

OIL PRESSES AND PRODUCTIVE CAPACITY AT VACONE ARCHAEOLOGICAL SITE

by

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## ABSTRACT OF THE DISSERTATION

### Oil Presses and Productive Capacity at Vacone Archaeological Site

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Vacone is an archaeological villa site in central Italy from the Late Roman Republic and Early Roman Empire. It was inhabited from roughly the first century BCE through the second century CE. Joint excavations between the Rutgers Field School and the Italian government began there in 2012.

Two important functions of a villa were the production of wine and of olive oil by means of stone presses. The villa at Vacone is unusual in having two presses, which represent a significant investment of capital and a high productive capacity at the site. Evidence such as a *cocciopesto* treading floor, plaster-lined sedimentation vats, and torcular press rims suggest that the presses were used first for oil, then converted to wine presses at a later date.

These conclusions may be able to direct further fieldwork at the site by means of site reconstruction through comparison with similar central Italian villas.

## **Preface**

Vacone archaeological site is situated in the hills of central Italy, about an hour outside of Rome. Despite being somewhat out of the way, it is remarkable in central Italian archaeology for its double press equipment and colorful mosaics.

While conservation of the mosaics was the chief reason I traveled to Italy in the summer of 2014, it quickly became clear that the mystery of the two presses was far more interesting. Why were there two presses, when most central Italian sites had only one? What were the presses used for—wine or oil? It was these questions that prompted me to write this paper, and, indeed, to enroll as a graduate student at Rutgers-Newark.

This work was made possible with the assistance of a number of people. To begin with, I would like to thank Dr. Gary Farney of Rutgers University-Newark for encouraging me to attend Rutgers's Archaeological Field School in Italy, and for mentoring me during my time in the Rutgers history program.

In addition, I would like to thank Dylan Bloy, Liz Homberger, Giulia Masci, and Amanda Klein for their work at Vacone archaeological site. For obvious reasons, much of this paper would not have been possible without the years of excavation and conservation they have put in at Vacone.

Finally, I want to thank my parents, whose endless support throughout this process has proven invaluable. My success is partly, if not entirely, theirs, and I can only repeat my deep gratitude for their patience, advice, and encouragement over the course of my academic career.

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## Introduction

The Roman villa near Vacone was inhabited from around the first century BCE through the second century CE. It is therefore best understood in the context of the history and development of Roman agriculture during the late Republic and early Empire. Although excavations at Vacone are not complete, we can reconstruct many aspects of the villa's structure and function by exploring its cultural and geographical circumstances. In the absence of written records, the best way to reconstruct life at Vacone is through comparison with other known sites from the same region and time period, including those for which there is historical documentation.

Early Republican Roman agriculture focused on grain, olive oil, and wine, farmed by peasant soldiers who were also small landowners. A change occurred in the Late Republic, possibly due to increased aristocratic interest in cash crops at the expense of smallholders. In any case, there was a sudden proliferation of villa sites around the first century BCE, which lasted into the first century CE. After that point, few new villas were built, and a great many were abandoned or repurposed<sup>1</sup>. The villa at Vacone is therefore part of the late Republican boom in villa construction.

Goodchild explains that "the traditional view of agriculture in the Late Republic is that a combination of aristocratic land hunger and extended absence of peasant soldiers from their land during the Punic Wars contributed to a decline of

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<sup>1</sup> Annalisa Marzano, "Villa," in *The Encyclopedia of Ancient History*, ed. Roger S. Bagnall et al. (Oxford: Blackwell Publishing Ltd., 2013), 2.

the smallholder.”<sup>2</sup> However, she argues that “the assumption that women, children, and the elderly were incapable of supporting themselves through farming is an outdated concept.”<sup>3</sup> This assumption was used as an explanation for abandonment of peasant farms after the deaths of soldiers during the Punic Wars.

Torelli emphasizes Hellenistic influence in developing farms run entirely by slaves, who labored under the supervision of an overseer in the master’s absence.<sup>4</sup> This led to intensification of agriculture and much higher production at the expense of small farms, particularly in the south of Italy. On the other hand, Goodchild argues that “it cannot...be assumed that the villa boom of the first century was a conversion to slave-led agriculture,”<sup>5</sup> but was rather the result of gradual economic change. Similarly, Terrenato says it would be “unwise to consider the remarkable diffusion of Late Republican villas as evidence of a new and all-pervasive mode of production.”<sup>6</sup> He further remarks that “there is no certainty that the emergence of all villas was a direct consequence of increasing agricultural intensification.”<sup>7</sup> Verreyke and Vermeulen assert that “taxation, invasions of ‘barbarian’ tribes, war, and a shortage of manpower” caused the third-century decline in rural Italian sites,

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<sup>2</sup> Helen Goodchild, “Agriculture and the Environment of Republican Italy,” in *A Companion to the Archaeology of the Roman Republic*, ed. J. D. Evans (London: Blackwell, 2013), 209.

<sup>3</sup> Goodchild, “Republican Italy,” 209.

<sup>4</sup> Mario Torelli, “The Early Villa: Roman Contributions to the Development of a Greek Prototype,” in *Roman Republican Villas*, ed. J. A. Becker and N. Terrenato (Ann Arbor: University of Michigan Press, 2012), 13.

<sup>5</sup> Goodchild, “Republican Italy,” 210.

<sup>6</sup> Nicola Terrenato, “The Essential Countryside: Farms, Villages, Sanctuaries, Tombs,” in *Classical Archaeology*, ed. S. E. Alcock and R. Osborne (London: Blackwell, 2007), 145–7.

<sup>7</sup> Nicola Terrenato, “The Auditorium Site in Rome and the Origins of the Villa,” *Journal of Roman Archaeology* 14 (2001): 27.



rather than the “massive depopulation of the countryside” posited by earlier scholars.<sup>8</sup> This was followed by a recovery in the fourth century, but the era of large aristocratic estates was largely at an end. Many villa sites were transformed into production facilities, with presses and kilns built over antique mosaics. Others became burial grounds, often in connection with early Christian churches.<sup>9</sup> This could have been the case at Vacone, where several burials have been found.

In other regions of the Roman world, the development of villas was connected with the Romanization of local elites. In addition, many client states and Roman colonies were encouraged to produce grain, oil, and wine in huge quantities for shipment to Rome. This was especially true from the Augustan age onward, as the city became more dependent on imports from abroad.

From the Levant, oil and wine spread to Cyprus and Crete, and thence to mainland Greece before making the jump to southern Italy.<sup>10</sup> Thus, by the time Asia Minor was brought under Hellenic and Roman control, the area already had a thriving oil and wine industry. For example, excavations at the Iron Age site of Tel Mique in Judah revealed 113 olive pressing complexes.<sup>11</sup> As for villas, Asia Minor already had a long tradition of palatial complexes for regional rulers, and it was these local styles, rather than the Roman villa, that formed the basis for elite residences.

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<sup>8</sup> Hélène Verreyke and Frank Vermeulen, “Tracing Late Roman Rural Occupation in Adriatic Central Italy,” *American Journal of Archaeology* 113, no. 1 (Jan. 2009): 114.

<sup>9</sup> Verreyke and Vermeulen, “Rural Occupation,” 115.

<sup>10</sup> Michael Heltzer, “Olive Oil and Wine Production in Phoenicia and in the Mediterranean Trade,” in *La Production du vin et de l’huile en Méditerranée*, ed. Marie-Claire Amouretti and Jean-Pierre Brun (Athens: École Française D’Athènes, 1993), 51.

