

GRADUATING STUDENT

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RICARDIAN SPECIALIZATION, WINE, AND LIVING WELL IN ANCIENT ITALY

*Luxuriosus est nepos qui prius silvas vendat quam vineas.*¹

Cicero, letter to Servilius Rullus, 63 B.C.

INTRODUCTION

From the Magna Carta to 1750 economists univocally preached Mercantilism—that nations, to achieve economic success, should maximize their exports while minimizing imports. Adam Smith put the lie to this notion in *The Wealth of Nations*, describing the growth that comes with specialization of labor. David Ricardo then proposed a specialization that refined Smith's. While Smith proposed that specialization made sense when a given state could produce a good more cheaply than another state, for Ricardo, specialization was *comparative*. That is, even if a state was not the best at making anything, it should still trade with other nations because it has a comparative advantage in some goods. At scale and over time, this created an international trade, increasing specialization of production, technological improvements, lower prices, and better goods. Ricardian comparative advantage is the dominant view today.

I consider the success of the Roman Empire at increasing the material comforts of citizens by analyzing the production and transport of wines. Wine is a critical and reasonably well documented consumer good, although much evidence on wine comes from surviving writings, discussed at length below. Quality of data on amphorae is very high. I use data that date, locate, and quantify potsherds of vessels used in part to create, age, store, and transport wine. I find clear patterns suggesting increasingly

¹ "Prodigal is the son who sells his woodlands before his vineyards." See http://webuz.upmf-grenoble.fr/DroitRomain/Auteurs_anciens/Lege_Agraria2.htm.

concentrated and professionalized production, substantiating a supposition that Ricardian specialization of labor was the author, at least in part, of increasing quality of life in Italy. I then discuss the broader implications of these conclusions, contrasting specialization in Italy with lack of specialization elsewhere, and observe that the specialization story supports the traditional “fall” reading of the Late Empire.

FELICITAS

Wine, it must be admitted, is not a staple food. It is *amoneus*, not *utile*.² Yet the vine and its juice enweave Roman history—the accompaniment to virtue and vice, philosophers and prostitutes, gift among elites, subject of praise, indictor of imperators. The Roman palate was famously austere. Yet wine, occasionally fine wine, remained a part of Roman life. To be sure, simpler beverages were available. Corn breaks down into ethyl easily, and its cultivation was facile. The Roman army was well rehearsed in seizing control of grain plantations. Viticulture, by way of contrast, is an almost tragic affair. Rullus, when Cicero wrote to him as quoted above, had lately proposed, as tribune of the plebes, the A.D. 63 law that would establish a council of ten citizens for the purpose of acquiring and then redistributing lands within Italy and on its periphery for the placation of restless poverty-stricken plebians. About 5,000 unlanded citizens were to be established on these lands, which were the Ager Campanus and the Ager Stellatis. They would form colonies. Cicero spoke four times in opposition to the bill. (Of course, one hundred years earlier the two Gracchi had proposed similar, although more extensive schemes. They employed procedural machinations aplenty in order to secure passage of their proposals.) What marked out their proposals as distinct from Rullus’s is that

² Livy, 22.15.2.

Rullus craved premium land for these 5,000 restless plebians—land inside Italy, not on the far periphery.

Cicero thought the scheme ill advised. In a piece of text whose significance was first noted by Aymard in “Les capitalistes romains et la viticulture italienne,” Cicero reproached Rullus for the hastily concocted scheme, and most of all for demanding the acquisition and distribution of the lands before the state really had the money to pay for it—and indeed requiring the state to sell possessions with abandon in order to raise the proper funds. Rullus was behaving, Cicero writes, like a spoiled, prodigal son—the sort of son who, pressed for money, sells his woodlands before his vineyards.³

To Cicero, no allocation of capital was quite as foolhardy as investing in winemaking. It was a gambler’s game.⁴ But if the Roman upper class did not appreciate the *business* of wine, they appreciated its end product. And despite the risks involved, the winemaking (and, impliedly, the wine shipping) trade blossomed as Rome grew in size and influence. The methods, patterns, size, and direction of the wine industry can tell us a lot about Roman economics. Because wine is a luxury, and not a staple, commitment of resources to its production was an entirely voluntary affair. And because wine is something like an antecedent to human happiness, we might also be able to extract lessons from an analysis of the wine making and shipping industry that inform what we know about the success of the Roman economy in achieving the primary goal of all economics: the increase of happiness.

³ “La voici. Cicéron reproche à Rullus d’autoriser, afin de procurer l’argent nécessaire à l’achat de terres de lotissement et à l’installation des colons, la mise en vente de toutes les propriétés de l’État, même les propriétés affermées. Parmi celles-ci, le projet désignait nommément une *silva* de Campania, la *silva Scanlia*. L’orateur fait lire l’article qui la nomme et, aussitôt, interrompt la lecture afin de glisser une phrase de commentaire à l’ironie hostile: «Comme pour ses propres biens, il agit pour ceux de l’État en héritier à la folle prodigalité, prêt à vendre ses *silvae* avant ses vignobles.» “Les capitalistes romains et la viticulture italienne,” Aymard, André, *Annales, Histoire, Science Sociales*, 2e Année, No. 3 (Jul – Sep. 1947).

⁴ In Silicon Valley it is often heard that “the fastest way to make a million dollars is to start with ten million and open up a winery.” Cf. Varro, *De Re Rustica*, 8: “Contra vineam sunt qui putent sumptu fructum devorare.” Forestry, by way of contrast, was a steady money maker. “Sicut modicum ita statum,” secundum Pliny the Younger (Ep. 3, 19, 5.)

In the Roman world there were two reasons why wine production was such a delicate pursuit. The first was commodity pricing. As will be discussed below, there existed a distinct notion of premium wines, but the subtle and expansive gradation of quality such as exists in the modern world was alien to Rome. In large part, wine was wine. Therefore, there were just a few prices for wine, much as today standard prices at the Chicago Mercantile Exchange determine the nationwide price for cotton, corn, and oil. The second is climate, and viticulture, which became a disciplined science, was nevertheless the helpless vassal of the weather. Glut years crashed prices; cold snaps made wine dearer. Therefore the perfection of the winemaking art could enable a family that has invested in the business to outperform others, preventing losses in difficult seasons. Wine therefore makes a compelling test case for Ricardian comparative advantage, and whether or not its effects can be observed in ancient Italy.

