

THE DEVELOPMENT OF AGRICULTURE IN THE 'AGER COSANUS' DURING THE ROMAN REPUBLIC: PROBLEMS OF EVIDENCE AND INTERPRETATION*

By D. W. RATHBONE

It is a well-established view that in the century following the Hannibalic War the Italian countryside saw the expropriation of its free peasantry and the introduction of slave-staffed villas. This assumption of fact underlies much modern historical research. As one recent study put it: 'When we compare Roman with American slavery, the growth of slavery in Roman Italy seems surprising. In the eighteenth century, slavery was used as a means of recruiting labour to cultivate newly discovered lands for which there was no adequate local labour force In Roman Italy . . . slaves were recruited to cultivate land which was already being cultivated by citizen peasants. We have to explain not only the import of slaves but the extrusion of citizens'.¹ The usual answer has been that land was the largest single available investment for the wealth which the upper classes had derived from imperialism and was also the most socially acceptable investment. But despite postulation of a largely economic motive, the approach taken by historians has been mainly social and political. The explanation, however, and the type of approach involved owe much of their plausibility and hence popularity to what is also their greatest weakness, namely somewhat circular argumentation. The evidence on which the phenomenon and its explanation have been constructed is above all that of the literary sources, and the context in which this information is given is almost invariably political—the obvious and major instance is the Gracchan reforms. It should hardly surprise us, then, that this view of Republican agrarian history provides a neat socio-economic explanation for the political upheavals of the later Republic for which we again take our main evidence from the very same sources. Such validation is only apparent. Perhaps it speaks for the internal consistency of these literary sources; certainly it illustrates our pathetic imprisonment within the 'facts' and 'interpretations'—one could say *tout court* the bias—of these sources. There is little to be gained from further introspective critique of this type of evidence.

So where do we turn? One major possibility is exploitation of the archaeological evidence for rural settlement patterns in Italy during the Republic.² After all, this type of information should be more reliable than the agrarian background which has been reconstructed from snippets in the literary sources. Of course archaeological evidence poses its own problems of validity and interpretation, but it is only in an unnecessarily exaggerated form that these problems really justify the distrust shown by some historians. At root the question is one of how to proceed. The South Etruria survey and its successors continue to present us with evidence which not only affects how we interpret, for example, the Gracchan reforms, but which has the potential to furnish us with whole new sets of data on which our interpretations should be founded. Secondly, this type of archaeological evidence is primarily economic; it is not susceptible to immediate socio-political analysis. Thus we should not be trying to relate this new evidence directly to our pre-conceived and largely unvalidated notions about Italian Republican agriculture with all their socio-political bias, but should first attempt to analyse it on its own terms, as evidence for the agricultural economy of Republican Italy.³ Then synthesis with our other 'facts' may be worthwhile.

* This paper was read in an earlier form to the Graduate Seminar in Classical Archaeology at Cambridge in November 1979. My interest in the subject was stimulated by my participation in the summers of 1978 and 1979 in the archaeological project in the 'ager Cosanus' centred on the excavation of the villa of Settefinestre, and I owe much to discussion with and encouragement from the directors of that project, Professor A. Carandini and T. Tatton-Brown, particularly at seminars held during the excavation and also at the opening of the Settefinestre Exhibition in London. M. G. Celuzza

and E. Regoli kindly allowed me to consult the results of their field-work in the 'ager Cosanus'. Above all I thank Dr. P. Garnsey for his unfailing supply of helpful criticism and advice.

¹ K. Hopkins, *Conquerors and Slaves* (1978), 9.

² For a wide-ranging discussion see M. W. Frederiksen, 'The contribution of archaeology to the agrarian problem in the Gracchan period', in *DdA* (1970/1), 330-57.

³ The same point is made by A. Carandini, *L'Anatomia della Scimmia* (1979), 226.

In the attempt to analyse archaeological evidence for Roman agriculture in economic terms the historian has an invaluable tool to hand—a rich array of comparative evidence. The nature of an agrarian society owes much to natural external factors, many of which do not vary significantly over centuries. There is no substantial difference, to give one example, between the Mediterranean olive tree of today and that of the Roman Republic. In this case, furthermore, 'the pruning and harvesting of the fruit, which require a considerable number of workers, can only be done by hand, and the many attempts to mechanize these tasks have proved unsuccessful'.⁴ Even for farming operations now mechanized we have comparative data for manual labour both from the European countryside known to our fathers and grandfathers and from today's underdeveloped nations. By applying such comparative data to the information of the Roman agricultural writers we can derive models for the operation and economic performance both of peasant smallholdings and of the various types of large estate, including the slave-staffed villa. This point does not require elaboration.⁵ With a bit of luck these models can be applied to excavated sites which provide enough information about themselves to effect the link, the largest group in this category being 'villae rusticae'. In an area where all the villas had been excavated we could then at least define the role of the so-called 'villa system' in the total agriculture of that area. This in itself would tell us something, albeit rather negative—according to the usual interpretation—about the survival of peasant smallholdings. However, as has recently been demonstrated, there is sufficient evidence in the Roman agronomists to argue that in Republican Italy peasant smallholdings and slave-staffed villas were mutually dependent and in some ways similar modes of agricultural production.⁶ In this case, reconstruction of the economic life of the villas of an area could tell us something very positive about that area's free peasantry.

My approach rests on the assumption that agrarian history should be treated primarily as economic history. At its most basic it consists of the construction of economic models for the possible agricultural systems in an area at a particular time, which are then tested against and refined by the relevant archaeological evidence. In practice it is a complex process: for example, archaeological facts of this nature are rarely self-explanatory, political and social factors cannot be excluded totally. In short, this approach has its own problems of validation. But there is little point in further abstract discussion. In what follows I will attempt a test-run of this approach on a particular area, the 'ager Cosanus'. Admittedly I have chosen this area not because of its intrinsic importance or because it was necessarily in any sense average, but simply because I am fortunate to have a personal knowledge of the area. Nevertheless, it should provide a satisfactory illustration of the possibilities and difficulties of this approach. Lastly, I should emphasize that this is an experiment, not a completed study, and that all that can be derived from it are suggestions, not conclusions.

The 'ager Cosanus' has received a fair amount of attention from archaeologists. However, the only modern survey of this area as a whole of which the results have been published is that of Professor S. L. Dyson.⁷ A detailed survey project, organized by Professor A. Carandini, has been under way for several years, but the work is as yet incomplete and unpublished with the exception of the evidence so far gathered for the Valle d'Oro. The other archaeological evidence consists mainly of the results of the American excavations at Cosa and its port (sporadically and incompletely published), of Dyson's excavation of the villa of Le Colonne (as yet unpublished), and of the excavation of the villa of Settefinestre (being more or less continuously published).⁸ I propose to begin with an

⁴ F. P. Pansiot and H. Rebour, *Improvement in Olive Cultivation* (Food and Agriculture Organization of the U.N., Agricultural Studies no. 50) (1961), 214.

⁵ See for examples of this type of approach R. Billiard, *La Vigne dans l'Antiquité* (1913); K. D. White, 'The productivity of labour in Roman agriculture', in *Antiquity* 39 (1965), 102-7.