<sup>11</sup> Heltzer, “Phoenicia,” 52.

Egypt focused primarily on the cultivation of cereals, but, under Graeco-Roman influence, turned to commercial production of wine and olive oil. Both crops remained “relatively marginal”<sup>12</sup> because vines and olive trees could not grow in the flooded soil along the banks of the Nile. However, Egypt quickly became the “breadbasket of the empire,” with huge ships bringing grain across the Mediterranean to feed Rome. Like Asia Minor, Egypt had its own tradition of palatial complexes and gubernatorial mansions in place for millennia before the Romans arrived.

Iberia and Gaul quickly adopted olive and vine cultivation, at least in the southern regions, and imports of Spanish wine soon outstripped Italian exports. Olive oil, too, became a major cash crop in Iberia, as the teeming city of Rome required far more than its surroundings could support. A number of villas built by Roman settlers exist in both Gaul and Iberia, and are frequently associated with press equipments.

Finally, Roman Britain is the quintessential model for Romanization of elite residences in Roman colonies. There, such structures were initially adapted from the longhouse, and influenced by the standard villa plan; architecture follows a similar trend in Gaul and Germany. Of course, this was the case only in southern England, as the open villa plan was designed for the warm, dry Mediterranean climate. Even had Roman influence spread to the tip of Scotland, the typical villa layout would have been ill-suited to its damp, chilly weather.

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<sup>12</sup> Katherine Blouin, “Agricultural Economy,” in *Roman Republican Villas*, ed. J. A. Becker and N. Terrenato (Ann Arbor: University of Michigan Press, 2012), 263.

Regarding agriculture, Britain had little in the way of cash crops, though its people grew some wine and a great deal of spelt. Typically, however, these were intended for local consumption; it was not Britain's grain, but its mineral wealth, that Rome wanted. Vast reserves of tin and salt were made available by the conquest of Britain, even as Egypt provided Rome's grain and Spain its wine.

Vacone was built as part of the early development of the villa as a center for cash crop production. Later, with the growth of the empire, that function was dispersed across the Mediterranean as Romanization spread to the provinces. Nevertheless, Vacone and other Italian villas continued operating as market-oriented farms during most of the period of expansion.

## Roman Villas

In order to evaluate Vacone in the context of comparable sites, it is crucial to define the dataset. The archaeological site at Vacone is typically referred to as a “villa,” but a great deal of scholarly debate surrounds the use of the word. A number of different authors have offered a variety of definitions of the term.

Marzano defines villas as “elite residences comprising residential and productive functions.”<sup>13</sup> More specifically, they can be seen as “elite mansions, either built in a rural setting or on the coast, which were simultaneously the seat of leisure retreats...and the seat of various kinds of economic activities.”<sup>14</sup>

Marzano defines a villa as “a mansion located outside the urban perimeter, which included land...and was provided with a residential part (*pars urbana*) and service quarters (*pars rustica*) with agricultural production facilities.”<sup>15</sup> Likewise, Torelli defines villa as “a building standing isolated in the countryside that was involved in slave-run agriculture and possessed a specific area intended to house, though irregularly, a *dominus*.”<sup>16</sup> In both cases, the emphasis is on the villa as a building and center of production, though Torelli chooses to exclude those sites not primarily worked by slaves. Terrenato, on the other hand, in a Roman Republican context, defines villas as “elite Republican rural residences in central Italy.”<sup>17</sup> He makes no mention of agriculture, instead portraying villas as primarily residential in

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<sup>13</sup> Annalisa Marzano, *Roman Villas: A Social and Economic History* (Leiden and Boston: Brill, 2007), ix.

<sup>14</sup> Marzano, *Roman Villas*, 9.

<sup>15</sup> Marzano, “Villa,” 1.

<sup>16</sup> Torelli, “The Early Villa,” 8.

<sup>17</sup> Terrenato, “Origins of the Villa,” 5.

nature. He does, however, make sure to point out the heterogeneity of sites described as “villas,” and the resulting difficulties in determining what should and should not be included in the term.<sup>18</sup>

This disparity among the sources regarding the definition of the word *villa* can lead to confusion and disagreement among scholars when discussing Roman villas. The history of villas is likewise contentious. As Becker points out, “Late Republican villa culture does not spring on to the scene *ex nihilo*—it originated somewhere (and sometime) earlier.”<sup>19</sup>

For hundreds of years, the image of pre-villa Roman society was of a simple, rural life in small farmsteads. The people of early Rome, so the story went, were hardworking yeoman farmers who would defend their homes when necessary. This was, in fact, the picture Late Republican *nouveau riche* painted of themselves and their supposed forebears. In many ways, it was similar to Classical Athenian hoplite ideology, or much later Jacksonian Republicanism, with its elevation of a mythical agrarian past inhabited by exemplary citizen-farmers.

Tied to this were early scholarly interpretations of villa evolution, with the prevailing model holding that Late Republican villas organically developed out of small farmsteads. This was held up as proof of a kind of class mobility, with hard work and clever investment allowing small farmers to acquire wealth and land over several generations. However, the lack of intermediate stages between farmsteads

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<sup>18</sup> Terrenato, “Origins of the Villa,” 5–6.

<sup>19</sup> Becker, “Villas and Agriculture in Republican Italy,” in *A Companion to the Archaeology of the Roman Republic*, ed. J. D. Evans (London: Blackwell, 2013), 321.

and villas casts some doubt on this interpretation of the evidence. Likewise, similar claims in ancient literature have recently been criticized for their unreliability.

Terrenato claims that first-century BCE villas are deliberately modeled after Early Republican palaces, not evolved from small farmsteads.<sup>20</sup> He insists that most were built *ex novo* rather than slowly developed out of earlier sites.<sup>21</sup> Much of his best work on the subject dates from after the 1996 discovery of the Auditorium site in Rome, which spurred new considerations of the origin and development of Late Republican villas. Terrenato was just one of many writers to reassess villa archaeology in the face of this evidence.

Unlike most elite sites, the Auditorium shows evidence of occupation since the late Archaic period.<sup>22</sup> It was remodeled or rebuilt several times, giving archaeologists a chance to examine each phase as part of a continuous whole. The earliest levels may represent an example of palatial architecture in the Etruscan style. This would lend credence to the hypothesis that “classic” villas evolved from Etruscan palaces. On the other hand, it also highlights one of the main problems facing archaeologists: much of the ancient Roman countryside is presently buried under the modern city of Rome, just as ancient hilltop sites have been covered by medieval villages.

Based on this evidence, Terrenato concludes that villas are not the result of contact with a wealthy East or with Hellenistic plantations, but evolved directly

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<sup>20</sup> Terrenato, “Origins of the Villa,” 26.

<sup>21</sup> Terrenato, “Origins of the Villa,” 27.

<sup>22</sup> Terrenato, “Origins of the Villa,” 11.

from local palatial complexes dating back to the Archaic period.<sup>23</sup> This is supported by the lack of intermediate sites between small farmsteads and large villas, as well as the unreliability of the ancient literature on which earlier scholarship was based.

According to Becker, “In many cases earlier villas have little to do with the rarified notion of villas that developed in the nineteenth and twentieth centuries,”<sup>24</sup> which inform many of our modern definitions and ideas regarding villa sites. He continues, “The result is a sort of architectural gulf in the Middle Republic,”<sup>25</sup> with Early Republican elite sites that don’t fit the usual definition of a villa, as well as a large number of Late Republic and Early Imperial villas of the standard type.