Since Adam Smith (incidentally an amateur historian of classical Italy) the economics literature has recognized the notion of absolute advantage. Admitting that “[t]he difference of natural talents in different men, is, in reality, much less than we are aware of; and the very different genius which appears to distinguish men of different professions, when grown up to maturity, is not upon many occasions so much the cause, as the effect of the division of labour,” Smith proposed that whole nations, if not men, do have specific labor advantages over other nations.⁵ But “[l]abour alone, therefore, never varying in its own value, is alone the ultimate and real standard by which the value of all commodities can at all times and places be estimated and compared. It is their real price; money is their nominal price only.” The money economy simply reveals differentials in different polities’ labor costs, or labor productivities. An unadvanced economy labors mightily to produce even simple

⁵ Smith, Adam (2012-05-16). *An Inquiry into the Nature and Causes of the Wealth of Nations* (Kindle Locations 256-258). University of Chicago Press. Kindle Edition.

things, so it will purchase from a more advanced economy at any price less than the implied use of labor that money represents. Smith offers the explanation of the pin:

a workman not educated to this business...could scarce, perhaps, with his utmost industry, make one pin in a day, and certainly could not make twenty. But in the way in which this business is now carried on,...divided into about eighteen distinct operations, which, in some manufactories, are all performed by distinct hands,...they could, when they exerted themselves, make among them about twelve pounds of pins in a day. There are in a pound upwards of four thousand pins of a middling size. Those ten persons, therefore, could make among them upwards of forty-eight thousand pins in a day.⁶

The concern here is that a given polity might possess an absolute advantage in nothing. In that case Smith's theory predicts no trade, and, one imagines, a return to mercantilism. Only a notably inhumane prince would employ the treasure of his state, though it possessed little manufacturing or farming talent, in the purchase of goods and foodstuffs from without, thus depriving his people twice—the first, by denying them a profession; and the second, by spending their capital. Imagining how this might apply in the case of the Roman Empire shows that Smith did not refine the concept of specialization fully.

Trade without thought of conquest was not alien to the Romans. Rome traded outside its own borders to satisfy its desires for goods that were not expeditiously found within its borders. Tacitus recalls how the frontier Germans dealt in Roman coins: "The border population, however, value gold and silver for their commercial utility, and are familiar with, and show preference for, some of our coins. The tribes of the interior use the simpler and more ancient practice of the barter of commodities."⁷ Brogan among others catalogues the objects of trade. Though "[o]ur knowledge of the return traffic from Germany into the empire is meager,"⁸ there is evidence of trade wherein Romans exchange specie for cattle. "A wax tablet found near Leeuwarden record[ed] the properly witnessed sale of an ox to a Roman by a

⁶ Id.

⁷ Tacitus, *G.*, 5.

⁸ Brogan, O., Trade between the Roman Empire and the Free Germans, *The Journal of Roman Studies*, Vol. 26, Part 2, 1936, 195-222.

Frisian.”⁹ Pottery, which will be discussed more below, was traded without conquest, as the pottery imported from the Lahn valley shows. Uslar establishes a salt trade between German tribes and Romans. Great sums of bullion were spent to purchase, at honestly negotiated prices, textiles from India.¹⁰ Most notably, the amber trade appears to have relied heavily on voluntary exchange with Germanic tribes. At Aquileia there has been found large deposits of amber, sourced mostly from the Baltic.¹¹ Elagabalus bemoaned that he could not cover the floors of his palace with the luxurious stuff, as he could with gold and silver dust.¹²

All of these natural resources were found in abundance in areas outside the direct control of the imperial government, and were therefore traded for. But Rome did not acquire from without what it could easily produce from within. There is evidence of Roman production and export of bronze vessels, bronze statuettes, brooches, arms and tools, pottery, glass, wine, oil, and even corn (in which Italy itself was never very rich, but for which there is evidence of outgoing trade “in times of stress” for the Germans, despite the export of corn being forbidden).¹³

If Rome did not possess a productive advantage in a good, the Smith theory would suggest that it would retreat from the global market, such as it was, set up imposts and tariffs, and employ people in professions of which they knew little. The model then reverts to mercantilism or at least protectionism. There is some evidence of this, such as Tiberius’s address from 22 A.D.: “What am I to tackle first, if I set about imposing restrictions and cutting things back to old-fashioned standards? The

⁹ Id. at 219.

¹⁰ This seems to have occurred with somewhat reckless abandon. See, e.g., First Century Intercourse Between India And Rome, Wilfred H. Schoff, *The Monist*, Vol. 22, No. 1 (January, 1912), pp. 138-149.

¹¹ Id.

¹² “He would strew gold and silver dust about a portico and then lament that he could not strew the dust of amber also; and he did this often when he proceeded on foot to his horse or his carriage, as they do today with golden sand.” *Historia Augusta*, Part 2, 31.

¹³ On corn, see Brogan at 218. On the proscription of export of corn, see Polybius, XXVIII, where it is related that special dispensation was always asked for the export of corn to foreign markets: “At this period towards the end of summer Hagesilochus, Nicagoras, and Nicander arrived as envoys from Rhodes 2 to renew friendly relations and obtain permission to export corn... The senate...gave them leave to export a hundred thousand medimni of corn from Sicily.”

boundless sprawl of our country houses? Our swarming tribes of servants? The masses of silver and gold on our tables? Our marvelous displays of sculpture and paintings? The garments [of] men...and the jewelry of our womenfolk, *for which we make over our money to peoples outside our domains*, or even to our enemies—to pay for stones?”¹⁴

One possible objection to a traditional economic analysis of wine and the amphorae used to transport it might be that, in Rome, food was subject to the controls of the state. Oertel, writing from 1934 (when Stalin was just two years away from his constitutional putsch) and seeing in Rome a great progenitor of the liberal allied powers, writes this:

Beside the principle of laissez faire there was the belief in the old doctrine of private enterprise. The victory of [Octavian, after his accession called] Augustus and of the West meant, then, a repulse of the tendencies towards State capitalism and State socialism which might have come to fruition earlier, had Antony and Cleopatra been victorious, then was thus the case. Apart from...the special circumstances prevailing in the...food-supply, the principle of private enterprise remained supreme.¹⁵

Food, in other words, was special. While the liberal prince Octavian was pleased to have his people engage in whatever sort of commerce they desired, food and thus farming came under the aegis of the imperial government.¹⁶ But wine, as noted above, is far from a staple food. Its manufacture was expensive and, in the minds of wise men, a gamble. That production continued (indeed increased) over time suggests an active private market for wine.