⁶ P. Garnsey, 'Non-slave labour in the Roman world' and J. E. Skydsgaard, 'Non-slave labour in rural Italy during the late Republic,' both in P.

Garnsey (ed.), *Non-slave Labour in the Greco-Roman World* (CPhS suppl. vol. 6) (1980).

⁷ S. L. Dyson, 'Settlement patterns in the 'Ager Cosanus': the Wesleyan University survey, 1974-1976', in *JFA* 5 (1978), 251-68.

⁸ A. Carandini and S. Settis, *Schiavi e Padroni nell'Etruria Romana. La Villa di Settefinestre dallo Scavo alla Mostra* (1979). This also contains a useful bibliography relating to the 'ager Cosanus' in general.

attempt to reconstruct the economics of the villa of Settefinestre when it was in its prime, that is roughly the century 50 B.C. to A.D. 50. The data we dispose of for Settefinestre are as follows. It had one olive press and three wine presses. The maximum capacity of the vat or 'cantina' in the cryptoporticus system which received the grape juice as it flowed from the presses was fifty cullei, and the 'dolia' which were set into the floor of the 'porticus' probably had a maximum aggregate capacity of around fifty-five cullei.

Cato advised three presses for 100 iugera of vines, which I take as a full 100 iugera bearing vines, and since he thus obviously planned for a 'normal maximum' wine yield of 1.6 cullei per iugerum, we may reasonably adopt for our calculations the early twentieth-century A.D. Italian average yield of 1.17 cullei per iugerum.⁹ Thus from the storage facilities we would expect Settefinestre to have had fifty iugera of vines, but from the presses 100 iugera; since we cannot be sure that other 'dolia' were not stored somewhere else, it is probably safer to take the higher figure. The significance of a single olive press is difficult to assess. Probably it is a generous estimate to assume a fifty-iugera olive grove; there may just have been a few hundred trees planted among the vines. Again using Cato's figures we can estimate from these crops a total of twenty slaves for the villa.¹⁰ On the basis of these assumptions we can tentatively reconstruct the economics of this side of the villa's agricultural operations.¹¹ There is not space to discuss the ancient and modern agricultural data underlying my calculations, but I have used only conventionally accepted figures.¹² To feed the slave 'familia' just over sixty iugera of grain-bearing land will have been required, and a similar amount of legume-bearing land. A fourteen-iugera copse will have supplied materials for the vineyard. Allowing for intercultivation between the olives and vines, it is on this reconstruction a reasonable working hypothesis that the estate of Settefinestre comprised some 250 iugera in total.

On the assumption that this reconstruction, even if it cannot claim (especially as excavation of the site is still continuing) to be certain for the actual villa of Settefinestre, is at least in itself a fair model of a Catonian/Varronian villa specializing in the production of wine and olive oil as cash crops, we can derive some important general points about the economics of the villa system. Few historians, I think, would disagree that the features which distinguished the villa system from previous forms of agriculture in Roman Italy were the concentrated cultivation of the vine and olive as cash crops and the massed use of slave labour. I ignore here the question of ranching because in the 'ager Cosanus' it almost certainly did not affect any of the arable land in the period under consideration. It is generally accepted that this new type of agriculture was more 'economic' than its predecessors, at least in terms of the owner's income. By analysis of this reconstruction of Settefinestre I wish to probe in some detail the economics of the villa system with the aim of pinpointing the reasons for its profitability.

To begin with, it is clear that the slave staff could not satisfy the full labour requirements of the estate of Settefinestre. To harvest the sixty iugera of grain in ten days would have required six to nine men.¹³ This the slaves could have managed; indeed in their cultivation of grain and legumes for domestic consumption they were engaged in essentially the same type of production as free peasants. But Cato's inventory for a 100-iugera vineyard provides for forty actual pickers, and labour was needed simultaneously for transport, selecting, treading, pressing and storing. It would probably be an underestimate to assume

⁹ There is not space here to argue for my interpretation of Cato's figures but I hope to publish a separate paper on this topic. For the early twentieth-century A.D. average see R. Duncan-Jones, *The Economy of the Roman Empire* (1974), 45.

¹⁰ 1 'vilicus', 1 'vilica', 13 vineyard workers, 2 for the olives, 1 swineherd, 1 shepherd and 1 for luck. As yet we cannot be sure about the location or number of the slave quarters in the villa, and thus this estimate lacks archaeological confirmation.

¹¹ I here assume that in the villa's prime its most important commercial products were wine and olive oil. The results of the 1980 season of excavation

should illuminate greatly the role of animal husbandry in the economy of the villa, but although they may make qualification of my assumption necessary, it will almost certainly remain true that the extent of the estate and the labour-demand of the villa related primarily to its cultivation of the vine and the olive.

¹² Such as can be found in K. D. White, *Roman Farming* (1970) and in Duncan-Jones, *op. cit.* (n. 9). Obviously these figures are open to various doubts, and calculations based on them can have only provisional validity pending a comprehensive study of Roman agricultural statistics.

¹³ Varro, *RR* 1.50.3; Columella 2.12.11.

the employment by the villa during the vintage of casual labour to the value of 1,000 man-days.¹⁴ So too the olive harvest and processing will have required around 750 man-days of casual labour. Assuming that eighteen of the total twenty slaves were engaged in productive agricultural work for an average of 250 days each per annum,¹⁵ the casual labour for the harvests alone will have provided 28 per cent of the total annual labour requirement of the estate.¹⁶ This figure in itself cautions against easy acceptance of a simple notion of the villa system being a straightforward slave mode of production.

Until the excavation of Settefinestre is completed there is little point in attempting to reconstruct its total economy, but it is already possible, on the basis of the figures arrived at above, to calculate roughly the profitability of its assumed labour system for the cultivation of 100 iugera of vines and fifty iugera of olives, and to compare this with the profitability of other possible labour systems. It should be remembered that in its use of mixed labour, that is twenty slaves and free labour to the value of at least 1,750 man-days, this model of the villa is derived straight from the instructions of Cato and Varro. In the calculations which follow I have tried to use reasonably realistic figures.¹⁷ However it would not matter if the land and wine prices or the extent of the estate or the production figure for wine were completely notional; all that is necessary is that the same figures are used consistently. Similarly, the actual figures used for the labour costs are not in themselves crucial; what matters is that the ratio between the cost of free labour and that of slave labour is correct, and on this point I am reasonably confident.¹⁸ Finally, the same reasons make it immaterial whether one includes other items such as the sale of olive oil or amortization of equipment in these calculations.

¹⁴ Exactitude is impossible to attain with this type of figure and one can only play for safety, that is for a minimum free labour requirement. Full discussion of the relevant statistics is impossible here, but take, as one example, the estimate of G. Dalmasso, 'Problemi economici di agricoltura astigiana', in *Ann. R. Accad. Agric. Torino* 53 (1910), 194 f., that 1 hectare of 'vigneto specializzato' required for the harvest between 25 and 32 man/woman-days' labour, equivalent to from 625 to 800 man-days for 100 iugera. This figure, which is comparable to other Italian and Central European statistics, should be at least doubled to allow for the other operations, especially the extremely laborious pressing process, and then a maximum of 400 man-days deducted from the total to allow for work done by the 13 slaves.