Regarding the purpose of such country estates, Marzano says that villas “were emblematic of membership to the upper class.”<sup>26</sup> Similarly, Becker asserts that older elite sites “provided powerful examples to *novi homines* seeking to establish themselves alongside their hoary patrician colleagues.”<sup>27</sup> In the same vein, Terrenato argues that villas “lent an aura of respectability” to elite families who had made their wealth through trade rather than agriculture.<sup>28</sup> Likewise, Torelli says that the villa house plan was “a way of asserting full and free membership in the governing class.”<sup>29</sup>

Adding to the confusion are the proliferation of different types of so-called villas, including coastal villas, country villas, village-like arrangements, and urban or

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<sup>23</sup> Terrenato, “Origins of the Villa,” 18.

<sup>24</sup> Becker, “Villas and Agriculture,” 310.

<sup>25</sup> Becker, “Villas and Agriculture,” 310.

<sup>26</sup> Marzano, *Roman Villas*, 1.

<sup>27</sup> Becker, “Villas and Agriculture,” 310.

<sup>28</sup> Terrenato, “Origins of the Villa,” 27.

<sup>29</sup> Torelli, “The Early Villa,” 25.

sub-urban mansions. *Villae rusticae* are typically referred to as simply *villae* in ancient works, with the longer term chiefly a modern invention used to distinguish them from coastal villas.<sup>30</sup> The *villa maritima*, or coastal villa, is repeatedly contrasted with the *villa rustica* in ancient literature, and was often considered extravagant or immoral instead of productive and appropriate.<sup>31</sup> Country villas, on the other hand, were idealized and held up as safe, productive, traditional ways of acquiring income.<sup>32</sup> Maritime villas boasted fish ponds, quarries, kilns, and harbors.<sup>33</sup> With the exception of harbors, country villas could include any or all of these, as well as fields, vineyards, orchards, olive groves, vegetable gardens, and beehives.

Regardless of disagreement in other areas, the vast majority of scholars agree on the basic layout for country villas. These were broadly divided into two areas: the *pars urbana* and the *pars rustica*. The *pars urbana* comprised the residential buildings, while the *pars rustica* was made up of press rooms, stables, granaries, and so on. The *pars urbana* would have included a series of bedrooms; at least one formal dining room; a kitchen; and a courtyard. Other common features included an *impluvium*, or pool for catching rainwater, as well as baths and latrines. Particularly extravagant examples might have had several salons, an ornamental garden, and even a theater.

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<sup>30</sup> Marzano, *Roman Villas*, 83.

<sup>31</sup> Marzano, *Roman Villas*, 13.

<sup>32</sup> Marzano, *Roman Villas*, 83.

<sup>33</sup> Marzano, *Roman Villas*, 14.



Marzano stresses that slave quarters would have been built of wood or other perishable materials, and so have not survived in the archaeological record.<sup>34</sup> This means they would not have dwelt in the main house, with the *dominus* and his family. However, this applies only to agricultural slaves; domestic slaves, brought from the city with the family, would most likely have slept near their masters.

Excavations at Vacone have uncovered segments that constitute a *pars urbana*. There was a kitchen, several bedrooms, putative dining areas, and other residential components. The *pars rustica* is represented at Vacone by the treading floor, *criptoportici*, and the pressing room. In addition, the site was an elite residence, as indicated by the colorful mosaics in nearly every room, along with painted wall plaster. Diggers also found decorative architectural stucco and a *nymphaeum* or small bath on the northern edge of the site. Finally, the presses themselves are a sign of the owner's wealth.

The last criterion to consider when applying the definition of a "villa" is the location. Vacone was, indeed, a rural elite residence, firmly situated in the countryside beyond the *suburbium*. Nestled in the Tiber River valley, it was one of many agricultural sites in the Sabine region which belonged to absentee landlords living in Rome. All of these things are clear evidence that Vacone fits most scholars' definitions of a *villa*.

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<sup>34</sup> Marzano, *Roman Villas*, 136.

## Olive and Wine Pressing

The discovery of the press room at Vacone indicates that the production of wine, oil, or both occurred at Vacone. In order to understand the function of this site, an overview of olive and wine pressing is appropriate. The current evidence suggests that both wine and oil were produced at Vacone, but not necessarily at the same time.

### Olive Pressing

According to A. G. Drachmann's seminal work *Ancient Oil Mills and Presses*, "the same sort of presses, often the very same presses, that were used for the olives, were used for pressing the last juice out of the grape pulp; there is no theoretical difference between the oil press and the wine press."<sup>35</sup> Yet Rossiter points out, "oil production required mills and presses and specially designed sedimentation tanks."<sup>36</sup> These crucial archaeological clues, in the absence of expensive chemical analysis or historical records, indicate whether a site was producing olive oil rather than wine.

Oil mills, or at the very least crushing basins, should be located relatively close to the press. For example, the late Byzantine crushing mill is in the same room as the oil press at Kefar Barukh,<sup>37</sup> and the crushing trough in House D at the

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<sup>35</sup> A. G. Drachmann, *Ancient Oil Mills and Presses* (Copenhagen: Levin and Munksgaard, 1932), 50.

<sup>36</sup> J. J. Rossiter, "Wine and Oil Processing at Roman Farms in Italy," *Phoenix* 35, no. 4 (1981): 360.

<sup>37</sup> Danny Syon, "A Late Byzantine Oil Press at Kefar Barukh," *Atiqot* 47 (2004): 158.

Classical-era Greek site of Halieis is adjacent to the pressing room.<sup>38</sup> Similarly, the middle Byzantine press room at Aphrodisias in Turkey has the oil mill situated some five meters from the press bed, flanked by the storage vat and collection tanks.<sup>39</sup> This is a matter of convenience and practicality that should be reflected at all oil-producing sites.

After olives are crushed in an oil mill, the olive paste must be transferred to the press for oil extraction. According to Ahmet:

Once the olives have been crushed to a paste they have to be scooped out of the basin and put into circular woven nets...These nets are then stacked one on top of another...a wooden lid is placed over the stack and then pressed down to squeeze out the oil. These stacks are placed over a raised circular pressbed...so that the oil could ooze into a channel running around the pressbed.<sup>40</sup>

Typically, “the oil was channeled into a sunken rectangular tank,”<sup>41</sup> and “the walls and floors of the collection tanks were commonly lined with concrete.”<sup>42</sup> By comparison, Vacone’s collection vats are lined with plaster, not concrete, but, for example, Collecting Vat 224 at Kefar Barukh is also lined with “a thick layer of pinkish hydraulic plaster,”<sup>43</sup> so plaster-lined vats were not unknown.

Rossiter points out that “sometimes there was a second tank next to the collection tank,”<sup>44</sup> and that “the purpose of having two tanks or compartments was

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<sup>38</sup> Bradley Al. Ault, “Koprone and Oil Presses at Halieis: Interactions of Town and Country and the Integration of Domestic and Regional Economies,” *The Journal of the American School of Classical Studies at Athens* 68, no. 4 (Oct. 1999): 551.

<sup>39</sup> K. Ahmet, “A Middle Byzantine Olive Press at Aphrodisias,” *Anatolian Studies* 51 (2001): 161.

<sup>40</sup> Ahmet, “Middle Byzantine Olive Press,” 162.

<sup>41</sup> Rossiter, “Wine and Oil,” 356.

<sup>42</sup> Rossiter, “Wine and Oil,” 358.

<sup>43</sup> Syon, “Late Byzantine Oil Press,” 162.

