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THE ROMAN VILLA RUSTICA IN ITALY

by

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A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
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THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "The Roman Villa Rustica in Italy", submitted by Jeremy J. Rossiter in partial fulfilment of the requirements for the degree of Master of Arts.

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ABSTRACT

Studies on the Roman villa rustica in Italy have generally been based on a combination of the literary evidence of the Roman agronomists and the archaeological evidence of a number of farm buildings excavated from the ash layers of Vesuvius during the 19th century or the earlier part of this century. However, excavations within the last twenty-five years have made available new evidence for Roman farm design of the Republican and Imperial ages in many regions of Italy.

This study aims to examine the villa rustica in the light of the more recent archaeological evidence, concentrating primarily on the physical aspects of the farms, with a view to establishing some basis for a study of Roman rural architecture. The complete range of rural buildings known from excavation is examined: small farmsteads like those found near Blera in Etruria and in the centuriated lands of Apulia; larger, compact and well-integrated farmhouses including the famous Villa Pisanella at Boscoreale and less-well-known farms at Camerelle in Calabria and Portaccia in Etruria; slave-operated farms without residential quarters, like the Gragnano farm in Campania, and the large and well-equipped country houses and mansions such as those excavated at San Rocco in Campania and Russi in Emilia-Romagna. The different architectural traditions, both Greek and Italian, which influenced Roman farm design, are discussed in detail. There is also an examination of the relation be-

tween farmhouse design and contemporary domestic urban architecture in Italy. Finally, there are appendices based on new archaeological material from Italy, dealing with specialized agricultural facilities such as oil and wine processing installations, granaries and stables.

I should like to express my thanks to Dr. A.M. Small

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ABBREVIATIONS

Boethius and Ward-Perkins ERA	A.Boethius and J.B. Ward-Perkins, Etruscan and Roman Architecture, Harmondsworth, 1969.
Carrington 1931	R.C. Carrington, 'Studies in the Campanian Villae Rusticae', J.R.S. XXI (1931), pp.110-30.
1934	idem, 'Some ancient Italian country houses', Antiquity VIII (1934), pp. 261-280.
Cato DA	Marcus Porcius Cato, De Agricultura. Ed. by R. Goujard, Paris: Les Belles Lettres, 1975.
Columella DRR	L.Junius Moderatus Columella, De Re Rustica , Ed. by H.B. Ash, Cam, Mass: Loeb Classical library, 1941.
Crova Edilizia	B. Crova, Edilizia e tecnica rurale di Roma antica. Milan: Fratelli Bocca, 1942.
Drachmann AOMP	A.G. Drachmann, Ancient Oil Mills and Presses. Copenhagen, 1932.
Frank ESAR	T. Frank, An economic survey of ancient Rome. Baltimore: Johns Hopkins University Press, 1933-40. 1959.
Palladius Op.Ag.	Rutilius Taurus Palladius, Opus Agriculturae. Ed. by R.H. Rodgers, Leipzig: Teubner, 1975.
Rickman Granaries	G. Rickman, Roman granaries and store-buildings. Cambridge: U.P., 1971.
*Rostovtzeff SEHRE^2	M.Rostovtzeff, A social and economic history of the Roman empire. 2nd. ed., revised by P.M.Fraser. O.U.P. 1957.

*Elsewhere in this thesis I have used the German form of the name, Rostowzew, which was used by the author for some of his early publications on villas in Italy (see bibliography).

Varro RR	Marcus Terentius Varro, Rerum Rusticarum libri III. Ed. by H.B. Ash. Loeb Classical Library, 1934.
Vitruvius DA	Vitruvius Pollio, De Architectura. Ed. by F. Granger. New York: Loeb Classical Library, 1931.
White RF	K.D. White, Roman Farming. London: Thames and Hudson, 1970.
FERW	idem, Farm equipment of the Roman world. Cambridge: U.P., 1975.

Periodicals:

AJA	American Journal of Archaeology.
AMSMG	Atti e Memorie della Societa Magna Grecia.
Bonn.Jahr.	Bonner Jahrbücher.
BSA	Annual of the British School at Athens.
CIL	Corpus Inscriptionum Latinarum
JRS	Journal of Roman Studies.
MA	Monumenti Antichi.
MAAR	Memoirs of the American Academy at Rome.
MEFR	Melanges d'archéologie et d'histoire (Ecole Française de Rome).
NSc	Notizie degli Scavi.
PBSR	Papers of the British School at Rome.
PP	La Parola del Passato.
Rend.Linc.	Rendiconti dell' Accademia Nazionale dei Lincei.

RPAA — Rendiconti della Pontifica Accademia Romana di Archeologia.

Röm.Mitth. — Mittheilungen des deutschen archeologischen Instituts Römische Abteilungen.

Introduction

The subject of the villa rustica in Italy is one which, like other aspects of antiquity, has gone in and out of fashion. To a large extent this pattern of interest has reflected the ebb and flow of a more general interest in Pompeiana since, until relatively recently, most of our knowledge of Roman farms in Italy was derived from a small group of excavated sites in the region south and east of Vesuvius, the so-called 'Campanian villae rusticae'. Towards the end of the nineteenth century, accompanying a flurry of excavational activity in and around Pompeii, several important works appeared in print, which described the excavations of a number of Roman farmhouses in this region. Foremost amongst these works was the volume by M. Ruggiero, Degli scavi di Stabia dal 1749 al 1782 (Naples, 1881). Also of great importance was a report of the now well-known farmhouse found at Boscoreale: A. Pasqui, 'La Villa Pompeiana della Pisanella presso Boscoreale', M.A. VII (1897). The excavation, in many cases only partial, of many other Campanian farms, which was undertaken around the turn of the century, was not however fully published until the 1920s when M. Della Corte produced a long series of articles dealing with these farms. Unfortunately much desirable detail, in particular on points of construction materials, is lacking from these reports.

By the late 1920s about forty of the Campanian farms had been published and it was then that English-speaking scholars first began to take an interest in them. The first was Rostowzew, who discussed the farms in his Social and economic history of the Roman empire (Oxford, 1926). This was followed by other articles dealing specifically with the Campanian farms, most notably R.C. Carrington's 'Studies in the Campanian villae rusticae', J.R.S. XXI (1931), and J. Day's 'Agriculture in the life of Pompeii', Y.Cl.St. III (1932). Later, after a lapse of some years, another important work appeared in Italian; this was a monograph by Bice Crova entitled Edilizia e tecnica rurale di Roma antica (Milan, 1942). Though not without limitations, this work did at least attempt a comparative analysis of nearly all the Campanian farms and included discussion of different kinds of agricultural facilities.

Since that time research on Roman farms has progressed little. A few works have appeared but generally these have merely reproduced the kind of analysis initiated by Rostowzew. J.E. Skydsgaard's monograph Den Romerske Villa Rustica (Copenhagen 1961) and K.D. White's discussion of farm buildings in his Roman Farming (London 1970) have added little to the picture.