One story is illustrative of such a market: Trimalchio was a freedman escaped out of servitude in the heady early days of the reign of Octavian.¹⁷ Trimalchio moved to

¹⁴ Rodewald, C., *Money in the Age of Tiberius*, Manchester University Press, 1976. 29. [Emphasis mine.]

¹⁵ Oertel, F., *The Economic Unification of the Mediterranean Region: Industry, Trade, and Commerce*, at 386. In *The Cambridge Ancient History*, Vol. X., Litt, Adcock, Charlesworth, eds. Cambridge at the University Press: 1934.

¹⁶ It was not merely that Octavian preferred capitalist principles in the abstract; he appeared to live by them. “[H]e himself in the course of the Civil Wars had accumulated, by more or less honest means, an immense private fortune.” Id.

¹⁷ Rostovtzeff, M., *The Social and Economic History of the Roman Empire*, at 54. Oxford at the Clarendon Press: 1957.

one of the South Italian cities with a bounty of money from his former master. He invested the money in wholesale wine makers. By the time he died—a historian called Petronius sketched these details of his life—he live in a large Campanian house on interest spun off from his investments and from other private loans which he placed himself. Trimalchio is typical of the sort of Roman who prospered before imperial policy (first experimented with during the crisis of 33 A.D.) worked to destroy the engines of wealth: he began in industry and later used his stored capital to invest in swaths of vineyards. Writing from 1956, economist and historian M. Rostovtzeff notes that he “feel[s] confident that the pulse of economic life beat very briskly in the Augustan age both in Italy and in the provinces. The bourgeoisie of this period were not idle, and the ideal of a rentier-life¹⁸ was no more widespread among its members than it is among men of the same class in our own days.”

While there is considerable evidence that mercantilist thinking drove conscious Roman economic planning in the later stages of the Empire (some of this evidence is discussed at the conclusion of this paper), in point of fact a form of specialization clearly asserts itself through the story of the Republic and Empire, if not consciously than at least through natural evolution.

METHODOLOGY

I use wine and amphorae as test cases for specialization. Wine was a part of life for all Romans.¹⁹ It cooled when rubbed on the skin²⁰ and warmed when drunk. In

¹⁸ The *rentier* is a critical paradigm. Although the term was coopted by latter-day Marxists, it was coined near the end of the Reign of Terror and referred, dualistically, both to landed French who did not work but rented land to others (even bourgeois) who in turn found it impossible, in the tumult of revolution, to amass capital, break the cycle, and cease paying rents for life's necessities. The term refers, then, to a sort of sclerosis in which an otherwise liberalized economy can mire absent amassment of capital, investment, and growth in trade, technology, or productivity.

¹⁹ Including, though with qualifications, in the cases of women, children, and slaves. On women, see Pliny, *Naturalis Historia*, 14, 14: “Domitius, the judge, once gave it as his opinion, that a certain woman appeared to him to have drunk more wine than was requisite for her health, and without the knowledge of her husband, for which reason he condemned her to lose her dower.” On slaves, Cato,

De Agricultura Pliny sets down his thoughts on “ninety-one varieties of the wine,” “fifty kinds of generous wines,” “thirty-eight varieties of foreign wines,” “seven kinds of salted wines,” “eighteen varieties of sweet wine,” down to “three varieties of second-rate wine.” Pliny’s second-rate wines were not what that term suggests today. Modern wines thought to be ‘second-rate’ derive from second growth fruit, or sub-optimal fruit. Romans appear not to have distinguished, at least in early empire, between the microsoils within a vineyard. Instead, the second-rate wines of Pliny’s description were wines made of the same fruit as the premium wines—it’s simply that that fruit mash was macerated and pressed *once again* to make the second batch. It was this second-press wine that was served to slaves. As in the modern day, Romans knew better and worse vineyards, superior and inferior *terroirs*, good years and bad years. Pliny the Elder, in the *Naturalis Historia*, was the first to conclude that land quality had more to do with the resulting wine than the quality of the vines themselves. *Pace* later Christian revisionists who insisted that many preferred grape juice or mixed wine with water, the general preference was for higher alcohol content than is ordinary today.

Wine suffused the culture. The *Georgics* focuses in places on the austere and exacting virtues of viticulture.²¹ Horace invited friends to his home, tempting them, as hosts do today, with wine produced in the year of their birth: “If you can repose yourself as my guest upon Archias’ couches, and are not afraid to make a whole meal on all sorts of herbs from a moderate dish; I will expect you, Torquatus, at my house about sun set. You shall drink wine poured into the vessel in the second consulship

De Agricultura, 57: “Wine ration for the hands: For three p73months following the vintage let them drink after-wine.⁶⁴ In the fourth month issue a hemina a day, that is, 2½ congii a month; in the fifth, sixth, seventh, and eighth months a sextarius a day, that is, 5 congii a month; in the ninth, tenth, eleventh, and twelfth months 3 heminae a day, that is, an amphora a month.”

²⁰ *De Agricultura* 14.7.

²¹ Interestingly, Virgil extols as ideal the mellow, less alcoholic wines: “when Spring begins to smile./ Then lambs are fat, and wines are mellowest then;/ Then sleep is sweet, and dark the shadows fall/ Upon the mountains.” *Georgic* I.

of Taurus....”²² Varro and Cato both noticed an improved quality in fine wines after aging.²³

Because organic evidence does not survive, the best way to evaluate the improvement in wine production is through the textual record. The transport of wine was in units of amphorae, and these can be assessed in terms of geography, quality, and quantity through the archeological record. None of this goes directly to health, of course, but as argued above the wine evidence does point to quality of life—arguably the first goal of an economic system, even before longevity. (Or stature.)²⁴ Additionally, I set aside the issue of slave labor and the concept of predation. Both are valid alternative (or accretive) explanations for the increasing material wellbeing of ancient Italy. But they do not explain improvements in viticultural and manufacturing *technique* described below.