¹⁵ Excluding the 'vilicus' and 'vilica', see n. 10 above. Columella's estimate that 200 iugera bearing grain and legumes require the permanent employment of 8 men (2.12.7), on the basis that 1 iugerum of grainland requires a labour input of 10½ man-days per annum (2.12.1), implies an expected working year of 262½ days.

¹⁶ This figure may seem high but compare, for example, a large Hungarian estate of the early twentieth century A.D. with mixed cultivation, where casual labour made up from 28% to 44% of the total annual labour input—figures from D. Warriner, *Economics of Peasant Farming*² (1964), 148. In fact the figure for the Settefinestre model should be even higher since I have here taken no account (largely because of difficulties of quantification) of the casual labour employed for other operations such as pruning the vines and olive trees.

¹⁷ All values in the calculations are expressed in sesterces. The assumed land price of HS 1,000 per iugerum is Columella's price for undeveloped land, thought to be much too high by Duncan-Jones, op. cit. (n. 9), 48–52. The assumed price for wine of HS 10 per amphora is probably nearer reality; cf. Duncan-Jones, op. cit., 46–8. For the average slave purchase price of HS 2,000 see Duncan-Jones, op. cit., 50 n. 2 and Appendix 10. Amortization is calculated over

20 years following Hopkins, op. cit. (n. 1), 110 n. 23. I base my assumption that the average hired free labourer was paid HS 2 per diem on Cato 22.3 (cf. Duncan-Jones, op. cit., 54). For the wine yield I use the early twentieth-century A.D. average of 1.17 cullei per iugerum (cf. p. 12 above).

¹⁸ For the purpose of my argument I need only show that I have not assumed a proportionately higher cost for slave than for free labour. Obviously from time to time in the Republic the influx of war captives will have caused the average price of slaves to fall sensibly, but for this general model such unquantifiable fluctuations are fairly irrelevant (although would one not in any case expect that a fall in the cost of slave labour would tend to reduce the demand for and hence the cost of free labour?). I see no reason why agricultural slaves should have normally cost less than the average; Columella allowed HS 6–8,000 for the purchase of a decent 'vinitor', a figure perhaps intended to shock, but unlikely to be over three times the usual outlay. The use of home-bred slaves was a possibility, but it is dubious whether they were really cheaper than bought slaves; Duncan-Jones, op. cit. (n. 9), 50 thinks so, but the agronomists' comments do not prove his point (do they rather indicate the difficulty of making home-breeding pay?); H. Wallon, *Histoire de l'Esclavage dans l'Antiquité* (Paris, 1879) I, 158, esp. n. 3 quotes figures for French plantations in Guadeloupe where rearing slaves was many times more expensive than buying them. Clearly much depended on local factors, but I think it is reasonable to skip a tricky attempt to quantify this possibility here. The pricing of 1 man-day of free agricultural labour at HS 2 is certainly generous; in Cato 22.3 this figure includes the hire of oxen. Cicero, *pro Rosc. Com.* 28 gives HS 3 as the maximum conceivable daily pay for unskilled labour in Rome, where labour costs presumably tended to be higher than in the countryside. Compare too the rate of pay for legionaries in the Republic, which after Caesar's doubling of it was HS 900 per annum.

First comes the calculation for Settefinestre as reconstructed following the scheme of Cato and Varro, that is with a slave staff supplemented by casual free labour :

Estate value (250 iugera)	250,000
Sale of wine	23,400
Amortization of 20 slaves	2,000
Free labour (1,750 man-days)	3,500
PROFIT	17,900 = 7.2% of estate value.

If the owner had wished to run the villa by slave labour alone, he would have required another forty slaves to replace what was probably the peak simultaneous requirement of forty free labourers. Assuming that he wished to keep 100 iugera under vines, he would have had to double his total estate size to meet the extra food requirements of the forty extra slaves from domestic production. Thus the figures would then be :

Estate value (500 iugera)	500,000
Sale of wine	23,400
Amortization of 60 slaves	6,000
PROFIT	17,400 = 3.5% of estate value.

Conversely, if only hired free labour had been used, there would have been no need to grow food crops for the slaves, and vines could have occupied at least 150 of the 250 iugera. I assume that 250 man-days' free labour had to be hired to replace the labour input of one slave.¹⁹ This would produce the following figures :

Estate value (250 iugera)	250,000
Sale of wine	35,100
Free labour (6,750 man-days)	13,500
PROFIT	21,600 = 8.6% of estate value.

However, wage labour on the scale assumed above was not at all common in the Roman world. I therefore present a calculation for *métayage*. The assumptions are that each productive slave was replaced by one *métayer*, that the value *per diem* of the produce which the *métayers* themselves consumed was HS 2 per man, and that they had to pay the full cost of the necessary extra free labour. The following figures show the owner's income :

Estate value (250 iugera)	250,000
$\frac{1}{2}$ sale of wine	11,700
$\frac{1}{2}$ value of food crops, etc.	6,570
PROFIT	18,270 = 7.3% of estate value.

It is worth noting that each *métayer* would have received cash and food to the value of HS 820 per annum, almost as much as the gross annual pay of a legionary after Caesar's doubling of the amount.

These calculations raise several points of interest, but particularly significant is the implication that slave labour was not more economic in this type of agriculture than free, and indeed that when used on its own it was considerably less profitable. Furthermore, for agriculture in general I calculate, on the basis of a working year of 250 days, that a slave who cost HS 2,000 was at the most 20 per cent cheaper than a hired free labourer if the slave had a working life of twenty years. If he worked for only ten years, he will have cost the same as a free labourer. If he cost HS 4,000 he will have cost the same as a free labourer over twenty years but will have been 40 per cent more expensive over ten years.²⁰ Since

¹⁹ See n. 15 above. This may seem low, but presumably even slaves were underemployed in the winter (or kept occupied with non-essential unproductive tasks), and we must allow for the time they spent producing crops for their own consumption.

²⁰ For the purchase price of slaves see n. 17 and n. 18 above. The calculation here also takes account of the annual cost of upkeep of the slave. To determine this one can take the low allowance for boys

in Trajan's alimentary scheme of HS 16 *per mensem* (cf. Duncan-Jones, *op. cit.* (n. 9), 144) and increase it by 50% to allow for the slaves being men. Or one can cost out the allowances in Cato 56 f.: 50 modii of wheat @ HS 4 (cf. Duncan-Jones, 145 f.) = HS 200, 7 amphorae of wine @ HS 8 (cf. Duncan-Jones, 46 f.) = HS 56, clothes etc. at say HS 50. Both work out at around HS 300 per annum, the figure used here.

these calculations ignore the cost of supervision, of any medical care and of the possible grant of a 'peculium', and granted the low life-expectancy in classical antiquity, it is a reasonable conclusion that slave labour was not significantly cheaper per unit of work-time than free. Nor is it clear that an agricultural slave could in practice be made to work harder per unit of work-time than a hired free labourer. The rather different argument that the slave-staffed villa produced a surplus whereas the same amount of land, if split into peasant allotments, would have produced little if any surplus,²¹ in fact does not show the superior productive capacity of the slave but the economic benefits of full productive employment of any type of agricultural labour. Peasants did not produce a surplus in the way that villas did because the peasant smallholding had to maintain the maximum workforce that it required at any one point in the agricultural year, even during periods when there was almost nothing for this workforce to do. The villa system was more economic because it carried no surplus labour, and this was not because it exploited slave labour but because it exploited the underemployment of the neighbouring free peasantry.