One feature which nearly all the studies on the Campanian farms have in common is an almost excessive desire to relate the archaeological evidence for farms to the literary evidence contained in the works of the Roman agronomists. Thus the well-known Boscoreale farm has been repeatedly compared to the specifications of farm design given by Cato and his successors. But did Cato really have in mind a farmhouse like this? Should the literary evidence be used indiscriminately to interpret the archaeological evidence? Does, for example, a room located near an ext-

ernal doorway necessarily indicate the presence of a vilicus (overseer) regardless of whether the farm appears to have housed a large slave force which would have required a resident manager? Obviously the archaeological evidence should be held to comparison with the literature, but care must be taken not to bend it out of shape in order to vindicate the literature.

How then do I propose in this thesis to differ in an approach to the subject? Firstly it is necessary to define the limits of the study. I propose to deal in the main with the archaeological evidence, and shall use the literary evidence only sparingly, where it seems that this can illuminate an understanding of the archaeological material. Secondly I shall try to consider all the archaeological evidence available from Italy and shall if anything emphasize the non-Campanian material, in an attempt to balance the extreme bias which this has created in Italian villa studies. Over the years farm buildings have been unearthed in almost every region of Italy, but the reports of these excavations have for long remained sadly neglected. Thirdly I intend to concentrate primarily on the physical aspects of the farms, their design and materials of construction. A glance at any of the major works on Roman architecture will show how neglected has been the study of Roman rural architecture. Indeed the very idea of a style or styles of farm architecture has hardly been suggested. I is this, therefore, above all which I would wish to rectify.

Both Rostowzew and his immediate successors attempted to classify the Campanian farms into neatly packaged categories. This itself is dangerous, for, as we shall see, Roman farms display an almost infinite variety of designs, which reflect widely ranging influences, not least

of local tradition and personal taste. The farms discussed in this thesis have, however, been divided into groups, though it would be wrong to envisage any rigid or exclusive categorization. Sometimes, as in Chapter V, it has been possible to distinguish a group of buildings which have a common characteristic -- in this case the existence of slave cells -- but in the other four chapters the farms have been grouped by one main criterion, that of size. The smallest farmsteads have been discussed first, then the more comfortably apportioned single-structure farmhouses, and lastly the huge wealthy farm complexes.

Finally a word must be said concerning the use of the word "villa". J. Harmand ('Sur le valeur archéologique du mot "villa" ', Rev.Arch. 37 (1970),pp.155-8) has shown that the word was used relatively freely in antiquity to refer to any rural building, or even the land it occupied, much as the word "farm" is used today. The term "villa rustica", however, is used by the agronomists only to refer to that part of the whole villa which was given over to agricultural activities. Thus, strictly speaking, the Boscoreale farm should be called either by the Latin word "villa" or by the English word "farm", but not by the term "villa rustica", since this term can only be applied to a part of the building. On the whole I have tried to avoid the word "villa" altogether, prefering to use the word "farm". Small farms I have generally called "farmsteads", and larger farms with substantial residential quarters "farmhouses". I have, however, used the word "villa" in relation to the largest rural estates and their buildings, such as that at Russi in Romagna, since the word does have some connotation of magnificence, and seems more appropriate a word than "farm" to describe the luxurious rural mansions of the imperial period.

I. The Greek and Italic Background

The origins of Roman monumental and domestic architecture have often received attention. With the architectural form of the Roman villa rustica, however, this is not the case; there have been few attempts to collate the available records of excavated farm sites and even less discussion of the architectural traditions which influenced the form of the Roman farmhouse.[1] It has been demonstrated often enough how Roman domestic architecture owed its character both to Hellenic and Italic traditions, and we may perhaps expect the same to be true for rural architecture.[2] One of the main problems, however, which faces an enquiry of this nature is the scarcity and inconsistency of the material on which the enquiry must be based. Few Roman farm buildings in Italy have been excavated by modern, scientific methods; the plans and excavation reports which provide the archaeological basis for this study include those of buildings excavated more than fifty, or in some cases one hundred, years ago. Such reports frequently lack detail and deny the researcher important evidence. Nevertheless, from the material available it is possible to make some assessment of the origins of Roman rural architecture.

Greek farms in Southern Italy

In recent years, evidence has been accumulating for the type of Greek farmhouse that existed in the territorial chorai of the Greek cities of southern Italy. In the chora of the city of Metapontum, eight such farmhouses have been excavated, from a total of more than one hundred farm sites that have been identified.[3]

The most complete published plan of one of the Metapontine farms is that of a farm in the region of Lago del Lupo (Cat. 16. Fig. 1).[4] The rooms of the farm are arranged loosely around a central court, reproducing the αὐλη - οἰκια pattern, characteristic of numerous Greek farmhouses.[5] The court itself, like most Metapontine farms, was probably surrounded by a portico, creating in effect a central peristyle reflecting in character, if not in sophistication, the colonnaded courtyard of the Vari house in Attica (Fig.).[6] The walls of the farmhouse were constructed in rough stone, probably daubed with clay, over a socle of more carefully shaped and fitted stones. The distribution of the finds from within the different rooms of the farmhouse has yet to be published in detail. However, the variety of material has shown that this farm, like the other Metapontine farms, was probably both a working farm and a permanent residence.[7] Occupation of the farm last from the 6th century B.C. until the late 4th century B.C..

Comparable to the Metapontine farms is one excavated by Adamesteanu at Priorato, near Gela in Sicily (Cat. 23. Fig. 2). The central feature is again the courtyard, around which are arranged, more formally than with the farm at Lago del Lupo, a number of rooms, some

of which gave clear evidence of the use to which they were put. The ratio of yard area to room area is here considerably greater. At Lago del Lupo, the approximate areas of house and yard were in the ratio 275 : 35 sq. m. (approximately 8 : 1). The farm at Priorato, on the other hand, has a house to yard ratio of roughly 2 : 1. The courtyard here was presumably larger (c. 195 sq. m.) for practical reasons, perhaps to allow easy access for wagons, to load from the wine store situated on the south east side of the yard. The yard itself was paved with crushed stone and, like the Metapontine farms, was surrounded by a covered portico.

So far, only one of the south Italian Greek farms has revealed evidence of having incorporated a tower in its structure.[8] That the tower was a common feature of Greek farmhouses has been well established from archaeological, literary and epigraphic evidence.[9] Until further excavation has been carried out, it will be impossible to say how recurrent a feature of the south Italian farms the tower may have been. However, it is interesting to note that from the small number of farmhouses that have been excavated, one has already provided firm evidence for the existence of such a feature.

