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A grotto-shrine at the headwaters
of the *Aqua Traiana*

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Fig. 1. Grotto of S. Fiora, general view (R. Taylor).



Fig. 2. *Sestertius* of Trajan, A.D. 109-117 (© Trustees of the British Museum).

A grotto-shrine at the headwaters of the *Aqua Traiana*

Rabun Taylor, Katherine Rinne, Edward O'Neill, & Michael O'Neill

This article reports, in a preliminary fashion, on a discovery of great significance to the history and archaeology of the aqueducts of Rome. In spring 2009, after a period of intensive archival research and communication with public authorities in the districts of Bracciano and Manziana, two of the present authors (M. and E. O'Neill) gained temporary access to a defunct spring source on the W rim of the caldera of Lake Bracciano, 45 km northwest of Rome. The area has long been valued for its abundance of springs delivering premium-quality water for a variety of destinations and uses. Many of them have been exploited since antiquity, but few preserve visible traces of Roman engineering. The source in question, buried deep within a thicket of mature fig trees and lost to modern scholarship,¹ is a nearly pristine grotto-shrine of the Roman Imperial period, later adapted to accommodate a hermitage church named S. Fiora (fig. 1). Not only does the grotto encompass a capacious springhouse, in well-preserved Roman masonry, but it connects to several feeder conduits uphill and to c.80 m of an equally well-preserved aqueduct channel downhill. By all appearances, S. Fiora began its life as the headwaters of the *Aqua Traiana*.

The *Aqua Traiana*

The *Aqua Traiana* was dedicated on 24 June, A.D. 109, two days after the *Thermae Traiani* on the Oppian Hill and less than 6 months before the *Naumachia Traiani* in the *Ager Vaticanus*. These two grand waterworks may have offered justification enough for introducing a new aqueduct to Rome, but the *Fasti Ostienses* add an important detail about the system serving them: the *Traiana* was *tota urbe salientem*, a pan-urban network of streetside outlets and basins. With so vast an urban distribution network, the new aqueduct probably rivaled its largest predecessors in volume.² Trajan celebrated his great project with a series of coins issued between 109 and his death in 117 (fig. 2).

Since the 17th c., it has been known that the *Traiana's* numerous sources originated in the water-rich volcanic hills west and northwest of Lake Bracciano. Gathering these waters along the way, the conduit circled clockwise around the lake before turning toward Rome. Fieldwork and archival research conducted by the O'Neills in 2010 has clarified many details about this system (fig. 3). As recently as the mid-18th c., A. Cassio was able to identify three principal sectors from which the *Traiana* drew its waters, but by the 1870s R. Lanciani could positively identify none of them. Cassio refers to the headwaters (*capi*) of the network as "those that came from the so-called Fosso di Fiora", a stream running past the church for which it was clearly named. He said nothing more about these *capi*, remarking only that they were *smarrite* (lost),³ by which he presumably meant not that they were

1 The only modern reports of which we are aware are two brief articles, with photographs, in the local periodical *La voce del lago* — one by Architetto G. Curatolo (no. 40, Nov. 2005), the other by Dott. S. Cecconi (no. 61, May-June 2010); both are available online. We are grateful to Arch. Curatolo for his assistance in exploring S. Fiora.

2 Bloch 1944, 339. On the *Aqua Traiana* within the city, see also Van Buren and Stevens 1915-16; Bell 1993 and 1994; Evans 1994, 129-33; Taylor 2000, 207-47, and id. 2010; Wilson 2000. On the *Naumachia*, see Berlan-Bajard 2006, 178-215; Mazzei 2008; Cariou 2009, 111-61.