<sup>44</sup> Rossiter, “Wine and Oil,” 358.

to facilitate the process of sedimentation.”<sup>45</sup> Vacone does have two collection tanks, which suggests that sedimentation of olive oil may have been practiced at the site.

Frankel’s work seems to support this; when discussing an oil pressing site in western Galilee, he observes that “the collecting vats had a stepped rim, presumably to accommodate a lid. A sloping pipe just below the rim led from the first of each pair of vats to the second. That arrangement allowed the clear oil that rose above the watery lees (sediment) to flow into the second vat, leaving the lees in the first.”<sup>46</sup>

According to Rossiter, “the jars used for oil storage were not commonly embedded in the ground like the *dolia* used for fermenting wine.”<sup>47</sup> Unfortunately, this means that they are less likely to have survived on site, and may not have left obvious traces in the archaeological record.

Most sources agree that “the size of estates dedicated to wine or olives is extremely hard to establish”<sup>48</sup> and “there is limited information on the size of olive groves.”<sup>49</sup> However, D. J. Mattingly has devised a method of estimating the output of a particular press, and thereby the number of olive trees used in production. His method is detailed by Ahmet, who uses it to calculate the annual output at Aphrodisias<sup>50</sup>:

Using his calculations we can take the diameter of the *fiscinae*, which is already known from the mason’s mark on the pressbed, to be 1m. If the *fiscinae* were then stacked to a minimum height of, say, 1m, then the total volume of the stack would be approximately 0.8m<sup>3</sup>. If the woven nets took up

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<sup>45</sup> Rossiter, “Wine and Oil,” 358.

<sup>46</sup> Rafael Frankel, “Some Oil Presses from Western Galilee,” *Bulletin of the American Schools of Oriental Research*, no. 286 (May 1992): 42.

<sup>47</sup> Rossiter, “Wine and Oil,” 359.

<sup>48</sup> Goodchild, “Republican Italy,” 205.

<sup>49</sup> Goodchild, “Republican Italy,” 206.

<sup>50</sup> Ahmet, “Middle Byzantine Olive Press,” 164–165.

50% of this volume, as assumed in Mattingly's model, then the olive pulp would take up 0.4m<sup>3</sup>. However, the author has found that this figure of 50% is far too high...Using the lower figure of 20% for the volume of the nets gives us at least an 80% volume for the olive stack. Therefore, if the total volume of the stack were 0.8m<sup>3</sup>, then the olive pulp would take up 0.64m<sup>3</sup>.

Ahmed also uses Mattingly's figure of 900 kilograms' weight for 1 cubic meter of olive pulp. The figures are then multiplied by 90, for each of the 90 days of the harvesting season. If, as Ahmet suggests, a mature tree can produce around 500 kilograms of olives per year, and each tree is placed about 10 meters apart, then the number of trees and the size of the grove can be inferred from this information. Using this formula, at Vacone, the seasonal yield would have been approximately 24,589 kilograms of oil, which results in an estimate of 246 olive trees, or nearly one-quarter hectare. This figure is doubled if both presses were used for oil production simultaneously.

Instead of this fairly practical system based on real-life observations, many scholars in previous decades assumed that ancient agricultural treatises held literal descriptions of rural Roman practices. Authors such as Cato, Varro, and Columella were cited as fact, and reconstructions were created based on their writings. Recent scholarship, however, has revealed that much of the received wisdom from ancient literature is, at best, grossly mistaken, and at worst outright lies.

For example, Cato the Elder begins the relevant section of his work *De Agri Cultura* thus: "When you reach the steading, observe whether there are numerous oil presses and wine vats; if there are not, you may infer that the amount of yield is in proportion."<sup>51</sup> At first blush, this simple observation seems supremely obvious.

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<sup>51</sup> Cato, *De Agri Cultura*, i. 4–5.

Yet central Italian villa sites rarely have more than one press; even in the famously productive Sabine region, to which Cato is often connected, multiple presses are the exception, not the norm.<sup>52</sup> Massive pressing facilities of the Imperial and Byzantine era were certainly known in northern Africa and the Levant, but Cato lived from the third to second centuries BCE and could not have known this. In light of the archaeological evidence, his offhand remark comes across as bizarre and ill-informed.

He then goes on to say, “For an oliveyard of 120 *iugera* there should be two pressing equipments, if the trees are vigorous, thickly planted, and well cultivated.”<sup>53</sup> By this logic, a single press should be sufficient for up to 60 *iugera*, or 15,000 square meters. By comparison, Vacone is estimated to have had a minimum oliveyard of .25 ha, or one *iugerum* (see above); at most, it might have possessed two *iugera*. Despite this, there are two presses at the site, meaning either Cato’s claim or Mattingly’s formula is grossly inaccurate.

Easier to reconcile are his orders to “plant this variety of olives at intervals of twenty-five or thirty feet,”<sup>54</sup> which corresponds roughly with Ahmet’s estimate of ten meters between each tree.<sup>55</sup> However, his instructions soon become absurd once more, as he describes how to furnish an olive pressing establishment:

“This is the proper equipment for an oliveyard of 240 *iugera*: An overseer, a housekeeper, 5 laborers...1 ass for the mill...5 complete oil-pressing equipments...100 oil jars, 12 pots, 10 jars for holding grape pulp, 10 for holding amurca, 10 wine jars, 10 grain jars...”<sup>56</sup>

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<sup>52</sup> Marzano, *Roman Villas*, 104.

<sup>53</sup> Cato, *De Agri Cultura*, iii. 5.

<sup>54</sup> Cato, *De Agri Cultura*, vi. 1.

<sup>55</sup> Ahmet, “Middle Byzantine Olive Press,” 164–165.

<sup>56</sup> Cato, *De Agri Cultura*, x. 1–4.

Despite this apparently authoritative advice, Cato gives press information for 120 *iugera*. If five laborers are needed for 240 *iugera*, how many are needed for 120 *iugera*? His suggestions do not divide evenly, and seem rather arbitrary.

Furthermore, regardless of the plantation size, one would still need one housekeeper, one overseer, one ass for the mill, and so forth. In addition, a single *iugerum* is equal to .25 ha, or 250 square meters. Thus, 120 *iugera* is equal to 30,000 square meters—significantly larger than Vacone’s projected oliveyard. Yet Vacone very clearly has two presses. Examining this information, it becomes clear that, at the very least, Cato’s figures are unreliable. Certainly such discrepancy would seem to call into question the value of the rest of his work, at least in terms of actual farming practices at that time.

With this in mind, Becker says of Cato, “some of his advice hardly seems useful in light of the practicalities of actual farming,” and that “conservative politicians built their platforms upon a mythologized agrarian past.”<sup>57</sup> Likewise, Terrenato claims that Cato deliberately omits crucial information and ignores the realities of both economics and agriculture in his time.<sup>58</sup> He even goes so far as to say that “the reality and significance of Catonian villas can be seriously doubted.”<sup>59</sup>

Varro, writing more than 100 years after Cato, set out to write an agricultural treatise in the form of Ciceronian dialogues.<sup>60</sup> His *Rerum Rusticarum Libri Tres* includes a great deal of puns and wordplay, all the while lamenting the degradation

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<sup>57</sup> Becker, “Villas and Agriculture,” 311.

<sup>58</sup> Terrenato, *Roman Republican Villas*, 71–88.

<sup>59</sup> Terrenato, “Origins of the Villa,” 25.

