penitent Germany—that they removed this ambiguity by advising me openly, or from their appearance. Holste indeed identifies the *Curtian* and *Caerulean* springs by name,⁵³ aided by some mark of distinguishing them, which did not at all offer itself to us.

Even so, from the text of Frontinus, it is well enough established that the source of the *Marcia* was in those most abundant springs under *S. Maria in Arsoli* [fig. 17, no. 16], at a distance of three miles from the *Via Valeria* and within a space of two hundred paces to the left from the side road by which a crossing is made from the *Via Valeria* to the *Via Sublacensis*. But from careful consideration of another passage of Frontinus, it is understood that the *Marcia*'s sources could scarcely have been fixed on the banks of the *Anio*, as Holste argues, above those of the *Claudia*.⁵⁴ In his

52. Holste, 130.

53. Holste, 130.

54. Holste, 129.



review of the heights of the conduits, Frontinus states, “The Anio Novus is the highest of all, next the Claudia; the Julia holds third place, the Tepula fourth, then the Marcia, which at its source even matches the elevation of the Claudia” [Aq. 18.4]. But if we consider with Holste that the source of the Marcia is at the Forma della Mola [fig. 17, no. 22],⁵⁵ what wonder will there be if the Marcia, which Holste makes seven stades higher at its source, in the downward course of a very swift and rapidly falling river, should equal the elevation of the Claudia? The Claudia is set below it and issues in a low place between the modern road—which goes back a bit to the left, as the position of the column teaches us—and the river itself.

Yet the location of our source of the Marcia, although two miles and more below the sources of the Claudia, actually equals its elevation, as we learned from the plumb line, since the valley in which it issues clearly has a steep downward slope. It could therefore have been drawn from the same elevation as the Claudia, “had not the older engineers,” as Frontinus adds at once, “laid out their aqueducts at a lower elevation, either because the fine points of leveling had not yet been ascertained or because they deliberately made it their practice to bury aqueducts underground to prevent them from being cut easily by enemies, since a good many wars were still being fought against the Italians” [Aq. 18.4]. How accurately, however, Frontinus noted this old ignorance of leveling can be easily seen in the conduit of the Marcia itself, near the city. In the place where its structure on arcade begins, near the Via Latina around the fifth milestone from Rome, when the Marcia is compared with the conduit of the Claudia, it is found to be twenty feet below it. And afterward, at the Porta Maggiore, it is pushed down below it by a good twenty-five and a half feet, as is clear from our first dissertation to Lucio, from the cross section of the conduits [fig. 7], unless the downward slope after its settling tank contributed something to so great a fall in elevation.

d. Representations of the Aqua Claudia

What if the following image [fig. 19] were to show to us dramatically the low level of the Claudia, which we have said arises in the lowest plain, at the foot of the Simbruine mountains? Among the ancients, you would find nothing empty and without some significance in monuments of this kind.

55. Holste, 130.



Fig. 19. Possible representation of the Aqua Claudia

Not below it “do laughing waters leap down” [Hor. *Carm.* 3.13.15–16], nor does it cast down its stream, as other divinities of nymphs and rivers do. Instead, the urn, as if dipped in water sluggish and standing, seems to drink in the liquid to convey it somewhere else, rather than to pour it forth. The relief also seems to make clear reference to the following description on a very ancient altar dedicated to these Caerulean nymphs—for the Caeruleus (which means *cyaneus*, or “dark blue,” in Greek and poetically), as we saw, was one of the chief sources of the Claudia—that of the same water rising and falling into itself, in these verses:

To the Cyanean waves, Contuccius has made a pleasing gift, an altar to be revered in return for soothing waters. From here, the flowing water arises and continues, then will fall into itself, giving thanks to the nymphs who renew the splendor of the green bank with their power born from the springs. It makes safe its comrades and refreshes them with its water. [CIL VI, 555]

Pighius cites the epigram and connects it with the Caerulean spring, yet with the last verse omitted,⁵⁶ which we supply from Gruter;⁵⁷ however, we correct Gruter from Pighius’s text that we have consulted, when Gruter calls a “marble tablet” that which Pighius and the poem itself call an altar.

56. S. V. Pighius, *Annales Romanorum* (Antwerp, 1599–1615), 2:4.

57. Gruter, xciii.11.



Nevertheless, even if there were nothing unusual in this relief and the position of its urn, this very image is still rare and noteworthy in its depiction of the Aqua Claudia itself, through the inscription presented below it and reported here.

To the spirits of the dead, to Clemens, imperial slave, *castellarius* [reservoir man] of the Aqua Claudia, Claudia Sabbathis made it for herself and her own. [CIL VI, 8494]

The following stone tablet from your collection will provide another likeness of the same Aqua Claudia, indeed carved artlessly but not to be overlooked, now set forth in its entirety for the awareness of the learned public.

To the spirits of the dead, Sabbio, imperial bailiff of the Aqua Claudia, made this for himself and Fabia Verecunda, his most upright wife, with whom he lived twenty-four years, and his freedmen and freedwomen and his *vikarii* and the descendants of them all, in half part his own.

To the spirits of the dead, Sporus, imperial bailiff of the Aqua Claudia, made this for himself and Claudia Hermione, his most upright wife, and for his freedmen and freedwomen and his *vikarii* and the descendants of them all, in half part his own. [CIL VI, 8495]

Here, you see evidence of something new, the duty of *vilicus*, or bailiff—not known to Gruter and different from that of *castellarius* cited earlier—which, according to Frontinus [Aq. 105.3], belonged to the gang assigned to guard the conduits. Moreover, there is included a designation of *vicarii vilicorum*, or deputy bailiffs, not mentioned by Frontinus himself. Each term indeed differs from the correct spelling: in *vikarius*, there is a clear misuse of the letter *k* for *c*, which Gruter, in his grammatical index, has noted in many other words;⁵⁸ [there is a misspelling] in *vilicus*, even though Varro [Rust. 1.2.14] tells us that this noun is to be written with a double *l*, when he derives its etymology from *villa*. Nevertheless, I do not know why the word is found more frequently in inscriptions with a single *l*, as it is here, both in Gruter⁵⁹ and in these inscriptions that follow. The

58. Gruter, "Totius indicis harum inscriptionum conspectus," chapter xix, letter K.

59. Gruter, lxxix.4 (= CIL VI, 203), cvii.9 (= CIL X, 1561), cccxxxix.5 (= CIL VI, 10046).

first of these is among my unpublished inscriptions; the second, Dausque reports as *villicus*.⁶⁰

Sacred to Silvanus, the slave Speratus, bailiff of the emperor Caesar Hadrian Augustus. [CIL VI, 619]

Sacred to Silvanus, Onesimus the bailiff l.v.p. [CIL VI, 31010]

Here, Dausque makes an effort to prove that this word from the beginning demands one *l*, perhaps more cleverly than accurately.

Still rarer is the representation of a solitary image of a reclining nymph that we have introduced, because we see that ancient reliefs and paintings always show them in groups of three. I have collected into one place examples of this phenomenon, observed by me and new, as I think, beyond those that are obvious everywhere.

The first will be this one, which I have transferred here from your *Antiquitatum recollectiones* [fig. 20]:

To the divine power of the nymphs, the *aquarius* [waterman] Augustalis, freedman of the Augusti. [CIL VI, 30791 = 547]

Its original, said to have been at Naples, in the home of Adriano Guglielmo, is conspicuous in every detail: first, from the waterman sacrificing at a crowned altar, with his head indeed uncovered, as a result of which the sacrifice is being made to divinities in the middle rank and common, as I have proved was the ritual in my study of Trajan's Column;⁶¹ next, from the relief of the snake, that very well known symbol of health in imperial coinage, through which well-being is suggested, as is read in this inscription:

Sacred to the health-bringing nymphs, M. Lucilius Lucilianus, of the College of the Augustales, for his own health and that of Lucius Antistius Onesimus, of the College of the Augustales, paid his vow freely and deservedly. [CIL VI, 31010]

Similar to this, another spring is celebrated for "curing diseases" [CIL VI, 61*]. Finally, there is the ornamentation of the broad-leaved plant on the

60. C. Dausque, S.J., *Ortografia Latini sermonis vetus et nova* (Paris, 1677), 330.

61. Fabretti, *De columna Traiani syntagma*, 169.



Fig. 20. Votive relief to the nymphs [CIL VI, 3079I = 547]

relief, for the reason attested by Pliny in his description of it: “According to tradition, Nymphaea was born of a nymph who died of jealousy toward Hercules, wherefore some call it [the plant] Heracleon; it grows in watery spots, with large leaves on the top of the water and others coming forth at the root” [HN 25.75–76].

I have observed another example, which follows, and I took it from a *cippus* of two-palm length, inserted in the wall of a certain vineyard on a path that leads from the Porta S. Paolo to the Via Appia. The marble is in very poor condition, as you see [fig. 21]:

... [] ebius Eutyches, freedman, made ... [CIL VI, 554]

However, we prefer to render it faithfully, rather than, as others do with coins and reliefs, to deceive those absent by misrepresentation. When scholars attempt to make corrections, they frequently corrupt the ancient evidence. Indeed, most accurately does Ianus Gruter charge in his *Corrigenda* that license, even to the smallest degree, goes badly in these matters.⁶²

62. Gruter, “Corrigenda et animadvertenda toto opere inscriptionum.”



Fig. 21. Fragmentary votive relief to the nymphs [CIL VI, 554]

This votive tablet [fig. 22], which is seen in the Orti Mattei, furnishes a third example:

Titus Claudius Asclepiades and Caecilius Asclepiades, from a vow, gave and dedicated to the nymphs. [CIL VI, 549]

On this, in addition to those details I have set forth to be noted especially concerning the threefold number of nymphs, that common cult of Silvanus and Hercules recurs, cited in one and the same temple of Region XIII, according to Victor (= Graevius, 3:109) and five times illustrated in



Fig. 22. Votive relief to the nymphs, Silvanus, and Hercules [CIL VI, 549]

Gruter;⁶³ from a common epithet, we will connect this very cult with a new and tighter bond.

Just as we have seen, up to this point, the title *Pollentis* given only to Hercules [CIL VI, 328], so the following fragment of a recently discovered inscription in my collection shows that both the epithet *Pollentis* and (that which is synonymous) *Valens* or *Valentius* was attributed also to Silvanus. I have divided this inscription into two parts, so that I might accommodate myself to the space.

C. Julius Helpidephorus Cyrinus, patron of the association of the powerful god Silvanus, since he himself brought for construction two thousand sesterces with those who had planned and dedicated the temple from the ground up, from the Clymbim . . . (There follow ninety-nine names, from three different decuries.) [CIL VI, 647]

There is also another inscription on the Via Labicana, in the vicinity of Torrenova.

63. Gruter, xlii.4 (= CIL VI, 367*), xlii.5 (= CIL VI, 297), xlii.6 (= CIL VI, 296).

To Silvanus Valentius, A. Flutius Athenaeus, in free payment of his vow,
gave and dedicated. [CIL VI, 698]

Another example is unearthed from a stone.

Batinia Priscilla dedicated this, sacred to the nymphs. [CIL VI, 548(1)]

On it, below this inscription, were erected statues, not, indeed, of the nymphs, but of the three Graces. From this, it will have been sufficient for our present purpose to infer our threefold number, indicated for how many other divinities. In summarizing the very many things that might be said about the association of the Graces and the nymphs, scholars have cited Horace [*Carm.* 1.4.6, 1.30.6, 4.7.5].

There is, in addition, the same triple number contained in an ancient painting that was recently moved from the tomb of the Nasonii, at the fifth milestone of the Via Flaminia, to the Orti Alterii. In it, nymphs, perhaps the Hippocrenides, are caressing Pegasus, the producer of the stream itself or of the inhabitants of the Tritonian swamp (in which Pegasus is said to have been born), by pouring water on him or patting him with their hands [fig. 23].

Having made a transition from marble reliefs to paintings, we shall present for examination this other portrait, gleaming not with fleeting and short-lived colors but with the tint of gems themselves, again with three nymphs, from Theocritus [*Id.* 13.36–45]:

And fair Hylas departed, to bring water for dinner, holding a golden vessel.
But at once, he noticed the spring in a low place; there were many leaves
around it, as well as dark blue celandine, green maidenhair, sprouting pars-
ley, and curly dog's tooth grass. In the midst of the water, however, the
nymphs were holding a chorus, watchful nymphs, divinities to be feared by
rustics—Eunica, Malis, and Nycheia, the friend of springtime.

Our observation is not refuted by a passage of Pausanias concerning Elis [6.22.7], where he says that near the River Cytherus was erected a temple of four nymphs, who were called the Ionides, namely, Calliphaea, Synalaxis, Pigaea, and Iasis. Although we would confess that those Ionides were water nymphs, for that reason, accordingly and in order, the name *nymphs* would be suitable for goddesses who are protectors of waters, as Vossius, a



Fig. 23. Tomb of the Nasonii: painting of Pegasus and the nymphs

most illustrious author of this generation, proves.⁶⁴ Nevertheless, to support the agreement of so many monuments, it can be argued that some heroine was joined to the three nymphs and, as it were, added on to them, in the same manner of Greek flattery on a tablet, a copy of which we give from the original [fig. 24]:

To the four sisters. [CIL VI, 10036]

Here, with the three Graces embracing themselves according to custom, a fourth is inserted in their chorus, just as if she were worthy to increase the number of the Graces and to be worshiped in common with them. I think that she is a new bride, because of the twin birds playing in the pediment, not noticed by Smet,⁶⁵ and because of the veil with which she modestly

64. G. J. Vossius, *De origine et progressu idololatriae* (Amsterdam, 1668), 1:255.

65. M. Smet, *Inscriptionum antiquarum quae passim in Europam liber* (Leiden, 1588), fol. xxxii.8.

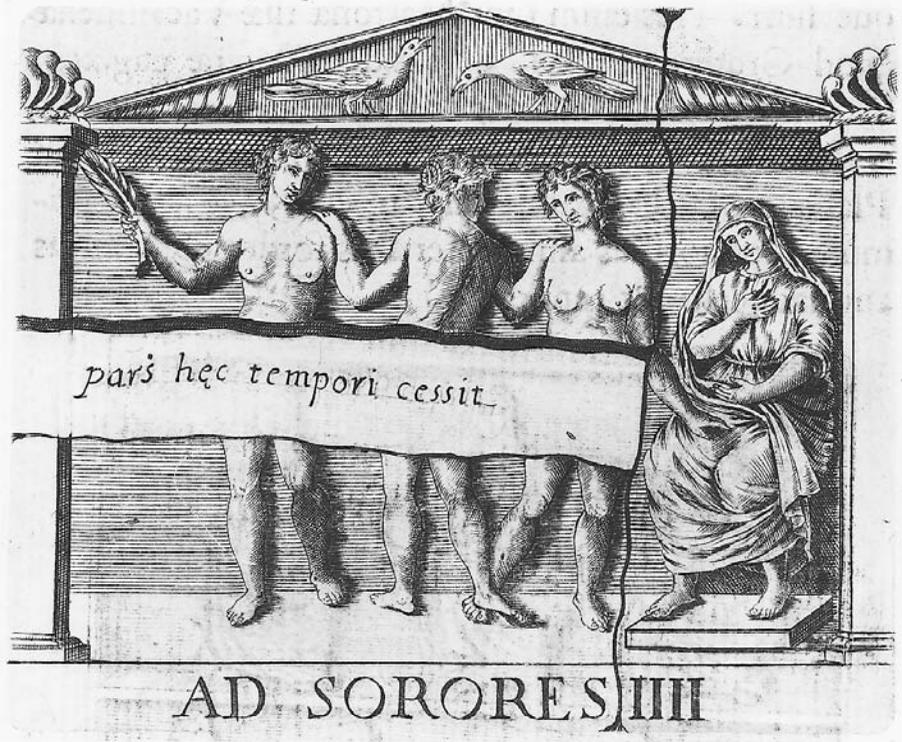


Fig. 24. Funerary relief depicting the three Graces [CIL VI, 10036]

covers and veils (*obnuit*, from which the word *nuptials* is derived) her head. Similarly, the inscription of this same relief is to be explained by these verses of Ausonius (*Epigrams* 23.13 Peiper):

There had been three Graces, but as long as my Lesbia lived, four; when she perished, they are numbered three, just as before.