3 Cassio 1757, 1.170: "Le sorgenti in tempo di Trajano scorrevano da tre parti in numero maggiore di quelle sono al presente; perchè i Capi di quelle, che venivano dal Fosso che si diceva



Fig. 3. Map of the sources and conduits of the Aqua Traiana in the Lake Bracciano region (© E. O'Neill). Information drawn from Cassio 1757; from Carta Topografica dell'Istituto Geografico Militare f. 143, tav. III N.E.; from Archivio di Stato di Roma, Disegni e Mappe, coll. I, cart. 10, n. 113 bis; from Archivio di Stato di Roma, Collezione Ospedale di S. Spirito (fig. 17 below); and from measurements made in the field.

defunct but that their advantages were lost to Rome, for at that time the waters were serving the town of Bracciano abundantly. From the mid-19th c. until the recent rediscovery of S. Fiora, the sources went virtually unremarked. Discouraged by Lanciani's failure to identify them, archaeologists and aqueduct-hunters were content to focus on the *specus*, which comprises a few visible ruins in the field and miscellaneous segments that were incorporated into the *Acqua Paola*, the Papal reconstitution in the early 17th c. of the ancient aqueduct.⁴ The latter-day aqueduct still delivers a healthy volume of water to Rome, most famously through the grand *fontanone* of Paul V on the Janiculum. While still potable, it

di Fiora, sono smarrite". See Nibby 1849, vol. 3, 259; Lanciani 1880, 375.

4 Fabretti 1680, 49-57; Cassio 1757, vol. 1, 167-74 and 353-63; Fea 1832, 36-57; Nibby 1849, vol. 3, 254-68; Lanciani 1880, 374-80; Van Deman 1934, 331-40; Ashby 1935, 299-305; Virgili and Santolini 1986; Virgili 1993; Evans 2002, 56-62.

is no longer used for drinking, having been supplemented since 1673 by water directly from Lake Bracciano, which compromised its taste. Very little of its main conduit follows the ancient aqueduct, but a deed of transfer of 1608 indicates that a number of the *Paola's* sources were ancient, and inscriptions celebrating the aqueduct say the same.⁵ Because the *Aqua Traiana* was not yet in operation at the time of publication of Frontinus' *De aquis* (c.A.D. 97-98), the only ancient reference to it known in the early 16th c. was on the coinage, and no one had yet associated it with the city of Rome. Paul V and his engineers presumed that the ancient remains they were encountering belonged to the *Aqua Alsietina*, an Augustan aqueduct that had almost ceased to function by Trajan's time.⁶ Analysis of subfossilized trees at its point of origin has shown that, at approximately the same time as Frontinus was complaining about the *Alsietina's* poor quality (*Aq.* 8.13), the water level of the aqueduct's principal source — the *Lacus Alsietinus*, modern Lake Martignano — was descending due to seismic activity. It would soon leave the original intake high and dry, necessitating a significant and ultimately unsuccessful adjustment in the engineering.⁷

The foremost aqueduct authorities of the earlier 20th c., E. Van Deman and T. Ashby, examined remains of the *Traiana's specus* a mere stone's throw downhill from S. Fiora along the Fosso.⁸ For reasons unknown, neither they nor their most prominent predecessors (A. Nibby and Lanciani) set eyes upon the source, though Van Deman refers to the

5 A transcript of the deed is given in Fea 1832, 135-39. The terms used are *condotti vecchi, aquedotti antichi e moderni*, etc. Among the named sources not affected by the sale is included a "Fiore" (138). See also Biblioteca Apostolica Vaticana, Urb. Lat. 1075, 2:457r, 28 July 1607, and 470r-470v, 1 August 1607, for documents related to this and other springs in the area that were considered for the *Acqua Paola*.

6 Bruun 2001; Taylor 2000, 169-200. Even before Pope Paul, some antiquarians understood that an aqueduct from the Bracciano region had served Rome; the *Pianta di Roma antica* (1579) by M. Cartaro, which is crammed with fictive "ancient" features known only by inference, includes an aqueduct arcade high on the Janiculum labeled "Aqua Sabatina" (*Lacus Sabatinus* being the ancient name for Lake Bracciano; see Frutaz 1962, tav. 55). The name is a borrowing from the *Liber pontificalis*, which documents the early mediaeval reclamation of the *Traiana* by Hadrian I (A.D. 772-795) and Gregory IV (A.D. 827-844; *Lib. Pont.* 97.59 and 103.19 = Duchesne 2.503-4 and 2.77). Paul V was aware of the *Liber pontificalis* references, as confirmed in an inscription along the course of the *Paola* at S. Maria di Galera: *Paulus V Pont[ifex] Max[imus] formis aquae Alsietinae olim ab Aug[usto] Caes[are] extructis mox collapsis ab Hadriano I Pont[ifex] Max[imus] instauratis iisdem rursus vetustate dirutis opere subterraneo et arcuato restitutis aquam ex agro Bracciani ditionis Ursinorum [=Orsini] salubrioribus fontibus derivatam in urbem perduxit an[no] sal[utatoris] MDCVIII pont[ificato] IV.*