The crucial agricultural constant which determined the economics of the various possible labour systems was that the cultivation of both the vine and the olive demand particularly heavy concentrations of labour at a few periods in the year. Indeed these and other crops continue today to pose problems of labour recruitment. The authors of a fairly recent U.N. report on olive cultivation admit that countries are unwilling to develop it because 'it is the cause of the periodic seasonal unemployment due to the discontinuity in the need for workers, who are obliged to seek other means of subsistence'.²² An analogous problem exists in the Vale of Evesham, but there the fruit-pickers can depend on casual industrial employment and the Welfare State in the winter and spring. The vintages and hop harvests of modern France and Germany rely heavily on student labour. In ancient Italy only villas around Rome could have recruited most of their seasonal labour from the urban poor—and that only when Rome had grown so amazingly—in the way that the hop-fields of Kent recruited from London.²³ Otherwise there was very little casual non-agricultural employment, no Welfare State, no students. In the rest of Italy we must suppose that the vast majority of the seasonal labour force was recruited from families who had their own small farms which provided them with their basic subsistence. In other words, not only did the villa system in Roman Italy require a large seasonal labour force, but a numerous free (and, probably, poverty-stricken) peasantry was the only possible source to supply this demand.

I would sum up my argument so far in two propositions. Firstly, that it is safe to assume that a slave-staffed villa cultivating vines and/or olives as cash crops depended on the seasonal hiring of free peasant labour to make these crops economically viable. Secondly, that there are grounds for doubting whether in Roman agriculture in general the use of slave labour was more economically efficient than exploitation of free labour in one or more of the contractual forms known to the classical world. These propositions—which, it should be noted, are purely economic—have obvious socio-political implications for Roman agrarian history. The first suggests that the villa system and peasant smallholdings were complementary modes of agricultural production, in which case we should at least modify the more usual portrait of agrarian development in the Republic as a mortal struggle between the two systems, which was decisively won by the villa system because of the greater political muscle of its protagonists. The second proposition suggests that re-examination of the usual explanations for the introduction of slave-labour into Roman agriculture could be profitable. I now intend to examine the evidence for the 'ager Cosanus' as a whole to see whether it really does fit best with the usual view of Roman agrarian development in the Republic, or whether other interpretations could be equally or more valid.

²¹ See, for example, Hopkins, *op. cit.* (n. 1), 106 f.; Carandini and Settis, *op. cit.* (n. 8), 39 f.

²² Pansiot and Rebour, *op. cit.* (n. 4), 215.

²³ The literary sources contain a fair number of references to the hiring of casual free labour at the peaks of labour demand in the agricultural year, but there is not a single reference, to my knowledge, to recruitment of this labour from the urban poor. R. Martin, '« Familia rustica »: les esclaves chez

les agronomes latins', in *Actes du Colloque 1972 sur l'Esclavage* (1974), 269, takes Pliny, *Ep.* ix. 20.2 to mean that Pliny used his 'familia urbana' instead of 'mercenarii' for the vintage, but the passage in fact shows he had brought some of his 'familia urbana' to supervise the 'rustici' at work. Cato's advice (RR 4) 'Vicinis bonus esto . . . Si te libenter vicinitas videbit . . . operarios facilius conduces' implies very local hiring of this extra labour.

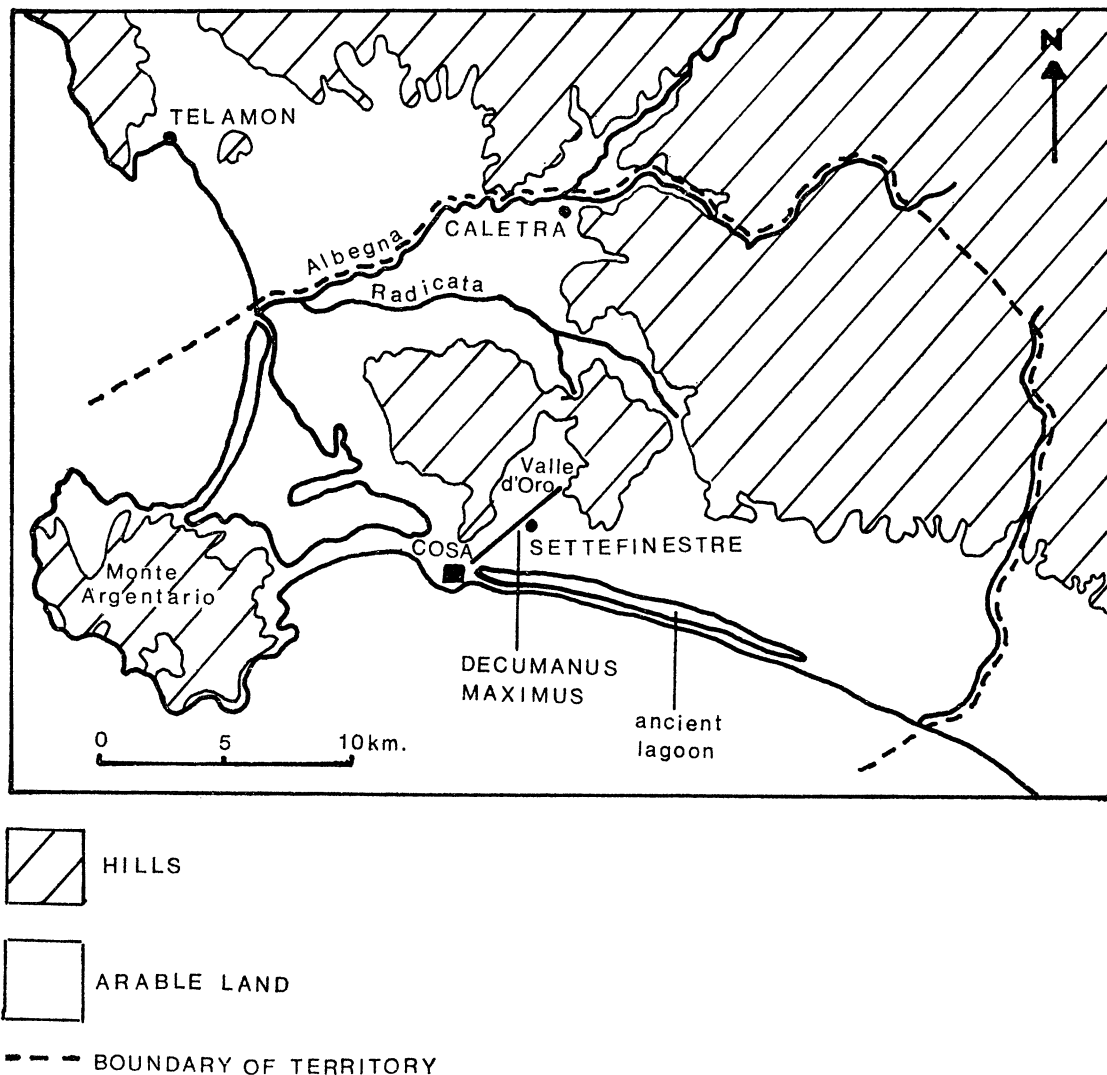


FIG. 1. THE 'AGER COSANUS'. DRAWN BY G. JONES AND BASED BY KIND PERMISSION ON MAP IN CARANDINI AND SETTIS (N. 8), PANNELLO I