The two farmhouses described above have certain design features in common. Each contains an internal courtyard, a feature which recurs repeatedly in the plans of Greek farms.[10] The internal courtyard reflects the pattern of Greek domestic architecture, exemplified in the houses of Olynthus, where the courts were no doubt used for agricultural purposes, that is for the penning of barnyard animals and the storage of farm equipment.[11] However, the courtyards of the town houses at Olynthos do have a certain architectural sophistication which is lacking in the

more isolated farmsteads. There are some suburban houses, such as the "Villa of Good Fortune" at Olynthos (Fig. 12) or the "Dema House" at Athens, where the architectural refinements of the town houses are found in a semi-rural setting.[12] These houses both include a long cross-hall (παστάς), which adjoins the open court, in a pattern widely used in the houses of Olynthos. However, the Olynthian pattern of παστάς and courtyard has not yet been found in the context of an isolated farmstead. There is perhaps a faint reflection of it in the form of the colonnaded courtyard of the Vari house, which has a portico running the length of the building in front of the range of rooms at the back of the house. However, as the excavators of the Vari house have pointed out, there are several significant differences between this rustic portico and the Olynthian παστάς.[13] A look at the plan of house A 3 at Olynthus (Fig. 4), one of the few "complete peristyle" houses, shows the predominant position of the northern portico (e), which forms the παστας of the house.[14] In the porticoed farmyards, like those of the Vari and Priorato farms, there would seem to have been no such emphasis given to any one of the surrounding porticos. The simple porticoed courtyards of the farms may well illustrate the type of structure which served as the forerunner of the more refined peristyle and παστας of the Olynthian houses However, in the country, the form retained its rustic qualities and did not emulate the more refined designs found in the towns. In the south Italian Greek farms also, the courtyard with its surrounding porticos appears in a rustic form with no pretence to architectural sophistication.

The Italic Background

There is still much uncertainty surrounding the early development of a rural architecture among the tribal confederations of pre-Roman Italy. Although we have an increasing amount of information about the town architecture of peoples like the Samnites and the Etruscans, we know virtually nothing about the interrelationship of this and the architecture of their farms. Indeed, discussion of the latter has, for the most part, been based on negative evidence. A recent search for outlying farms in the Ager Veientanus led to the conclusion that "few were built of archaeologically durable materials", suggesting that while stone was in widespread use for town houses, the country farms were still being built of timber and mud-brick or reed.[15] This may well be explained by the nature of the rural structures, which were probably little more than shelters constructed for seasonal use by people who worked the land from the greater safety of their fortified towns and villages. The need, however, for further research in this area cannot be over-emphasized. A particular need arises for the selection and precise excavation of a number of rural sites, which from their surface material appear to date to the pre-Roman period, in order to identify the kinds of structures that existed.

In contrast to the negative evidence for a stone architecture in the countryside of pre-Roman Italy, excavation of town sites has provided some evidence for pre-Roman domestic urban architecture. Characteristics of early Italian domestic architecture have been revealed by the excavation of pre-Roman town sites like Etruscan Marzabotto and Samnite Pompeii. The most obvious of these are the arrangement of

impluvium and atrium and a tendency towards axial layout, seen in embryonic form at Marzabotto and in developed form in Pompeii by the 2nd century B.C.[16] By the 1st century B.C. these had become standard characteristics of Roman domestic architecture. As we shall see later, they also came to be a part of the repertoire of Roman rural architecture.

The theories concerning the origin of the atrium are of some relevance in considering the Italic origins of rural architecture. According to Patroni the atrium derived from a contracted farmyard adapted into an urban context.[17] This theory is not, however, supported by any archaeological evidence and Mau's theory that the atrium evolved from a hall with a central hearth and overhead smoke hole has been followed in this thesis.[18] As will be seen this has some significance in considering other features of rural architecture.

Thus there are architectural traditions, both Hellenic and Italic, from which the architect of the Roman farm could draw his inspiration. With the development of a widespread villa system in the 2nd century B.C., the need for functional and sometimes fashionable farm design increased. Diverse traditions existed which could provide models for a new type of rural architecture. On the one hand was the influence of Greek domestic architecture, reflected in the colonial farmsteads of southern Italy and, on the other, the traditions that had created the town house architecture of Etruscan Marzabotto or Samnite Pompeii.

Notes to chapter 1.

1. For a discussion of the bibliography, see the introduction.

2. On the origins of domestic architecture see for example: J.W. Graham, 'Origins and interrelations of the Greek house and the Roman house', Phoenix XX (Spring 1966), pp.3-31; A. Boethius, 'Remarks on the development of domestic architecture in Rome', A.J.A. 38 (1934), pp.158-170; idem, 'Hellenised Rome, Consuetudo Italica' in Boethius and Ward-Perkins, E.R.A., pp.159-162.

3. D. Adamesteanu, 'Le suddivisione di terra nel Metapontino', in M.I. Finley, Problèmes de la terre en Grèce ancienne, Paris 1973, pp.49-61; G. Uggeri, 'ΚΛΗΡΟΙ arcaici e bonifica classica nella ΧΩΡΑ di Metaponto', P.P. CXXIV (1969), pp.51-71.

4. The first mention of a site in the text will be followed by a catalogue number; this refers to the catalogue of farm buildings contained in Appendix 3, where a full bibliography of each site is provided.

5. J.H. Young, 'Studies in South Attica: country estates at Sounion', Hesperia XXV (1956), pp.122-146; J. Pecirka, 'Homestead farms in classical and Hellenistic Hellas', in M.I. Finley, op.cit., pp.113-147.

6. Adamesteanu, op.cit., p.56,('peristilio centrale'); J.E. Jones, A.J. Graham, L.H. Sackett, 'An Attic country house below the cave of Pan at Vari', B.S.A. 68 (1973), pp.355-452.

7. Adamesteanu, La Basilicata Antica, Rome 1975, pp.87-8.

8. In the Metapontine chora at Cassamassima al Campagnolo: Uggeri, op.cit., p.52, note 4. No plan has been published.

9. For the archaeological evidence see among others, J.H. Young, 'Ancient towers on the island of Siphnos', A.J.A. XL (1956), pp. 51-5; idem, op.cit., (note 5); J.H. Kent, 'The temple estates of Delos, Rheneia, and Mykonos', Hesperia XVII (1948), p.243ff; J.

Pecirka, 'Excavations of farms and farmhouses in the chora of Chersonesos in the Crimea', Eirene VIII (1970), pp.123-174. Epigraphic evidence from Delos in I.G. XI. 2. 287A, 142 - 74 (πυργον τεθυρωμενον). Literary evidence, for example, Demosthenes KATA ΕΥΕΡΓΟΥ 47, 53-6. For a more complete bibliography see Jones, Graham, Sackett, op.cit., p.437, notes 230-34.

10. See for example the plans of farmhouses reproduced in the article by Pecirka, op.cit. (note 5), pp.126-7.

11. D.M.Robinson and J.W. Graham, Excavations at Olynthus, Part VIII: The Hellenic House, Baltimore 1938; D.M. Robinson, Excavations at Olynthus, Part XII: Domestic and Public Architecture, Baltimore 1946.

12. The 'Villa of Good Fortune', Robinson and Graham, op.cit., pp.55-63. Plates 84-5; The Dema House, J.E. Jones, L.H. Sackett, A.J. Graham, 'The Dema house in Attica', B.S.A. LVII (1962), pp.75-114.

13. Jones, Graham, Sackett, op.cit. (1973), pp.431-2; differences include the number and design of the rooms behind the παστας, treatment of the floor, and the length of the colonnade.