7 Mocheggiani Carpano 1976; Liberati Silverio 1986; Cordiano 2007. The flow of the *Alsietina* did not cease altogether. Under Augustus it acquired a supplementary source, the *forma Mentis* (CIL VI 31566), and its water still served an auxiliary function when Frontinus wrote (*Aq.* 8.13). Mazzei (2008) argues that Trajan restored the aqueduct and *naumachia* of Augustus, and relied on the *Aqua Alsietina*, not the *Traiana*, to power the water mills along the conduit running beneath the American Academy. Her interpretation of a fragmentary Trajanic inscription referring back to some public act of Augustus late in his career is ingenious. At the critical phrase *restitue]rit st[agnum]*, however, many verbs could be substituted, as could the nouns *statuas, structuram, stipes, stipendia*, or indeed a gerundive of *struo, statuo, vel sim.*, with some unknown object referent. The *Alsietina's* main source was a small volcanic lake that probably could not have provided continuous, year-round service to power the water mills on the Janiculum; see Taylor 2000, 176-77. The construction trench of the channel excavated at the American Academy revealed pottery of the 1st and early 2nd c. A.D. (Wilson 2000, 221). With the new discovery, chemical tests of the mineral deposits on each sector could resolve the matter decisively.

8 Van Deman 1934, 333; Ashby 1935, 300-1.

church. This is especially surprising given the fact that the identity of the source, and a brief description, are provided in the *Storia delle acque di Roma* (1832) by C. Fea, who was better informed than Cassio:

According to a report on this spring [i.e., S. Fiora] from 25 February 1667 by the architect Luigi Bernini on the orders of Alexander VII, it is perhaps the foremost of all the ancient *Traiana* waters. Although it was excluded from the total sale, he wanted it ... for his second fountain in Piazza S. Pietro; still, he had no objection to the water of Lake Bracciano. It rises under the church called La Madonna della Fiora in the territory of Manziana, virtually at the head of the entire ancient conduit. If Bernini's calculations were correct, at that time it issued about 340 *oncie* of water of the highest quality and lightness [i.e., low specific gravity]. In front of the church there exist remains of connections [*allacciatura*], vaulted tanks [*botti*], and sections of the conduit — both higher up and lower down, where it issues forth to turn grain mills. Bernini had found another water source for the mills, and he said that, apart from the need for the aforementioned fountain, [the water] could be sold for a profit of 18,000 or 20,000 *scudi* after expenses were paid. But the Pope died in the same year, and everything was suspended; then the lake water was substituted in 1673.⁹

We were startled to find not only that the exact site of S. Fiora is represented on many maps dating from the 17th c. down to the present (in recent centuries, mainly as a simple toponym without any additional identifier), but that its waters were still serving the town of Manziana until the 1980s, when two adjacent wells were drilled to supply the entire town of Bracciano, significantly lowering the water table.¹⁰ Not even Fea, it seems, thought to look inside the church itself. Perhaps, as so often is the case in water-rich districts, a local code of secrecy deflected even the most persistent external inquiries about water sources; but Ashby's oddly perfunctory tone, echoed by Van Deman, suggests that both misinterpreted Cassio's descriptor of S. Fiora's waters as "lost" to mean "defunct". They seem to have been unaware of Fea's report.

However, a few local authorities have known of this site for many years, and we owe them (and particularly S. Cecconi) a debt of gratitude for bringing it to our attention. Today S. Fiora is dry and useless, and it is suffering from its new-found obsolescence in a most alarming way: having lost its accustomed contents of water, and thus the static equilibrium for which the springhouse was designed, the lower courses of masonry are falling inward; all the while, fig roots are gradually prying its walls and vaults apart.