<sup>60</sup> John Bodel, “Villaculture,” in *Roman Republican Villas*, ed. J. A. Becker and N. Terrenato (Ann Arbor: University of Michigan Press, 2012), 54.

of the republic. Green suggests that Varro's work is more about Rome than the countryside, with farming "firmly subordinate to life in the city."<sup>61</sup> Two out of three of his dialogues take place in the city, among wealthy men who own estates out in the country. They argue over philosophy, civic duty, warfare, and other topics for which agriculture is only an incidental framework, or—at best—an overwrought metaphor.

Marzano argues that Cato, Varro, and Columella all wrote moralizing agricultural tracts addressed to the elite, glossing over actual financial matters and emphasizing a nostalgic rural ideal.<sup>62</sup> Similarly, according to Marzano, Varro insists that *villae rusticae* had a higher market value than *villae urbanae*, or city mansions, despite the opposite being true.<sup>63</sup> This is a transparent effort on Varro's part to justify the neglect of urban investment, since city villas were non-agricultural and therefore (in the minds of conservatives) hotbeds of luxury and vice. A rural estate, with a focus on farming, was the only *proper* way to display or acquire wealth.

### **Wine Pressing**

Like oil pressing, wine production may include a press, with channels that run into some sort of collection vat. This makes it difficult to distinguish the processes in archaeological contexts, unless the excavators have access to expensive chemical analyses. Therefore, it is necessary to examine the various minute

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<sup>61</sup> Carin M. C. Green, "The Shepherd of the People: Varro on Herding for the Villa Publica in *De re rustica* 2," in *Roman Republican Villas*, ed. J. A. Becker and N. Terrenato (Ann Arbor: University of Michigan Press, 2012), 33.

<sup>62</sup> Marzano, *Roman Villas*, 85.

<sup>63</sup> Marzano, *Roman Villas*, 86.



differences between the two, in order to determine which has been discovered at a given site.

Rossiter points out that “wine production required special facilities for the treading and pressing of grapes and for the collection and distribution of must to collection jars.”<sup>64</sup> In addition, “the main system described involved the flow of the must from the treading and pressing into a reservoir (*lacus*) and thence into jars.”<sup>65</sup> Such jars would have been used for fermentation, and would thus have been unnecessary in oil production. Crucially, Roman practice differs from the methods of production used elsewhere; for example, in Israel, must was simply left to ferment in the collection vats.<sup>66</sup>

Regarding the ancient sources, it has already been shown that authors like Cato and Varro could not be used as literal guides to contemporary estates. Nevertheless, early scholars relied heavily upon descriptions such as Cato’s of an appropriately outfitted vineyard:

“This is the proper equipment for a vineyard of 100 *iugera*: An overseer, a housekeeper, 10 labourers...a total of 16 persons; 2 oxen, 2 draft donkeys, 1 for the mill; 3 complete presses, vats for holding five vintages of 800 *cullei*,<sup>67</sup> 20 jars for holding grape pulp...”<sup>68</sup>

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<sup>64</sup> Rossiter, “Wine and Oil,” 360.

<sup>65</sup> Rossiter, “Wine and Oil,” 351.

<sup>66</sup> David Eitam, “Between the [Olive] Rows, Oil Will Be Produced, Presses Will Be Trod...” (Job 24, 11),” in *La Production du vin et de l’huile en Méditerranée*, ed. Marie-Claire Amouretti and Jean-Pierre Brun (Athens: École Française D’Athènes, 1993), 66.

<sup>67</sup> The *culleus* was a unit of liquid measure, equivalent to nearly 450 liters, or 119 gallons. 800 *cullei* would equal 360,000 liters; five such vintages would produce 1.8 million liters of wine.

<sup>68</sup> Cato, *De Agri Cultura*, xi.1.

In spite of Cato's ostensibly broad audience, according to Rossiter, "A farmer would probably have invested in a press only if he was making wine on a large commercial scale."<sup>69</sup> Marzano agrees, saying, "It is generally accepted that the presence of a press at a site, particularly of a wine press, indicates a level of production above self-sufficiency and a market-oriented distribution."<sup>70</sup> The vast majority of landowners would not have been able to afford or willing to install such vast pressing facilities. Significantly, Vacone must have reached a level of production sufficient to warrant the installation of not one, but two, presses. This points toward a greater scale of production than that of most central Italian sites.

Distinguishing between wine and oil production is important because Vacone shows signs of having been used for both, or for each sequentially. The current hypothesis is that oil presses were constructed first; then, a treading floor for winemaking was added next to the pressing room. It is entirely possible that both wine and oil were being produced simultaneously, although that has yet to be determined.

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<sup>69</sup> Rossiter, "Wine and Oil," 348.

<sup>70</sup> Marzano, "Capital Investment," 108.

### Vacone Archaeological Site

The *comune* of Vacone is a small town in the Italian province of Rieti, about an hour outside of Rome. It is 517 meters above sea level, on top of a hill that slopes gently into the Tiber River valley. According to the official website *Comune di Vacone*, historical records of Vacone Castle date back to 1027 CE, when a woman named Susanna donated some or all of the castle's contents to a local monastery.<sup>71</sup> The castle fell in the thirteenth century, and ownership of the region passed through various hands before Vacone became enfeoffed to the municipality of Torri in 1827. Since that time, it has remained a small community, reaching its peak population of 510 in 1911. It now has a population of about 250 individuals.

In ancient times, this region formed part of the Sabine territory, incorporated into Roman territory after the conquest of the Sabina in 290 BCE. "Vacone" is believed by many to be named for the ancient Sabine goddess Vacuna, who was associated with the Lacus Cutiliensis mentioned in Varro's *De Lingua Latina Libri XXV*.<sup>72</sup> This lake, now the Lago Paterno, was located along the Via Salaria, and contained a floating island in the center which was associated with an archaic nymph cult.<sup>73</sup> The Lago Paterno is, however, a great distance from the site of Vacone, and has no bearing on the archaeological excavations that have taken place there.

During the Roman Republic, the Sabine region became famous for its agricultural prosperity, and many villas devoted to wine or oil production sprang

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<sup>71</sup> Admin., "Un po' di storia," accessed 7 June 2016.

<sup>72</sup> Varro, *De Lingua Latina*, V.71.

<sup>73</sup> Varro, *De Lingua Latina*, V.71.

up. Several famous writers, such as Horace and Varro, were either from the region or possessed property there. Vacone is still a protected olive oil-producing region.

The “Villa con Criptoportici” was rediscovered in the 1960s, outside the town of Vacone. At the time, the site was known as Sassogrosso, or the Villa d’Orazio. Apparently the site had been associated with the poet Q. Horatius Flaccus for some time, based on a Renaissance humanist tradition linking the poet with the site. Evidence in the form of several ancient pottery fragments were discovered, bearing early modern inscriptions such as “HORATIUS” or similar (Fig. 1).<sup>74</sup> These were most likely forgeries intended to support the common perception that the villa was owned by Horace.



Fig. 1: *Dolium* rim sherd with *graffito*. Photo by Dylan Bloy.

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<sup>74</sup> Bloy *et al.*, “Second Excavation Season,” 2.

In the late 1980s, the Soprintendenza di Lazio uncovered what were believed to be two *criptoportici*, though one has since been reclassified as a cistern. The Soprintendenza reinforced the stability of the two structures, and excavated a nearby area which revealed a torcular press. A temporary roof was erected over the pressing area, though it was not maintained and at some point collapsed.<sup>75</sup> A forty-meter floor mosaic was discovered over the lower *criptoportico*, which was later removed for curation and storage at Tivoli.