Not only among water nymphs, but in other rustic divinities of the same sex, I have noted that the same practice of a threefold number flourishes and have wondered at it. For there are those three *Vacallinehae Matronae* [CIL XIII, 7952], the same number of *Mairae* [CIL XIII, 4303], and the same number of *Suleviae* and *Campestres* on the following relief, for some time now inserted in a wall in the courtyard of a private house in

Piazza Mattei, but noticed by me and cleaned off for the first time amid its squalor and cobwebs [fig. 25]:

Sacred to the *Suleviae* and *Campestres*. L. Aurelius Quintus, centurion of the seventh legion *Gemina*, happily and freely [*LAETVS LIBENS*] paid his vow on August 24th, in the consulship of *Bradua* and *Barus*. [*CIL VI*, 768 = *ILS 4776*]

I have brought to light this relief but am not confident that I can shed some light on the obscurity of that word *Suleviae*—indeed, not at all of corrupted Latinity, since the consulship of Appius Annius *Bradua* and Titus Vibius *Barus* is fixed in the 912th year of the city in the *Fasti* (A.D. 160). Accordingly, I will concern myself with other noteworthy things in this relief. Among them, there appears a boar girded with a lustral garland, just as *Trajan's Column*, on its first *Suovetaurilia*, shows this victim with this same adornment; afterward, it attributed to it a fillet, or you might call it a sash, as a substitute for a garland of this sort. Writing about *Trajan's Column*, I have proved that among the ancients, the use of now a crown, now a garland, both in victims as in sacrificers, was indeed common;⁶⁶ here, too, the centurion, indicated by his own staff of vine wood, no less than by the title of the inscription, is distinguished by the fillet or sash hanging down from his left shoulder. But what makes this inscription especially noteworthy is the formula “*LAETVS LIBENS*.” From it, students of abbreviations have finally understood *L.L.* It was interpreted as *libens libens* or *libentissime* previously and—what surprises me more—even after the inscription was seen in *Gruter*,⁶⁷ where the phrase “*LAET.LIB.*,” slightly less extended than in this inscription of ours, seemed to lead directly to the true understanding of the abbreviation.

Why go on at great length? Might we be able to say in one word that almost all examples of the feminine sex that have a number greater than one, whether divinities or monsters, unfavorable or favorable, are included in this threefold number? Ancient mythology has indeed introduced such creations as the *Gorgons*, the *Graiai*, the *Parcae* and the *Fates* (for *Ausonius* [*Griphus ternarii numeri* 19] distinguishes each of the two), the *Sirens*, the *Harpies*, the *Hesperides*, the *Stymphalides*, the *Eumenides*, the

66. Fabretti, *De columna Traiani syntagma*, 162.

67. *Gruter*, mlxxiv.4 (= *CIL V*, 5502).



Fig. 25. Votive relief to the Suleviae [CIL VI, 768]

Graces, the Sibyls (if we again believe Ausonius [*Griphus ternarii numeri* 85]), and the Muses themselves. The Muses, I said, are three in number, according to the opinion of more ancient sources, concerning which there is ample witness from Plutarch [*Quaest. conv.* 9.14.744C–D]; Pausanias [9.29.2], on Boeotia; Varro, cited by Servius [at *Ecllog.* 7.21] (“Nymphs of Libethra, our love”); Ephorus, cited by Arnobius [*Adv. nat.* 3.37]; and, with him, Augustine [*De doctrina Christiana* 2.68]. Indeed, the “statue of Apollo dedicated on Delos, with that arrangement, that he holds the bow

with his right hand, the Graces with his left, although each one is grasping some musical instrument (for one holds the lyre, another the flute, and the one in the middle holds a pipe brought up to her mouth,” concerning which Plutarch speaks [*De mus.*] 1136A], we shall argue has confirmed the number of three Muses, from the instruments appropriate to each but unsuitable for the Graces. We will declare that Ausonius, already cited, made reference to this same statue when he sang, “The three alone, whom once the right hand of Phoebus held . . .” [*Griphus ternarii numeri*, 31].

But at long last, while we, “as fashioner of a crown, owed to the nymphs” [*Hor. Carm.* 3.27.30], around the road have deliberately gathered flowers for the nymphs, the Muses, and the others at their Caballine spring, I seem to have strayed from the road itself. I shall seek again our flowing waters around the Anio, which we were surveying.

e. Source of the Aqua Marcia

Because of its proximity to the location of the Marcia’s source, it is probable that the fragment of a stone with the inscription

With our lords safe [SALVIS DD. NOSTRIS] . . . Perpet [] . . . the arcade
. . . [CIL IX, 4051.6]

in the altar of the nearby Church of S. Maria in Arsoli makes reference to this conduit of the Marcia and its reconstruction. The formula “SALVIS DD. NOSTRIS” is seen to be peculiar to Honorius and Theodosius.⁶⁸ Moreover, Honorius, who ruled in the west, in the same way he issued a law concerning the Aqua Claudia along with Arcadius [*Cod. Theod.* 15.2.2], perhaps in like manner undertook with Theodosius II some work on the Aqua Marcia here.

This Aqua Marcia then, “the clearest,” as Pliny says, “of all the aqueducts in the whole world, with the first prize for chilliness and healthfulness, by proclamation of the city” [*HN* 31.41], and likewise preferred to all others for mixing with wine, as Tibullus [3.7.58] reports (“May the water of the Marcia temper your ancient wine”), Gerolamo Mercuriale unfairly censures, with all the other waters of that region. Relying on the authority of Galen, Mercuriale denies that the Marcia was once in use for sustenance

68. See Gruter, clxx.5 (= *CIL* VI, 31911 = 1718[2]), cclxxvi.7 (= *CIL* VI, 1659).

and drink: “Although by no means easily do I believe that those waters, which were brought to Rome from the Tiburtine mountains, were much in use as sustenance or drinking, because Galen, the most careful observer of all conditions at Rome, asserts that all of them were raw and were unsuitable for cooking food, adding that that city, like other excellent gifts, so had very many and very beautiful springs, from which the sick as well as the healthy might drink.”⁶⁹ These things Galen does indeed say. But Mercuriale does not face up to the brilliant testimony about the good quality of the Marcia from Pliny and Frontinus, who states that its water was entirely assigned for drinking [*Aq.* 92], and likewise that of Arrian, who seems to prefer it to the most celebrated water of Dirce near Thebes: “Is the Marcia’s water worse than that of Dirce?” [*Epict. diss.* 2.16.31].

Mercuriale, however, has as his opponent and adversary Galen himself. In the middle of common praises for all the city aqueducts, from which neither his intention nor his words permit the Marcia to be excluded, Galen mixes in some trifling matter pertinent to these aqueducts from Tiburtine territory that seems to indicate not a fault but high quality. However, let Galen himself be heard in the passage cited by Mercuriale: “At Rome, just as there are many other extraordinary things in that city, so there is a remarkable elegance and multitude of springs, with none of them giving forth water foul or polluted and muddy or harsh and raw, just as neither at Pergamum in our country. In many other cities, however, by no means few corrupted waters are found. Indeed, those waters, indeed, that are brought down from the Tiburtine mountains through stone pipes in the Roman city without other faults are nevertheless somewhat raw, with the result that they do not become heated rapidly, like the springs of the city, nor are they chilled, nor in them, as in the waters of the springs, will whatever beans, vegetables, and meats you have thrown in be cooked quickly. Some of these waters, however, are much more raw in some places, others in other places, and they are called harsh and heavy by the inhabitants themselves, since they block the stomach and since many people experience a certain heaviness from drinking them” [*Commentary on Epidemics* 4.4 (XVII B, p. 159 ed. Kühn)].

Indeed, these things that Galen has said in the words cited above against the waters of that region certainly do not pertain to the Marcia and

69. G. Mercuriale, *Varianum lectionum in medicinae scriptoribus et aliis, libri quinque* (Paris, 1585), 98.

the other aqueducts brought to Rome, as perhaps Mercuriale understood. Otherwise, Galen, the most eloquent of physicians, would almost be laboring in a contradiction in practically the same phrase; he allows to issue forth in those first words “no water at Rome that is polluted and muddy, or harsh and raw,” words to which Mercuriale’s paraphrase is diametrically opposed.

But now it is the time that we bring forth a conjecture, new and unusual, by rarity of argument, if we are not mistaken, through which we may fix our sources of the Marcia in the place already mentioned and prove that the reading we have given to Frontinus agrees with the epigraphical evidence. Where, therefore, the side road, proceeding from the Via Valeria toward the south, runs into the Via Sublacensis on a straight course—for another road, on which stands the Pons Scutonicus, bends off to the right from this side road toward the southwest, perhaps opened for the sake of visiting the Aqua Marcia and its sources, which it looks on directly—vaulted ruins of an ancient structure are seen [fig. 17, no. 16]. Among these ruins, when a certain farmer, who had run on it plowing, showed us, we discovered both a togate statue and a marble tablet inscribed as follows:

The emperor Caesar Augustus, son of a god, by decree of the Senate, 1242, 240 feet. [CIL VI, 1251b]

It is already well known that this formula of inscriptions, defining 240 feet in its numbering, pertains to aqueducts, since in other inscriptions, which we will now cite, the name of the aqueduct, to which each one was connected, had been expressed—to the first two, namely, that of the Virgo; to the third, those of the Julia, Tepula, and Marcia.

The Aqua Virgo. Tiberius Caesar Augustus, pontifex maximus, in the thirty-eighth year of tribunician power, consul for the fifth time, emperor for the eighth time. I. 240 feet. [CIL VI, 1253b]

The Aqua Virgo. Tiberius Claudius Caesar, son of Drusus, Augustus Germanicus, pontifex maximus, in the fourth year of tribunician power, consul for the third time, emperor for the eighth time, father of his country. I. 240 feet. [CIL VI, 1254]

(Chifflet has shown these two inscriptions in corrupted form in his treatise on the Aqua Virgo, for he has misrepresented the final number 240 as 211.⁷⁰ I wanted this to serve as a warning, so that all the force not be removed from inscriptions; for them, like the Scorpion, as you will see, the power is in the tail.)

The Aqua Julia, Tepula, Marcia. The emperor Caesar Augustus son of a god, by decree of the Senate, 25, 240 feet. [CIL VI, 31561C = 1249b]

Ligorio, who perhaps had seen one of the preceding inscriptions but had not understood it, passed over it in silence. But as he was an imitator of scholars, he made up the following inscription out of his head, so that he might in turn set a puzzle for learned men and show at the same time that he was in no way bereft of a literary secret.

For the Aqua Julia [and] Tepula, the emperor Caesar Augustus, son of a god, pontifex maximus, consul for the twelfth time, in the nineteenth year of tribunician power, imperator for the thirteenth time, with the curule aedile Marcus Vipsanius Agrippa as administrator, 950 feet, tenth milestone. [CIL VI, 800*]

Ligorio said this inscription stood on a *cippus* of travertine found on the Via Latina, on the third milestone from the city. But the more monuments he attempts to stand on, the more he reveals his fraud and counterfeiting. The third milestone of the Via Latina, around which Ligorio claims that the *cippus* had been found, could not have been marked with the abbreviation of the tenth milestone if it designates a spot distant not from the sources (as we shall see afterward) but from its distribution in the city. Moreover, inside the seventh milestone from the city, the Julia and Tepula were joined with the Marcia, resting, as it were, on substructures of the Marcia above ground and its arcade; therefore, at the third or fourth milestone, these first two lines could not be named separately from the other.

There is, in addition, the spurious citation of the aedileship, so that Ligorio might seem to agree with Pliny [HN 36.24], who speaks about

70. J.-J. Chifflet, *Aqua Virgo, fons Romae celeberrimus, et prisca religione sacer: Opus aedilitatis M. Agrippae in vetere annulari gemma* (Antwerp, 1657) (= Graevius, 4:1791F–92A).

works of this sort completed in Agrippa's aedileship. But in this, too, "he [Ligorio] did not cook up credibility, and he revealed himself abandoned, both by the suitable foresight of old-fashioned learning and skill of judgment," as Exechial Spanheim elegantly puts forth, among other remarks about him.⁷¹ Agrippa's aedileship, according to Frontinus [*Aq.* 9.1], occurred "after his first consulship, when the emperor Caesar Augustus and Marcus Laelius Volcatius were consuls," which was the year of Augustus's second consulship, as all the *Fasti* agree. From this, it is obvious how ignorantly that aedileship is linked with the twelfth consulship of Augustus, undertaken twenty-eight years later, at a time, moreover, when Agrippa had died: from Dio Cassius [54.28], Panvinio relates his death to the twelfth year of Augustus's tribunician power, that is, the seventh year before this public office.⁷²

After these errors so thick and weighty, Ligorio's fault will be minor in listing the acclamation of emperor as the thirteenth, since he links this acclamation with Augustus's twelfth consulship; coins everywhere have it as the fourteenth, and it is also linked with the eleventh consulship and the sixteenth year of tribunician power by Occo.⁷³ Likewise, there is another error in expressing the family name of Marcus Vipsanius, never taken in public monuments or in many coins of Agrippa himself, as if it made reference to a family of which he was ashamed. Concerning this fact, Seneca [*Controv.* 2.4.13] gives credibility in these words: "Agrippa had been a Vipsanius, and he had dropped the name, as if proof of his father's humble station, and was called Marcus Agrippa. When he was defending a client, there was a prosecutor who said, 'Marcus Agrippa and that which is in between,' intending that *Vipsanius* be understood."