MODUS VINUM & MUTATIO AMPHORAE

As noted above, viticulture is an exceptionally difficult endeavor—“almost marginal,”²⁵ in that, considering the great risk of receiving no return, it usually made more sense to produce some other non-staple crop. Seasonal weather patterns made the grape crop susceptible to vicissitudes more than others. Thus viticulture requires the development of sophisticated techniques in order to maximize the usable yield in a given season. Earlier students of Roman farming were skeptical of the ancients’ ability to use methods to increase yield.²⁶ But the primary evidence—prose, mostly—indicates just this. As our cultural survey above shows, the distinct zest displayed for

²² Horace, Epistle V., to Torquatus.

²³ See, e.g., Varro, *De Re Rustica* 65: “There are brands of wine, the Falernian for instance, which are the more valuable when brought out the more years you have kept them in store.”

²⁴ Cf. Scheidel, W., “Physical Well-Being,” *Cambridge Companion to the Roman Economy*, 2012, 324:

“Body height is an important marker of physical wellbeing.”

²⁵ Purcell, Nicholas. “Wine and wealth in ancient Italy.” *The Journal of Roman Studies* 75 (1985): 1-19.

²⁶ Examples are included in Finley, Moses I., ed. *Studies in Roman property*. Cambridge University Press, 1976.

the enhancement of the viticulture is no surprise: wine was, simply, one of the great pleasures of life. Exalted as a complement to the aristocratic life in Homeric epics, its mass production conferred a seemingly rare pleasure on the masses.

The development of the institution of slavery, and the Empire's increasing ability to source slaves from territories freshly gained, cannot account for the growth and specialization in the wine trade—or, at least, can not explain so much of it as they might explain with respect to cereals, for example. The key is in the seasonality of wine. At harvest time, vineyards require heroic levels of labor. For much of the year they are idle. During growing the vines require only modest attention. The application of slave labor to vineyards would thus have proved extremely profligate. Columella allows that a vintner's laborers "are either tenant-farmers or slaves, whether unfettered or in chains."²⁷ Where prices for *vinitor* slaves are mentioned, they are higher than any other labor prices in the primary sources. Columella mentions HS8,000 per *vinitor*.²⁸ The only higher prices for a single worker seem to be the HS100,000 paid by Elagabalus for a famous prostitute²⁹ and Seneca's mention of the HS100,000 each for 11 slaves from Calvisius Sabinus—one of the two senators who attempted to defend Julius Caesar—each slave able to recite the works of different Greek poets in full.³⁰ But prices for a cook are seen at HS2,700³¹, or for a generalist slave at HS2,000.³²

In order to justify the expense of viticulture, farmers came to employ an array of investment-saving devices, including, as seen at Aricia, the practice of pruning every other year³³ and as on Columella's own plantation, the practice of planting *arbustum*, or vines placed between trees, enjoying their shade and stability, while other cash

²⁷ Columella 1.7.

²⁸ Columella 3.3.8.

²⁹ *Historia Augusta*, Elagabalus, 31.1. "He purchased, it is said, a very famous and very beautiful harlot for one hundred thousand sesterces, and then kept her untouched, as though she were a virgin."

³⁰ Seneca, *Epistles*, 27.5.

³¹ Pliny 9.67.

³² Horace's own slave Davus. Horace, *Satires*, 2.7.43.

³³ Pliny 17.213.

crops were also plained in the same soil. Techniques like these came to improve what can be perceived as the profit margins of winemaking. For example, while wheat might have fetched anywhere from a 1% to 6% return³⁴, and while a poorly functioning winery would certainly lose money, a well-run one “could suffice to give profits of the order of 7% to 10%.”³⁵ Whereas Columella recommends one *vinitor* for ten *jugera* of land, Pliny, writing at a slightly later date, advises one *vinitor* for seven *jugera*.³⁶ Yet Columella is known to have produced very fine wine, and admits that his labor allocation is “very generous” and “disagreeing with the opinion of the majority, consider[s] a high-priced vinedresser of first importance.”³⁷

Writers indicate that vintners understood there to be a tradeoff between quantity of production and quality of the final wine. The objective was to produce the finest wine possible at scale. Falernian wine is the most famous Roman wine, produced in the *ager Falernus* and subject of praise by Catullus in Carmen 27:

O servant boy of aged Falernian wine,
pour more bitter cups for me,
as the law of the Postumia mistress (who is)
drunker than the drunk wine orders.
O waters, go away to that place where it pleases you,
the ruin of wine, and go to
the earnest ones. This is pure Bacchus.

Falernian was produced at least beginning in the Republic, to which the first villa structures with winemaking equipment can be dated.³⁸ The era of Tiberius Gracchus was thought to have produced optimal vintages.³⁹ Falernian produced multiple growths, described by Pliny, suggesting first, second, and third growths (although

³⁴ Duncan-Jones, Richard. *The Economy of the Roman Empire: quantitative studies*. Cambridge [Cambridgeshire]; New York: Cambridge University Press, 1982, 51.

³⁵ *Id.* at 59.

³⁶ Columella 3.3.8; Pliny 17.215.

³⁷ *Id.*

³⁸ Arthur, Paul. “Roman Amphorae and the Ager Falernus” under the Empire.” *Papers of the British School at Rome* (1982): 22-33, 25.

³⁹ Pliny 14.55: “anno fuit omnium generum bonitate L. Opimio cos., cum C. Gracchus tribunus plebem seditionibus agitans est interemptus.”

Pliny does not explicitly say so).⁴⁰ Falernian was at its peak at the time of Augustus, who distributed Falernian to the public after putting down Spain in 25 B.C. The first growth Falernian had a high ethanol content. (“To quench the fierce Falernian’s flame,”⁴¹ suggesting an alcohol content of at least 30%.) Galen suggested at least a decade for the wine to moderate.⁴² But the glories of Falernian did not last forever. The winemaking did not scale well. The tension between quantity and quality “had destroyed the reputation of Falernian wine.”⁴³

Eventually, Roman vintners began to hire professional winemakers. Pliny mentions a *vindemiator auctoratus*.⁴⁴ The suggestion is that the professional winemaker was such an expensive proposition that, in salary negotiations, they insist that their employer cover their funeral pyre and grave. In winemaking circles, a legend appears to have grown of a man who spent too lavishly on his vineyards. The idea was that economy in production must be observed, or a winemaker might be ruined. Pliny employs the maxim “*nihil minus expedire quam agrum optime colere*,” suggesting paradoxically that nothing is quite so bad as running one’s farm optimally. All of which indicates investment, not in cash improvements, but in intellectual refinements to the viticultural process.