14. Robinson and Graham, op.cit., p.73. Plate 89.

15. A. Kahane, L.M. Threipland, J.B. Ward-Perkins, 'The Ager Veientanus, north and east of Rome', P.B.S.R. XXIII (1968), p.71; cf. G.D.B. Jones, 'Capena and the Ager Capenas', P.B.S.R. XVIII (1963), pp.127-8, for similar conclusions; also E.T. Salmon, Samnium and the Samnites, Cambridge 1967, p.140, who suggests that Samnite houses were for the most part made of wood and "of a temporary, makeshift character".

16. G.A. Mansuelli, 'La casa Etrusca di Marzabotto', Rom.Mitth. LXX (1963), pp.44-62.

17. G. Patroni, Rend.Linc. XI (1902), pp.467-507; J.W. Graham, op.cit., pp.6-7; Graham is followed by A.G. McKay, Houses, Villas and Palaces in the Roman World, London 1975, p.17ff.

18. A. Mau and F.W. Kelsey, Pompeii, its Life and Art, New York 1899, pp.250-55; A. Boethius, ERA, pp.71-2,154.

II. Small Farmsteads

Although an increasing number of small farm sites have been identified from topographical surveys in various parts of Italy, very few of these sites have been systematically excavated.[1] For a knowledge of the architecture of the small farms of Roman Italy one has, therefore, to depend on information from a limited number of farm sites, which may be representative of a more general pattern. The farmhouses discussed in this chapter are all of an unsophisticated character, though they vary considerably in their architectural form. The size and quality of the buildings no doubt reflect the economic return of the farms and, accordingly, the area of the land holdings associated with them. We do not yet know nearly enough about the role that the small farm played in the pattern of land use, particularly to what extent it survived alongside the larger farm units of the Catonian type. There is, therefore, much need for the careful study and dating of small farmstead sites to help reconstruct the ancient landscape.

A very simple type of farmhouse is probably represented by the excavated site on Monte Forco in the Ager Capenas (Cat. 9. Fig. 5). Here were found the remains of a rectangular structure (10.95 x 5.10 m.), built in opus reticulatum with tufa quoins, which appears to date in origin to the late 1st century B.C.. By its relation to neighbouring

sites, it seems to have been the farm building of a small-holding of around five or six iugera, and it has been suggested by the excavator that this holding may be connected with the land distributions to Caesar's veterans after 46 B.C.. Although it may have originally been the farmhouse of an independent holding, it appears to have been converted into a barn in the 3rd century A.D., and this may imply the incorporation of the holding into a larger estate.

The Monte Forco site has a simple rectangular plan, but its restoration in elevation must remain uncertain. The thickness of the walls (0.47 m.) does not rule out the possibility that the building was of two storeys.[2] One only has to look at the evidence of wall-paintings and mosaics to appreciate the apparent ubiquity of simple two-storeyed farm buildings in the Roman countryside.[3] Of particular interest is a wall-painting from the house of the "Fontana Piccola" at Pompeii (Fig. 7).[4] This shows a rural scene in which are depicted two apparently rectangular two-storeyed structures. In both, it appears that only the upper storeys have windows, which implies that the ground floors were used for purely agricultural purposes (e.g. keeping tools, produce and animals), while the upper storeys contained the living quarters of the house. The farmhouse in the foreground of the painting has what appears to be a wooden balcony at first-floor level, and this may indicate an external staircase as a means of access to the upper rooms.

The rudimentary type of tower building seen at Monte Forco may also have existed within some of the farm enclosures detected by aerial photography in the centuriated landscape north-east of Lucera in Apulia.[6] If this could be shown by excavation, one might witness here in south

Italy type of arrangement of tower building and enclosure which, as J.H. Young has suggested, was a common feature of the Greek countryside.[7] The size of the enclosure seen in Plate IIIB of Bradford's article (36 x 36 m.) (Fig. 6) compares favourably with Young's Naxos I enclosure (35 x 35 m.), which contained a single circular tower structure about 10 m. in diameter. The enclosure was presumably designed to act as a fold for livestock, for which the six foot ditch of the Roman example, perhaps reinforced by fencing, would have served adequately. Many of the farms of the Luceran ager centuriatus, most of which is dated to the 2nd century B.C., were apparently ten iugera in size, though some earlier allotments may not have greatly exceeded the traditional two iugera plot, which represented the division of the centuria of 200 iugera into one hundred equal allotments.[8] The farm illustrated seems to have functioned on a mixed economy; immediately adjacent to it is a vineyard, while the enclosure functioned as a pen for livestock. This type of small farm unit with an enclosure and simple structure, perhaps of two or more storeys, which is seen in the centuriated plots near Lucera, may have been a common feature of other centuriated areas and, indeed, as a simple type of farm in small holdings throughout Italy.

A more substantial type of farmhouse, though one which is still simple in essence, is represented by two excavated sites in southern Etruria, in the region south and west of Blera.[9] Here two farmhouses, dating from the 2nd century B.C., have provided a clear picture of their original form. They are only two of a number of farms that have been located in this region, but the only two that have been thoroughly explored. They differ somewhat in plan and character, reflecting perhaps the difference in status of their owners. The simpler of the two is the

Villa Sambuco (Cat. 26. Fig. 9). The modest remains suggest that the owner was a man of humble means, and it is possible that the occupant of the farmhouse was a tenant farmer of a larger estate. This certainly was the opinion of the excavator, although it seems equally likely that we are here dealing with a small independent farmstead whose owner worked a small land holding around the building. The rooms of the farmhouse were arranged around a central "corridor". The northern rooms were storerooms, leaving the southern range of rooms for domestic use. The proposed restoration of a tower for Room 10 seems doubtful, given its limited dimensions (only 4 feet in width). Surely a tower of this width would not serve a useful function "for defence"?[10] The existence of a second storey over part of the house is a more realistic possibility. The central "corridor" of the building - the space between the north and south ranges of rooms - may have been enclosed under a pitched roof, as proposed by the excavator, but was more probably left open as a small courtyard. If the end rooms here were roofed, this would still leave a total court area of 41.8 $m.^2$ (3.8 x 11.0 m.).[11]

The other excavated farmstead in the region of Blera, the Villa Selvasecca (Cat. 33. Fig. 11) is a more elaborate structure than the Villa Sambuco, but nevertheless it retains a rustic character. The plan of the farmhouse is in the form of a square (36.0 x 35.5 m.) with rooms arranged around a central peristyle and court. The architecture of the building and the materials of construction reveal the owner's intention of providing himself with a house which was both a functional farmhouse and a comfortable, though not opulent, dwelling. The peristyle and court were constructed with care, and the materials employed - the squared tufa paving stones of the court, and the stone columns and Doric

capitals of the peristyle - argue against the supposition that the court was used for strictly agricultural purposes, such as penning livestock. Most of the agricultural activity within the farmhouse seems to have been concentrated in the northern and eastern wings. The long outer room on the north side of the building was probably a barn or stable, having access directly to the outside through one large or two small separate doorways.[12] The discovery at the Villa Selvasecca of a workshop for the manufacturing of roof tiles revealed one aspect of the villa's economy. This, at any rate, was the interpretation given by the excavator to the various stone-cut basins and moulds found in the rooms on the north side of the house. Other finds from these rooms included fragments of dolia and amphorae, and the bases of presses. The south-west corner of the farmhouse contained rooms for domestic use. Here, traces of painted wall-plaster and of white mosaic indicate that the residential part of the villa did not lack interior decoration, although it is possible that some of the decorative features were added after the original occupation of the house in the mid-2nd century B.C.. The villa's life extended into the early imperial period, and the domestic quarters are unlikely to have escaped redecoration.