The Latin colony of Cosa was founded by Rome in 273 B.C. on a promontory on the west coast of Italy some ninety miles north of Rome, in part of the territory of recently defeated Vulci. Over fifty years ago the limits of Cosa's territory were tentatively reconstructed on the basis of a land-survey of this area of Tuscany carried out in A.D. 1508-10.²⁴ This reconstruction, which remains unchallenged, gives the 'ager Cosanus' a total of some 600 km², but the 'ager Caletranus', which was presumably centred on Marsiliana/Caletra, may well have occupied the area between the Albegna and Radicata rivers, some 50 km².²⁵ To allow for this possibility, and also for my omission of the islands and of Monte Argentario, both being somewhat distinct from the mainland territory, I shall hereafter take the 'ager Cosanus' as comprising 500 km². Probably some 150 km² out of the total 500 km² of the territory was potentially suitable for ancient arable farming, that is some 60,000

²⁴ R. Cardarelli, 'Confini fra Orbetello e Marsiliana; fra Port' Ercole e Monte Argentario (28 dicembre 1508-2 marzo 1510)', in *Maremma (Bollettino della Società storica maremmana)* 1 (1924),

131-42, 155-86 and 205-24; 2 (1925), 3-36, 75-128 and 147-213.

²⁵ See Livy 39.55.9; Pliny, *NH* 3.52.

iugera.²⁶ No source tells us the number of colonizing families in 273 B.C. or the size of their allotments, but according to the evidence for other Latin colonies of this period 2,500 families is a safe minimum estimate and 5,000 a probable maximum.²⁷ Traces of the centuriation survive, and it was shown some time ago that the 'decumani' were sixteen actus apart, while recent field-work has made it seem more likely that the distance between the 'cardines' was thirty-two actus, forming centuriated blocks of 128 iugera.²⁸ Since the Romans centuriated land into blocks which were easily divisible into the intended allotment size, the Cosan allotments must have been of eight, sixteen, thirty-two or sixty-four iugera. The evidence of later Latin colonies might suggest an allotment size of sixteen or thirty-two iugera,²⁹ but from near-contemporary Roman colonies eight iugera would have been more normal. Within the limits of the available arable land and the probable number of colonists, two possible reconstructions have particular plausibility: either around 3,500 families on sixteen-iugera allotments or from 3,500 to 5,000 families on eight-iugera allotments.

The vast majority of colonists must have lived on their farms in the territory of the colony; ³⁰ this implies an absolute minimum of 2,000 individual farmsteads in the years following 273 B.C. This raises a problem with regard to the archaeological evidence, for Dyson will date only two of all the sites found by him in the entire territory to the late third/early second century B.C.,³¹ and, to my knowledge, only one more site of this date has been found since. This gives a recovery rate of 0.15 per cent. Admittedly these three sites all lie in the Valle d'Oro, the area of Cosa's territory which has been most intensively surveyed. However, even in the 3,000 hectares (=c. 12,000 iugera) between Cosa and the head of the Valle d'Oro there must have been a minimum of 375 sites occupied after 273 B.C. (assuming the maximum conceivable allotment of thirty-two iugera), although there were probably 750 or 1,500 (assuming allotments of sixteen and of eight iugera respectively). Thus here the maximum recovery rate remains only 0.8 per cent, although the real one is probably nearer 0.3 per cent. Dyson suggests that this minute percentage is due to the short life of most of the original farms but I would prefer to attribute it to the poor building materials used and to a generally low standard of living, and perhaps also to the superimposition of later sites. Indeed, if we linked our three sites with the period of recolonization after 197 B.C., almost the sole archaeological evidence for the original foundation would be the walls of Cosa and the centuriation grid. These still mark the modern landscape, impressive evidence for the forceful centralized organization of the Roman state, with which we may contrast the material weakness of the dispersed individual settlers. It so happens that the latter left almost no physical trace of their private existence, yet without them the walls and centuriation would have been meaningless, and we have to recreate from other sources the peasantry who left no archaeological record. I will return to this point later.

Less than a century after its foundation the colony was apparently struggling. When in 199 B.C. the magistrates of Cosa petitioned the Roman Senate for more colonists they were unsuccessful, but in 197 B.C. they received permission to enrol 1,000 more. There is no trace at all of a second centuriation, and the presumption must be that the new colonists were settled on abandoned allotments of the original centuriation. This would suggest, using again the estimate of from 3,500 to 5,000 original families, that there had been a decline of from 20 to 30 per cent in the number of colonists in the preceding seventy-five

²⁶ This figure is derived from the map. It is possible that the lower hills in the territory which are today covered with 'macchia' and are of minimal agricultural worth were then suitable for some arable farming, especially if terraced, but it is more likely that the greater part of them was left uncenturiated as communal 'ager compascuus'.

²⁷ The other Latin colonies (with their dates) for which we know the number of colonists are Cales (334) 2,500, Luceria (314) 2,500, Interamna (312) 4,000, Sora (303) 4,000, Carseoli (298) 4,000, and Cremona and Placentia (218) 6,000 each.

²⁸ F. Castagnoli, 'La centuriatione di Cosa', in *MAAR* 24 (1956), 147-65.

²⁹ On the size of the blocks within centuriated systems see F. Castagnoli, *Ricerche sui Resti della Centuriatione* (1958), 24 f. No good evidence for the size of allotments at Latin colonies is available until the second century B.C., when they were often very generous.

³⁰ It is clear that the city of Cosa can have accommodated only a small proportion of its original colonists. For a general discussion see P. D. A. Garnsey, 'Where did Italian peasants live?' in *PCPhS* n.s. 25 (1979), esp. 13-15.

³¹ Dyson, *op. cit.* (n. 7), 259.

years. This sounds serious; to what can we attribute it? I would suggest three main possible causes: expropriation of peasants by richer landowners, heavy casualties in the Hannibalic War, 'natural' decay. Clearly the truth was probably a mixture of these three and perhaps also of other causes (such as natural disasters), but it is worth trying to establish which was predominant.

The reference to the magistrates of Cosa in 199 B.C. is our first positive indication of social differentiation within the colony. Right from its foundation the colony must have had magistrates, and doubtless they will have normally been recruited from among the richer citizens of Cosa. It is also possible that before the Hannibalic War there had developed a class of colonists at Cosa distinguished by economic and political superiority. There is comparative evidence from other colonies, from which we might guess that this class comprised some 6 per cent of the total, say 200 out of 3,500 families.³² On the supposition that each of these families had a fifty-iugera farmstead, they will together have occupied around 17 per cent of the total arable land in the 'ager Cosanus' (it is unlikely that more than one-fifth of this land was occupied by the richer holdings). This process, on the assumption of from 3,500 to 5,000 families on eight-iugera allotments, need not have dispossessed a single peasant; on the assumption of about 3,500 families on sixteen-iugera holdings, only 500 original allotments would have necessarily been used in the formation of the 200 estates.