Pliny, who ultimately regrets the waste of *ingenium* spent in the perfection of winemaking, tells the story of “Acilius Sthenelus, a man of plebeian rank, and the son of a freedman, acquired very considerable repute from the cultivation of a vineyard in the territory of Nomentum, not more than sixty jugera in extent, and which he finally sold for four hundred thousand sesterces.” Sthenelus was hired by grammarian

⁴⁰ Pliny takes a dim view of Falernian wine, because he considers that it is largely sold in adulterated format, its name having achieved such renown and its growers desiring to trade only on the brand. “Suppose, now, that all persons were quite agreed as to the superiority of some particular kind of wine, how small a proportion of mankind would be enabled to make use of it! As it is, even the rich never drink it in an unsophisticated state; the morals of the age being such, that it is the name only of a vintage that is sold, the wines being adulterated the very moment they enter the vat.” Pliny N.H. 20.

⁴¹ Horace, Odes, 2.11.

⁴² Galen, Athenaeus, 1.26c.

⁴³ Purcell 4.

⁴⁴ Pliny 14.10.

(also noted in Suetonius) to increase his yield, and the former did. Sthenelus became “the greatest celebrity of all.”⁴⁵ We do not know what Sthenelus did, but it could easily have been the implementation of one of the techniques noted above. Although it is beyond the scope of this paper, the edict of Domitian on the subject of wine is well known. Its careless use in senatorial circles was the stuff of legend, but eventually, by the middle of the Julio-Claudian dynasty, senators began to engage in viticulture. Paterson among others has shown this through amphorae evidence.⁴⁶

But in the Republic period, before many of the advances here discussed, winemaking in Italy was focused in Campania, Pompeii, and other towns with vineyards being only a dozen *jugera* or so in size. Evidence on inscriptions of amphorae and in the naming of grape strains suggest that, in Pompeii at least, it was a number of families of moderate wealth who planted small vineyards to sell via relations in harbor cities.⁴⁷ Virgil’s *Georgics*, composed around 30 B.C., refer to these small makers, and make no suggestion of large villas.⁴⁸ Merely casual winemakers, though, could scant satisfy the high and rising demand for good wine in Italy at the end of the Republic. Wine imports appear to have begun increasing before the civil wars, with Italian vineyards struggling to keep up with demand. Market forces were at work. At this time, too, archeologists note a decline in Dressel I type amphorae and the surging presence of three new types of amphorae, named Dressel II-IV. These were patterned after Greek amphorae, an indication that the luxury of wine was bound up with Rome’s aesthetic infatuation with the high-toned

⁴⁵ Pliny 14.5.

⁴⁶ Paterson, Jeremy. “Salvation from the Sea’: Amphorae and Trade in the Roman West.” *The Journal of Roman Studies* 72 (1982): 146-157.

⁴⁷ Purcell 8.

⁴⁸ See, e.g., *Georgic II*:

Yet cope not therefore with Falernian bins.
Vines Aminaean too, best-bodied wine,
To which the Tmolian bows him, ay, and king
Phanaeus too, and, lesser of that name,
Argitis, wherewith not a grape can vie
For gush of wine-juice or for length of years.
Nor thee must I pass over, vine of Rhodes,
Welcomed by gods and at the second board,
Nor thee, Bumastus, with plump clusters swollen.

Greeks. Simultaneously, the wine industry's focus shifted from Campania to slightly farther-flung provinces, where true scale could be achieved.

Before moving on to pottery evidence, it worth noting that when wine manufacture eventually stalled in the west, much of the above-observed increase and advancement of winemaking processes and technology continued—only in the east. Both Pliny and Hero mention the use of wine presses, but evidence of their use in traditional centers of imperial wine production declines, and increasingly the presses are found, starting with the fourth century and into the sixth, largely in the eastern basin of the Mediterranean.⁴⁹ In the East, “the building of new presses is in itself important evidence of expanded commercial-scale production, as subsistence production does not actually require grapes or olives to be pressed after crushing.”⁵⁰

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The key to understanding the archeological record of amphorae, which is relatively robust, is that the pottery industry produced millions of amphorae in a distinctly uniform, if not mechanized, fashion. The bulk of the production was in Africa. The amphorae were of increasingly high quality. They were made in standardized designs, were sailed across the Tyrrhenian Sea, and arrived in Rome for the use of a large lower and middle market—not merely for elites.

Looking first at geographic origin (without, that is, looking at volume or quality and sophistication), we can observe a distinct shift in the origin of wine amphorae ending up in Italy. Wine amphorae originating in Tarraconensis (Andalusia) and Narbonensis (Languedoc) begin arriving in Italy in earnest, “usually taken as signs”

⁴⁹ Brun, J.P., “Les innovations techniques et leur diffusion dans les pressoirs”, in M.-C. Amouretti, M.-C., Brun, J.-P., eds., *La production du vin et de l’huile en Méditerranée; Oil and Wine Production in the Mediterranean Area* (Paris, 1993), 539–550.

⁵⁰ Lewit, Tamara. “Pigs, presses and pastoralism: Farming in the fifth to sixth centuries AD.” *Early Medieval Europe* 17.1 (2009): 77–91, 77.

“that overseas competition destroyed the prosperity of Italy's vineyards.”⁵¹ But an alternative explanation is Ricardian comparative advantage. Domitian's vine edict issues in 90 A.D. called for the destruction of Asian vines, and is that emperor's first and only example of an empire-wide edict.⁵² Contemporary writers appeared to see chaste virtue in this, or else the desire to encourage cereal farming, since spots of famine were not unknown in Italy. But an alternative explanation is that Domitian was aiming to assist Italian vintners, whose stock-in-trade was now both important and renowned. Jones finds this “untenable” but cites no evidence other than the “boom” in Italian wine production in the first century.⁵³ But not long after the period of the vine edict, wine production in the provinces began to steal the show. Excavations of wine amphorae in Ostia Antica reveal none of Italian creation after the second century.⁵⁴ Though “it is hard to see the process by which the deleterious effect of the supposed competition grew and came to be felt,”⁵⁵ the amphorae patterns suggest vastly increasing wine imports from abroad. Though this need not have been accompanied by a decrease in domestic wine production, it does suggest that the percentage of the wine market dominated by domestics must have fallen in the second and third centuries. In the amphorae dump at La Longarina, wine pottery from the Augustan era (27 B.C. to 14 A.D.) is about two-thirds Italian, while by Vespasian (69 to 79 A.D.) only half is of Italian origin.⁵⁶

The wine that continued to be produced within Italy received fresh investment when it finally became the occupation of the senatorial class. Whereas once dalliance in viticulture was seen, as in the frontispiece, as the ancient equivalent of the Las Vegas junket, it became the business of elites. Seneca and Pliny the Younger owned vineyards. Columella's lost volume on winemaking was dedicated to Titus Clodius

⁵¹ Purcell 9.