The construction techniques and materials used in these two Etrurian farmhouses were similar. Each had a socle of squared blocks, quarried locally, which would have supported a superstructure of plastered mud-brick. In the Villa Selvasecca, it appears that the mud-brick was held in a framework of timber. In order to support this framework, a series of holes were drilled at intervals into the flat top surface of the tufa socle, a building technique which is found in Etruscan buildings of an earlier period.[13] The width of the walls (c. 0.50 m. at

both sites) indicates the load-bearing potential for a second storey, though there was no further indication that such existed in either case. Both roofs were tiled with terracotta tegulae and imbrices.

The plans of these two 2nd century farms in Etruria reveal a clear debt to the domestic architecture of the Greek world. In the plan of the Villa Selvasecca, there is more than a reflection of the Olynthan house type; there is a reproduction in a totally rural context of many of its architectural features. Compare, for example, the plans of the Villa Selvasecca and the "Villa of Good Fortune" (Figs. 11 and 12) at Olynthus.[14] In each case, the peristyle is placed more or less centrally, only nearer to that side of the house on which the main entrance lies. This entrance is similarly sited and designed in both houses. The doorway is set back from the front wall of the house, creating a small porch in front of it (πρόθυρον). A connection can also be seen in the treatment of the peristyle flooring. Unlike the Vari house, where the paving of the court extends under the surrounding porticos, in the Villa Selvasecca and the "Villa of Good Fortune" the central and exposed area of the peristyle is given a paving which stops at the colonnade.

The plan of the Villa Sambuco also corresponds to some extent to the Olynthian house type.[15] The long "corridor" (Fig. 9,5) which divides the northern and southern ranges of rooms, and which may have been in the form of an open court, reminds one of the Olynthan παστάς which generally extended across the house in front of the northerly range of rooms. A close resemblance can be seen between the plans of the Villa Sambuco and the South Villa at Olynthus (Fig. 10), particularly in the relative dimensions of house and "corridor".[16]

More evidence for the architecture of the small farm comes from

Campania. Of the many farms that have been excavated in this region, two in particular stand out by virtue of their relative simplicity and the essentially "rustic" character of their design and construction. One of these is the Posto villa at Francolise (Cat. 22. Fig. 13), which in its earliest phase dates to the end of the 2nd century B.C.. At this time, the building had an unpretentious and highly functional aspect. The lay-out was in the form of a large walled courtyard, round which were ranged, on three sides at any rate, the farm buildings. On the west side of the yard stood a roofed portico, which perhaps served as a stable for cattle or other animals. That the farm's economy was in part based on the rearing of livestock is suggested by the size of the yard (532 $m.^2$ approx.), in which herds or flocks could easily be penned. The living quarters of the farm were apparently along the north side of the yard, where the remains of two rooms with opus signinum floors were found. Here some indication is given of how the building was constructed in elevation. Above a socle of squared tufa blocks the walls were made of limestone rubble packed into a timber framework (opus craticium), a technique somewhat similar to that used in the Villa Selvasecca (above, p.18). The roof of the Posto villa was probably in the form of a lean-to, a fact suggested by a vat, or water-tank, situated as if to catch water running from the roof. The lay-out of the Posto villa bears some relation to the type of "enclosure farmhouse" which we have encountered in Apulia and which, we have suggested, may derive from the "enclosure-and-tower" arrangement found in numerous Greek farms. In the Posto villa, we find not a tower-like structure, but a range of rooms devoted to different agricultural and domestic functions. Rather than a building with an en-

closure, we see the enclosure and building incorporated into an integrated unit. The villa remained in its original form for about fifty years, but around the middle of the 1st century B.C., it was reconstructed and enlarged, probably indicating a change of ownership. Perhaps the capacity of the farm had to be increased to meet the requirements of a larger land holding.

An equally unpretentious farmhouse is that excavated in 1903 near the railway station at Boscoreale near Pompeii (Cat. 4. Fig. 14). Its rooms "semplicemente intonacate con scarse suppellettili" and opus signinumfloors indicate its unsophisticated character.[17] The farmhouse was designed primarily as a functional unit and incorporated only modest living quarters. Most of the rooms in the building were used for the production or storage of agricultural produce. It is interesting to observe that the largest room in the farmhouse is the kitchen (No. 8 on the plan). This recalls Varro's claim that in the old-fashioned and simple type of farmhouse, a good kitchen was a primary feature.[18] It also adds weight to Mau's belief that the atrium, which became the principal room of the Roman town house, had its counterpart in the farmhouse kitchen with its central hearth. When, in an urban context, the atrium lost its central hearth, it also lost its original function. The kitchen in the town-house never regained its importance, but was arbitrarily accommodated.[19]

Storage facilities were spread throughout the farm. No doubt use was made of the long barn (No. 13) for this purpose, as well as rooms 3 ("tettoia con dolia") and 7 (horreum). All these rooms have direct access to the outside, on that side of the farmhouse which faced the country.[20] This would mean that carts could load and unload

right at the door of the store-rooms.

The excavation showed signs of a mixed farm economy. In room 2 were found the remains of a small wine-press. Such presses could not have been cheap in antiquity, and a privately-owned press such as this one suggests that the owner of the farm must have had reasonable returns from the sale of his wine, some of which was apparently sold on the premises (reducing transportation costs). In addition to producing wine, the farm reared sheep and chickens, while the long barn may have been used for stabling larger herds of livestock.[21] The location of the sheep-pen next to the kitchen recalls Vitruvius' and Varro's instructions that the warmest part of the house, that part nearest to the kitchen, should be used to stable livestock (both authors recommend cows, however) (Fig.14,10 and 11).[22]

The date of the Boscoreale Stazione villa was not scientifically established by the excavator. The plan appears to be of an integrated structure, and suggests a single building phase. Della Corte describes the building as "very similar" to another farmhouse in the same region (Cat. 2), which was constructed in opus incertum, and it is possible that this similarity included a likeness in building technique.[23] If so, the farmhouse may date from the early part of the 1st century B.C., perhaps from the period following the establishment of the Sullan colony in 80 B.C..

The small farmsteads discussed above display a considerable variety of architectural form. They are too few in number to draw firm conclusions about regional style, though probably this played an important part in their design. The farms have all been dated to the 2nd or 1st centuries B.C., though most seem to have had a considerable

length of occupation, lasting into the imperial period. The influence of Greek domestic architecture is seen most significantly in the plans of the two Etrurian farms, while in the south of Italy the Greek type of "enclosure farm" may be seen reflected in the Roman farmsteads around Lucera and at Francolise. Italic traditions also can be seen, particularly in the predominance of the large rustic kitchen, as in the Boscoreale Stazione farm, which probably retains the kind of simple arrangement of hearth and hall from which the atrium house originally evolved.

Notes to chapter 2.