After we have therefore removed this small stumbling block of a fictitious and uninformed inscription—perhaps at greater length than was necessary—you can recall, Your Eminence, that we observed another in the vineyard of Bartolomeo Virgilio, at two miles, less a stade, from the Porta Maggiore, lying between the ruins of the arcades of the Marcia and Claudia. This inscription, with the owner's permission, has been added to your well-equipped collection. I have reviewed the place from which it

71. Spanheim, *Dissertationes de praestantia*, 141.

72. O. Panvinio, *Fastorum libri V a Romolo rege usque ad imp. Caesarem Carolum V* (Venice, 1557), 296 "In Fastos Consulares appendix, 24; *Commentarius in Librum II. Fastorum.*"

73. A. Occo, *Imperatorum romanorum numismata ab Adolfo Occone olim congesta, illustrata a Francisco Mediobarba Birago et expurgata curante Philippo Argelato* (Milan, 1730), 38.

was excavated in detail and not in vain (as you will soon see). So it presents itself:

The Aqua Julia, Tepula, Marcia. The emperor Augustus Caesar, son of a god, by decree of the Senate, 63, 240 feet. [CIL VI, 31561g = 1249f]

Indeed, that ritual formula of 240 feet in all these inscriptions—you have feet expressly stated in the third one [CIL VI, 31561c = 1249b], whether of two land measures doubled or its equivalent, the measure of one *iugerum* [Roman acre] lengthwise—now leads me to believe that the ancient curators of aqueducts were accustomed to measure the lengths of the conduits of each line by that standard. We find this most consistent in this first of the two earlier inscriptions, discovered in the very first *iugerum* of the Aqua Virgo's distribution, namely, below the Church of S. Trinità dei Monti, where Luca Peto recognizes the terminus of that aqueduct (he also presents the same inscriptions in his book *On the Restoration of the Aqua Virgo*).⁷⁴

There is also additional confirmation in the *cippus* just now presented, at a distance of sixty-three *iugera*, that is, 3,024 paces. At this distance, the place of the Marcia's distribution ought to be removed from the spot where the *cippus* was found, a place that, as we know from Frontinus [Aq. 19.4], was at the Porta Viminalis—namely, in the middle of the *agger* of Tarquinius, where ancient writers place it—where we also see the conduit of the Marcia itself was directed. After the arch at the Porta di S. Lorenzo, the Marcia bends off to the left and leaves the modern walls of the city to the right. Since there are twenty-four hundred paces from the spot where the *cippus* lay, along the line of conduits, up to the Porta S. Lorenzo, the remaining 624 paces for completion of the sixty-three *iugera*—to the extent that we could measure them from a distance, not, indeed, exactly, on account of the obstacles of vineyards and the bending of the conduits themselves—will indicate the site of the ancient Porta Viminalis in the Villa Peretti, through which part of the *agger* used to run. This will be the result if a line has been extended from the straight course of the Via Colatina. This road could not go out anywhere else than from this Porta Viminalis, and as we have said elsewhere, it ran along the sides of the arch of

74. Peto, *De restitutione*, 119.

the Porta S. Lorenzo slanting off to the right, as can be seen in the plan presented by us elsewhere [fig. 14].

As a result, we would not hesitate to affirm that those 1,242 *iugera* of our inscription indicate the very spot on which Augustus erected his monument and agree very well with the measurement of Frontinus, since 1,242 *iugera* multiplied by 240 feet (or forty-eight geometric paces) produce 59,616 paces. Frontinus [Aq. 7.6], in like manner, also assigns to the entire conduit of the Marcia 60,710 and a half paces. When there is added the distance of this boundary stone from the sources themselves, from where Frontinus takes the limit of his measurement, and when the curvature of the conduit through that valley has been taken into account, this difference of approximately one thousand paces must be supplemented and made equal. As a result, we can rightly and deservedly say that the mile measurement of Frontinus agrees exactly with our measurement of the *iugera*.

Why, however, no mention of this measurement is made in Frontinus, who wrote so accurately about the aqueducts, results, indeed, I think, from this: in his time, that type of measurement remained uncertain and misleading. Indeed, as Frontinus himself observes [Aq. 18.5], “Yet now in certain places where the conduit has collapsed from old age, with an underground circuitous route avoided, the stretch of a valley is crossed to shorten their length with substructures and arcades.” As a result, with the circuitous course of the conduits shortened, there is no wonder that the old measurement by *iugera* became obsolete.

Moreover, when the two other aqueducts of the Anio Novus and the Claudia were added after Augustus, this measurement by *iugera*, as well as the erection of so many boundary markers and *cippi*, could have seemed too troublesome to the superintendents of the water system under Claudius and his successors. Indeed, Frontinus, in his performance of office, employed another easier method to indicate and delineate all the conduits, as he himself has written [Aq. 17.1–4]: “Nor has it seemed unfitting to me to include as well a description of the lengths of the courses of each aqueduct, according to the classifications of construction. Since the greatest part of this duty lies in maintenance of the lines, the person in charge must know what things demand greater outlays. My sense of responsibility has not been satisfied with personal examination of particular items, but we have also taken care to prepare maps of the lines”—understand a trace or a cross section, with language used in agriculture—

"from which it is clear where there are valleys and how great they are, where rivers are crossed, where the channels attached to the sides of mountains demand greater and constant concern for guarding and strengthening. As a result, we gain the advantage of being able to deal with a matter at once, as if under our own eyes, and make a decision as though we were on the spot." So [writes] Frontinus.

f. Source of the Aqua Augusta

Now that the channel of the Marcia has become known to us below the ruins mentioned earlier, the source of the Augusta can no longer lie hidden. It will be without a doubt at a distance of eight hundred paces "from the channel of the Marcia"—not from its source, for so Frontinus [*Aq.* 12.2] has indicated—at the Lake of S. Lucia, where remains of a substructure appear. It is, however, in the vicinity of 225 paces of the other spring [fig. 17, no. 17], around which there still stand traces of ancient construction not to be scorned. Because the spring and that conduit would have otherwise cut across and blocked the conduit of the aqueduct of S. Lucia, I believe that the water of that spring was also tapped in the Augusta. Moving the source of the Aqua Augusta to this position is quite consistent with another passage of Frontinus [*Aq.* 14.3], which reports that the Augusta was made available to each aqueduct, the Claudia and the Marcia; this could best be done if the Augusta stood in the middle between the same lines.

g. Origin of the Aqua Marcia

Holste correctly reckons among impossibilities the source that Pliny attributes to the Marcia. Pliny reports that "the same aqueduct from the Fons Piconia in the farthest mountains of the Paelignians crosses the territory of the Marsi and the Fucine Lake" [*HN* 31.41], from which [report] Statius [*Silv.* 1.5.16] has borrowed the following as his own about the Baths of Etruscus: ". . . the Marcia, drawing the Marsian snows and chillness . . ." I second his words: "I think," Holste says, "that this story is to be held in no other place than the secret passage of the lover Alpheus."⁷⁵

75. Holste, 146.



Georg Fabricius has certainly tried to lessen the improbability of this, but with a farfetched, unfortunate, and embarrassing argument, when he converts the Fucine Lake into a river and makes up a crossing in lead pipes.⁷⁶ The same author, nonetheless, proudly makes such promises about himself in his preface: “Indeed, even though this is a bit arrogant, yet, since it is true, I will say it; I can refute the various errors of others who have recently written about the city through the sure testimony of ancient writers.”⁷⁷ Nevertheless, whether the opinion of Pliny is true or improbable, it is all the same for us. We do not conduct our water inspections with the eyes of Lynceus in the bowels of the earth, but we have explained the place where, again with the same Pliny, “the Marcia reveals itself in Tiburtine territory” and from where it was brought to Rome, in agreement with the thinking of Frontinus.

5. SETTLING TANKS

a. The “Villa delle Vignacce”

It will not be inappropriate here to report something about a settling tank of this Aqua Marcia, which I indicated with hesitation on the topographical map of my first dissertation [fig. 1, no. 27], even if with the same qualification. On the Via Latina itself, which advances to that place shortly after the fourth milestone, between the arches of the Marcia and the Claudia, on the property “dello Spedaletto” and near the ruins of several structures—which today, because of their great number, are commonly called “le Cento Celle;” from their location, we believe them to be the remains of the Pagus Lemonius—there is a cistern by good luck somewhat more intact than others, with a wellhead remaining between it and the ancient conduit of the Marcia. With these combination of two parts, we think that a complete settling tank has resulted, as the following plan [fig. 26] and the three keys to its parts make clear.

In one of the bricks mentioned is seen the fragment of the following brick stamp: “RAED.DOM.LV . . .” on the outer circle, “PAETIN . . .” on the inner circle, which I interpret as “from the estate of Domitia Lucilla,” the mother of the emperor Marcus, “during the consulship of Paetinus and

76. Fabricius, 200 (= Graevius, 3:526D–E).

77. Fabricius, 9 (= Graevius, 3:459).

Apronianus" [*CIL* XV, 1913]. Indeed, I observed more bricks with this stamp in the ruins nearby. From this, I conjecture a reconstruction by Hadrian, into the sixth year of whose principate this pair of consuls falls, and perhaps the work of the emperor himself in the vicinity of his villa near the city. But [I will write] more about these things elsewhere.

The position of a similar wellhead and, next to it, of a triangular cistern [fig. 1, no. 28] supports the idea of a settling tank by no means different in structure, with my reconstructions confirming each other. Indeed, this twin construction [fig. 27], inside the distance of seven miles from the city that Frontinus fixed for the settling tanks of all the aqueducts [*Aq.* 19.1], lends the greatest probability to our argument.

As to why, indeed, I have not been concerned to demonstrate certainty and am using inferences in a matter that some will say ought to be shown by fact, rather than through words, my excuse will be the failure to explore even once the connection of the wellheads with their cisterns. My witness for this, also the authority for the structures cited, has been the most noble Marchese Camillo de Astalli, the owner of this property. Our effort was always in vain, since these places, very close to the conduit of the Marcia, have been built up to a very great extent from ruins and since that larger cistern [fig. 17, no. 27], with dirt heaped up within, is found filled with mud for the manufacture of potash. This, at least, we accomplished by our diligence: when the sides of the wall *DE* were uncovered in the lowest chamber, we came on no channel through which the water of the wellhead might flow in but evidence of a still lower and underground series of chambers. There are also traces of drains for the discharge of the muddy water settling in this underground tank (in a triple opening of the ground between nos. 27 and 28), first in the direction of the other settling tank for receiving also the discharge from it, then in the direction of the mausoleum of Alexander and those lower places, indicating a certain continuous channel under the earth.

The larger cistern of the two, I believed, served the Marcia, since its larger wellhead seemed to be owed to its greater supply of water. There is a still stronger reason, since I saw that the wellhead of the second cistern exceeded its opening almost by double; as a result, it served some structure connected to one of its sides or even to each of them (since, from here to there, remains of walls are seen). From these [cisterns], the common flow of the Julia and Tepula (from a shared wellhead before the settling tank—

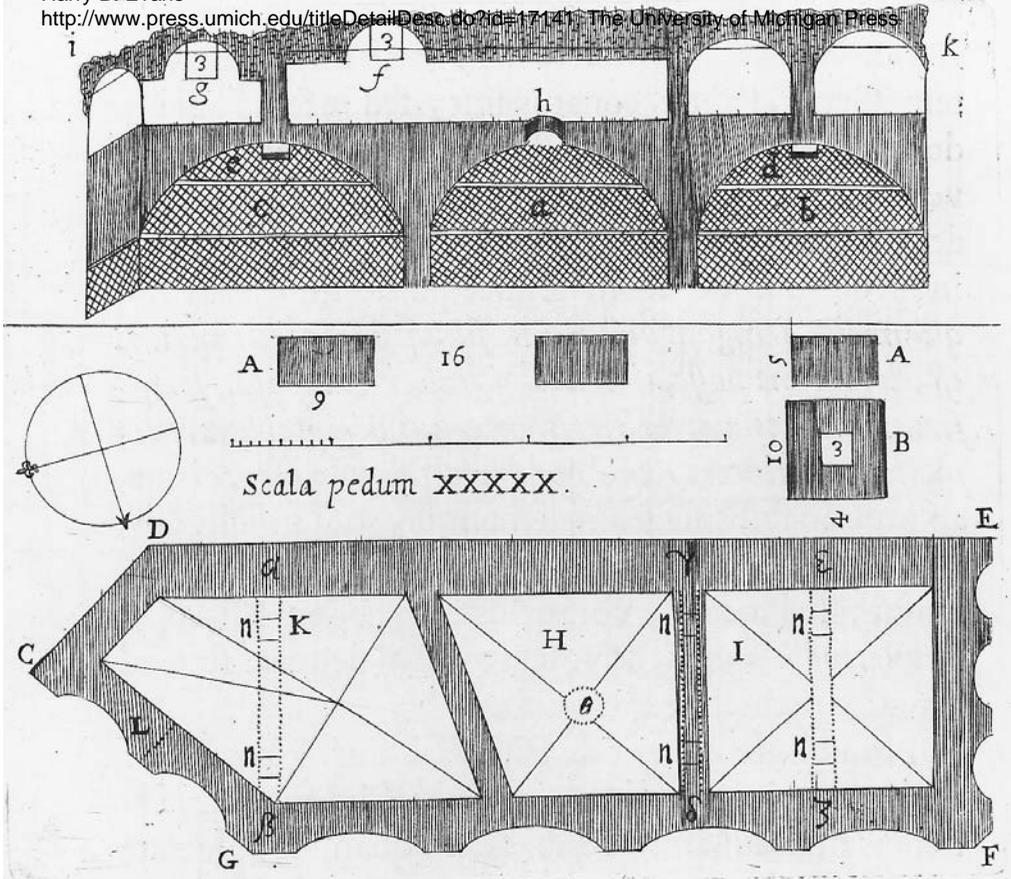


Fig. 26. Settling tank at the "Villa delle Vignacce": cross section and plan

Ground plan of the lower cistern

- A. Conduit of the Aqua Marcia, carrying also the Julia and Tepula
- B. Wellhead, receiving water from the conduit and transporting it into the settling tank by an underground channel, still unexplored by us
- CDEFG. Cistern, or settling tank, divided in its lowest part by three basins
- H. Middle basin, closed off from all sides, receiving water from the wellhead and transporting it through the opening into the upper cistern
- I. Side chamber, built for support of the structure above it, although it was not part of the settling tank, since at its top it had a window on the south side (DE)
- K. Another chamber, serving for the intake of that portion of the water that was carried into the nearby settlement through a round terra-cotta pipe eight inches in diameter in L, at the level of the window or intake at the top of the south side wall

Ground plan of the upper cistern, the divisions of which are marked by points and Greek letters

- $\alpha\beta\gamma\delta\epsilon\zeta$. Three walls in this upper cistern, which divide its area into four chambers
- η . The same number of windows in the walls already mentioned, at the same height from the floor, through which water, rising from the opening θ , was distributed throughout those upper chambers
- θ . Round opening, three and a half feet in diameter, corresponding to the size of the wellhead, four square feet in width

(caption continued on facing page)

concerning this, see Frontinus [*Aq.* 8–9]—and then from a double conduit here), the appropriate channel of each one, and each one's appropriate name (about which, see Frontinus [*Aq.* 19.1–3]) could be drawn.

Nevertheless, there are (I confess) two disturbing factors: both the appearance of the place and, more exactly, the level of each cistern examined by us on this occasion are causes for doubt. That larger one at no. 27 [fig. 1] is recognized as being approximately four feet higher than the other, and there is also the account of Frontinus himself; according to it, the Marcia's settling tank is said to have been closer to the city than that of the Julia and Tepula. Talking about the Tepula, Frontinus says [*Aq.* 68.4], "From here"—that is, from the common settling tank of the Julia—"it first receives 190 *quinariae*, then immediately from the Marcia ninety-two *quinariae*," and before this, he includes these ninety-two *quinariae* in the total that was distributed before the Marcia's settling tank [*Aq.* 67.3]. If these things are to be understood in this way and there is no error in Frontinus and if by some scheme a supplement could be added from the Aqua Marcia (at a lower level) to the Tepula (which ran at a higher level), then our order of settling tanks would be reversed. Nevertheless, because I am not for the moment much concerned about this inquiry, it will have been sufficient to have shown at least the form and the function of the settling tanks, if not a sure identification of them individually and assignment of them to each aqueduct.