⁵² Jones, Brian W. *The Emperor Domitian*. Taylor & Francis US, 1993, 78.

⁵³ Id.

⁵⁴ Paterson, Jeremy. “Salvation from the Sea’: Amphorae and Trade in the Roman West.” *The Journal of Roman Studies* 72 (1982): 146-157.

⁵⁵ Purcell 10.

⁵⁶ Id.

Eprius Marcellus, a senator from Capua. There is anecdotal evidence of increased hiring of professional vintners during this period, especially freedmen, as managers—a further division of labor that kept the owner of a plot of land from troubling himself with farming details, and likely permitted a corpus of specialist knowledge to grow up around the growing community of larger winemaking senatorial villas. Dion refers to these burgeoning specialist relationships as “*contrat de complant*.”⁵⁷ A Forum Vinarium was constructed at the port of Ostia, some time before the reign of Hadrian. *Historia Augusta* notes at 33 during the discussion of the life of Severus Alexander the formation of wine merchants into guilds, which would reflect their growing professionalization, but as with other data in the *HA*, this one may be suspect.

All of this commercialization makes sense, because demand for wine increased among the general population. Aurelian added wine to the *annona*, which must have sparked increased downmarket production. The *collegia* were used by “members of the lower urban strata” to organize themselves, and these also served as distributors, getting wine into the cups of even the unfortunate.⁵⁸ Hermansen documents 38 distinct taverns and bars in the city of Rome, establishing their rise in popularity in middle empire, and concluding that their main purpose was the sale of wine in a social atmosphere.⁵⁹ In contrast to the wine riots (sparked by excessively high prices, limited production, and simplistic distribution models) recorded by Suetonius during the reign of Augustus, now the problem was public drunkenness. “These spend all their life with wine and dice, in low haunts, pleasures, and the games. Their temple, their dwelling, their assembly, and the height of all their hopes is the Circus Maximus. You may see many groups of them gathered in the fora, the cross-roads,

⁵⁷ Veyret, Paul. “Dion (R.).—Histoire de la vigne et du vin en France, des origines au XIXe siècle.” *Revue de géographie alpine* 48.1 (1960): 209-212. “[L]e propriétaire fournit le terrain, le cultivateur plante et au bout de cinq ans le nouveau vignoble est partagé par moitié (ou selon une proportion plus favorable au planteur) de façon perpétuelle, ce qui crée une véritable classe de petits propriétaires vigneron, obligés par le contrat initial à pratiquer une viticulture de bonne qualité.”

⁵⁸ Dunstan, William E. *Ancient Rome*. Lanham, Md.: Rowman & Littlefield Publishers, 2011, 202.

⁵⁹ See Hermansen, Gustav. *Ostia: aspects of Roman city life*. University of Alberta, 1981, Chapter 4.

the streets, and their other meeting-places, engaged in quarrelsome arguments with one another, some defending this, others that.”⁶⁰ Wine was finally at a fair price.

* * *

Briefly, and aside from agricultural, amphorae, and price evidence, we might also back our way into confirming the existence of a specialized trade economy, as well as the specialization around amphorae production, might be to combine evidence of amphorae distribution with evidence of wealth in the *amphorae-producing* regions. In other words, does the process of export appear to produce wealth, even within the borders of the Empire? In the great transfer of influence eastward, there is some evidence of this. For example, Foss finds that wealth and the size of the population sustained in the Negev reached their peak, and “flourished” through the 6th century, “quite possibly by taking on an independent economic life of its own, shipping...directly to the Mediterranean for export.”⁶¹ After that, the region “never again sustained a large population.”⁶² And the archeological evidence supports that the Negev’s peak coincides with the peak presence of Negev-made wine amphorae, shipped out of Gaza, in the burgeoning eastern empire.⁶³ It thus seemed possible, as a far-flung productive city, to achieve some measure of wealth by specializing in pottery production; and one could be largely agnostic as to the identity of the purchaser, so that as power faded from west to east, the sale of high quality pottery could continue apace.

Although I have not focused on the agricultural evidentiary record, it is worth noting briefly that the latest pollen, farm, and bone work on late-empire farming

⁶⁰ Ammanius, *Rerum Gestarum*, 28.4.29.

⁶¹ Foss, Clive. “The Near Eastern countryside in late antiquity: a review article.” *The Roman and Byzantine Near East: some recent archaeological research*, Ann Arbor 14 (1995): 213-34.

⁶² Ward-Perkins, B., “Specialized Production and Exchange,” in *The Cambridge Ancient History*, id., at 374.

⁶³ *Id.*

patterns, methods (and, to a lesser degree, technologies) support the proposition that I have advanced through this paper. Namely, that as the western empire declined, farming and rural settlement changed markedly, a “specialized market- and state-oriented production [economy] gave way to” something far less advanced—“mixed animal husbandry and diversified farming more suited to local terrains.”⁶⁴ Diversification is as distinct from specialization, where the former connotes the performance of multiple vertical productive steps in pursuit of multiple finished goods (i.e., subsistence farming). In Western Europe, farms that once specialized in intensive cattle production began to show signs, after the dawn of the fifth century, of breeding a mix of cattle, sheep, and pigs. Woodlands began to regenerate in northern Britain where they had once been cleared for specialized cereal production. The totality of the evidence strongly suggests a decline in the sophistication of life. It was centuries, for example, before the Anglo-Saxons exhibited such sophisticated land use.⁶⁵ Whether this was through the natural admixture of the inhabitants (and thus ‘evolution’) or through the great misfortune of the erosion of irreproducible Roman institutions (and thus ‘decline and fall’) must be left to speculation. It must nevertheless be said that credulity strains at the notion that a people might select into the more meager existence represented by mixed husbandry, unsophisticated planting, reforestation, and a decline in the production of transport of specialized goods.