In the above estimates two points are crucial: the number and size of the original allotments and the hypothesis that no more than one-fifth of the total arable land was occupied by new larger holdings. If this latter figure can be assumed also to cover investment from outside (including acquisition through social as well as monetary forms), external pressures on the free peasantry of Cosa need have caused no decline in numbers at all, with a possible maximum of a 9 per cent decline (from 3,500 to 3,200 families). And it is important to remember that 70 per cent of the territory of Cosa had in 273 B.C. almost certainly remained unassigned. This hilly area, although most easily adaptable to grazing, will have provided a large safety-valve for agricultural expansion within the territory. Thus I think we must dismiss the possibility that the decline of Cosa's peasantry down to 199 B.C. was due mainly to expropriation in the development of larger holdings. The magistrates after all were keen to recruit more peasant smallholders; the pressing need of the hour appears to have been for manpower.

So how do we explain the decline? To take the case at its most serious, let us assume a decline from 3,500 to 2,500 families, that is of 30 per cent, over seventy-five years. Let us further assume that in peacetime (a rare situation?) the population of a Latin colony tended to replace rather than to increase itself.³³ Each year, then, Cosa faced a population decline of only 0.5 per cent, equivalent to a simple average of thirteen families. Taking seven seasons' military service as the norm before the Hannibalic War,³⁴ and assuming (generously) an average working life of thirty-five years, on average a fifth of the 'assidui' of Cosa will have been on campaign each year; that is, assuming 3,500 colonists, 700 men. This was presumably the average quota Cosa had to furnish even when her manpower was depleted. If we conjecture that the death of a smallholder on campaign had a one-in-four

³² Livy (29.15.5) says that in 204 B.C. the Roman Senate summoned to Rome the magistrates and the ten leading citizens ('principes') of each of twelve defaulting Latin colonies, which implies some previous socio-economic differentiation. After the Hannibalic War we can see the Roman state implanting this class differentiation ready-made into new colonies at their foundation, the evidence being Livy's accounts of the foundation of Copia in 193 B.C., Vibo Valentia in 192 B.C., Bononia in 189 B.C. and Aquileia in 181 B.C. (35.9.7-9; 35.40.5f.; 37.57.7f.; 40.34.2). Copia had 300 equites to 3,000 pedites, Vibo 300 equites to 3,700 pedites. At Copia and Vibo the equites received allotments twice the size of those of the pedites; at Bononia the equites received 70 iugera, the pedites 50 iugera; at Aquileia the equites received 140 iugera, the centurions 100, and the pedites 50. According to E.T. Salmon, *Roman Colonization under the Republic*

(1970), 25, larger allotments for equites only became normal after the Hannibalic War, but this is an argument from silence. The magisterial class had probably always had some economic privileges, although we can suppose that official recognition of what had become the customary scale of wealth-differentiation had lagged somewhat behind the actual development. The estimate of 6% (=1:16) for the wealthy class is derived from Polybius' figure (2.24.10) for the total Latin military manpower in 225 B.C.: 5,000 equites and 80,000 pedites.

³³ cf. P. A. Brunt, *Italian Manpower 225 B.C.-A.D. 14* (1971), 57: 'it looks as if there was little or no natural increase in the population of Latin cities after their foundations'.

³⁴ W. V. Harris, *War and Imperialism in Republican Rome 327-70 B.C.* (1979), 44, estimates a norm of six or seven.

chance of causing his family to abandon his allotment, we need only posit an annual casualty rate on campaign of just over 7 per cent to explain this demographic decline completely. Allowing for heavier losses during the Hannibalic War³⁵ would bring all these figures down considerably, as of course would assuming that the initial colonists numbered 5,000 families.

Thus it would seem that the decline of Cosa's smallholders from 273 to 199 B.C. can be explained largely as a 'natural' phenomenon in a closed militaristic society.³⁶ In this context the significance of the Hannibalic War should not be exaggerated. It has recently been argued that in the third and most of the second century B.C. we have no reason to think that the average 'assiduus' was particularly reluctant to serve,³⁷ and the Hannibalic War, perhaps because of its immediate necessity, appears not to have changed this attitude. The constantly declining number of 'assidui' must have meant that a greater proportion of them were serving increasingly frequently, and this will have had an impact long before Hannibal's invasion. Again taking seven seasons' service as the norm, a 6 per cent decline in the total manpower of Cosa would have forced the average 'assiduus' to serve for one extra season. The length of service may have reached a peak during the Hannibalic War, but—and this is the important point—it did not subsequently diminish significantly.³⁸ Thus the Hannibalic War appears to have been the high point in a lengthy demographic crisis but in no way the single biggest cause of the crisis.³⁹ Finally, it is dubious whether it had long-term effects on agriculture, for if the recruitment of new colonists authorized in 197 B.C. was successful, the 'ager Cosanus' in the first quarter of the second century B.C. should have contained much the same number and size of smallholdings as it had in 273 B.C.

Before discussing subsequent developments it is worth making a few more points about the agrarian pattern that had prevailed for almost a century in Cosa's territory. Whether the colonists' allotments were of eight or of sixteen iugera the peasants will have been chronically underemployed in the sense that they did not have enough land to keep them productively employed all year round. We may regard this underemployment in winter as largely unavoidable, but that during the rest of the year is significant for two reasons. Firstly, it helps to explain Rome's militarism, whether one would argue that the wars of imperialism stemmed from the need to remedy this underemployment (and hence poverty), or that the Roman nobles deliberately settled the lower classes on allotments that would leave them underemployed and dissatisfied so that they would be willing to fight the wars which the nobles decided to wage. Secondly, the larger estates which had probably grown up in the 'ager Cosanus' will have needed some casual labour, as will have building projects and so on within the city of Cosa. Although the 'assidui', true to peasant type, may have had limited production aims and have opted for leisure rather than trying to sell their theoretically surplus labour, they did not live in a moneyless economy, and themselves had monetary obligations, at least of a fiscal nature. It is probable that they found it easier to earn cash by selling their surplus labour than by creating an artificial surplus of food for sale. To sum up, it was the militarism inherent in Roman society—not the particular strain of the Hannibalic War, not dispossession by the richer classes—which caused through casualties a slow but steady decline in the number of smallholders, yet this same militarism provided a much needed and hence not unpopular source of secondary employment for the peasantry.

³⁵ cf. Brunt, *op. cit.* (n. 33), 84: this war 'had surely brought about a decline in Latin population at least proportionate to that of 17 per cent among Roman citizens, perhaps as much as 20 per cent, and probably greater'.

³⁶ Latin colonies were closed societies in that the recruitment of new citizens was outside their normal powers: Cosa, for example, required the Senate's special permission in 199–197 B.C. The obvious comparison here is the Spartan state.

³⁷ Harris, *op. cit.* (n. 34), 44–8. See too the conclusion of Skydsgaard, *op. cit.* (n. 6), 69–71, that recruitment under the Republic suggests that many of the rural poor found fighting a more attractive proposition than farming.