The Upper Sabina Tiberina Project (Rutgers University) began in 2011, with a brief fall excavation season that uncovered a wall and then used ground-penetrating radar to examine parts of the rest of the site. The 2012 summer excavation uncovered various rooms and established two phases of habitation, ranging from the Late Republic (2<sup>nd</sup> century BCE) to the early Empire (2<sup>nd</sup> century CE). Several floor mosaics were discovered, as well as decorative architectural stucco and a single *sestersius* dating from 103–111 CE. Very little pottery was found, which made dating somewhat difficult; the *sestersius*, while easily dated to the reign of Trajan, was in a layer mixed with modern material.<sup>76</sup>

The excavation team also discovered a child burial, which had cut through the mosaic floor in order to dig a small grave. The child was probably between the ages of 3 and 5, and had no grave goods.<sup>77</sup> This burial most likely dates to after the villa's abandonment, as was fairly common in various parts of Italy.

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<sup>75</sup> Bloy *et al.*, "First Excavation Season," 5.

<sup>76</sup> Bloy *et al.*, "First Excavation Season," 8.

<sup>77</sup> Bloy *et al.*, "First Excavation Season," 8.

During the 2013 excavation season, the rooms discovered in 2012 were further excavated. This revealed additional mosaic floors; intact wall bases bearing decorated plaster; earlier layers beneath damaged mosaics; a second torcular in the formerly roofed productive area; and three more sets of human remains. The remains were judged to be adult males, two of which were almost certainly secondary burials.<sup>78</sup> Finally, a modern cut in the upper *criptoportico* (cistern) wall was discovered, allowing access to the interior.

In 2014, at least one adult male burial was found, with the lower body disturbed and a roof tile placed over the legs. In addition, an underground entrance to the lower *criptoportico* was excavated. Several new mosaics were discovered and cleaned, as were a number of storage vessels.

In 2015, a *dolium* was found, along with a *cocciopesto* treading floor near the pressing room. A drain channel was uncovered that led from inside the upper *criptoportico* or cistern to some point outside the structure. Furthermore, a curious subterranean chamber was discovered; it was neither a latrine nor a well, and may have been merely a trash pit. The archaeological team also found that ancient workers had repaired an *opus scutulatum* with *tesserae* set in geometric shapes to mimic the cut stones of the original. More African red slip was discovered, along with a coin from Hadrian's reign. Early walls beneath the mosaic floors suggest that the Republican villa had a different layout from the Imperial one; in addition, the

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<sup>78</sup> Bloy *et al.*, "Second Excavation Season," 9.

later phase converts some residential spaces to production areas, for example, covering over mosaic floors with *opus spicatum* bricks.<sup>79</sup>

Furthermore, new evidence suggests that the upper *criptoportico* may not have been a cistern in its final phase of use.<sup>80</sup> An infant burial was found in the cistern, probably dating from after the site was abandoned. As for evidence of production, a significant number of storage vessels, including *dolia* and *amphorae*, were uncovered, as well as a new plaster-lined vat into which a drain from the 2014 *cocciopesto* empties.

The 2016 season included a soil analysis, whose results have not yet come in at the time of this publication; however, according to Gary Farney (pers. comm.), a large number of seashells were discovered during excavation. This suggests that seafood was being imported during at least one phase of the villa's habitation for residents' consumption. Such information may inform further research into trade patterns and food economy during the Late Republic and Early Empire in central Italy. However, without further information, it is difficult to draw any sound conclusions at this time.

In order to judge the scope of the site, it is crucial to examine indicators of money or investment. One of the main indications of wealth at the site is the large number of mosaic floors—so many, in fact, that locals have taken to calling the area the “Villa con Mosaici.” Thus far, the archaeological team has discovered several mosaics with geometric patterns in red, white, and black tesserae, as well as some fine *opus scutulatum* pavements (Fig. 2). In addition, excavators discovered a

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<sup>79</sup> Bloy *et al.*, “Fourth Excavation Season,” 16.

<sup>80</sup> Bloy *et al.*, “Fourth Excavation Season,” 17.

“detailed polychrome mosaic floor, repaired in antiquity,”<sup>81</sup> which proved to be part of a bedroom (Fig. 3).



Fig. 2: *Opus scutulatum* pavement. Photo by Dylan Bloy.

Like the vast majority of mosaics at Vacone, these date from the Imperial phase (first to second century CE), and were damaged by long agricultural trenches or tree pits cut through the floors. However, recent excavations found a relatively undamaged *opus signinum* floor in 2013 beneath the Imperial mosaics.<sup>82</sup> This suggests that, while the standard of living (or productive capacity) was significantly higher during the early Imperial period, the Republican level of the villa was still a marker of elite status and was furnished appropriately.

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<sup>81</sup> Bloy *et al.*, “Second Excavation Season,” 11.

<sup>82</sup> Bloy *et al.*, “Second Excavation Season,” 5.





Fig. 3: Polychrome mosaic floor with repairs. Photo by Dylan Bloy.

Another significant status marker is the large amount of painted plaster, which is “reminiscent of the Pompeian Third Style.”<sup>83</sup> Most of the walls which remain intact are 20 to 30 centimeters tall, preserving only what decoration was closest to the floor. These walls were cleaned, stabilized, and edged in hydraulic lime mortar during the 2013 and 2014 conservation seasons.<sup>84</sup> The majority of plaster samples are yellow, bearing red or blue decorations, but a few walls are covered in red or blue plaster along the base. The motifs are generally abstract or floral, with occasional figural art as in the example below (Fig. 4). The samples generally belong to the Imperial period, though further excavation may reveal examples from the Republican phase.

<sup>83</sup> Bloy *et al.*, “Second Excavation Season,” 2.

<sup>84</sup> Snyder, “Conservation Report,” 10–12.



Fig. 4: Fragment of wall painting. Photo by Dylan Bloy.

Very few fragments of fine ware were discovered, but in 2015 some African red slip was found,<sup>85</sup> and the 2012 season yielded a few sherds of glossy black fine ware.<sup>86</sup> The lack of fine ware does provide a problem in dating and interpreting the site.

The most obvious architectural indicator of wealth was decorative stucco (Fig. 5), which was found in a collapse layer along with numerous roof tile fragments. One section of stucco wall bore an impressed reed pattern, while another possessed an egg-and-dart decoration.<sup>87</sup>

<sup>85</sup> Bloy *et al.*, "Fourth Excavation Season," 12.

<sup>86</sup> Bloy *et al.*, "First Excavation Season," *Lazio e Sabina* 10 (2014): 9.

<sup>87</sup> Snyder, "Conservation Report," 8–9.





Fig. 5: Decorative architectural stucco. Photo by Dylan Bloy.

The torcular discovered by Soprintendenza in 1980s (Fig. 6), as well as the second torcular discovered in 2013, both indicate a level of investment surpassing that necessary for local consumption. This interpretation of the presses' presence is supported by Marzano,<sup>88</sup> and highlights the large productive capacity of the site.

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<sup>88</sup> Annalisa Marzano, "Capital Investment and Agriculture: Multi-Press Facilities from Gaul, the Iberian Peninsula, and the Black Sea Region," in *A Companion to the Archaeology of the Roman Republic*, ed. J. D. Evans (London: Blackwell, 2013), 108.





Fig. 6: First torcular, outlined in *opus spicatum* bricks. Photo by Jennifer Webb.