The grotto site and its galleries

S. Fiora lies c.2.5 km north-northeast of Manziana on a gentle slope of SE exposure between Lake Bracciano and the ancient *Via Clodia*. It lies c.150 m due west of a known spring bearing the toponym Fonte del Gatto, and c.200 m east of the Rome railway line. Its elevation is c.320 m above sea level, a full 245 m above the summit of the Janiculum where the *Aqua Traiana* entered the city. A creek (Fosso della Fiora) runs southeast from the site toward Località Vigna Grande, the home of water-powered grain and oil mills by at least the 16th c., and then to Lake Bracciano (fig. 4).¹¹ Augmented by the aqueduct, this creek

9 Fea 1832, 41 n.6 (transl. R. Taylor). On the early history of the *Acqua Paola*, see now Rinne 2010, chapt. 6.

10 G. Curatolo, pers. comm.; he also kindly provided other details about the source and its recent history.

11 Fea (1832, 138) mentions that the grain mills were powered from three sources: Fiore (Fiora?), Matrice, and Carestia.



Fig. 4. Detail of a map of 1716 of the Vicarello region (courtesy Orsini Archives, Univ. of California at Los Angeles). S. Fiora is feature M; Vigna Grande is H. The mills are labeled L and I. The grain mill was on the Bracciano (W) side of the stream, the oil mill on the Vicarello (E) side.

long served as the boundary between the territories of Vicarello on the east and Manziana and Bracciano on the west.

The site of S. Fiora remains in private hands and cannot be properly surveyed. However, in the spring and summer of 2009 we were able to explore and photograph the grotto chambers and the *Aqua Traiana's specus* as far as a junction chamber some 80 m downstream. Completely out of view in a dense thicket of fig trees, the picturesque grotto complex is astonishingly well preserved. It comprises three adjacent chambers excavated into the hillside and originally communicating through expansive lateral archways. The complex is made almost entirely of Imperial-era *opus latericium* vaulted with *opus caementicium*, upon



Fig. 5. Interior of the central chamber (K. Rinne).



Fig. 6. Left chamber (R. Taylor).

which can still be seen traces of plaster bearing Egyptian blue fresco.¹² The three chambers form a suite, but their plan as a whole is neither symmetrical nor rectilinear. The continuous back wall follows a pronounced curve which on the left side of the main entrance meets the front wall at a sharp angle, creating a triangular left-hand chamber. The main, central chamber is the most symmetrical, a rectangle in plan. The right chamber forms roughly a quarter-ellipse, the longest side of which is the oblique curve of the back wall.

The central chamber is entered through a stone archway opening into the hillside (fig. 1). This was the aesthetic focal point of the complex, for it is taller than the side chambers and preserves a statue niche set axially in the back wall. Only the top of the niche (partially chiseled away during the Late Mediaeval or Renaissance period to accommodate a shrine) emerges from the dirt floor (fig. 5). The lateral archways dividing the central chamber from its neighbors, each rimmed with *bipedales*, are visible. The dirt floor rises at least 3 m above the Roman level. It appears to consist of artificial fill, for on the right side it terminates abruptly at a post-Roman retaining wall that blocks the lateral arch leading to the right chamber. The fill continues into the left chamber, rendering it nothing more than a crawl space. The upper part of the left lateral arch was hacked away in a crude manner to facilitate entry (fig. 5). The right lateral arch, as we have seen, was blocked by a retaining wall for the earthen floor. The wall continues up from the existing floor level to seal off the entire arch, except for a small wooden door framed with modern cement. A 1920s-era gasoline pump, visible in the foreground, was once attached to a hose that extended through this door into the right chamber, which may have been cleared of débris at that period, so that it is now possible to descend to the Roman level.

All three chambers are elegantly vaulted and preserve shafts for natural lighting, though each has been intentionally blocked. The central chamber is cross-vaulted; a beveled light embrasure, sealed by modern brickwork, cuts into the wall above the right lateral arch. Each of the irregularly-shaped side chambers carries a groin vault custom-designed to fit the plan; and in each case, the vault culminates at the center in an oculus-like light shaft ringed with *bipedales* (fig. 6). Above the bricks, the shafts are lined with mortared fieldstone.

Architecturally and functionally, the right chamber is the most extraordinary, for it served as the springhouse (fig. 7). Since its floor remains at Roman level, one can take the full measure of the lateral arch that once gave entry to the central chamber: it rises c.4 m at its crown. Two galleries pierce the curved back wall. Facing into the hill, an arched opening (visible in fig. 7) leads to a web of galleries running uphill, all of them blocked by rubble. At the far right, facing downhill, is a similar opening, elegantly rounded on its left side to smooth the flow of water (fig. 8). Here began the water's descent to Rome.