* * *

As Smith predicted long before Karl Marx used the same point as an alleged refutation of capitalism, the division of labor which is the precursor to specialization

⁶⁴ Lewit, T. “Pigs, presses and pastoralism: Farming in the fifth to sixth centuries AD.” *Early Medieval Europe* 17.1 (2009): 77-91.

⁶⁵ TeBrake, W.H., *Medieval Frontier: Culture and Ecology in Rijnland*, College Station, 1985.

might turn humans into mere cogs. Tocqueville wrote that “[n]othing tends to materialize man, and to deprive his work of the faintest trace of mind, more than extreme division of labour.” But Smith also knew that what specialization created was increased productivity, which meant an equal output for fewer hours of labor, which redounded, ultimately, to an increased quality of life. Ammianus’s men lushly debating on street corners might be said to be, if this is not too modern a gloss, enjoying life.

Roman viticulturists, not to mention pottery-makers, seem to have understood this. In his Preface to the *De Re Rustica*, which I have used for much textual evidence above, Columella, a farmer from Spain, writes:

For one who would profess to be a master of this science must have a shrewd insight into the works of nature; he must not be ignorant of the variations of latitude, that he may have ascertained what is suitable to every region and what is incompatible. He should tell over in his mind the rising and setting of the stars, that he may not begin his operations when rains and winds are threatening, and so bring his toils to naught. He must observe the behaviour of the current weather and season, for they do not always wear the same habit as if according to a fixed rule; summer and winter do not come every year with the same countenance; the spring is not always rainy or the autumn moist. These matters I cannot believe that any man can know beforehand without the light of intelligence and without the most accurate instruction.⁶⁶

Columella’s work is the chief surviving brief on Roman agriculture, and he focuses in great depth on the practice of viticulture. Much of Columellan knowledge derived from Mago, the Carthaginian whose agricultural treatise, before being lost, was rescued from the library in Carthage and translated from Punic by Decimus Junius Silanus.⁶⁷ “Mago the Carthaginian...did the Roman senate award such high honours, that, after the capture of Carthage, when it bestowed the libraries of that city upon the petty kings of Africa, it gave orders, in his case only, that his thirty-two Books should be translated into the Latin language.”⁶⁸

⁶⁶ Columella, *De Re Rustica*, Ash, H. B., trans., Harvard University Press, 1941.

⁶⁷ Cicero, *De Oratore*, I, 249 and Pliny, *Naturalis Historia* 18, 5.

⁶⁸ Id.

What is seen in the passage above is a reflection of both the great risk taken up when a man decides to farm, as well as a frame of mind that considered agriculture not as a subsistence project, but as a distinct and quite scientific specialty. Columella's dates are known only loosely, but he was a contemporary of Seneca and is thought to have lived 4 A.D. to c. 70 A.D. Thus even in the early Empire great thoughtfulness went toward perfecting and recording the science of the Roman vine. Pliny the Elder cites Columella at least nine times.⁶⁹

EPILOGUE & THE MACROECONOMIC PICTURE

The decline in trade and in productive specialization becomes even more remarkable when set in relief against the trend *outside* the confines of the former Empire. Ward-Perkins points to Scandinavia as an example. In Scandinavia, “the first millennium A.D. is marked by steady exploitation and very slow economic growth throughout the period,” with slow but non-episodic growth in trade, and with the proficiency of agriculture steadily growing. In contrast, as shown, Rome demonstrates clear signs of losing technological capacity, retreating from specialization, and likely slackening overall levels of commerce. Consider also Ireland. St. Patrick does not arrive until 22 years after Alaric's sack of Rome.⁷⁰ Only then does specialization appear to increase. Mallory and McNeill show through

⁶⁹ E.g., “Columella mine author reporteth, That fruits will keepe well in earthen pots throughly pitched, and afterwards set in pits, and drenched in cesternes of water.” Pliny, Natural History, XV, 17-69. Or later, where Pliny (with an ounce of skepticism) recounts Columella's method of obtaining seedless grapes: “There is also a luxury method of growing vines—to tie four mallet-shoots together at the bottom with a tight string and so pass them through the shank bones of an ox or else through earthenware pipes, and then bury them in the earth, leaving two buds protruding. This makes the shoots grow into one, and when they have been cut back they throw out a new shoot.... Columella guarantees that a vine so grown will bear grapes with no stones in them, although it is extremely surprising that the planted slips themselves will live after being deprived of their pith.” Id. at XXXV.

⁷⁰ Meetings between Ireland and the Roman world seem minimal. Tacitus of course recalls Agricola meeting with a former Irish king in Britain (XXIV). He also reports that “we know most of [Ireland's] harbours and approaches,” and “through the intercourse of commerce,” no less. Recent sites in Ireland, at Drumanagh, have caused Warner to conclude that Rome properly invaded Ireland and established at least one fort. (See, e.g. <http://www.archaeologyuk.org/ba/ba14/BA14TOC.HTML>) but even if this becomes an agreed conclusion the extent of the Roman oversight seems minimal, especially as compared to Britain.

pollen analysis that it is in the immediate Christian era that “the environment [became] a very heavily managed and exploited one.”⁷¹ Confirming this, Dumayne and Barber’s pollen diagrams reveal slow growth in land cultivation and forest clearing in northern England, at Walton Moss and Glasson Moss, Cumbria, accelerating after the Roman arrival, and then reverting to no or slower growth.⁷² So the experience in Italy—increasing specialization followed by a marked decline in sophistication and commerce as the Empire ‘transitioned,’ to use one euphemism, to Germanic rule—is all the more significant.

It seems also worthy of note that, quite apart from the material record, the written record suggests that, as the Empire began to decline, the debasement of the currency sparked inflation, and a rising tax burden led to increasing feudalization and a breakdown in the specialization of labor. Some of this was natural, and some imposed. A retreat to the countryside offered a more attractive, and less abusive, life of subsistence farming. The estates of the wealthy “operated as much as possible as closed systems.”⁷³ There seems to have been a great withdrawal of the most entrepreneurial men. Farming, increasingly, was no longer done professionally but merely in quest of self-reliance. In other words: the notion of specialization began to give way, in the midst of economic immiseration, to subsistence living. Trade, consequently, ground to a halt.⁷⁴ There is little doubt that the lot of the ordinary Roman declined along with the decrease in specialization.

Interestingly for our discussion above, the first reaction of Diocletian to what can only be described as an economic crisis was the imposition of the famous price

⁷¹ *The Archaeology of Ulster*, Mallory, J.P., McNeill, T.E., Institute of Irish Studies, The Queen’s University of Belfast, 1991, 188.