³⁸ In the second century B.C. the average 'assiduus' probably served for from twelve to fourteen seasons, Harris, *loc. cit.*

³⁹ One might compare the effect on English agriculture of the Black Death, which is estimated to have killed up to 50% of the population but even so was by no means the sole cause of subsequent developments; see, for example, E. Miller and J. Hatcher, *Medieval England. Rural Society and Economic Change 1086–1348* (1978), ch. 9, e.g. 240: 'even the fullest appreciation of the immediate and longer-term consequences of the Black Death does not necessarily mean that we must discount the effects of circumstances a generation and more earlier'.

I have dwelt at length on the society and economy of the 'ager Cosanus' which is implied by the colonization and recolonization because it provides the only standard against which we can measure any subsequent changes. In fact, granted the present state of our evidence, it is not possible to reconstruct independently the society and economy even of any part of the 'ager Cosanus' until we come to the villas of the Valle d'Oro in the mid-first century B.C. For the intervening period the evidence at our disposal can be summarized in three points: c. 180-140 B.C. most of the important public buildings at Cosa were erected; in 137 B.C. Tiberius Gracchus allegedly found coastal Etruria 'deserted' and farmed by imported slaves; in 87 B.C. Marius, landing at nearby Telamon, allegedly recruited about 6,000 free peasants.⁴⁰ This evidence is too ambiguous to explain the development from the situation in 197 B.C. to that in the mid-first century B.C. At best it can be presented so as to support one's preconceived interpretation of that development. However, it is possible that something more positive is to be gained from the field survey evidence for one part of the 'ager Cosanus', the Valle d'Oro, which Carandini has presented in three maps with a commentary.⁴¹

The first of these maps, entitled 'dal III al II secolo a.C.', shows forty 'piccoli insediamenti' which are described as being 'riferibili alle due assegnazioni di coloni a Cosa'. The second, entitled 'dal II secolo a.C. al II d.C.', shows ten small sites and seventeen villas. The third map shows the presumed territorial division of the Valle d'Oro between the twelve of these villas which flourished contemporaneously. Despite the various problems of interpreting a scatter of sherds, a drop of this magnitude in the number of small sites, allied with the apparently contemporaneous rise of the villas, is not without some statistical validity. Indeed it suggests that at some point in the second century B.C. there was a fairly sudden change in the mode of production from the peasant smallholding to the slave-staffed villa. But the problem of dating impedes easy acceptance of this hypothesis.

The basic reason for dating these small sites to the Republic is that they have produced black-glaze pottery, but the present limitations of this type of evidence mean that the majority of such small sites may only be assigned to 'the republican period', sometimes without guarantee that the site did not continue into the imperial era.⁴² Thus, although one cannot subject maps to the same close scrutiny as a site inventory, the chronological division between the first two maps, implicitly mid-second century B.C., seems somewhat uncertain. Of all the small sites on the first map only three were demonstrably occupied in the late third/early second century B.C. (see p. 17 above), and none of them can safely be conjectured to have been abandoned before c. 40 B.C. (and then only through their failure to produce Arretine ware). Similarly, it is certain that not all the villas in the second map appeared in the second century B.C.; Settefinestre, for example, was definitely built in the second quarter of the first century B.C. The third map also raises two doubts. Firstly, the complete absence of the small sites which one would expect to have been carried over from the second map. Secondly, the assignment of 500 iugera (= c. 125 ha.) to each villa by simple division of the total 1,500 hectares of arable land in this part of the Valle d'Oro. In the case of Settefinestre we have already seen that the internal evidence is consistent with an estate half that size. Thus it would seem that there is no valid archaeological reason for the chronological division between the first two maps or for the reconstruction of the

⁴⁰ F. E. Brown, 'Cosa II. The temples of the Arx', in *MAAR* 26 (1960), 43 f. *et passim*; Plutarch, *Tiberius Gracchus* 8; *Marius* 41.2.

⁴¹ Carandini and Settis, *op. cit.* (n. 8), Pannelli 5 to 7.

⁴² The average 'small site' in the 'ager Cosanus' is not prolific of material. To quote Dyson, *op. cit.* (n. 7), 259: 'The sample of datable material was generally small, often fewer than 10 sherds. Generally the condition of the sherds was poor making precise placement within the black-glaze chronology impossible'. Since hardly any Roman 'small sites' in the whole of Italy have been excavated for comparison with field survey results, it must be a matter of faith to claim that a site with say ten black-glaze

sherds and no Arretine was abandoned by the imperial era. For example, we should allow for fluctuating availability of any one indicator in both economic and chronological terms: a 'decline' in the number of sites with 'type A' pottery to the number of those with the later 'type B' could signify that 'type B' was less available (i.e. available for a shorter period of time or more expensive), not that there were really fewer occupied sites in the later period. On the other hand, the presence of both black-glaze and Arretine could mask a whole series of abandonments and reoccupations. At best this evidence provides dating parameters, not actual dates or even *termini post/ante quem*.

third map, and therefore that the archaeological evidence for a drastic change in the mode of agricultural production in the mid-second century B.C. falls considerably short of proof.

This is not to deny the overall trend to decline shown by the small sites. However, the picture is rather more complex. An overall decline can conceal important internal fluctuations.⁴³ More importantly, the tendency to equate 'large sites' with slave-staffed villas and 'small sites' with peasant smallholdings oversimplifies the problem. A peasant society normally contains many groups of different social and economic status,⁴⁴ and we need to be aware of these various possibilities and then to consider how they might be distinguished in the archaeological record. We might wonder, for example, whether the average peasant could afford sufficient imported fine-wares to make them a reliable indicator to us of his settlement, in which case the decline of the 'small sites' may reflect the fortunes of a 'kulak' class, not necessarily analogous to those of the average peasant. It is worth remembering that the 'ordinary' peasants of the third century B.C. left practically no archaeological trace; if it was fair to infer their presence from the centuriation and town walls, that is from a socio-political entity which had military need of their manpower, why should we not infer their presence in the mid-first century B.C. from the villas which had agricultural need of their manpower? I have argued that Rome's militarism caused her peasantry to decline (pp. 18-19 above): my point here is merely that although the rate of decline of small sites might superficially suggest a rapid dispossession of the peasantry it does not in fact prove it, and that it could be squared with a picture of gradual decline.