The walls of the entire right chamber and of the downhill gallery have one striking feature. About two Roman feet from the dirt floor, the *opus latericium* of the walls gives way to two courses of carefully-dressed, medium-sized blocks of volcanic stone laid in a traditional stretcher bond, but without clamps or mortar (figs. 7-8). Examining areas where the facing blocks have fallen away, we determined that an additional pair of courses lies behind them. Each vertical joint consists of a gap c.1-2 cm wide, allowing water to filter into the system from behind the wall.

12 In 2009, M. C. Tomassetti performed chemical analysis on the pigment, confirming that it is Egyptian blue and thus of Roman origin.

Fig. 7 [left]. Right chamber (R. Taylor).

Fig. 8 [right]. Entrance to the gallery extending downhill from the right chamber (R. Taylor).



For about the first 50 m, the downhill gallery combines conventional features of a Roman aqueduct *specus*, namely a concrete barrel-vault punctuated by vertical service shafts, with the wall-filtration system and dirt floor of the springhouse. No part of this hybrid sector of the aqueduct shows any evidence of being excavated from living rock; it was built in the cut-and-cover technique, excavated down from the surface. Like the oculus shafts in the grotto chamber, the vertical service shafts have been blocked, but fig roots infiltrate them and run long distances down the gallery, detaching the plaster or *opus signinum* linings on the vaults and walls. Unlike the first service shaft, which is fairly narrow and circular in section, the second is the full width of the gallery and square in plan; its walls are lined in *opus latericium* for at least 2 m above vault level (fig. 9). Irregular toeholds are visible along its sides. This may have been a ‘mother-shaft’, a point of origin, reference, and supply, from which early phases of construction proceeded.



Fig. 9. Service shaft in the downstream filtration gallery (R. Taylor).

At this point the gradient becomes slightly steeper. To slow the descending waters, the engineers designed an S-curve in the channel’s plan (fig. 10). Some 50 m or less from the collection chamber the hybrid masonry and dirt floor suddenly give way to the standard technique known from other sectors of the *Aqua Traiana*, namely *opus reticulatum* lined with a thick layer of *opus signinum*. This point of transition is very well preserved (figs. 11-12). Even the continuous quarter-round bead of the *opus signinum* at the junction of wall and floor is intact. For the length of our explorations down this gallery, as well as in the collection chamber, it was possible to detect the average water-level during the aqueduct’s functional life from the pronounced charcoal-colored deposit on the walls. It appears to be identical to the deposits in the sector of the *Aqua Traiana* underlying the American Academy in Rome. Hopefully, samples will be collected for chemical analysis. The rapidly-accumulating calcium carbonate that afflicted other aqueducts of Rome is conspicuously absent from this source, hence the “lightness” of the water cited by Fea.

Although architecturally-enhanced spring-nymphaea were common throughout the Roman world (the Fons Egeriae near Rome is a typological cousin to S. Fiora), no similar monumentalization of an aqueduct’s source is known in Italy.¹³ Its elaborate architecture,

13 Roman aqueduct nymphaea are attested elsewhere, most famously at the headwaters of the



Fig. 10. S-curve in the downstream gallery (E. and M. O'Neill).



Fig. 11. Junction of the downstream filtration gallery and the lined aqueduct *specus* (E. and M. O'Neill).

the axial statue niche (presumably either of Trajan or a local nymph¹⁴), and the evidence for wall- and vault-decorations indicate that the place was intended for presentation to

Carthage aqueduct; the three-chambered springhouse at Ain Djoukar (Rakob 1969, 1969-70, and 1974) is a particularly good comparandum to S. Fiora. On others in *Africa Proconsularis*, see Rakob 1969-70, 140. For an Egyptian example, see Sidebotham *et al.* 1994.