⁷² “The impact of the Romans on the environment of northern England: pollen data from three sites close to Hadrian’s Wall,” Dumayne, L., Barber, K.E., *The Holocene* June 1994 vol. 4 no. 2 165-173.

⁷³ Thornton, M. K. and Thornton, R. L., “The Financial Crisis of A.D. 33: A Keynesian Depression?” In *The Journal of Economic History*, vol. 50, no. 3, 7. Cambridge University Press, 1990.

⁷⁴ Parker’s work may substantiate this claim. He shows a reliable linear reduction in Roman shipwrecks in the Mediterranean from a high reached, more or less, at the start of the first millennium. Parker, A.J., *Ancient Shipwrecks of the Mediterranean & the Roman Provinces*, at 3. BAR International Series: 1992.

controls. The outcome was predictable. Lactantius records scarcity in “small and cheap items” over which mens’ heads were taken by government forces; but yet “the rise in price got much worse...[and] sheer necessity led to the repeal of the law.”⁷⁵ In other words, the first reaction paid lip service to Ricardian specialization of labor—*curiales* could continue in their vocations, they merely had to accept lower prices for their wares or food. But after the failure of the price controls, the system of *annona* was introduced. This system is well known—it calculated a man’s annual productivity ability (the *caput* seems to have included his family and his real holdings’ outputs) and extracted the *annona*, an in-kind tax. Citizens effectively labored directly to support a soldier. What is interesting from the specialization perspective is that the government also found it necessary directly to interdict the free movement of Romans into and out of *specialized* lines of work. Although the *collegia* already existed, it appears that movements into and between them became severely restricted. Diocletian enforced the earlier law, recorded by Ulpian, that “[i]f it shall be proved that decurions have deserted the cities to which they belong and moved into other places, the governor of the province shall take care to recall them to their native soil and shall see that they perform their fitting duties.”⁷⁶ The purpose of this may have been to prevent families with some means and a modicum of ingenuity from adopting the self-reliant, subsistence lifestyle noted earlier—one which vouchsafed the family some security, but which did not contribute to the polity at large.

This is not, of course, to say that Diocletian, Maximian, Constantine, or any of their advisors maintained an understanding of specialization of labor. Had they a robust apprehension of the theory behind labor markets, they would have understood that merely forcing men to continue to work within their guilds (superficially enforcing specialization, but in actuality preventing the dynamism,

⁷⁵ *De mortibus persecutorum*, Lactantius, Creed, J.L., ed., Clarendon Press, 1984, 13. N.B. Although Lactantius seems at times hysterical, I use him here only for his record of economic mandates in the fourth century.

⁷⁶ Digest, Ulpian, I, 2, 1.

experimentation, and profit-seeking that gives rise to specialization) was the last thing they ought to do.⁷⁷ Merely because “certain vocations, such as baking, herding swine, and shipping provisions to Rome, were being encouraged”⁷⁸ does not mean that those activities would be done economically—or at all. The strongest summary of this effect was given by Rostovtzeff:

[C]ity-capitalism...gradually degenerated. The prevailing outlook of the municipal bourgeoisie was that of the rentier: the chief object of economic activity was to secure for the individual or for the family a placid and inactive life on a safe, if moderate, income. The creative forces which in the early Imperial period produced a rapid growth of industrial activity in every quarter of the Empire, and promoted a high standard of technical improvement alike in commerce...and in agriculture, suffered a gradual atrophy, which resulted in an increasing stagnation of economic life.⁷⁹

It was this weakened Rome that was invaded by round after round of militaristic peoples versed in destruction—as Rome had been—yet with few virtuous philosophies, and little in the way of comparative productive advantage, that might otherwise justify their protuberant growth. In the summer of 410, when Alaric captured Rome, St. Jerome, a Catholic writer, was writing the preface to his *Commentaries on Ezekiel*. To it he added: “...the brightest light of the whole world was

⁷⁷ It is amusing to compare one final essay of Diocletian against the backdrop of modernity. John Maynard Keynes famously proposed in *General Theory of Employment, Interest, and Money* that government spending should be used to stimulate a languid economy. “If the Treasury,” Keynes wrote, “were to fill old bottles with banknotes, bury them at suitable depths in disused coalmines which are then filled up to the surface with town rubbish, and leave it to private enterprise on well-tried principles of laissez-faire to dig the notes up again (the right to do so being obtained, of course, by tendering for leases of the note-bearing territory), there need be no more unemployment and, with the help of the repercussions, the real income of the community, and its capital wealth also, would probably become a good deal greater than it actually is.” *General Theory* at 129. In the event, Diocletian, if Lactantius is to be trusted, attempted something very near this. “Diocletian had a limitless passion for building, which led to an equally limitless scouring of the provinces to raise workers, craftsmen, wagons, and whatever is necessary for building operations.” The Roman government was virtually indiscriminate as to what was built, so long as building persisted unabated.” Here be built basilicas, there a circus, a mint, an arms-factory, here he built a house for his wife, there one for his daughter.” And in an example of the purest of make-work policies, Diocletian would sometimes have freshly constructed buildings torn down, and built again. Lactantius at 13.

⁷⁸ “Diocletian and the Decline of the Romans Municipalities,” Van Sickle, C.E., *The Journal of Roman Studies*, Vol. 28, Part 1. 16.

⁷⁹ Rostovtzeff xi.

extinguished, when the Roman Empire was deprived of its head and when, to speak more correctly, the whole world perished in one city.”⁸⁰

Primary textual data and some limited amphorae evidence show that comparative advantage was alive and well, and that the growth of the Empire resulted in economic growth not merely from predation, and the expansion of the aegis of the royal purple, but from specialization, too. This increased the quality, quantity, and availability of wine. Though no formal economics was practiced in Rome, producers outside of the city naturally responded to market signals by specializing and perfecting a single good. Likewise, the decline of the Empire correlates to declining quality of consumer goods. This strengthens the case for the operation of market forces, and supports the traditional understanding of a definitive “decline” in the Roman world—which resulted in a marked declination in the material wellbeing of Romans.

Word Count

Body 6,980

Notes 2,225

⁸⁰ Mommsen, T., “St. Augustine and the Christian Idea of Progress: The Background of the City of God,” in *Journal of the History of Ideas*, at 346. 1951.