I will add finally, for confirmation of the preceding, that the structural appearance of our settling tanks agrees with other ancient works of that sort that we know were established for filtering aqueduct water. Many wit-

(caption continued from facing page)

Cross section of each chamber, upper and lower

- abc. Three chambers, of level footing, in *opus reticulatum*, in which brick is mixed for reinforcement
- d. Window at the top of the vault, facing the well shaft
- e. Another window, from the area of which, in wall CG, a portion of the water was channeled by pipe into L for the use of the settlement nearby
- f. A window, raised six feet from the ground, on the side facing the aqueduct, through which water now filtered again sought its own channel
- g. Another similar window, six inches lower and at the same horizontal height as the six windows
- h. Opening, built up with bricks of approximately two feet, through which the water from basin a rose to the upper cistern
- ik. Line of the height of the water in these upper chambers still conspicuous up to this point, from a very thin incrustation by which the walls are covered to that height

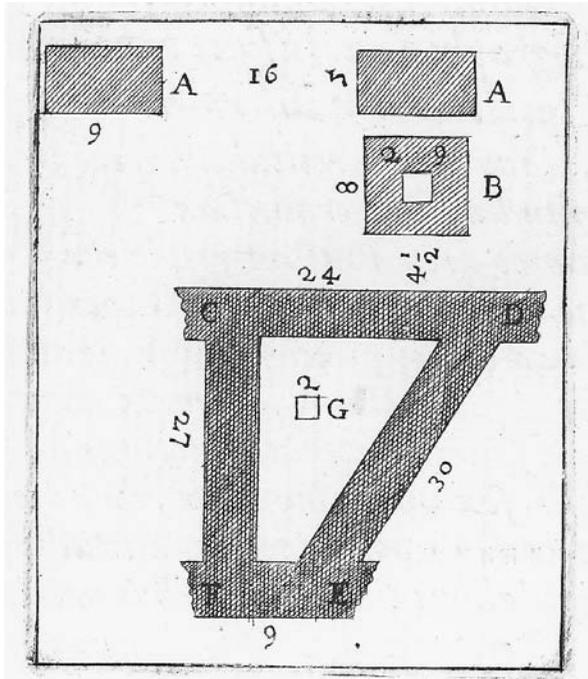


Fig. 27. Settling tank on the Via Latina

- A. Conduit of the Aqua Marcia, atop which the Tepula and Julia were carried
- B. Wellhead, providing the same function in the filtration of the water as the other shown in fig. 26
- CDEF. Cistern, into which the well shaft delivered the water
- G. Opening, through which the water rose to the floor of the upper cistern, or settling tank, and was restored to its own level

Projections and markings of the walls in CDEF were connecting other cisterns to it, where the remaining water of the wellhead could be admitted.

nesses who have looked firsthand have reported that something similar is seen in the settling tank of the aqueduct at Pisa. We have learned from experts that here, too, at Rome, below the Pincian Hill, the Aqua Virgo once put off its mud and dirt in a manner not much different, and as permitted, we have given a rough sketch, not according to an accurate scale of measurements [fig. 28]. The place, for a long time now inaccessible, being filled with refuse, remains useless for its function, because our watermen and reservoir men make offerings very prettily, not to the nymphs, but to Mercury.

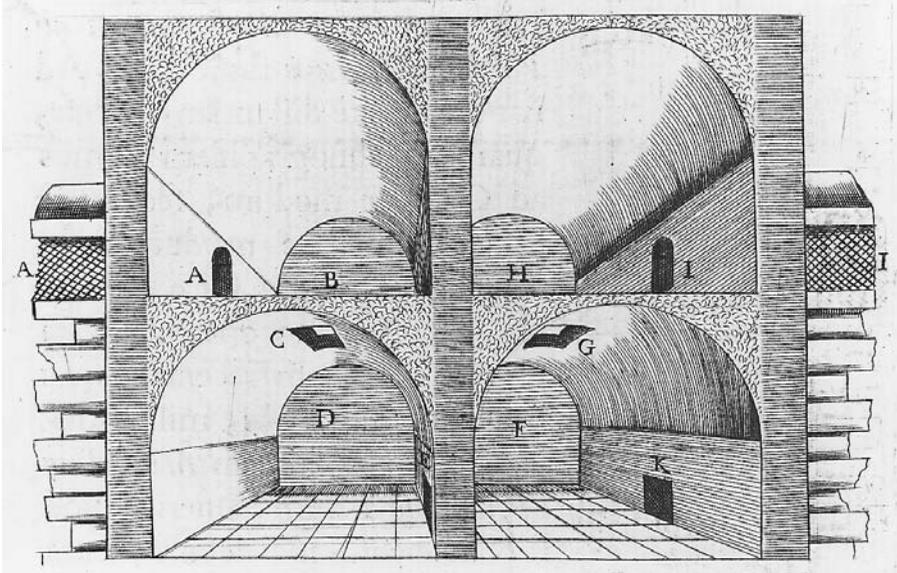


Fig. 28. Aqua Virgo: cross section of settling tank in the Campus Martius

- A. Conduit of the Aqua Virgo, emptying itself into tank B
- C. Opening through which the water goes down into underground chamber D
- E. Gate, from which the water is carried down into another underground chamber, F
- G. Opening through which the water again rises to tank H and restores itself to conduit I
- K. Sluice gate, from which mud and waste were discharged into the sewer

b. The Aqua Claudia/Anio Novus

In searching out the settling tank of the Claudia (to move forward the explanation already begun about settling tanks of this sort and amplify it as much as possible), Frontinus is our authority and guide. Frontinus [Aq. 72.3] says that it was “at the seventh milestone from the city.” At exactly this distance, on the left-hand side of the modern road leading to Marino, at a mile and a half beyond the Osteria Mezza Via di Marino, I found ruins, a plan of which we give [fig. 29], in the shape of a cistern, but far exceeding the scale of a private cistern, constructed of very hard *selce* [basalt] and covered with *opus reticulatum*.

Although too little remains of this structure—it ought to have been underground, since the arches of the Claudia end shortly beyond the fifth milestone from the city—there is certainly enough to provide a place for a

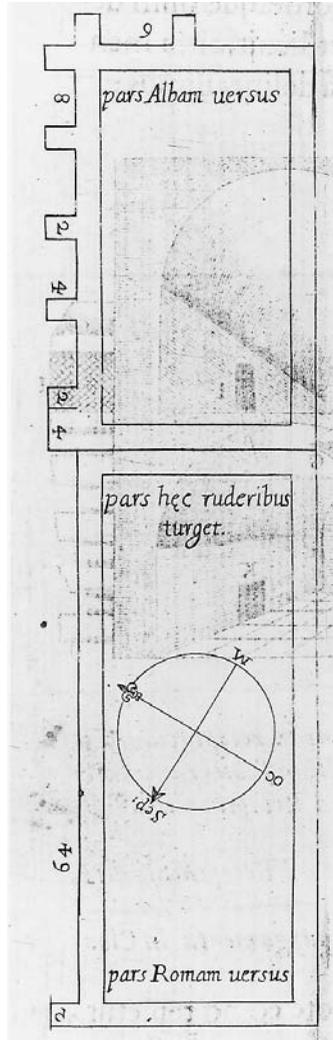


Fig. 29. Settling tank: plan

not improbable reconstruction. Fragments of a very large amount of squared stone around this structure and the huge quantity of incrustation that once had built up in its channel lie scattered, not quite everywhere, but mixed in with the aggregate of modern walls nearby. Both the double nature of construction and another passage of Frontinus [Aq. 19.1], where he includes all six aqueducts that had their own settling tanks within this

same area of the seventh milestone, argue that the settling tanks of the Claudia and Anio Novus were joined. We are prepared to believe those for whom these arguments of ours will seem shapeless and weak if they will bring forward something better. In the meantime, let them at least judge our attempts as good and just, and in such obscurity of facts and antiquity, let them bestow on our labor the following word of Horace, "It is no small thing to advance so far, even if it is not allowed to go further" [*Epist.* 1.1.32].

c. Measurement of Water

Frontinus tells us that settling tanks had another function, besides the well-known one of filtering aqueducts, namely, in fixing the surest possible measurement of each and every aqueduct at them, "where the measurements are not to be doubted," as he himself says [*Aq.* 72.3]. The explanation for this accuracy could be this: "when the course of the conduits was taking its breath there" [*Aq.* 19.1] and when the water, deprived of all its force, was seeking again its own conduit, it was least subject to distortions resulting from a swifter or a slower flow (a fact very well known to Frontinus, as is clear from various passages of his treatise).

As a result, we declare the necessity of rejecting Fr. Castelli's criticism of this outstanding author in his book *On the Measurement of Running Water*,⁷⁸ as if Frontinus were ignorant of that great theory of his "that from the swiftness of water its measurement varies" and did not, in accordance with this more accurate reason, report the discrepancy of volume of the aqueducts in intake or in distribution. Indeed, whoever will have read Frontinus and not with bleary eyes (like Castelli) will recognize that the theory is no longer new but restructured from an ancient one. "Let us remember," says Frontinus [*Aq.* 35], "that whenever water comes from a higher elevation and falls into a distribution tank within a short distance, it not only corresponds to its original level of measurement but also exceeds it; in comparison, whenever water is brought from a lower elevation (i.e., under less pressure) for a longer distance, it also decreases its delivery because of the slowness of its passage. For this reason then, according to this reckoning, its delivery figures must be supplemented or decreased."

⁷⁸ B. Castelli, O.S.B., *Della misura dell'acque correnti*, 3d ed. (Bologna, 1660), 29–30 (corollary 16, app. 1).

Here is a second example [*Aq.* 70]: “For the *Aqua Virgo* there was a capacity of 652 *quinariae* listed in the record books. It was not possible to measure its capacity at its intake, since it is drawn from several tributaries and enters its conduit too slowly. Close to the city, however, at the seventh milestone, on property now belonging to *Ceionius Commodus*, where it has a swifter current, I took a measurement amounting to 2,504 *quinariae*, 1,852 more than in the record books. Our confirmation is very much at hand, since the *Virgo* delivers all the volume we determined by measurement, that is, 2,504 *quinariae*.” Finally, [Frontinus speaks to his own defense] with these words [*Aq.* 73.5–6]: “Moreover, I have discovered that there are illegally tapped not only 528 *quinariae* (of the *Anio Novus*), the difference between our measurements and the scheduled delivery, but a much larger amount. As a result, it is evident that the actual volume is even in excess of our measurements. This can be explained because the rather swift force of the water, taken from a bountiful and fast-flowing river, INCREASES ITS VOLUME BY ITS VERY SPEED.”

From the preceding passages, it is clear, therefore, that Frontinus was not ignorant of that change experienced by volume because of velocity of water. Even if these quotations have stated, according to the same authority, that volume is increased from swiftness but is not decreased, as Castelli has taught, there is nevertheless a common explanation according to which what is increased in intake is in turn, through an alternative principle, decreased in delivery.

But ignorance of so great an axiom could not have been harmful to Frontinus, nor, for him, could anything be lost in the new measurement he undertook of the aqueducts at the city on account of increased velocity and subsequently diminished capacity, as Fr. Castelli thinks that he deduces from Frontinus's treatise. Not only the measurement taken at the settling tanks but also that taken at Rome in distribution went back of necessity to the measurement “at the source of the aqueducts.” Indeed, water inside and outside the city had to be tapped not from public conduits but from distribution tanks and reservoirs, after it had recovered its earlier state of rest, by the decree of the Senate cited by Frontinus [*Aq.* 106.1], as he had also earlier said was done [*Aq.* 27.3].

However, with only that single geometric proposition that makes up a single page of his book, Castelli indeed claims the right to attack outstanding writers with a scolding. Readers should know that the very principles from which he says that his observation—not new, as we have

seen—was brought forth are read in Frontinus, with the same meaning: [Castelli writes,] “Let the water issue through two channels of equal width, one placed in the lower part of the receptacle; the other in the upper part; it is clear that in the time in which there will issue from the upper part a certain measure of water, from the lower part will issue four, five, and even more of the same measures, in proportion to how great the difference will be of the height of the channels, and the distance of the upper channel from the surface, and level of the water in the receptacle,” and so on.⁷⁹ These words, expressed by Castelli in Asiatic fashion, Frontinus shortens in Laconic style [*Aq.* 113.1–2]: “Concerning the positioning of connecting pieces, it is necessary to observe that they be set in a straight line and that the connecting piece of the first not be placed too low and that of the second too high. The lower one draws more, the higher one less, since the flow of water is taken from the lower.”

Finally, Frontinus is more precise and more careful in this matter. In the case of pipes of equal size and arranged on the same surface, Frontinus [*Aq.* 105–6] reports that by decree of the Senate it was provided that men not install a larger pipe within fifty feet of the distribution tank from which they were drawing water, “to prevent the water, not, indeed, restrained by its legal space but squeezed out through smooth”—*leves*, to be emended to *breves*, “short,” I think—“narrow passages, from easily filling the larger pipe nearby,” as he states in *Aq.* 112.5. With this notice, as if concerning a matter most useful and often pertinent in practice, Castelli must be corrected. Castelli introduced something of significance to this investigation with his axiom,⁸⁰ but he did not solve it in this area; instead, he thought in vain that he was refuting Frontinus about a matter that we have proved Frontinus was not ignorant of, rather than taking from someone else a proposition he himself did not know.

6. THE BUILDER OF THE AQUA MARCIA

After so many topics, it will be our final task to make a judgment between the opposing opinions of very well known writers concerning the origin of the name and the introduction of this Aqua Marcia. On this point, Fron-

79. Castelli, *Della misura*, 4–5.

80. Castelli, *Della misura*, 33.



tinus, to whom we have been especially accustomed to defer in this discussion of aqueducts, argues that Marcus Titius introduced it and gave it its name from his own praenomen [*Aq.* 7.1]. The authority of Pliny, however, takes us in an opposite direction: “Ancus Marcius, one of the kings, first began the introduction of it into the city; afterward, Q. Marcius Rex in his praetorship” [*HN* 31.41]. There is added the not insignificant testimony of Plutarch in *Coriolanus*, at the very beginning of the book (1.1), “It was also the Marcii, Publius and Quintus, who built the greatest and most beautiful aqueduct at Rome.” In this doubtful matter, the example of the Aqua Appia, named from the praenomen of Appius Claudius, seems to remove uncertainty, in support of Frontinus. Nevertheless, for me, the credibility of Pliny and Plutarch is more influential, supported especially by this coin of the gens Marcia [fig. 30].

Who, indeed, would suspect in a publicly minted coin a fraudulent claim and pretense? Instead, I think that the authority of this coin had such great weight for Pliny that he concluded, I say, from this perhaps—and not from somewhere else, since, rightly, Fr. Donati considers this evidence hardly persuasive⁸¹—that Ancus, whom Philippus rendered on the reverse of the coin for the royal distinction of common kinship with him, was the builder of the aqueduct depicted on the obverse.

Whoever of these men it pleased to have left his name for this aqueduct, it is clear that it must not be called “Martia,” as commonly all writers and a very faulty edition of Frontinus otherwise persist in keeping it, but “Marcia,” as the two inscriptions of Titus and Caracalla cited in our first dissertation [*CIL* VI, 1245, 1259] show, as well as this other:

To the spirits of the dead. To Timbraeus, freedman of Augustus, reservoir man of the Aqua Marcia, Claudia Dyname made this dedication to her excellent husband. [*CIL* VI, 3193]

Quite a few other things—about the uncertain source of the Anio Vetus and the channels of these aqueducts and the Anio Novus; about the Antoninian, Herculanean, and Albudine springs; and about the measurements of the conduits in Frontinus, expressed with obvious error in their numerical figures, and their leveling—remain to be discussed. However, so that we not mix things more certain—such as we believe those topics

81. Donati, 296 (= Graevius, 3:835E–F).

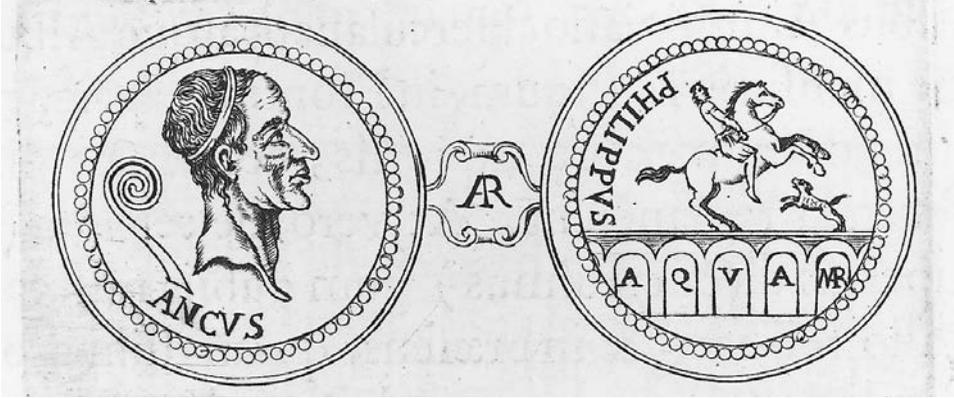


Fig. 30. Coin of L. Marcius Philippus, with arcade of Aqua Marcia

treated earlier to be—with what is doubtful, I will put off the matter for another time, and for the present, I will not go beyond the subject I have set forth for myself. Instead, I will lift my hand from the table and put an end to a letter that has grown into nearly a book, having prayed to Almighty God for all favorable things for Your Eminence. This alone administers to my weakness, that I pay back my greatest benefactor and patron, who is like my guardian divinity, with most devoted training of my mind. I write this from your library, on August 12th, the year of redemption 1679.