¹⁴ At a source of his new aqueduct to Syrian Antioch, Hadrian established a temple to the nymphs, within which was a seated statue of himself holding the globe of Zeus (Malalas, *Chron.* 11.363-64).

the public. The open, tripartite design ensured that visitors could gaze upon the welling waters in the right-hand chamber, perhaps tossing in coins for good luck, just as Trajan's contemporaries did at the Clitumnus spring in Umbria (Plin., *Ep.* 7.8). If Bernini and Cassio were right, the S. Fiora spring was the most important of all sources feeding the *Aqua Traiana*, earning the right to symbolize the system's sources *in toto*. One wonders if the central arched entrance to the grotto is the one that was represented schematically on the coinage celebrating the aqueduct (fig. 2).

The later history of S. Fiora

The name Fiora or S. Fiora, and presumably a church or religious community attached to it, can be traced to this spot as far back as 1234, when it probably became affiliated with the Ospedale di S. Spirito in Rome.¹⁵ This is still reproduced on maps, although evidently the site's significance was lost to memory after the 19th c.¹⁶ A church building erected directly over the grotto incorporated the central chamber and

its niche, which seem to have been converted into a devotional shrine. Very little of the church's superstructure survives, but blocks of dressed masonry can be seen in the underbrush above the grotto. The church became a hermitage preserving a miraculous portrait of the Virgin, the "Madonna della Fiora".¹⁷ Well after the property came into the hands of the Orsini in 1491, maps (chiefly of the 17th-18th c.) began to represent the church in a formulaic way, with simple gabled roof and small *campanile*, yet in a few instances water is shown gushing from beneath the building (as on fig. 4, feature M). On a map of Vicarello



Fig. 12. Masonry seam between the *opus testaceum* filtration gallery and the *opus reticulatum specus* (R. Taylor).

15 Chiricozzi 1986, 316; Carafa and Curcio 1979, 131. Many records of episcopal visits to S. Fiora are held at the Archivio Storico Diocesano di Civit  Castellana at Nepi. In several cases the names of the resident hermits are given (e.g., Fondo Vescovi b. 66.1, c. 141r; b. 66.2, c. 162r). The Ospedale's reach in this region was extensive. An inscription on the fountain at the church of S. Spirito in Saxia, dating to 1614 (just after the *Acqua Paola* was introduced) includes a reference to sources of the "Aqua Alsietina" (i.e., *Traiana*) originating at Manziana: *Petrus Camporeus Praeceptor ex aqua Alsietina e finibus Mantianae a Paulo V in Vaticanum perducta fontem aperuit an(no) D(omi)ni MDCXIII.*

16 The church was dissolved in 1889; see Carafa and Curcio 1979, 131.

17 Archivio Storico Diocesano di Civit  Castellana, Fondo Vescovi, b. 41, fasc. 1, c. 41v (year 1670). It records damage done to the "effigies miraculosa B[eate] Marie" by humidity.



Fig. 13. Detail of map of the Vicarello region in 1687 (courtesy Orsini Archives, Univ. of California at Los Angeles).

it far too valuable to ignore;¹⁸ but it was already in use, and its sale was non-negotiable. In 1573 Paolo Giordano Orsini had conducted the Fiora's waters to Bracciano's territory in a new conduit,¹⁹ which ran from S. Fiora along the Fosso della Fiora to Vigna Grande. There it powered several valuable mills (fig. 4).²⁰ Along the Fossa the new channel roughly paralleled the ruined *Traiana*; Ashby found relics of the latter's broken *specus* there, not far from the source.²¹

The Orsini aqueduct actually began at Fonte del Gatto, but it also took water from the grotto of S. Fiora by the following means. Some 65 m east of S. Fiora, it intercepted the well-preserved upper *specus* of the *Traiana* running from the grotto. A series of sluice-gates was installed at the junction. A stairwell was built down to the junction chamber and a small masonry hut provided entry (figs. 14-15).²² This upper sector of the *Traiana* remained unknown to all but a few local residents and the regional water authorities until we arrived in 2009. The junction not only was a confluence of the two waters, but also functioned as a release valve in the event of excessive flow. Sluice-gates could divert overflow into the broken downstream sector of the *Traiana's specus*, which drained harmlessly into the Fosso

of 1687 (fig. 13) this feature is described as "Church of the Madonna della Fiora, beneath which emerges the water that enters the Fosso". The unusual collection of features thus comprised a grotto hermitage church; a miracle-working Virgin, probably portrayed within the Orsini-era stucco frame directly above the statue niche (figs. 1 and 5); and an abundant source of water. One cannot presume any cultural continuity with Roman antiquity, but the mediaeval and modern parallels to ancient source and healing cults are noteworthy.