The *cocchiopesto* floor for treading grapes seems to belong to a later phase; at the very least, the wall separating it from the pressing room is late addition. This may mean that, by the Imperial era, wine production had increased enough to justify entering commercial production, which would indicate a significant advance in wealth. The oil presses, meanwhile, do seem to have remained in operation, so that the villa would have been producing both oil and wine simultaneously for the Roman market.

A channel runs from the plaster-lined vats in the pressing area to a collection basin in the cistern (Fig. 7), which Marzano says was used for the end of the

winemaking process.<sup>89</sup> Whether this is true or not is debatable, as the site had not been fully excavated at the time of her writing.



Fig. 7: Plaster-lined wine collection vat with drainage pipe visible. Photo by Dylan Bloy.

Storage vessels indicating high levels of production or trade can also be used to assess wealth, but the site at Vacone has few diagnostic pieces. They include a Dressel 1a amphora rim sherd that was discovered in 2013 and dated to *ca.* 100 BCE.<sup>90</sup> In addition, several *amphorae* and *dolia* were found in 2015,<sup>91</sup> including a nearly-intact *dolium* found *in situ*.

While the artifactual evidence of wealth may be less extensive than at other sites, some idea of the villa's scope can be gained by examining its footprint. The

<sup>89</sup> Marzano, *Roman Villas*, 151.

<sup>90</sup> Bloy *et al.*, "Second Excavation Season," 4.

<sup>91</sup> Bloy *et al.*, "Fourth Excavation Season," 19.



villa includes approximately 400 square meters of domestic space, in addition to the *criptoportici* and press area (Fig. 8), which were used for storage and production respectively.

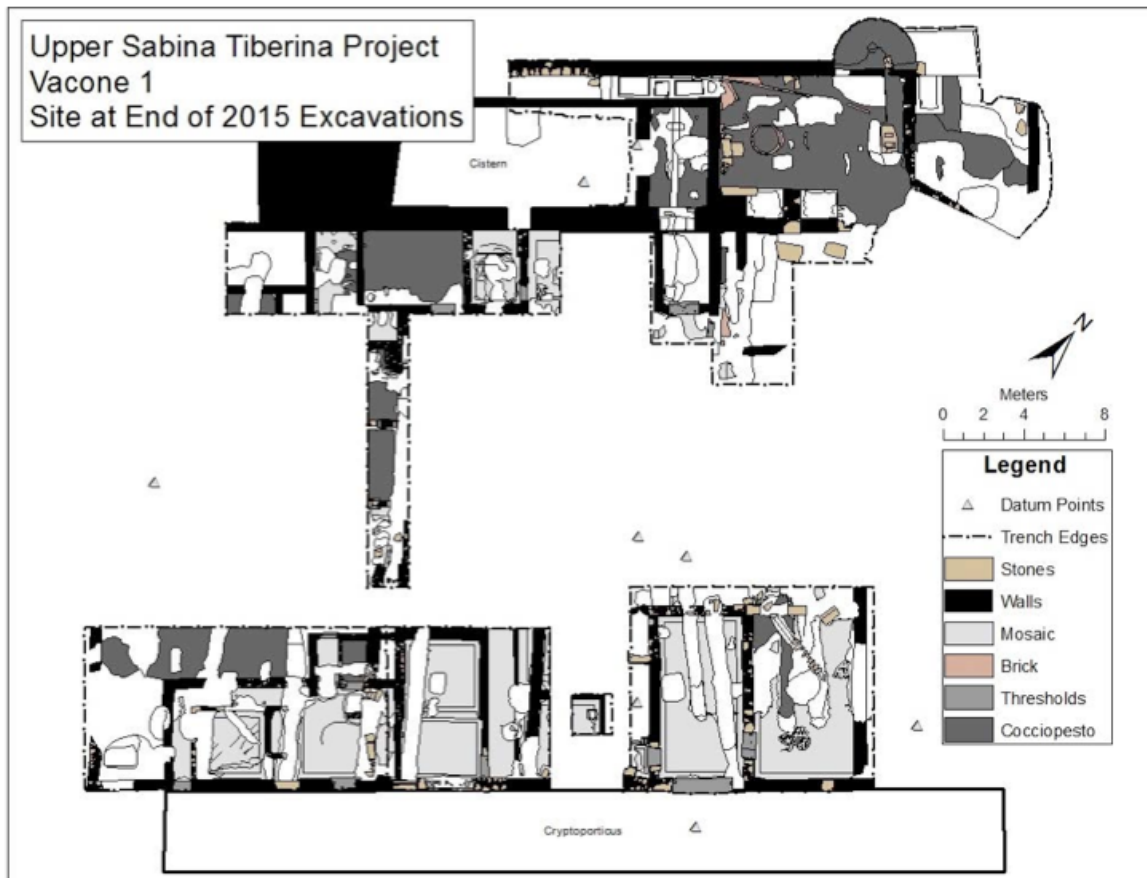


Fig. 8: Site map as of 2015. Image by Dylan Bloy.<sup>92</sup>

For comparison, the Auditorium site is between 1500 and 2000 square meters, depending on the phase. Grottarosso has just under 1500 square meters, while the enormous complex at Settefinestre boasts more than 3000 square meters.<sup>93</sup> The villa at Vacone, on the other hand, was built much more on the order of sites such as Moltone, which averages around 500 square meters between its two

<sup>92</sup> Bloy *et al.*, "Fourth Excavation Season," 1.

<sup>93</sup> Terrenato, "Origins of the Villa," 25.

phases. Hellenistic farmsteads of the third and second centuries BCE such as Via Gabina and Giardano Vecchio hover around the same size.<sup>94</sup>

While no ancient boundary markers have been found, the residential space at Vacone appears to measure approximately 400 square meters, in keeping with villas of its era. Based on Mattingly's formula, the size and number of presses yield an estimated .5 ha for the site's olive groves (492 sq m). The total agricultural and residential space would thus equal around 900 square meters, without accounting for vineyards, slave quarters, or other undiscovered areas.

A regional survey of central Italian oil-producing sites and their estimated oliveyards would be extremely helpful in determining Vacone's relative capacity for production. Further research in this area could include a comparison of residential space to agricultural space in mid-sized Late Republican and Early Imperial villas, hopefully compiling enough data to give future villa excavators some rough idea of a site's agricultural space based on its residential floor plan.

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<sup>94</sup> Terrenato, "Origins of the Villa," 26.

### Scope of Typical Areas

In order to place Vacone in a larger archaeological context, it is helpful to consider a brief survey of other sites typical of the area. As Vacone is located in central Italy, central Italian villa sites—primarily those with oil or wine pressing facilities—are the most logical objects of comparison. However, it is also productive to consider the Villa con Criptoportici in light of other sites equipped with presses in the larger Roman Empire.

Annalisa Marzano refers to Mattingly's research as pointing to "limited oil production possible in Italy" due to lack of sites with multiple presses and the elite focus on winemaking as cash crop.<sup>95</sup> Furthermore, "only 24 out of 140 sites equipped with presses had multiple pressing facilities," and "when multiple presses are attested, in most cases they belong to sites producing both olive oil and wine and using one press for each production," with similar statistics for the rest of central Italy.<sup>96</sup>

She continues, "in Italy many of the Republican and Imperial villas were equipped with presses, either for the production of wine, olive oil, or both,"<sup>97</sup> and that in central Italy "it is not rare to find villas equipped with double presses...but we do not have many examples of sites equipped with more than two presses."<sup>98</sup>

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<sup>95</sup> Annalisa Marzano, "Agricultural Production in the Hinterland of Rome: Wine and Olive Oil," in *The Roman Agricultural Economy: Organisation, Investment, and Production*, ed. Alan Bowman and Andrew Wilson (Oxford: Oxford University Press, 2013), 87.