Commentary

Fabretti's second dissertation was published, like the first, without section headings, but it is here organized as follows:

1. Introduction
2. Map of the Upper Anio Valley
3. Determining Ancient Measurements
 - a. The Mile
 - b. The Foot



4. Topography of the Upper Anio
 - a. Holste's Theories
 - b. Course of the Via Valeria
 - c. Sources of the Aqua Claudia
 - d. Representations of the Aqua Claudia
 - e. Source of the Aqua Marcia
 - f. Source of the Aqua Augusta
 - g. Origin of the Aqua Marcia
5. Settling Tanks
 - a. The "Villa delle Vignacce"
 - b. The Aqua Claudia/Anio Novus
 - c. Measurement of Water
6. The Builder of the Aqua Marcia

This dissertation centers on the topography of the upper Anio Valley and the sources of the Aqua Marcia and Aqua Claudia, but Fabretti also includes in it a digression on Roman measurements and observations on settling tanks of the aqueducts discussed.

OPENING

Gaspere Cardinal Carpegna (1625–1714). Carpegna was cardinal vicar of Rome under five popes, from 1671 through 1714, and Fabretti's patron, who secured for him the position of custodian of sacred relics and cemeteries, an appointment that enabled Fabretti to excavate where he wished and obtain access to antiquities. Carpegna himself was highly regarded as a man of learning and a collector of books and ancient coins, as well as a member of the *Accademia degli Arcadi*. See *DBI*, 20:589–91 (G. Romeo).

I. INTRODUCTION

Fabretti's introduction to his patron is appropriately deferential, stressing his gratitude for the freedom to explore antiquities and Carpegna's encouragement of his efforts.

2. MAP OF THE UPPER ANIO VALLEY

Fabretti's map, entitled "Plan of the Region between Tivoli, Carseoli, and Subiaco," gives a detailed presentation of the topography of the upper Anio Valley east of Tivoli, including the major tributaries of the Anio River, the Licenza and Givenzano; the courses of the ancient Via Valeria and Via Sublacensis; settlements in the area; and remains of the Roman aqueduct lines. Given the extensive area covered, its scale is considerably larger than those of the two topographical maps of the other dissertations.

This map, one of the earliest detailed plans of the upper Anio Valley, was the first to depict remains of the Roman aqueduct lines and to fix their sources. Because earlier maps of the area were quite vague and general in their coverage, Fabretti's praise for the cartography presented here is not without merit, and his map, once published, had an enormous influence on later topographical study of the region. Poleni followed Fabretti on the sources of the Marcia and Claudia and reproduced Fabretti's map of the upper Anio Valley with the same title in his 1722 edition of Frontinus (Poleni, fig. V, opposite p. 90). For a historical account of the cartography of the upper Anio, see F. Crainz and C. F. Giuliani, "I due tracciati della Via Valeria fra *ad Lamnas e Carseoli*," *AMST* 58 (1985): 78-80; for a more general survey of the area, see Z. Mari, "La valle dell'Aniene nell'antichità," *AMST* 68 (1995): 25-52.

Fabretti's listing of data in his legend to this map is selective, as in his legend to his map in the first dissertation, and omits many topographical details depicted on the map itself. His numbering corresponds to identifications and descriptions of modern topographers as follows:

1. "Valle degli Arci" aqueducts on the modern Via Empolitana. For the Anio Novus, see Ashby, 273-74 (331-34); Van Deman, 327. For the Marcia, see Ashby, 109-10 (133-34). For a general description of the area, see Aicher, 139-41.
- 2-3. Arcade of the Anio Novus along the Via Empolitana: Ashby, 267-73 (318-31); Van Deman, 289-99; C. F. Giuliani, *Tibur (Pars altera)*, FI 10.7 (Rome, 1966), 86-87; Aicher, 139-41.
4. Via di Carciano segments. For the Anio Vetus, see Ashby, 64-65 (81-82); for the Marcia, Ashby, 112 (137); for the Claudia, Ashby, 208-9 (243). See also Aicher, 136.

5. Remains of Roman villa west of Ciciliano, commonly named the “Ruderi di Saxula.” Ashby (266 n. 1 [315–18 n. 60]) observes that Fabretti is incorrect in his reconstruction of the course of the Anio Novus in this area, since the actual villa is situated “a long way to the east” of the real line of the aqueduct.
6. Vicovaro bridge: Ashby, 3 (21); Van Deman, 196–98; Aicher, 154.
7. Ancient aqueduct near Vicovaro. Ashby (99 [121]) identifies this conduit as part of the Marcia.
8. Traces of another ancient aqueduct, perhaps independent of the Roman system, to be connected with supply of Tibur itself. For other segments of this Tiburtine conduit, see M. G. Fiore Cavaliere and Z. Mari, “Acquisizioni lungo il tracciato degli acquedotti anieni,” *QArchEtr* 24 (1995): 470–72; Panimolle, 53–55; C. Roncaioli Lamberti, “Il percorso dell’Anio Vetus e la Porta Trebana di Tivoli,” *Giornale italiano di filologia* 40 (1988): 93 n. 32.
9. Conduit of the Aqua Marcia in the Osteria della Ferrata: Ashby, 3 (21), 99 n. 3 (121 n. 71).
10. Ponte Arconi: Ashby, 258–59 n. 3 (309–10 n. 40); Van Deman, 73.
11. Thirty-eighth milestone of the Via Valeria (*CIL* IX, 5963) near Sonnula (the modern Sonnoletta): Crainz and Giuliani, “Via Valeria,” 77; Ashby, 96 n. 2 (118 n. 55).
12. Ponte Scutonico: Crainz and Giuliani, “Via Valeria,” 84–85; Mari, “La valle dell’Aniene,” 29, table IVa.
13. Ponte S. Giorgio: Crainz and Giuliani, “Via Valeria,” 85.
14. Forty-first milestone of the Via Valeria: *CIL* IX, 5966.
15. Springs below the Church of S. Maria in Arsoli: Lanciani, 276–77.
16. Aqua Marcia *cippus* of Augustus: *CIL* VI, 31562g = VI, 1251b = XIV, 4074; Ashby, 93 (114); Lanciani, 279.
17. Ancient construction near aqueduct source. Fabretti’s notice is too vague to be identified securely but may be a vaulted structure cited by Ashby (92 n. 1 [113 n. 39]) and Fiore Cavaliere and Mari (“Acquisizioni,” 465 n. 17), who suggest the identification of the nearby source of water with that of the “Acqua Santa.”
- 18–20. Basin of the springs identified as Serena I and II: Ashby, 96–98, fig. 6 (116–18, fig. 14); Fiore Cavaliere and Mari, “Acquisizioni,” 464–65 n. 16; Aicher, 159–62.
21. Spring identified as Casa di Lemme: Lanciani, 276.
22. Spring identified as Forma della Mola: Lanciani, 276.

23. Channel of spring below Agosta: Lanciani, 276.
24. The lakes above Subiaco: Ashby, 253–56 (304–8); Aicher, 162–64.
25. Conduit of the Anio Novus west of the Anio River. Ashby (257, 259–60 [308, 310–11]) notes Fabretti's error in describing the Ponte Arconi (no. 11 on his map) as this aqueduct's crossing point of the Anio River.

3. DETERMINING ANCIENT MEASUREMENTS

Fabretti now introduces an involved discussion of Roman linear measurements, a problem that greatly engaged the interest of the scholarly world at his time. For a summary of such investigations, focusing particularly on the earlier related research of John Greaves, see A. E. Berriman, *Historical Metrology* (London, 1953), 121–24. Greaves, the Gresham Professor of Astronomy at Oxford, published a treatise focusing on many of the same issues Fabretti raises in this section, *A Discourse on the Romane Foot and Denarius* (London, 1647), reprinted in *The Miscellaneous Works of Mr. John Greaves* (London, 1737), 1:165–233.

A preliminary review of Fabretti's terminology follows. For more detailed discussion, see Berriman, *Historical Metrology*, 128–29; O. A. W. Dilke, *Mathematics and Measurement* (Berkeley and London, 1987), 26–27.

- foot (*pes*) = the Roman standard of measurement
- palm (*palmus*) = span of four digits (*digitos*, or fingers), one-third of a Roman foot
- inch (*uncia*) = span of three-fourths of a digit, one-twelfth of a Roman foot
- dodrans* = nine inches, three-fourths of a Roman foot
- spithama* = a Greek measurement indicating the span between the thumb and little finger = Roman *dodrans*
- sextula* = one-sixth of a Roman foot = two inches
- reed (*canna*) = measurement ten palms in length
- scripulum* = one twenty-fourths of an inch
- pace (*passus*) = five Roman feet
- mile (*milliarium*) = one thousand *passus* = five thousand Roman feet
- staiolo* = five and three-fourths palms
- chain (*catena*) = ten *staioli* = fifty-seven and a half palms
- palm* (*palm*) = the palm measurement used by Italian architects in the sev-



enteenth century, somewhat longer than the ancient palm. To distinguish this measurement from the ancient palm, the *palmo* (which Fabretti cites consistently as *Palmus*, capitalized in his Latin text) appears throughout the translation in its Italian form.

a. The Mile

Fabretti opens his discussion of the mile measurement by citing with approval *De mensuris et ponderibus Romanis et Graecis cum his quae hodie sunt collatis libri V* (Venice, 1573), a treatise by the juriconsult Luca Peto (cited in the first dissertation [I.4d]), who determined the length of the Roman foot through comparative study of several examples of ancient bronze feet and inscribed its length and that of other ancient measurements on a marble plaque on the Capitoline. For a description of Peto's measurements, see M. Folkes, "An Account of the Standard Measures preserved in the Capitol at Rome," *Philosophical Transactions of the Royal Society of London* 442 (1736): 262–66. On the publication of *De mensuris*, see del Re, "Luca Peto," 325–26.

Fabretti's first quotation from Peto focuses on the discrepancy between the length of the seventeenth-century *palmo* and that of the ancient *dodrans* or *spithama*, which Peto expresses in measurements of *scripula*. We can reconstruct the discrepancy demonstrated by Peto as follows:

one *palmo* = one *spithama* + two-ninths of an inch (.2222 inches)

or

one *palmo* = one *spithama* + one-sixth of an inch + one and one-third *scripula* (.1666 + .0416 + .0139 = .2221 inches)

Fabretti's next citation from Peto concerns the length of the Roman mile. Through his own calculations, based on thirds of a *scripulum* (one seventy-seconds of an inch), Fabretti first points out a minor error in Peto's calculation of the mile:

Peto: one mile = 649 *cannae* + nine palms + three digits

Fabretti: one palm = 664 thirds of a *scripulum*

one Roman foot = 864 thirds of a *scripulum*

five thousand feet = one mile = 432,000 thirds

one mile therefore = 6,506 palms + sixteen thirds (sixteen thirds = five and one-third *scipula* = one *sextula* + one and one-third *scipulum*)

Fabretti next cites a more serious error in the length of the *palmo* given by Peto (nine and one-sixth inches plus one and one-third *scipulum*). Fabretti compares the length of the modern *palmo* presented by Peto with the length of the *canna* represented on Peto's Capitoline plaque, demonstrating that the *canna* measures seven feet plus six and fifteen-seventeenths inches, resulting in a discrepancy of $15/170$ from the *dodrans* of the Roman foot (or, in decimal equivalents, 7 feet 6.8823 inches); the modern *palmo*, Fabretti argues, must therefore be .8823 inches longer than the ancient *dodrans*. As a result, the Roman mile, by Fabretti's calculations, contained 6601.9357 palms, approximately 102 palms more than the length stipulated by Peto.

Fabretti's calculations now permit him to introduce criticism of Lucas Holste's reconstruction of the Roman mile in his treatise *De milliaro aureo*. Fabretti is vague in his account of Holste's methodology, which he describes as derived from surveying practices, but he criticizes the resulting measurement that Holste presents, a length of 6,666 and two-thirds palms for the mile. Finally, Fabretti presents still another mile measurement, one based on *catenae* (ten *staioli* in length), used by surveyors (who are not specifically identified). We may summarize the four mile measurements presented here as follows:

Peto:	one mile = 6499.3333 palms
Fabretti:	one mile = 6601.9357 palms
Holste:	one mile = 6666.6666 palms
surveyors:	one mile = 6,670 palms (= 116 <i>catenae</i> or 1,160 <i>staioli</i>)

b. The Foot

Fabretti next turns to contemporary controversy over the measurement of the Roman foot, citing the different epigraphical evidence for its length before turning to his own investigation of the problem. Fabretti cites, in passing, the following evidence presented in earlier scholarly reconstructions of the Roman foot:



Pes Statilianus. A foot measurement represented on the funerary monument of the *agrimensor* (or land surveyor) Statilius Aper, now in the collection of the Capitoline Museum (*CIL* VI, 1975 = *ILS* 7737; cf. Helbig⁴, 2:59–61 (no. 1214).

Pes Cossutius. A Roman foot represented on the funeral monument of Cossutius (*CIL* VI, 16534) in the Horti Colatiani, also known as the *pes Colotianus*.

Pes porphyreticus. A foot based on the evidence of a porphyry column, two examples of which are cited in Rome by the notes in the Barbiellini edition (62 n. d), one at the Basilica dei SS. Apostoli and a second on the Via Lata. Each column carried at its base an inscription in Greek indicating its length. This measurement was accepted as accurate by the topographer Bartolomeo Marliani (*Antiquae Romae topographia libri septem* [Rome, 1534] = Graevius, 3:115–263) and by Guillaume Philandrier in his *Annotationes*, 117. For a translation and commentary on this passage of Philandrier, see Lemerle, *Les "Annotations,"* 165–66.

Fabretti presents his support for the length of the **Capitoline foot** fixed by Peto, confirmed by his own investigations of the problem. Citing his measurement of a marble paving stone found in the remains of an “elegant villa” near the tenth milestone of the Via Ostiensis, Fabretti points to the exact correspondence between the dimensions of his sample and the length of the Roman foot inscribed on Peto’s plaque as confirmation of its accuracy. Fabretti’s description here is extremely vague, probably because the matter was not of crucial importance to the main subject of the dissertation. Fabretti’s comments on the discrepancy between Peto’s foot inscribed on the Capitoline and that published in his treatise echo observations made by another author cited in this section, **Giambattista Riccioli, S.J.**, who describes the distortion of published measurements of Roman feet by contraction of wet paper after printing, in his *Almagestum novum astronomiam veterem novamque complectens* (Bologna, 1651), 59.