In Virginio Orsini's 1608 deed of transfer to Paul V, transcribed in full by Fea, the spring of S. Fiora was prominently excluded from the transaction. Its volume exceeded all the others combined, making

18 Fea 1832, 41: "... nell' istromento di compra se ne escludono molte vene; fra le quali quella detta della *Madonna della Fiora*; di presso le 340 oncie, e tutte insieme forse ne formavano altrettanto volume della comprata: tanto era copiosa la riunione".

19 Bibliotheca Apostolica Vaticana, *Urb. lat.* 1075, 2:457r, 28 July 1607, and 470r-470v, 1 August 1607; see Fea 1832, 139, for the sale of the springs. By the 17th c., the aqueduct powered mills for grain, paper, and wool tapestry thread, as well as the hammers of an iron foundry.

20 The deed of transfer says: "Che l'acque del rio delle cisterne, l'acqua che serve alle mole di Bracciano, alla vigna grande, che sono Fiore [=Fiora?], Matrice, e Carestia ... debbano tutte restare intieramente libere al signor Don Virginio [Orsini]" (Fea 1832, 138).

21 Van Deman 1934, 333; Ashby 1935, 300-1.

22 For at least several meters upstream from the junction, the *opus signinum* has been systematically stripped from the walls of the *Aqua Traiana's* channel to accommodate a transverse iron plate and pipe of unknown function. This has revealed the reticulate masonry. Each block of the facing was scored to receive hydraulic cement.



Fig. 14. Masonry hut above the chamber joining the *Aqua Traiana* to the old Bracciano aqueduct from the Fonte del Gatto (E. and M. O'Neill).

della Fiora. Not far downstream, both Ashby and Van Deman reported the presence of a deep pool that had eroded away parts of the *specus*.²³ This they took to consist of surface water flowing down the Fosso, but more probably the conjoined aqueducts themselves created the pool from their overflow. At the junction hut, a resident waterman continued to operate the gates until 1984, at which time new wells for Bracciano were drilled alongside S. Fiora. Some of the wooden gates controlling the *Traiana* conduit remain in place, the gaps between them filled with sediment (fig. 16). Our fieldwork suggests that the *Aqua Traiana* conduit crossed the Fosso and paralleled it on its E side; we hope to investigate this area further in future seasons.

A plat map dated to 1718 not only presents the church and its surrounding properties in unusual detail, but also provides many clues about



Fig. 15. Junction of the Bracciano aqueduct and the *Aqua Traiana* below the hut (E. and M. O'Neill).

23 Van Deman 1934, 333; Ashby 1935, 300.



Fig. 16. Sluice-gate system at the junction (E. and M. O'Neill).

the nature of the property at that time (figs. 17-18).²⁴ The church (labelled “chiesa et eremitorio”) is shown at the center as a gabled structure with a *campanile*. Directly in front of the entrance, a narrow piazza extends down to a road. At its center stands a monument bearing the cross of the Ospedale di S. Spirito. Feature G, identified as a *chiusino* directly alongside the road, is unmistakably the junction hut. Feature F, labelled “pozzo d’acqua corrente” and lying directly between the source and the hut, can probably be identified as the ‘mother-shaft’ of the *Traiana* conduit, only a short distance from the source. A nearby tree appears to function as the pivot for a *shaduf*, a water-lifting device with a weighted boom. This well was probably the principal water source for resident monks, field laborers and visiting pilgrims. If by this time the bulk of S. Fiora’s water was destined for grain mills at Vigna Grande, then the local privilege of hauling up water from the conduit by hand bears a striking resemblance to the legal rights of landholders who lived along the course of Rome’s ancient aqueducts.²⁵

Greater S. Fiora

We are confident that other sources of the *Aqua Traiana* remain to be discovered. Figure 4, a map of 1716 to which we have already drawn attention, may indicate a sector of Roman conduit that ran between S. Fiora and another source yet to be identified. That sector is feature Q: “condotto, che pigliava l’acqua spersa detta la Carestia, e la conduceva alla

²⁴ Archivio di Stato di Roma, Ospedale di S. Spirito, b. 974, f. 155.