1. The major work in Italian is the series of topographical studies published by the Istituto di Topografia Antica dell'Università di Roma, under the title Forma Italiae. In English the pioneering studies by John Bradford remain of great value, though the results of related field work have yet to be published; J. Bradford, Ancient Landscapes, London 1957; idem, 'Siticulosa Apulia', Antiquity XX (1946), pp.191-200; idem, 'Buried landscapes in southern Italy', Antiquity XXIII (1949), pp.58-72; idem, 'The Apulian expedition: an interim report', Antiquity XXIV (1950), pp.84-95. Other studies of rural settlement include: G. Duncan, 'Sutri - notes on southern Etruria - 3', P.B.S.R. XIII (1958), pp.63-134; G.D.B. Jones, 'Capena and the Ager Capenas' (2 parts), P.B.S.R. XVII (1962),pp.116-207, XVIII (1963), pp.100-158; A. Kahane, L.M. Threipland, J.B. Ward-Perkins, 'The Ager Veientanus, north and east of Rome', P.B.S.R. XXIII (1968); D. Scagliarini, Ravenna e le ville romane di Romagna (Coll. quaderni di antichità Ravennati, No. X), Ravenna 1968; P. Vinson, 'Ancient roads between Venosa and Gravina', P.B.S.R. XXVII (1972), pp.58-90.

2. For a discussion of the load-bearing abilities of mud-brick walls see Jones, Graham, Sackett, op.cit., pp.425-7, 438-40, where the authors point out that "a very common unit for the socles of mud-brick house walls was a width of 0.40 - 0.50 m., that is, one cubit or a foot and a half on almost any Greek standard; and Vitruvian precept (II.8.17.) and modern examples suggest that this would support one upper floor, but no more". It is interesting to note that Jones, while virtually rejecting the idea of a second storey for the Monte Forco farmhouse (wall width 0.47 m.) is nevertheless quick to compare a similar structure on Monte Cuculo (Site No. 204) (wall width 0.40 m.) with the "tower-like" structures depicted in wall-paintings and mosaics.

3. The African mosaics on which numerous farm buildings are depicted have been studied by T. Precheur-Canonge, La vie rurale en Afrique d'après les mosaïques (Publications de l'Université de Tunis), Paris 1962, who suggests that most of the small structures that appear on the mosaics are probably the dependent outbuildings, barns, granaries, dovecotes etc., of large villas. Two-storeyed, tower-like structures appear on a number of mosaics such as the one illustrated here (Fig. 8), from a Ist. century A.D. villa at Zliten in Tripolitania (S. Aurigemma, Italy in Africa: archaeological discoveries 1911-1943. Vol. I. Part I, Rome 1960, Plate 125). The building depicted here (upper left) has a distinctly North

African character, which probably derives from the architecture of Hellenistic Egypt, and which manifests itself in late Roman Africa in the form of the gasr, a type of fortified tower; S. Stucchi, Architettura Cirenaica, Rome 1975, pp.518-20.

stowzew SEHRE, p.65, Plate X.I; idem, 'Die hellenistisch-römische hitekturlands haft', Röm.Mitth. XXVI (1911), p.95, Plate XI.I; nach Répertoire de peinture Grecque et Romaine, Paris 1922, N .

5. For a list of the torial representations of tower-like buildings ly see P. Gr , 'Les maisons à tour Hellénistiques et Rom- a. .F.R. (193), pp.28-59. In particular section B - IIe série 4-8.

6. Bradford, op.cit. 949), pp.58-72, especially plates IIIa and b; E.T. Salmon, Roman colonisation under the Republic, London 1969, Plate 6.

7. J.H. Young, 'Studies in south Attica: country estates at Sounion', Hesperia XXV (1956), pp.122-146; cf. Pecirka, op.cit. (1973), pp. 124-5.

8. A. Toynbee, Hannibal's Legacy.Vol.II, Oxford 1965, p.563ff; M.W. Frederiksen, 'The contribution of archaeology to the agrarian problem in the Gracchan period', Dialoghi di Archeologia II - III (1970-1), pp.343-4. For the traditional 2 iugera plot, E.T. Salmon, op.cit., p.168, note 21, with a list of ancient sources. For the subdivision of centuriae in general, O.A.W. Dilke, The Roman Land surveyors, Newton Abbot 1971, pp.93-6.

9. E. Berggren, 'A new approach to the closing centuries of Etruscan history', Arctos V (1967), pp.29-43. A third villa (Villa Conserba) was excavated in the same region, but no excavation report has yet appeared. E. Wetter, in Etruscan culture, land and people, p.181ff.

10. C. Ostenberg, 'Luni and villa Sambuco' in Etruscan culture, land and people, Malmo 1960, pp.317-8.

11. Compare the farm at Lago del Lupo in the Metapontine chora, discussed in chapter I, where the central court measures 8.3 x 4.5 m., giving an area of 37.4 sq.m..

12. For comparative storage rooms and barns see below, Appendix B.

13. Berggren, op.cit., p.33; K. Hanell, 'San Giovenale: the Acropolis' in Etruscan culture, land and people, p.301.

14. Robinson and Graham, op.cit., pp.55-63. Plates 84-6.

15. Typified by house A. VII. 4. at Olynthos; Robinson and Graham, op. cit., p.141ff.

16. Robinson, op.cit., pp.259-63. Plate 222. The dimensions correspond closely:

	House	Corridor
Sambuco	22.6 x 17.3 m.	15.0 x 3.8 m.
South villa	21.1 x 17.0 m.	14.8 x 3.1 m.

17. Crova, Edilizia, p.44.

18. Varro, R.R., I. XIII. 2, I. XIII. 6 ('illic laudabatur villa si habebat culinam rusticam bonam - in those days a farm was thought highly of if it had a good rustic kitchen'); cf. Columella, D.R.R., I. VI. 3 ('at in rustica parte magna et alta culina ponetur - and in the agricultural part of the house there should be a large kitchen with a high ceiling').

19. Mau - Kelsey, op.cit., pp.253-4, 266-8.

20. Crova, Edilizia, p.43, Fig.1 (A^1), calls the entrance into room 3 'ingresso verso la campagna'.

21. Sheep in rooms 10 and 11; Della Corte, N.Sc.1921, p.439; chickens according to a graffito found in the farmhouse (C.I.L. IV. 6873); the existence of three doors into the barn suggests that it may have been divided internally with wooden fencing so that part of it could be used for stabling and part for storage.

22. Varro, R.R., I. XIII. I; Vitruvius, D.A., I. VI. I.

23. Della Corte, N.Sc.1921, p.436; ibid, pp.423-6; Crova, Edilizia, p.45, simply refers to the farm as 'Republican'.

III. Farm and House

Central to a study of the villa rustica in Italy is the type of farm building which combines in an integrated structure the functional requirements of both a working farm and a fashionable residence. This type of farm building is well represented by excavated examples in Italy, though the lay-out of the different farms varies considerably, according to local tradition, personal taste and the type of agriculture practised. The combination of working farm and residence suggests that these farms were occupied by their owners for most of the year, if not permanently, and run as family concerns. The capital outlay on the agricultural facilities of the farms is matched by expenditure on the residential quarters. There can be little doubt that the owners of these farms were wealthy men, and it seems reasonable to suppose that their wealth, from wherever it may have derived, was maintained by the efficient running of their farms.