Fabretti also mentions, in passing, two other attempts to fix the Roman foot, one based on study of the **Farnesina congius** by the Jesuit **Juan Bautiste Villalpando** (1552–1608) and one by Riccioli. Villalpando, with his mentor Jerome del Prado, S.J., was commissioned to write the three-volume biblical commentary *In Exechielem explanationes* (Rome, 1604), on chapters 40–42 of Ezekiel, which present an architectural description of

Solomon's Temple. After Prado's death in 1595, Villalpando completed three volumes of his study, containing information on astrology, music, and mathematical theories, as well as reconstructions of Hebrew, Greek, and Roman systems of measures and currency. See *DSB*, 14:29–31 (M. T. Ryan); R. Taylor, "Hermeticism and Mystical Architecture in the Society of Jesus," in *Baroque Art: The Jesuit Contribution*, ed. I. B. Jaffe (New York, 1972), 63–97. Fabretti cites a section of Villalpando's third volume, *De apparatus urbis ac templi Hierosolymitani, pars i et ii*, treating ancient metrology, in which Villalpando argued that the Farnesina *congius* documents all ancient Roman measurements; for more detailed discussion of the technical procedures and other later experimentation with the *congius*, see Berriman, *Historical Metrology*, 125–26.

The **Farnesina or Vespasianic *congius*** was a volume measurement based on the capacity of a bronze vessel with an inscription (*ILS* 8628) dated to 75 A.D., attesting a measurement of ten *librae*. Interpretation of its inscription, however, is problematic, as Fabretti points out in his discussion here. The original vessel, part of the Farnesina collection at Rome, appears to have been lost, and copies in the Villa Giulia Museum at Rome and at Dresden are considered spurious; Berriman (*Historical Metrology*, 125) also reports a copy in the British Museum. For illustrations of the *congius*, see Berriman, *Historical Metrology*, 125; Graevius, 11:1674.

In this discussion, Fabretti rejects an erroneous interpretation of the *congius* by the numismatist Jacques Oisel and Villalpando's reconstruction of the Roman foot: Villalpando argued specifically that half a Roman foot was represented by a straight line drawn from the bottom of the lip of the *congius* to the top horizontal band incised in its midsection (cf. Prado and Villalpando, *In Exechielem*, 3:501–2, presenting a double image of the *congius* entitled "Forma aerei congii quo ab antiquis Romanis mensurae et pondera exigebantur ad exemplum duorum similium quos Romae habuimus expressa," shown both from the exterior and in cross section). The direct quotations in this passage are paraphrases of Villalpando's text. Villalpando also included in his treatise a detailed account of the proportionality of linear measurement based on Vitruvius 9.1.2–3 and an elaborate chart illustrating the relationship of cubic and linear measurements "augendorum minuendorum in data ratione corporum instrumentum" (Prado and Villalpando, *In Exechielem*, 3:316–17), to which Fabretti makes reference in this section.

Giambattista Riccioli, S. J. (1598–1671), the second metrologist crit-



icized in this discussion, was an astronomer and geographer who spent most of his scholarly career seeking to disprove Galileo's theories. Fabretti much more briefly rejects measurements of the Roman foot presented in two of Riccioli's major works, the *Almagestum novum* and the *Geographiae et hydrographiae reformatae nuper recognitae et auctae libri duodecim* (Venice, 1672). In a review of Roman metrology within his *Almagestum novum*, Riccioli discussed both the Capitoline foot of Peto and Villalpando's Farnesina *congius* and reproduced the dimensions of a *semipes Romanus* [a half Roman foot] and a modern half-foot (*semipes Bonienseis recentior*). For Riccioli's career, see *DSB*, 11:411–12 (L. Campedelli).

4. TOPOGRAPHY OF THE UPPER ANIO

To provide a clear break from the preceding digression, Fabretti begins his discussion of the topography of the upper Anio with well-known citations of Frontinus on the sources of the Marcia and Claudia.

Poggio Bracciolini (1380–1459). Bracciolini is the Renaissance humanist credited with the discovery of many Latin classics, among them Frontinus's *De aquaeductu*. See Sandys, 2:25–34; *EHCA*, 907–8 (P. W. G. Gordan).

Via Valeria. An important Roman road running east as a continuation of the Via Tiburtina to Alba Fucens and the Adriatic coast, it was probably first paved in the censorship of M. Valerius Messala (154 B.C.). For its route in the area under discussion, see Crainz and Giuliani, "Via Valeria," 71–88.

Via Sublacensis. A branch of the Via Valeria paved by Nero to provide access to his villa at Subiaco (see Plin. *HN* 3.109; Tac. *Ann.* 14.22).

a. Holste's Theories

Fabretti had earlier criticized the topographical work of Lucas Holste in general terms (I.7); he now focuses on particular errors concerning the sources of the Aqua Marcia and Aqua Claudia, as well as Holste's attempt to identify the Aqua Augusta, added as a supplement to the Marcia by Augustus (Frontin. *Aq.* 12.1–2), with springs below a settlement named Austa (the modern village of Agosta).

Fabretti's citation of Frontinus here is selective, omitting the addi-

tional notice in *De aquaeductu* 14.3 that the Aqua Augusta served as supplement for the Aqua Claudia but remained as a potential reserve for the Marcia. As Ashby (88 n. 8 [109 n. 8]) observes, Fabretti makes a special effort here to refute Holste's identification of the name of the Aqua Augusta with that of the village of Agosta, calling attention to other errors in Holste's published work and to the vagueness of citations of the Aqua Augusta in documents of the Subiaco monastery.

Fabretti does repeat here, however, without objection, an important notice from Holste's *Annotationes* concerning the intake and conduit of the Anio Novus from the lakes above Subiaco. Holste's description of the three lakes and his topographical notice concerning the fourth-century Church of S. Lorenzo "ad altas aquas" are repeated by later topographers: cf. Lanciani, 352; Ashby, 254–55 n. 4 (305 n. 19); Panimolle, 151–52.

Fabretti cites earlier criticism of Holste made in his unpublished letter to **Lorenzo Panciatichi** (1635–76), a priest and author of two works published posthumously, the novella *La barba fatta per carità* (1856) and *Scherzi poetici* (1729). Three years before the completion of this dissertation by Fabretti, Panciatichi had committed suicide by jumping into a well, "trasportato da furore più che poetico" [carried away by more than poetic madness] (G. Negri, S.J., *Istoria de Fiorentini scrittori* [Ferrara, 1722], 378–79); Panciatichi's recent death no doubt prompted Fabretti's praise of his learning and comments about fate. For an assessment of Panciatichi's work, see C. Guasti, ed., *Scritti vari di Lorenzo Panciatichi* (Florence, 1856), i–lxv.

The *Bullarium casinense, seu constitutiones summorum pontificum* (Todi, 1670), cited by Fabretti at length in this section, was a recently published compilation by Cornelio Margarini, O.S.B. (1605–81), whom Fabretti mentions warmly. Margarini was also the author of a *Dictionarium lombardicum* (Todi, 1670) and editor of *Inscriptiones antiquae basilicae S. Pauli ad viam Ostiensem* (Rome, 1654). It should be noted, however, that the second and third bulls cited by Fabretti here, those of Honorius III in 1217 and John VI in 704, do not appear in the *Bullarium casinense*; cf. Barbiellini, 71 n. b, 72 n. a.

Fabretti argues that the papal documents in the *Bullarium casinense* are notoriously unreliable as topographical documentation and are therefore to be discounted as evidence concerning the source and route of the Aqua Augusta. He adds as well that references in them to that aqueduct might well be references to a later supplemental source added to the Aqua Mar-



cia by Caracalla in conjunction with the building of the *Thermae Antoninianae* in the early third century. This second argument is not particularly convincing; Caracalla's supplement is identified only as the "novus fons Antoninianus" (*CIL* VI, 1245) and is never attested by the name *Aqua Augusta*. However, Fabretti expands on his first argument, pointing out similar topographical errors in other papal documents, specifically a bull of Paul V concerning the *Aqua Traiana* (cf. Ashby, 88 n. 8, 304 [109 n. 8, 361]), and citing corrections of other misidentifications in the works of Pietro Bembo by two other scholars, **Antonio Massa, S.J.** (1500–1558) and **Niccolò Nardini**. For Massa's career, see N. del Re, *Antonio Massa da Gallese, giurista e letterato* (Naples, 1992). Nardini, the son of the topographer Famiano Nardini, had published his study of the Faliscans much more recently, in 1677, two years before the completion of this dissertation.

Fabretti dismisses topographical errors found in papal bulls as trivial, only to introduce strong censure of the numismatist **Claude Dumolinet** (1620–87), whose *Historia summorum pontificum a Martino V ad Innocentium XI per eorum numismata* appeared in 1679, the year this dissertation was written. As the commentator of the Barbiellini edition observes, Fabretti's criticism of Dumolinet's association of the papal *Acqua Paola* with Augustus's *Aqua Alsietina* is unfair: Dumolinet nowhere asserts this identification in his *Historia* but cites only the erroneous papal inscription on the *Acqua Paola* fountain on the *Janiculum*.

b. Course of the *Via Valeria*

Fabretti's principal topic in this section is the original course of the ancient *Via Valeria* in the region of the sources of the *Aqua Marcia* and *Aqua Claudia*. He cites what he describes as conflicting testimony about the Roman road in Holste's *Annotationes* and argues instead for a direct course for the *Via Valeria* from the *Osteria della Ferrata* northeast to *Riofreddo*, as shown on his topographical map (fig. 17).

Fabretti's discussion addresses a longstanding topographical problem not resolved until recently: what was the course of this Roman road through the territory between the *Anio Valley* and the *Piana del Cavaliere* six kilometers distant to the northeast and 260 meters in elevation above it? As Crainz and Giuliani point out ("Via Valeria," 78–80), earlier cartographic evidence for the region is of limited value in determining

how the original Via Valeria ran: an anonymous map of around 1650 in the British Library indicates two separate courses for the road, a direct route northeast from the Osteria della Ferrata through Riofreddo, as argued by Fabretti here, and a longer route following the course of the Anio past the bridge to Anticoli Corrado, then turning sharply north past Arsoli (corresponding generally to the course of the modern Italian state highway [S.S. no. 5] and the route of the Rome-Pescara autostrada). Another seventeenth-century map, the *Catasto Alessandrino* of 1661, shows only the branch through Riofreddo as the Via Valeria. For an extensive review of earlier cartography, see Crainz and Giuliani, "Via Valeria," 73–88, especially 78–82 and tables XII–XIII.

To defend his arguments for positing a more direct route through Riofreddo, Fabretti cites a passage of Plutarch on the Roman practice of planning roads along straight courses. However, he gives much greater emphasis to his autoptic investigation of the area, describing a journey undertaken with **Giuseppe de Giuli** (presumably in the late spring/early summer of 1679). De Giuli, whom Fabretti describes as a man of scholarly interests, appears to have been the author of a *Compendaria et facilis ad linguam graecam manuductio* (Rome, 1681) and a commemorative poem, *Pacis augurium sub Clementis X pont. max. patrocinio* (Rome, 1670). See Barbiellini, 77 n. b.

Fabretti's account shows that already in his time the course of the road was difficult, given the steep rise in elevation between the Anio Valley and Riofreddo (see Crainz and Giuliani, "Via Valeria," 80 n. 38). The route through Riofreddo described here appears to have been abandoned in the early nineteenth century, although its course can still be traced on the ground (see Crainz and Giuliani, "Via Valeria," 82–84, tables XV–XVII). Fabretti's identification of this route as the ancient Via Valeria was uncontested until the early nineteenth century, when Gell and Nibby argued for the alternate route, the longer course running southwest along the Anio past Anticoli, then directly north past Arsoli (see Crainz and Giuliani, "Via Valeria," 80–81). Their arguments were also supported by Rodolfo Lanciani (278–79 n. 1) in his reexamination of the problem in connection with the sources of the Aqua Marcia and were further strengthened by the discovery along the Anio, in August 1889, of the *bivium* (intersection) of the Via Valeria and Via Sublacensis located five hundred meters southeast of the Anticoli bridge, along with three milestones of the Via Valeria dating from the fourth century A.D., all bearing



the number “36” (see Ashby, 95–96 [118–19]; Crainz and Giuliani, “Via Valeria,” 75–76, table V).

Only recently have Crainz and Giuliani reopened a general examination of the problem, arguing that there was indeed a “Via Valeria Vetus,” the direct route running past Riofreddo posited by Fabretti, which represents the original course of the Roman military road first built in the late fourth century B.C., in conjunction with the establishment of Latin colonies at Alba Fucens and Carseoli. This earlier route through Riofreddo served as the principal course of the Via Valeria from the Anio Valley to the Piana del Cavaliere until the late second century B.C., when the introduction of the Aqua Marcia into Rome prompted a major change in the route of the road to avoid the steep mountain climb northeast of the Osteria della Ferrata and to provide easy access to the sources of the aqueduct and for maintenance of its conduit (see Crainz and Giuliani, “Via Valeria,” 86–88). Frontinus took his data concerning the distances of the sources of the Aqua Marcia, Aqua Claudia, and Aqua Anio Novus in the *De aquaeductu* from the second Via Valeria—running southeast along the Anio River, then turning north after Anticoli to run past Arsoli toward S. Giorgio—which was in primary use during the first century A.D.

Fabretti’s observations about the course of the Via Valeria are therefore correct in part, even if his arguments for the location of its *bivium* with the Via Sublacensis are now recognized to be in error. Had Fabretti known about the *bivium* of the Via Valeria and Via Sublacensis near the Anticoli bridge and the three milestones unearthed there two centuries later, his reconstruction and reading of the evidence would no doubt have been far different.

To support his arguments here, however, Fabretti cites further evidence. First, he cites the distance of sixteen miles on the Riofreddo route from Tivoli to S. Giorgio confirmed by a measuring device installed on his carriage, which Fabretti argues corresponds to the figure of thirty-six miles given by Frontinus at *De aquaeductu* 7.6 (cited earlier in this dissertation). This point is far from certain, as Fabretti himself seems to recognize in this passage, where he alludes to the deviation of the modern Via Valeria from the course of the ancient route below Cantalupo and to discrepancies inherent in measurements of this sort. Lanciani (278–79) describes Fabretti’s figures from his wagon measurements as “un pò alla buona” [a bit exaggerated]. It is interesting to note that Poleni (33–34 n. 25) accepts

Fabretti's argument for the emendation of "XXXIII" to "XXXVI" but also points out that there is manuscript authority for the figure "XXXVI."

Second, Fabretti cites the forty-first milestone of the Via Valeria (*CIL* IX, 5966) erected at Carsoli. Although Fabretti makes much of the number "XXXI," calculating the distance from Tivoli according to his reconstruction of the route of the Via Valeria, this *cippus* is not in situ and therefore offers no convincing evidence about distances and the course of the road.

Third, Fabretti cites the thirty-eighth milestone erected by Nerva (*CIL* IX, 5963) for an unnamed route (presumably the Via Valeria), found in the locality of Sonnoletta northwest of Arsoli and erected in the piazza of Arsoli (cf. Ashby, 96 n. 1 [118 n. 55]). Lanciani (278) fixed its location at the Vigna della Corte, twenty-one hundred paces from the *bivium* of the Via Valeria and Via Sublacensis near the Anticoli bridge. In citing the information given by Gruter on its location, "ad fontem Somnulae secundum Viam Valeriam" [at the spring of Somnula, along the Via Valeria], Fabretti takes special pains to attribute that notice to **Ercole Ciofano**, whom he identifies as Gruter's source. According to Fabretti's interpretation of the evidence, the milestone could not have stood on the Via Valeria proper. However, the criticism presented here of Ciofano's commentary on Ovid (Antwerp, 1581–83) is not accurate: Ciofano, in his notes on *Tristia* 4.10.4, did not specifically identify ancient Arsoli with the ancient Carsoli but equated Carsoli with the nearby *Piano di Perito e Celle*. See P. Burmann, ed., *Publii Ovidii Nasonis opera omnia* (Amsterdam, 1727), 3:643; Burmann incorporates Ciofano's commentary.