²⁵ Taylor 2000, 53-76, especially 70-76.

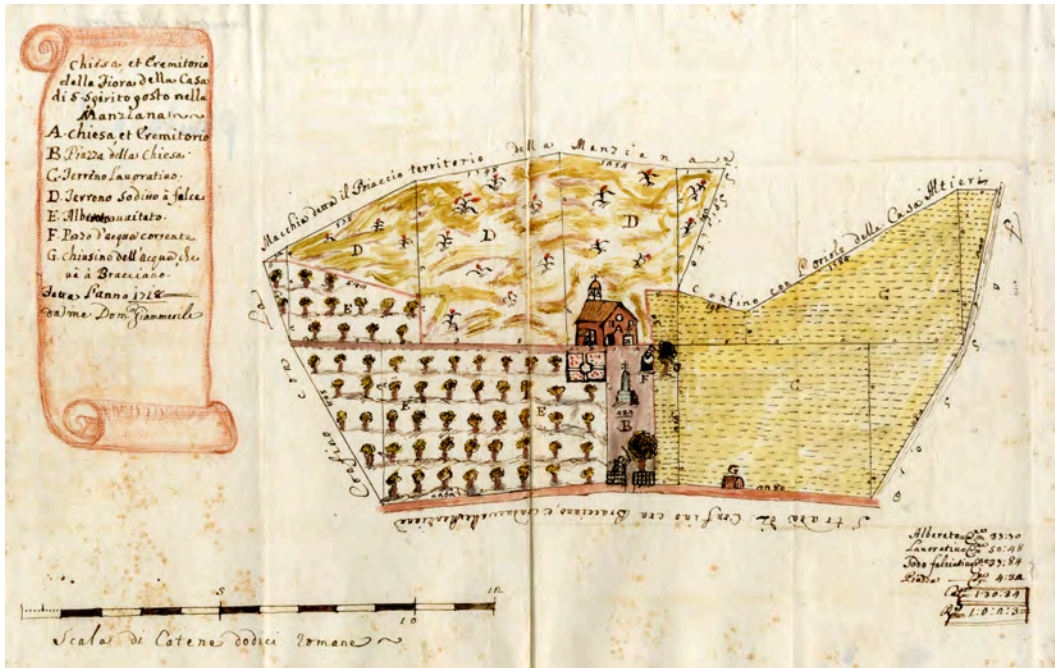


Fig. 17. Plat map of S. Fiora by D. Giammerile from 1718 (courtesy Archivio di Stato di Roma, Collezione Ospedale di S. Spirito).



Fig. 18. Detail of fig. 17.

Fiora". The name Carestia is unknown in the region today, but Fea mentions it as one of the sources powering mills at Vigna Grande²⁶ and it may have to do with a second source nearby, which by the 18th c. was dry (*spersa*). In any event, Cassio was right in identifying a cluster of springs at S. Fiora. More grotto-springhouses are probably lurking in the dense woodland nearby.

The landowner of the S. Fiora site reports that additional chambers exist near the grotto and that a "labyrinth" of chambers, ducts and *pozzi* underlies the waterman's house adjoining the hut.²⁷ Was this, rather than Vigna Grande, the site of the mills that Fea saw? Many questions remain to be sorted out; but at present S. Fiora and its premises are unavailable for further investigation. Their welfare hangs in the balance while the *comune* of Manziana struggles to hasten the sluggish process of legal encumbrance that would restrict private tampering with the site and allow archaeologists and conservators access to it. S. Fiora's obvious historical importance justifies full study and conservation, but in the current political and economic climate nothing is a certainty. Meanwhile, we will develop plans for a program of structural assessment, conservation, archaeological investigation and archival research. Long a source of life for many, S. Fiora cannot now be left to die.

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26 See above n.20.

27 This claim is consonant with the hydrology of the region, with its clusters of discrete sources, and with Cassio's use of the plural when referring to S. Fiora as the "capi" of the Trajanic system.

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And for the latest news see our new paper: "L'acquedotto di Traiano tra il Ninfeo di S. Fiora e il Lago di Bracciano" in *Atlante Tematico di Topografia Antica* 24, 2014, edited by Lorenzo Quilici and Stefania Quilici Gigli and published by «L'Erma» di Bretschneider.