The locus classicus of this type of farmhouse is the famous villa rustica at Boscoreale Pisanella (Cat. 3. Figs. 16 and 17). Excavated towards the end of the 19th century, the farmhouse has been frequently discussed, for example by Mau, Crova and White.[1] Attention has been focused on the arrangement and relationship of the different rooms of the farm, and on how this corresponds to the recommendations

given by the various Roman writers who discuss farm buildings. Day has attempted to calculate the size of the farm on the basis of the storage facilities within the excavated building.[2] Only Crova has observed that the Boscoreale farmhouse is remarkably similar in design to another farmhouse excavated around the same time at Boscoreale (contrada Giuliana) (Cat. 1. Fig. 15).[3] The similarity is unlikely to be coincidental, considering the proximity of the two farms, and one may suppose that either the one directly influenced the design of the other, or that both reflect a local tradition of farm design which may have been echoed in several farmhouses in the same region. It seems appropriate therefore to discuss these two farms together.

The central feature of each is an open court which, to some extent, separates the domestic and agricultural quarters of the farms. The former are ranged together behind a portico. In each case, the prominence of the kitchen is noticeable (Fig. 15, K; Fig. 16, H), recalling the precepts of Varro and Columella.[4] The other major room of the residential area is the triclinium (Fig. 15, B; Fig. 16, C). In both houses, the walls of this room were decorated with painted plaster. Many fragments of the paintings from the Villa Pisanella are now in the Field Museum of Natural History in Chicago.[5]

The rooms devoted to the needs of agriculture occupy the larger part of the farms. Largest of these in each case is the storage room for wine and oil (the cella vinaria or olearia: Fig. 15, G; Fig. 16, Q). This contained numerous dolia, set into the ground, which served as fermentation vats for the wine, or storage jars for oil. Close to the storage rooms are the press-rooms (Fig. 15, H; Fig. 16, P and T), containing lever presses and more dolia used as receptacles for the

grape-juice or oil. The absence at both farms of rectangular settling tanks, found at numerous other farms and associated with the processing of olive oil (see below, Appendix A) seems to indicate that at these Boscoreale farms the main product was wine and not oil. The Villa Pisanella must have processed some oil to judge from the presence of a second smaller press-room and adjoining milling-room (Fig. 16, T and U), and the oil was probably allowed to settle in the collecting vessel beside the press (Fig. 16, T) and then transferred into the dolia store.

That both these farms produced grain is evident from the presence at each of a threshing floor (Fig. 15, T; Fig. 16, Z) and barn. In the one case (Fig. 15, V), the identification of the barn seems certain. It is placed at a distance from the main farm building as a precaution against fire, and is conveniently placed next to the threshing floor (Varro, R.R. I.13.5).[6] The room immediately adjoining the threshing floor of the Villa Pisanella (Fig. 16, V) may also have been a barn (nucleatum). It contained fragments of bean-straw and parts of a wagon.[7] Over this room, and extending over the east corner of the building, was an upper storey, which may have been used as sleeping accommodation for some of the farm's personnel, or as storage space for dry products. An upper storey also existed over part of the portico, to the south-west of the courtyard and here, in view of its proximity to the residential rooms of the ground floor, were probably the owner's sleeping rooms. There is no reason to suppose that the upper storey here housed a room for a vilicus.[8] In fact, the association of this farm, where the management was probably in the hands of the owner and his family, with the Catonian type of slave-run farm under the control of a slave manager - such as Brehaut makes[9] - is surely incorrect. It will be seen later

(below, Chapter 5) that the capitalist enterprise, with its slave-gangs and slave manager, required a different sort of architecture.

Another farmhouse which, although only partially excavated, appears to have had a character similar to these Boscoreale farms is one near Civitavecchia in Etruria (Cat. 18). Identifiable in the north-west corner of the building are a large kitchen and an adjacent bath suite. The latter forms part of a major reconstruction of the farmhouse around the middle of the 1st century B.C.. The location of the bath next to the kitchen is similar to the arrangement in the Villa Pisanella at Boscoreale.[10] The farm may have had an internal court and portico, judging from the scattered remnants of what appear to be stone pier- or column-bases. The north-east wing of the building perhaps contained the working farm. As has been noted above, a large barn stood apart from the farmhouse, and this may indicate that cereal crops were an important product. However, the archaeological evidence is insufficient to assess the agricultural functions of the farm.

What are the architectural traditions behind the design of this type of farm, and how does this rural architecture of the late Republic correspond to the domestic architecture of the same period? Firstly, there appears to be a faint echo between the design of the Boscoreale farms and the domestic architecture of the Greek world, perhaps suggesting a survival of Greek traditions in Campania. This reflection is seen in the arrangement of the court, portico and residence, which is reminiscent of the layout of many of the Olynthan houses (cf. Fig. 12). The portico of the Roman farms fulfil a function similar to that of the Greek παστάς, lying between the range of domestic rooms and the court. Like the παστάς, the portico generally lies on the northerly side

of the court, as in the Villa Pisanella (Fig. 16) and in other partially excavated farmhouses in the region south of Vesuvius, such as those in the contrada Spinelli (Cat. 31) and contrada Minutella (Cat. 36). Where the portico extends around a second or third side of the court, the northern part of it retains a position of predominance, as in the case of the Greek παστάς/peristyle houses (Fig. 4 and 12). A second feature of the farms is their large kitchens, which occupy a position of importance in the living quarters. This is evident not only in the two Boscoreale farms, but also in other farmhouses in the vicinity, such as the one in contrada Spinelli, mentioned above, and in another in contrada Crapolla (Cat. 30). These kitchens, as has been suggested above, probably represent the survival of an older rural architecture, comprising a hall with central hearth and open roof, an arrangement which had by now been adapted and assimilated into the vocabulary of domestic town architecture in the form of the town-house atrium.

'ssing the plans of the Boscoreale farms, R.C. Carrington sugge 'this type of farmhouse shows no trace of having been influenced by the plan of the town house".[11] By this, one may suppose that he means that these farms lack the principal features and characteristics of contemporary urban dwellings, such as their axial arrangeme the developed atrium and tablinum. Certainly, these features are co :uously absent in the Boscoreale farms. However, there are other farmhouses, some of them contemporary, in which these features of the town house do appear. One of these is the farmhouse at Camerelle in Calabria (Cat. 9. Fig. 18). The house was built around a central peristyle, and preserves in its plan some degree of axial symmetry. To the west of the peristyle was a room (Fig. 18, F) which may have been an

atrium. Its central feature was described by the excavator as an impluvium, though she suggests that this area was possibly an open court.[12] The function of each of the other rooms of the farmhouse was not established with certainty, though it does appear that the rooms to the north of the peristyle were for the most part used for agricultural purposes. A press-room in this part of the farm (Fig. 18, X) probably contained two presses, while in another room (Fig. 18, H) a second press and fragments of dolia were discovered.[13]

There are several other farmhouses which include an atrium and impluvium in the idiom of town house architecture. These include a farm at Vittimose, near Buccino (Cat. 41), one at Gragnano (Cat. 13) and one excavated near the Via Tiberina in the vicinity of Rome (Cat. 38). The dates of these atrium/impluvium farmhouses show an interesting range; the Camerelle farm dates from the 1st century B.C., and the Via Tiberina farmhouse is ascribed to the same century. The Gragnano and Vittimose farms would seem both to belong to the 1st century A.D..[14] However, another atrium farmhouse, excavated at Salapia in Calabria (Cat. 27) can be dated at least to the early second century B.C.. Carrington's claim that "in the first century A.D., as the influence of the town house grew stronger, the atrium too found its way into the country" needs to be revised;[14] the atrium in fact appears in farmhouses of an earlier period and was evidently a feature of farmhouse architecture of the Republican as well as the Imperial period.