<sup>96</sup> Marzano, "Agricultural Production," 90.

<sup>97</sup> Marzano, *Roman Villas*, 103.

<sup>98</sup> Marzano, *Roman Villas*, 104.



Marzano says that “the production of oil...was typical of the whole Sabine region,”<sup>99</sup> so it is hardly surprising that the Villa con Criptoportici should display evidence of oil pressing. Indeed, the area remains a protected oil-producing region to this day.

A Late Republican example of an Italian villa is the Villa of the Volusii Saturnini along the Via Salaria. The owner, Q. Volusius Saturninus, was favored by Augustus, and his family became *patroni coloniae* for the nearby town of Lucus Feroniae.<sup>100</sup> Under Augustan rule, they expanded and decorated the villa to display their wealth and status, including a new peristyle, mosaic floors, and marble busts of family members.<sup>101</sup>

Settefinestre, also linked to the Volusii family, “has become the archetype of a large-scale, slave-run estate.”<sup>102</sup> The site had three wine presses and an olive press,<sup>103</sup> as well as two courtyards. Settefinestre’s excavator, Andrea Carandini, places the size of the vineyards at 125 *iugera*, while Brun estimates anywhere from 50 to 100 *iugera*.<sup>104</sup>

Lastly, the Auditorium site in Rome was occupied for some 750 years before its abandonment.<sup>105</sup> Built in the sixth century BCE, it had an oil press by the fifth century, but the press was destroyed in the third century. Unlike many other sites,

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<sup>99</sup> Marzano, *Roman Villas*, 107.

<sup>100</sup> Becker, “Villas and Agriculture,” 319.

<sup>101</sup> Marzano, *Roman Villas*, 139–140, 146.

<sup>102</sup> Becker, “Villas and Agriculture,” 319.

<sup>103</sup> Marzano, *Roman Villas*, 106.

<sup>104</sup> Marzano, *Roman Villas*, 128.

<sup>105</sup> Terrenato, “Origins of the Villa,” 11.

no additions or improvements were made in the first century CE, and the villa itself was destroyed in the second century.

Elsewhere, Greece had its own small-scale oil and wine production, Roman settlers brought olive trees and grapevines to Gaul and Spain, and the Levant was a major area of oil production. Similarly, numerous oil pressing facilities existed in northern Africa, designed for local consumption. This is because in the Levant and northern Africa, presses are often associated with monasteries and towns rather than large plantations. However, exports from the top oil- and wine-producing regions to Italy was not uncommon, as the Roman demand for agricultural products outstripped what the Italian landscape could provide.

During the Late Republic, Gaul was colonized by Roman veterans of the Gallic Wars, and this period is associated with an increase in vine cultivation.<sup>106</sup> Soon Gaul (and Iberia) were out-producing Italy, and the Italian market was flooded with Gaulish wine imports at the same time that its domestic production was dwindling. Oil was less prominent in Gaul, largely because of climatic concerns, and was mainly produced for local consumption.<sup>107</sup>

The Iberian peninsula was home to several early Carthaginian and Greek trading posts before Roman interest in the area. Iberia was colonized by Romans after the Punic Wars, most heavily in the period following the Sertorian War in Lusitania. Southern Iberia produced extensive amounts of wine and oil, with multi-press sites peaking in the 1<sup>st</sup> century CE.<sup>108</sup>

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<sup>106</sup> Marzano, "Capital Investment," 111.

<sup>107</sup> Marzano, "Capital Investment," 117.

<sup>108</sup> Marzano, "Capital Investment, 123.

Israel was unique in using primarily central collection for olive oil; other Mediterranean countries, until very recently, used almost exclusively lateral collection.<sup>109</sup> As for potential yield, there are no less than seven presses at Karkara in Israel,<sup>110</sup> attesting to the site's large productive capacity. The three additional oil presses at the nearby site of Quseir are associated with a monastery.<sup>111</sup> However, many oil producing sites from this region are Byzantine-era, rather than Roman, including the two just mentioned.

According to Frankel, a "typical Phoenician oil press of the Roman and Byzantine periods" was the lever-and-weight press with slotted piers (as at Zabadi) or the lever-and-screw press (as at Karkara).<sup>112</sup> In many cases, lever-and-weight presses were later modified to serve as lever-and-screw presses. These differ from Judaeian direct-screw presses, which were built with frames and designed to use screws from the beginning.

Regarding northern Africa, Marzano says that "it is undeniable that the scale of the phenomenon of capital investment in processing facilities in this region in Roman times was unsurpassed."<sup>113</sup> However, there is a lack of chronological data regarding start and end dates for press use, which tends to complicate comparison

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<sup>109</sup> Frankel, "Presses from Galilee," 65.

<sup>110</sup> Frankel, "Presses from Galilee," 49.

<sup>111</sup> Frankel, "Presses from Galilee," 51.

<sup>112</sup> Frankel, "Presses from Galilee," 67.

<sup>113</sup> Marzano, "Capital Investment," 110.

attempts. Regardless, Tunisia and Algeria have a wealth of multi-press sites, which became even more productive during the Vandal and Byzantine periods.<sup>114</sup>

Compared to sites in the Levant and northern Africa, Vacone is hardly impressive in terms of either size or productive capacity. However, compared to other central Italian villas, it appears to fall well within the usual range. It is not unheard of for Sabine sites like the Villa con Criptoportici to have two presses, and in most other respects, Vacone fits the model of a cash crop villa in Rome's hinterland.

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<sup>114</sup> Mariette de Vos, "The Rural Landscape of Thugga: Farms, Presses, Mills, and Transport," in *A Companion to the Archaeology of the Roman Republic*, ed. J. D. Evans (London: Blackwell, 2013), 149.

## Conclusion

When researching this paper, it was necessary to keep several questions in mind: How does Vacone fit into the larger context of rural Roman villas? What makes Vacone different, and why? What is the significance of these conclusions? Each question was important from both a historical and archaeological perspective.

To answer the first question, Vacone was most likely an elite cash crop villa, designed to produce olive oil (and later wine) for sale on the Roman market. Located in the fertile Tiber River valley, it was one of many highly productive sites in the Sabine region of central Italy. Its elite status is shown by the decorative architectural stucco, the numerous mosaics, and the investment of capital required to build two presses. The double pressing equipment and wine treading floor indicate the production of two major cash crops commonly found in Roman villas: olive oil and wine.

As for what made Vacone different, it obviously possessed a higher than usual productive capacity for oil; hence the two presses, which are otherwise unusual in central Italy. It is possible, of course, that one press was used for wine and the other for oil, but this seems unlikely in light of recent evidence—for example, the treading floor, which would obviate the need for a press.

The major significance of these conclusions is that they can be used to direct further fieldwork. Based on the usual proximity of oil mills to associated presses, future excavation east or southeast of the *cocciopesto* treading floor may discover a crushing basin. However, such implements were frequently auctioned off when

selling an estate, or were stolen during the 2,000 years sites have lain uninhabited. Given the amount of interference already recognized at the site (e.g., early modern burials), it would not be at all surprising to find that a potentially mobile artifact such as a crushing basin has not survived *in situ*.

Further excavations are ongoing, and some of the questions raised in this report will probably be answered in the next few years. With more information, broader and more detailed reconstruction will be possible.

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