Fabretti's criticism of Ciofano also permits introduction of additional criticism of Holste and of a recently published map of the region based on Holste's topographical work. This map, already cited (and criticized) in the first dissertation (I.7), is attributed to Innocenzo Mattei (cited in its title), who appears to have published it thirteen years after Holste's death. For a discussion, see Almagià, *L'opera geografica*, 134–36; the map is reproduced in Almagià, *Monumenta*, 2:56–57, table XIV.

Fabretti's final censure in this passage is reserved for **Athanasius Kircher, S.J.**, whom he does not name directly here, but whose *Latium* he criticized sharply in the first dissertation (I.2). Fabretti's criticism here is accurate but again fierce, calling attention to Kircher's excessive reliance on local antiquarians for his topographical arguments. Kircher (52a–b) does indeed cite the archbishop of Albano as one of his authorities, describing him as a "virum haud vulgari doctrina indagatorem" [investiga-



tor of extraordinary learning], and mentions letters from a doctor of Castel Gandolfo, one Valentinus Steboerus, praised as “doctrina et eruditione eximius de Lanuviniis Albanisque antiquitatibus” [distinguished in learning and erudition concerning the antiquities of Lanuvium and Albanum].

Fabretti also censures Holste’s misnaming of the Pons Scutonicus, a prominent landmark in the region, criticizing once more Holste’s theories about the course of the Via Valeria. On this point, Holste was correct and Fabretti mistaken: the Pons Scutonicus near the present village of Roviano indeed carried the Via Valeria on its course north from the Anio toward Arsoli. See Crainz and Giuliani, “Via Valeria,” 84–85; Mari, “La valle dell’Aniene,” table IVa.

Fabretti reserves for fullest discussion one final piece of epigraphical evidence, the thirty-eighth milestone of the Via Sublacensis that he found in situ in the bed of the Anio River in 1679. He describes this dramatic discovery in considerable detail to provide what he considers decisive proof of his reading of the evidence for the course of the Via Valeria. In actuality, Fabretti’s discovery, while extremely important in its own right in demonstrating the changes of the course of the Anio River itself since antiquity, confirms the route of the Via Valeria outlined by Holste, as well as the location of its *bivium* with the Via Sublacensis, attested by the discoveries in 1889.

c. Sources of the Aqua Claudia

In contrast to his earlier discussion of the route of the Via Valeria, Fabretti treats the sources of the Aqua Claudia very briefly, identifying them as the springs of the Acqua Serena at kilometer 60.5 of the modern Via Sublacense (fig. 17, nos. 19–20). Fabretti’s basic agreement with Holste on this point is surprising, given his earlier objections to Holste’s work on the route of the Via Valeria and its *bivium* with the Via Sublacensis. Fabretti’s comments here are in fact limited to criticism of Holste’s attempt to distinguish between the Caerulean and Curtian springs, identifications that he questions skeptically but does not dispute.

In actuality, however, both Holste and Fabretti were mistaken about the sources of the Claudia. The springs less than three hundred paces from Fabretti’s milestone are actually the sources of the Aqua Marcia, an identification now secure from the thorough investigations of Lanciani (270–86), later endorsed by Ashby (95–98 [115–20]) and recently con-

firmed by the topographical work of Crainz and Giuliani, 80–82. Fiore Cavaliere and Mari (“Acquisizioni,” 464–65) present a convenient summary of the evidence. First, in fixing the sources of the Marcia at *De aquaeductu* 7.6, Frontinus based his notice of its location “three hundred paces from the thirty-eighth milestone of the Via Sublacensis” from the course of the Neronian road running along the Anio River southeast of its *bivium* with the Via Valeria. Second, the other figure given by Frontinus in *De aquaeductu* 7.6, that of the distance of three miles from the *bivium* itself, was based on an older, pre-Neronian routing of the Via Sublacensis; this older route served as a service road to the sources of the Marcia and Claudia before Nero paved his shorter, more direct route to his villa at Subiaco. Third, the pre-Neronian route of the Via Sublacensis followed an arclike course further east, along higher ground at the base of Monte La Prugna, and approached the sources to the northeast; the third mile of its course from the *bivium* with the Via Valeria therefore falls at the site of the Serene springs, directly east of which, along the Anio River itself, Fabretti found the thirty-eighth milestone of the Trajanic Via Sublacensis in situ (see Fiore Cavaliere and Mari, “Acquisizioni,” 464, fig. 1).

Fabretti’s error in identifying the sources of the Claudia is a logical result of his mistaken reconstruction of the course of the Via Valeria. This led to his error in identifying the sources of the Marcia, a topic he introduces in this passage but reserves for fuller discussion in a later section. His brief treatment here focuses only on Frontinus’s notice about relative levels of the conduits (*Aq.* 18.4), to argue against Holste’s location of the Marcia’s sources at the Forma della Mola (fig. 17, no. 22).

As Poleni observed (64 n. 12), Fabretti’s printed text in this passage, which reads that the Marcia ran five and a half feet below the Claudia at Spes Vetus, must reflect a typographical error; as is shown in Fabretti’s own cross section presented in the first dissertation (fig. 7), the Marcia is a good twenty-five and a half feet below the Claudia at this point. The translation presented here adopts Poleni’s correction.

d. Representations of the Aqua Claudia

In this lengthy digression on the iconography of the Aqua Claudia, Fabretti argues that the aqueduct is represented in a lunette relief of a solitary nude female reclining in a pool or stream, into which she is pouring or drawing water through a partially submerged urn. To support this read-



ing, Fabretti first cites epigraphical evidence to demonstrate that the Aqua Claudia was named and depicted in inscriptions and received votive offerings.

Interpretation of the first inscription cited here, that of a votive altar to the “Cyanean waves” by a certain Contuccius (*CIL* VI, 555), is problematic at best. The translation presented in the text follows the reconstruction of Moritz Haupt published in *CIL*. Whether the “Cyanean waves” are to be equated with the springs of the Fons Caeruleus that, as Frontinus notes (*Aq.* 14.1), were one of the Claudia’s sources is problematic, as is also Fabretti’s attempt to connect the “rising” and “falling” of the water with details of the relief presented here. This discussion of the Contuccius inscription permits Fabretti to introduce references to Gruter, as well as the scholarship of **Stephanus Vinandus Pighius** (Stephan Wynants Pighe, 1520–1604). Pighius, a Dutchman who spent eight years in Italy and later became a canon at Xanten on the Rhine, produced an edition of Valerius Maximus (Antwerp, 1575) and the *Annales Romanorum* (Antwerp, 1599–1615) cited here by Fabretti. See Sandys, 2:217.

The other two inscriptions cited (*CIL* VI, 8494–95) are much more straightforward but provide no substantial support for Fabretti’s identification of the female relief as that of the Aqua Claudia. Introduction of these inscriptions permits Fabretti to include a further digression on the term *vilicus*, appearing in *CIL* VI, 8495, and on the variant spelling there of the word *vicarius* with a *k*. The citation of *vilicus* introduces a correction of the Latin linguist **Claude Dausque, S.J.** (1566–1644), whose *Orthographia Latini sermonis vetus et nova* appeared in 1677.

Fabretti devotes far more discussion to the iconography of the relief itself, taking special pains to point out what he considers its unusual features: the position of the urn held by the female figure and the fact that the figure, who has many of the characteristics of a nymph, is solitary, not appearing as one of a group of three. The first argument, that the urn appears to be drawing water as much as pouring it out, does not seem conclusive, since the figure of a reclining nymph resting on an urn is frequently attested in the iconography; see *LIMC*, 8:893, “Nymphe couchée” 86 (M. Halm-Tisserant, G. Siebert).

Fabretti’s second observation—that the figure is solitary, not part of a group—introduces a much longer digression on the tradition of threefold representations of nymphs and other goddesses, with a survey of six reliefs and paintings. The first relief surveyed is a votive relief (*CIL* VI, 30791)

depicting three nymphs pouring water from urns and holding leaves of an aquatic plant, which Fabretti appears to identify as *Nymphaea heraclea*, cited by Pliny the Elder (*HN* 25.75); the nymphs are flanked by a snake on the left and the freedman Augustalis of the inscription, sacrificing at a round altar on the right. Discussion of this relief introduces comparisons on the salutary attributes of snakes and *Nymphaea heraclea*. Fabretti cites a manuscript of Cardinal Carpegna (his addressee) as his source for this relief but provides no definite information on the whereabouts of the relief itself.

The second item surveyed by Fabretti here is a fragmentary relief with a votive inscription (*CIL* VI, 554), depicting two nymphs pouring water from urns, flanking a third who stands holding a seashell. The third item surveyed is a well-known votive tablet now in the Vatican Museum (*CIL* VI, 549), depicting, from left to right, Diana, three nymphs holding seashells, Silvanus in a tunic, and Hercules. See *LIMC*, 2:833, “Artemis/Diana” 299; 7:766, “Silvanus” 49 (G. Bauchhenss). For a possible identification of the nymphs with the *Silvanae*, nymphs associated with Silvanus, see P. F. Dorsey, *The Cult of Silvanus: A Study in Roman Folk Religion* (Leiden, 1992), 42–44. This relief introduces another digression on the cultic associations of Hercules and Silvanus and the attributes *valens* and *valentius* given to each god.

The fourth item surveyed here is a wall painting depicting three nymphs and Pegasus from the tomb of the *Nasonii* outside Rome; see *LIMC*, 8:896, “Nymphaei” 72. The fifth item is a well-known funerary relief now in Berlin (*CIL* VI, 10036), depicting three Graces and a bride, perhaps recently deceased; see *LIMC*, 3:206, “Gratiae” 48 (H. Sichtermann). Fabretti’s discussion introduces a correction of **Martin Smet** (d. 1578) who discussed this relief in his *Inscriptionum antiquarum* (1588), a forerunner of Gruter’s epigraphical corpus. On Smet’s career, see Sandys, 2:145.

The sixth item surveyed here is a two-part votive relief from the headquarters of the *Equites Singulares* in Rome (*CIL* VI, 768 = *ILS* 4776), depicting, in its top panel, the three *Suleviae Matres* holding ears of grain and baskets of fruits (or flowers?) in their laps and, below, a sacrifice carried out by the centurion Aurelius Quintus. For detailed discussion of this relief, see *LIMC*, 4:1593–1600 (M. Ihm); *RE* 4A (1931): 725–27 (F. Heichelheim). Fabretti claims credit for the discovery of the relief and provides a detailed description of the sacrificial scene and the formula



“LAETVS LIBENS” in the inscription, but he gives no details about the Suleviae themselves.

Fabretti’s presentation of these six reliefs and paintings is supplemented by numerous citations from classical literature (including Theocritus, Pausanias, Ausonius, Plutarch, and Varro) illustrating the triple appearance of female divinities. His introduction of a passage of Pausanias permits a complimentary reference to the Dutch polymath and classical scholar **Gerard John Vossius** (1577–1649). See Sandys, 2:307–8.

e. Source of the Aqua Marcia

Fabretti now returns to the topic touched on briefly in II.4c, the source of the Aqua Marcia. Arguing from his reconstruction of the route of the ancient Via Valeria that the intake of the aqueduct is to be identified with springs below the Church of S. Maria in Arsoli, he first cites a fragmentary late inscription making reference to an arcade that he found in the altar of the church (*CIL* IX, 4051.6). The inscription, which does not cite the Aqua Marcia by name, gives little support to Fabretti’s argument concerning the location of the Marcia’s source but is important evidence for late restorations of the aqueduct by Honorius and Arcadius. The fragment, published here for the first time by Fabretti, was supplemented in the nineteenth century by other pieces of the same inscription discovered in the castle at Arsoli by C. L. Visconti. For a full discussion, see Lanciani, 284–85 (Lanciani quotes Visconti’s report at length); Ashby, 92 n. 1 (113 n. 39).

Fabretti next spends considerable effort refuting the published work of **Gerolamo Mercuriale** (1530–1606), a doctor and scholar of ancient medicine. Mercuriale, who produced an edition of the Hippocratic corpus (Paris, 1585), as well as extensive other works on ancient medicine, had argued from the text of Galen that the water of the ancient Aqua Marcia was heavy and therefore considered unfit for drinking. Fabretti takes pains to refute this, through extensive quotations from Galen himself, as well as ancient praise of the Marcia from Pliny and other authors. For Mercuriale’s career and contributions to scholarship on ancient medicine, see A. Simili, *Gerolamo Mercuriale lettore e medico a Bologna* (Bologna, 1966).

The most lengthy discussion within this section concerns the *cippi*, or boundary stones, marking the courses of aqueducts, which Fabretti introduces through a notice of one such marker discovered by him near the

Pons Scutonicus (CIL VI, 1251b), along with a togate statue and remains of a vaulted structure. Ashby (93–94 [114]) observes that the *cippus* of travertine was not found in situ and that Fabretti's notice that it was marble is incorrect.

Much more important, however, are Fabretti's observations about the listings of 240 feet found regularly on *cippi* along the aqueduct courses. Citing parallels of boundary markers of the Aqua Virgo (CIL VI, 1253b, 1254) and one of the Aqua Marcia/Tepula/Julia discovered by himself (CIL VI, 31561g = 1249f), Fabretti argues that these standard intervals of 240 feet represent the length of a Roman *iugerum*, regularly employed in measuring the lengths of the conduits from their distribution points in the city.

The number 240 is not canonical in *cippi*, since examples have been found indicating different distances (CIL VI, 31558g = VI, 1243e = XIV, 4080 [320 feet]; CIL VI, 31558a [230 feet]; CIL VI, 31562f [250 feet]). But Fabretti's observations, made here for the first time, were well founded and have been generally accepted by later students of the aqueduct system. Cf. Lanciani, 557–61; Ashby, 57–58 (73–74); Hodge, 103. Lanciani (559) describes Fabretti's interpretation as “verità . . . aritmetica” [mathematical truth]. Deviations from the standard interval of 240 feet were probably the result of unusually winding courses in particular areas. As Lanciani observes (557), *cippi* of only five aqueduct lines have been discovered to date, those of the Anio Vetus, Marcia, the combined Marcia/Tepula/Julia, and the Virgo. *Cippi* appear to have been in use for only some fifty years, having been introduced by Augustus in his rebuilding of the aqueduct system, and while later emperors restored earlier *cippi*, no new such boundary stones dated later than the time of Claudius are attested. For a recently discovered *cippus* of the Aqua Marcia and an updating of Ashby's listings, see S. Gatti, “Un nuovo cippo dell'Aqua Marcia,” in *Trionfo* II, 93–104.

Fabretti argues here that the use of iuger *cippi* was abandoned after Claudius's reorganization of the water system because the Roman road system, which roughly paralleled the lines of the conduits outside the city, provided an easier system to mark the distances from the distribution points. He also cites Frontinus's notice that he prepared maps of the aqueduct network to facilitate maintenance and repair of the lines (Aq. 17.3); such a system appears to have superseded the iuger markings and explains Frontinus's practice of citing road distances in miles in his descriptions of the aqueduct courses. Cf. Hodge, 103–4.