Thus the strongest archaeological evidence remaining for the displacement of the peasantry by large estates is the evidence for the slave-staffed villas. There are no grounds for doubting that the large estates of the mid-first century B.C. were larger than those of c. 200 B.C.: the key points are whether their aggregate extent was significantly greater, and whether the change was sudden or the result of a gradual development. It is unlikely that more than fifty slave-staffed villas ever flourished contemporaneously in the 'ager Cosanus', and assuming that they had an average of 250 iugera of arable land each⁴⁵ they will have occupied a total of 12,500 iugera, just over one-fifth of the total arable land. If my earlier estimate (p. 18 f. above) that by c. 200 B.C. Cosa had an upper class of some 200 families whose individual estates averaged fifty iugera is roughly correct, the expansion of the upper class estates was probably a phenomenon which largely happened within and affected only the holdings of the upper classes; that is, that the wealthy landowners declined in numbers while increasing their individual landed wealth.⁴⁶ This process will almost certainly have been gradual; the villa 'Monte Alzato 2' and that in the valley beneath Settefinestre date from at least the mid-second century.⁴⁷ In a gradual development, even if former peasant allotments were taken over, this need not have meant expropriation, granted that the number of peasant families probably continued to decline at the rate of 0.5 per cent per annum. Possibly some peasants had to move within the territory to permit concentration of holdings, but this is not expropriation from the land. Lastly, a chronological coincidence

⁴³ To take one example, out of Dyson's 68 type 'C' and 'D' sites which date to the Republic and/or early Empire, 31 date to the Republic only, 28 bridge both periods and 9 date no earlier than the early Empire. Thus the statistics of an overall decline from 59 to 37 small sites would conceal the demise of 9 Republican sites—but also the birth of 9 new sites in the early Empire, almost 25% of all the small sites in that period (calculations based on the summary list in Dyson, *op. cit.* (n. 7), 266-8; I am grateful to Professor Dyson for making available to me the more detailed inventory from which this list is taken).

⁴⁴ See, for example, A. Macfarlane, *The Origins of English Individualism* (1978), on mediaeval English peasants.

⁴⁵ This figure relates to my estimate for Settefinestre (p. 12 above). Settefinestre itself may have had a larger estate, but the visible remains of around fifteen other villas suggest it was one of the largest villas in the territory.

⁴⁶ The equites will always have had greater capability and inducements for emigration (especially to Rome) than the peasantry, and thus their numbers are more likely to have suffered drastic contraction. An internal agglomeration of landed wealth in most Italian cities is implied by the late Republican evidence for the emergence of a fairly high property qualification for decurions; see Duncan-Jones, *op. cit.* (n. 9), 147 and 243.

⁴⁷ Information kindly provided by M. G. Celuzza and E. Regoli. Two models of development are possible: (1) expansion of the original centre, as appears to be the case with the Via Gabina site 11 villa (see W. M. Widrig, 'Two sites on the ancient Via Gabina', in *Brit. Mus. Occas. Papers* no. 24)—in this category we should perhaps put 'Le Colonne', of which the visible remains date to the 60s B.C., but it occupies an intersection of the centuriation which suggests an occupation dating back to 273 B.C.; (2) change of centre—perhaps Settefinestre, built c. 70-60 B.C., replaced the earlier Republican villa in the valley below it as the centre of the same estate.

between the decline of smallholdings and the increase of villas cannot in itself provide a causal link. Thus it is in no way proven—at least in the case of the ‘ager Cosanus’—that ‘the rich could establish large estates in Italy only by the wholesale eviction of Italian peasants from their farms’,⁴⁸ and there are no grounds for believing in a sudden growth of large estates.

Finally, the problem can be examined in terms of labour: when and why the massive influx of slaves? If one assumes the existence of roughly one million agricultural slaves in Italy in the first century B.C.,⁴⁹ it is clear on any calculation that it will have taken a very long time to build up a stable stock of this size. Indeed slaves had been freely available to wealthy Romans from the beginning of imperialism. It has recently been computed, for example, that Roman annalists record the enslavement of over 60,000 enemies by the Romans in the brief period 297 to 293 B.C.,⁵⁰ and a large number of these slaves were surely used in agriculture. This consideration again points to a gradual development of the slave-staffed villa. If on the whole it is true that the number of peasant smallholders was in constant decline and that they were not being expropriated to make way for the large estates, it follows that the import of slaves was necessary to remedy an ever-growing labour shortage in the Romanized areas of Italy.

The concentration, however, on the cultivation of the vine and the olive demanded a heavy annual input of casual labour, which I have argued was usually provided by the local peasantry. This point has several important corollaries. Firstly, it was not in the interest of large landowners involved in the cultivation of the vine and/or olive to push the free peasantry out of their area. Secondly, because a large proportion of the total workforce necessary for the cultivation of these crops obtained its subsistence from land outside the estate, more of the land within the estate could be devoted to the cultivation of these cash crops (and thus landowners could have increased their income, without expanding their estates, through intensification, that is by changing to the cultivation of the vine and/or olive). Thirdly, the effect of this agricultural change on the aggregate labour productivity of the countryside was to increase it significantly—even the peasants entered something approaching maximum possible productive employment—without radically altering the type of work done, and in this sense too it was a refinement of, rather than a change from, the previous form of agriculture. The mode of production remained basically small-scale and intensive, although it became more efficient in terms of productivity of labour and cultivation of surplus produce. Furthermore, my view of the agrarian history of the ‘ager Cosanus’ between the third and the mid-first century B.C. would make this increase in efficiency a gradual rather than a sudden process.

It is now reasonable to ask how this picture of agrarian development which has been suggested by an economic approach to the problem fits with Roman political history. A few possibilities merit delineation. The picture is, I think, incompatible with any theory that tends to explain the development in terms of naked class warfare, that is as a straightforward example of direct exploitation of the economically and politically weak by the strong. At the other extreme one might argue that Roman politics and Roman agriculture operated as far as possible in closed worlds, in which case the development could be ascribed to ‘natural’ and largely internal factors, a not uncommon tendency among agrarian historians. Yet this approach also has its weaknesses; an obvious example is that the Roman Republic deliberately fostered throughout its territory a free peasantry primarily as the military backbone of the state, but also possessing theoretically supreme political power and with a strong ideology of moral superiority. It was this political choice of Rome’s leaders to use their own peasants as soldiers which made it necessary for them both to use slave-labour on their large estates and to develop a form of intensive farming which was compatible with a substantial peasant population. In the changed political climate of the Principate, with no important central elections and virtually no conscription in Italy, the

⁴⁸ Hopkins, *op. cit.* (n. 1), 4.

⁴⁹ Assuming that agricultural slaves comprised half of the two million slave population estimated for Italy in the first century B.C. by M. H. Crawford,

‘Republican denarii in Romania: the suppression of piracy and the slave-trade’, in *JRS* 67 (1977), 123.

⁵⁰ Harris, *op. cit.* (n. 34), 59.

political motives for this agricultural system withered away and Italian agriculture lapsed into largely extensive farming with a tied nominally free labour force. However, the agricultural environment also shaped these developments, and any plausible explanation of them must skilfully blend both external-political and internal-'natural' factors.

Finally, I should again stress that my view of agricultural development in the 'ager Cosanus' is no more than a hypothesis. I believe that it is in its essentials reasonably probable, but other possibilities cannot be discounted. And obviously this view could only be applied to other regions of Italy where an analogous agricultural development is known to have taken place. In southern Italy, for example, a trend from peasant smallholdings to extensive wheat-farming and ranching would require many changes of detail in the explanation. Still, construction of a complete new explanation was not my aim, and I hope that I have at least demonstrated that Roman agrarian history—and especially the old problem of the 'decline' of the 'assidui'—still remains very open to new approaches, and, in particular, that only economic analysis can provide criteria for distinguishing between the political and the 'natural' factors in the development of Roman agriculture during the Republic.

University of Aberdeen