Fabretti's observations about the iugeral standard in *cippi* prompt criticism of errors in the work of **Jean-Jacques Chifflet** (1588–1660), who had published a short treatise on the Aqua Virgo in 1657. See Ashby, 167 n. 6 (199 n. 6). However, Fabretti's most severe censure in this passage is reserved for **Pirro Ligorio**, whom he had criticized earlier, in the first dissertation (I.4f–g). Here, Fabretti discusses at length a fabricated inscription published by Ligorio (*CIL* VI, 800*, apparently based on *CIL* VI, 1244), pointing out its errors of fact and historical inconsistencies, and he cites similarly sharp criticism of Ligorio recently published by **Exechiel Spanheim** (1629–1710). For the career of Spanheim, a native of Geneva who studied at Leiden and became a professor at the age of twenty-two years, see Sandys, 2:327. To point out inaccuracies in Ligorio's inscription, Fabretti also cites the work of **Onofrio Panvinio** (1529–68), whose edition of the *Fasti consulares* was published in 1557, and **Adolf Occo** (1514–1606), who published a collection entitled *Imperatorum Romanorum numismata*. See Sandys, 2:145; *EHCA*, 851–52 (R. W. Gaston).

f. Source of the Aqua Augusta

Fabretti next turns to the source of Augustus's supplement to the Aqua Marcia, which he seeks to identify with ancient construction either at springs known as the Lake of S. Lucia (fig. 17, no. 18) or at another spring to the north (fig. 17, no. 17). As a result of his earlier error in fixing the sources of the Aqua Marcia, both of these identifications are incorrect. Modern topographers generally place the source of the Aqua Augusta at the Rosoline springs at kilometer 61.5 of the modern Via Sublacense, some one hundred meters east of the side road to Marano, where remains of two conduits were seen by Ashby. See Fiore Cavaliere and Mari, "Acquisizioni," 464; Ashby, 96, fig. 6 (117–19, fig. 14); Aicher, 161–62.

For an alternate view positing the source of the Aqua Augusta at the modern Mola di Agosta (probably to be identified with springs identified by Fabretti as the "Forma della Mola" [fig. 17, no. 22]), see Panimolle, 86–88. Panimolle places the sources of the Marcia at the Rosoline springs and argues that the sources of the Aqua Augusta are eight hundred paces distant, precisely at the springs below Agosta, and that the name *Agosta* is derived from Augustus's supplemental branch. Panimolle's arguments ignore the detail in Frontinus's notice that the Aqua Augusta ran eight

hundred paces to the conduit of the Marcia, not to its source (*Aq.* 12.2), a fact mentioned by Fabretti, albeit in error, in supporting his identification.

g. Origin of the Aqua Marcia

Finally, Fabretti turns to a brief discussion of the origins of the Marcia, refuting the notice of Pliny the Elder (*HN* 31.41) that the Marcia originated in Marsian territory, east of the Fucine Lake. Fabretti quotes Holste to reject the statement of Pliny and sharply criticizes the topographical arguments of **Georg Fabricius**, whom he also censured in the first dissertation (I.4c). Poleni (33 n. 24) comments on Fabretti's criticism in this passage, "Haec quidem videntur duriuscule scripta: attamen fateri debeo, haud video, qua ratione ea Plinii narratio defendi queat" [These words seem a bit harshly written, yet I must confess I do not see how that statement of Pliny can be defended].

5. SETTLING TANKS

a. The "Villa delle Vignacce"

Fabretti now describes in considerable detail several structures closer to Rome that he identifies as *piscinae* (settling tanks) of the Anio Valley aqueducts; the first (fig. 26), which he assigns to the Aqua Marcia, is a construction near the fourth milestone of the Via Latina, an area commonly known today as the "Villa delle Vignacce." In the sixteenth century, Pirro Ligorio had recorded "grandissimi ruini di una villa" [very great ruins of a villa] in the area (*Neap.* xxxiv.179, cited in T. Ashby, "The Classical Topography of the Roman Campagna-III," *BSR* 4 [1907]: 77), but the presentation given here by Fabretti is the first detailed account of a structure subsequently described and cited in Lanciani, 293; T. Ashby, "Classical Topography-III," 77-78; Ashby and Lugli, "La villa dei Flavi cristiani," 183-91; Ashby, 133-34 (166); and, most recently, following restoration work on the nearby Acqua Felice in 1980-81, Pisani Sartorio, "Punto di derivazione dell'acqua Marcia," 55-56. Pisani Sartorio also includes a cross section and reconstruction of its functioning (reproduced in Aicher, 95, fig. 22).

In his account of the structure, Fabretti argues that water tapped from



the main conduit of the aqueduct was channeled underground through an intermediary *puteus* (wellhead) to the lower cisterns of the *piscina*, then rose to the upper cisterns through an opening in the middle chamber. However, he is unusually defensive here about his reading of the archaeological evidence, acknowledging that he was unable to explore the underground communication between wellhead and reservoir. His explanation of its operation given here indeed raises more problems than it solves and has been rightly described as “ingenious but erroneous” (I. A. Richmond in Ashby, 133 n. 7 [166 n. 216]).

There have been several later attempts to make sense of the physical remains. Lanciani (293) seemed to accept Fabretti’s identification of the complex as the *piscina* of the Aqua Marcia: “Credo che il Fabretti abbia colto nel vero riconoscendo la piscina della marcia in quella” [I believe that Fabretti hit on the truth in his recognition of the settling tank of the Marcia in it]. However, Lanciani also observed that the structure Fabretti describes cannot be the *piscina* described by Frontinus (*Aq.* 19.1); as Fabretti himself indicates, the facing of *opus mixtum* (irregularly faced concrete) in the construction dates from the time of Hadrian, dating also confirmed by the brick stamp cited in this passage. The nearby “Villa delle Vignacce” can also be dated by brick stamps to the same period. In addition, Lanciani noted another seven similar structures in the immediate area, making impossible the firm identification of any one of them with that cited by Frontinus.

Lanciani (293) gave a general account of the structure described by Fabretti, with no explanation of its operation; instead, he raised the possibility that a siphon was perhaps used to transfer the water from the nearby aqueduct conduit: “L’acqua vi giungeva per mezzo di un sifone (?)” [Did the water reach the structure by means of a siphon?]. In 1907, Ashby (“Classical Topography-III,” 77–78) presented a more detailed description of the complex, based largely on that of Fabretti, who had seen the site in far better condition in the late seventeenth century; Ashby supplemented this report with more details and new diagrams in 1927, in his joint publication with Lugli (“La villa dei Flavi cristiani,” 183–91), and repeated it in abridged form in 1935 (Ashby, 133–34 [166]).

The most recent publication by Pisani Sartorio demonstrates clearly that despite the value of Fabretti’s detailed description of the structure as it stood at his time, his account of its operation is in error. Pisani Sartorio (“Punto di derivazione dell’acqua Marcia,” 55) offers the following recon-

struction of its operation: the water from the aqueduct was drawn through a pipe installed in the conduit wall to the wellhead situated between the aqueduct conduit and reservoir, today at ground level but originally at the level of the conduit itself; from this wellhead, the water was channeled to fill the nearby reservoir, from where it was distributed further in pipes to supply the nearby villa, with a runoff channel provided for excess water. The wellhead itself may have also functioned as a filtering device for the water tapped from the reservoir. The lower chambers, which Fabretti reconstructed as cisterns, appear to have served only as support for the tanks above.

In contrast to his detailed account of the “Villa delle Vignacce” complex, Fabretti describes much more briefly a second cistern of trapezoidal shape nearby (fig. 27), which he identifies as a *piscina* of the Tepula and Julia, arguing that similarities of design in the two structures suggest a parallel functioning. Again, he is defensive about his reading of the archaeological evidence, observing that Frontinus’s note (*Aq.* 68.4) that the *piscina* of the Marcia was closer to the city than that of the Tepula and Julia contradicts his identification. Poleni (123 n. 1) noted Fabretti’s uncertainty and defended Frontinus’s text on this point. Lanciani (298) observes that Fabretti’s identification with the *piscina* of the Tepula and Julia cannot be correct, because the structure stands too close to the city, “ad sextum ab urbe miliarium” [at the sixth milestone from the city]. Ashby (134–35 n. 8 [167 n. 224]) identifies it as a cistern supplying a nearby villa and suggests from its deposit that the water it carried was that of the Aqua Marcia.

To strengthen his arguments on the functioning of the two structures described here, Fabretti also presents a third example as a parallel, a reconstruction of a *piscina* that he identifies as that of the Aqua Virgo (fig. 28), the operation of which he states is similar to that of the *piscinae* on the Via Latina. Fabretti describes this structure, located in Rome in the Vicolo del Bottino (to which it seems to have given its name), as full of mud in the seventeenth century; it appears to have served a branch line of the Aqua Virgo, not the main conduit itself. Because Frontinus reports that the Virgo had no settling tanks (*Aq.* 22.1), the structure must be assigned not to the original aqueduct but to a later branch. Lanciani (336–37) remarks that, in contrast to Fabretti’s description here, the *piscina* was still functioning as a “castello di distribuzione” [distribution tank] in his day; Ashby (173–74 [205]) reports that it was destroyed in the construction of a pub-



lic cable elevator to the Pincian Hill, when one of its chambers became the waiting room. Fabretti's diagram is reproduced by Van Deman (173, fig. 19) and by P. Pace in "Tecniche di conduzione e distribuzione dell'acqua in epoca romana," in *Trionfo*, 141, fig. 3. The hydraulic functioning of the Vicolo del Bottino *piscina* is also illustrated and discussed by Hodge (123–25).

b. The Aqua Claudia/Anio Novus

Fabretti now turns to another reservoir, further distant from Rome, which he identifies as the *piscina* of the Aqua Claudia/Anio Novus, located by Frontinus's treatise "ad septimum ab urbe miliarium" [at the seventh milestone from the city] (*Aq.* 72.3). His description here is general: he cites only the poor state of the remains in the seventeenth century, the size of the construction (which, he plausibly argues, exceeds that of a private cistern), and the double nature of the construction, which he suggests was planned to accommodate both aqueducts.

Fabretti's identification was accepted by Lanciani (357–58), who described "poche vestigia di piscina" [a few traces of a settling tank] in 1881 and quoted Fabretti's account here at length, also reproducing his diagram of the structure (Lanciani, table VII.10). Only a few years later, however, the discovery in 1884 of the *piscina* of the Anio Novus in the Villa Bertone near Capannelle, showed that the structure Fabretti describes here had nothing to do with either the Aqua Claudia or the Aqua Anio Novus; the actual *piscina* was found filled with a huge amount of pebbles from the Simbruine mountains by the aqueduct, so many, in fact that the owner, Cavaliere Bertone, was able to pave a kilometer of roads and make plaster for six or seven buildings on his property. For more detailed discussion, see Ashby, 225–26 (264–65); Hodge, 124; Blackman and Hodge, 38.

c. Measurement of Water

Fabretti's discussion of *piscinae* now introduces another topic, the measurement of water carried out in settling tanks, as cited by Frontinus (*Aq.* 72.3). Fabretti treats this complicated problem in cursory fashion, focusing mainly on criticism of the recent hydraulic studies of **Benedetto Castelli**,

O.S.B. (1578–1643). Castelli, a student of Galileo, had been professor of mathematics at Pisa until 1626, when he was called by Pope Urban VIII to be papal consultant on hydraulics and professor of mathematics at Rome. His treatise *Della misura dell'acque correnti* (Rome, 1628) was frequently reprinted in the seventeenth century (Fabretti appears to have consulted its third edition [Bologna, 1660]) and was translated into English by Thomas Salisbury in 1661; it is considered by many scholars as the beginning of modern hydraulic research. For Castelli's career and other publications, see *DSB*, 3:115–17 (S. Drake).

Fabretti shows little interest in how Frontinus measured the volume of individual aqueducts: for discussion of this problem and the hydraulics involved, see Hodge, 123–24; R. Taylor, “Torrent or Trickle? The Aqua Alsietina, the Naumachia Augusti, and the Transtiberim,” *AJA* 101 (1997): 468–71. Instead, Fabretti sharply criticizes Castelli for presenting as his own discovery the principle that velocity and head affect the flow of water through an orifice; Fabretti cites several passages of the *De aquaeductu* to demonstrate that Frontinus had indeed understood this principle of hydraulics.

However, as Poleni, himself an engineer, observed in his commentary on the *De aquaeductu*, Fabretti's criticism of Castelli as presented here is excessive: Frontinus recognizes the effect of head and velocity on the flow of water, as seen in the passages quoted here, but nowhere in the *De aquaeductu* does he give a full demonstration of the principles of hydraulics set forth in Castelli's treatise and the relationship between the size of pipes and flow of water. Poleni (197 n. 8) writes, “Dum autem amore in Frontinum, odio (ut ita dicam) sive ira quadam . . . in Castellium Fabrettus ducitur, multum in hac re a veritate (quod humanum est) aberrat” [While influenced by love for Frontinus or hatred (if I may) or anger for Castelli, Fabretti wanders far from the truth, a human shortcoming].

Frontinus, of course, is not to be faulted for not having written a theoretical work on hydraulics, since that was not his purpose in publishing the *De aquaeductu*. However, to be fair to Castelli, we must recognize that his seventeenth-century hydraulic study approached the problem on a scientific basis and amplified Frontinus's observations, a fact that Fabretti seems deliberately to overlook here. See Blackman and Hodge, 17–18; M. Lewis, “Theoretical Hydraulics, Automata, and Water Clocks,” in Wikander, *Handbook*, 347–48.



6. THE BUILDER OF THE AQUA MARCIA

In the final section of this dissertation, Fabretti treats summarily the problem of identifying the Roman who introduced the Aqua Marcia into the city. He first presents a review of the literary evidence (Frontinus, Pliny the Elder, and Plutarch), citing for Frontinus the text of *De aquaeductu* 7.1 before Giovanni Poleni emended “Marcus,” the reading of the Monte Cassino manuscript (C), to “Marcius,” a correction accepted by all later editors of Frontinus (see Poleni, 27–28 n. 4). Fabretti’s acceptance of the attribution of the Marcia to Q. Marcius Rex rests primarily on the authority of Pliny’s notice, but he devotes more attention to the famous coin of L. Marcius Philippus that he reproduces in the text (fig. 30); the coin depicts five arches of the aqueduct on its reverse, with the caption “AQVAM” superscribed (British Museum, Department of Coins and Medals, *Coins of the Roman Republic in the British Museum* [London, 1970], 1:485, no. 3890).

In his discussion, Fabretti plausibly argues that Philippus’s depiction of Ancus Marcius on the obverse of the coin for reasons of ancestral pride was the inspiration for Pliny’s notice (*HN* 31.41) that the aqueduct was originally planned by the fourth king of Rome. He also cites, in passing, the topographical treatise *Roma vetus ac recens* (Rome, 1638) by **Alessandro Donati, S.J.** (1584–1640). A native of Siena, Donati taught rhetoric in Rome. See Sandys, 2:279; *EHCA*, 553 (C. Sperling). This is Fabretti’s first mention of Donati, whom he cites several times in the third dissertation (III.3, 5a, 6).

CLOSING

Fabretti concludes this dissertation with an intriguing list of “doubtful” matters that he has chosen to omit from the present discussion: the intake of the Anio Vetus and the course of that aqueduct and the Anio Novus; the Fons Antoninianus, which was tapped as a supplement to the Marcia by Caracalla; the Fons Herculeanus and Fons Albulinus cited by Frontinus (*Aq.* 14.2, 15.4); the capacities of the individual aqueducts listed in the *De aquaeductu*, along with the mathematical errors in the text; and the levels of the lines. He indicates that he will treat these topics elsewhere, a promise never met in his extant publications. This dissertation closes with a deferential salute to Carpegna.