An architectural concept similar to that at Camerelle can be seen in a poorly recorded farmhouse at Portaccia near Tarquinia (Cat. 21. Fig. 19). Here again, the building is characterized by its axial plan, with a centrally placed peristyle and entrance. Though a detailed report

of the excavation is lacking, it appears that a kitchen and perhaps other domestic rooms existed to one side of the peristyle, while on the other there was a long room (c. 6 x 20+ m.) which contained fragments of storage jars and may have served as a storage barn. Better preserved, and similar in some respects, is the villa of Publius Fannius Sinistor at Boscoreale, published by Barnabei in 1901 (Cat. 5. Fig. 20), dated to the mid 1st century B.C..[15] This villa was unfortunately only partly uncovered, but the exposed area shows an arrangement whereby the rooms are ranged around three sides of a peristyle. An axially placed tablinum (Fig. 20, L) faces the peristyle from the north. On this side of the peristyle, and also partly to the east, lie the residential rooms of the owner. The rest of the east side is occupied by domestic rooms which may have included the accommodation for the household slaves. On the south side of the peristyle, and to the west of the main entrance, was an agricultural installation (Fig. 20, 24), which contained at least two presses (there are no published details). The farm may have extended further south on either side of a court (Fig. 20, A), for there was here, to the east, part of a large barn or storage shed.

The atrium/ impluvium farmhouses and the axially designed peristyle farms display many of the characteristics of contemporary town house architecture. In this respect, they contrast with the Boscoreale farms which we have examined. Indeed, there seem to be two distinct architectural genres, two kinds of rural architecture, of which Vitruvius, writing at the end of the 1st century B.C., was clearly aware. Having outlined the requirements of the villa rustica, he advises (VI.6.5) that a farmhouse designed to include some of the architectural elegance of a town house be built according to the symmetrical canons of the

latter:

> si quid delicatius in villis faciendum fuerit, ex symmetriis quae in urbanis supra scripta sunt constituta, ita struantur, uti sine impeditione rusticae utilitatis aedificentur.

For Vitruvius, then, a farmhouse may be built with some of the characteristics of urban architecture, but clearly this is an option. At least as early as the mid 1st century B.C., and probably earlier, this option was being adopted in some farm architecture.

Notes to chapter 3.

1. For a full bibliography of this, the best known of the Campanian villae rusticae, see Appendix C.

2. J. Day, 'Agriculture in the life of Pompeii', Yale Classical Studies III (1932), p.180ff. His estimate of ca. 100 iugera is very suspect. It presupposes that all the dolia were filled to capacity each year, which may not have been the case. The estimate also excludes the possibility of further (unexcavated) storage facilities. Day's calculations are rejected by Frank, E.S.A.R. V, p.172, p.264f, who lowers the size of the estate to 10 - 15 iugera, and by R. Duncan-Jones, The economy of the Roman Empire, Cambridge 1974, p.45, note 3; also cf.P. Castren, Ordo Populusque Pompeianus, Rome 1975, p.53.

3. Crova, Edilizia, p.77.

4. See chapter 2, note 18.

5. H.F. De Cou, Antiquities from Boscoreale in the Field Museum of Natural History, Chicago 1912.

6. Vitruvius, D.A., VI. VI. 5 ('Horrea, fenilia, pistrina extra villam facienda videntur, ut ab ignis periculo sint villae tutiores - granaries, hay-lofts and bakeries should be away from the farmhouse, so that the houses are safer from the danger of fire'); for example the barn of the late Republican farm at Monna Felice (Cat. 18. Fig. 18), which is at a good distance from the farmhouse.

7. White, R.F., p.425. The word nubilarium literally means a shed or barn in which to store corn out of the rain. Varro, R.R., I. XIII. 5 ('Id secundum aream faciendum, ubi triturus sis frumentum, magnitudine pro modo fundi, ex una parte apertum, et id ab area, quo et in trituram proruere facile possis et, si nubilare coepit, inde ut rursus celeriter reicere - it (sc. the shed) should be built next to the threshing floor, of a size in proportion to the farm, open on the side facing the threshing floor, so that you can easily throw out the corn for threshing and, if it begins to get cloudy, throw it back in again in a hurry').

8. Thus White, R.F., p.425.

9. E. Brehaut, Cato the Censor on farming, New York 1933, p.30.

10. Vitruvius, D.A., VI.6.2. ('Balnearia item coniuncta sint culinae - the bathroom should be next to the kitchen').

11. Carrington, 1934, pp.261-280; idem, Pompeii, Oxford 1936, p.90.

12. Bertocchi, op.cit., p.143.

13. Bertocchi, op.cit., p.147; see also below, Appendix A.

14. Carrington, op.cit (1936), p.94.

15. G. Lugli, La tecnica edilizia romana (2 vols), Rome 1957, p.426, p.505f.

IV. Rural Mansions

The kind of farm described by Columella (D.R.R., I.VI) comprises several distinct parts, a residence (villa urbana), a working farm (villa rustica) and storage facilities (villa fructuaria). These three elements were, of course, common to most farmhouses of whatever size, although the means by which the architect chose to incorporate them into his farm design could vary greatly. The compact single-structure farms, where the different facilities were all combined into a single architectural design, have been discussed in the last chapter. We must now consider a group of villas built on a larger scale, wherein the different parts of the villa each constitute a separate structure or group of structures.

The simplest form of separation can be seen at the San Rocco villa (Cat. 27, Fig. 22), where the residence and the working farm form architecturally independent units placed side by side and separated only by a roadway which gives access to the main entrance of the residence and to one of the two farmyards. The whole complex thus forms two distinct parts: the residence, in the form of a series of rooms ranged around a central peristyle, and the farm, with its various facilities flanking two interconnected yards. The presence of porticos on the southwest and northwest sides of the residence, together with the internal peri-

style, recalls the ambulationes prescribed by Columella for the villa urbana (D.R.R., I. VI.2). Similarly, the cubicula on these same sides of the building, while not necessarily arranged for seasonal use, as Columella suggests, nevertheless form an impressive range.

The two farmyards appear to have been used for separate agricultural activities.[1] That to the west was probably used for livestock: it is located close to the main north entrance and thus affords easy access to the country; there is a large cistern on its south side and, adjacent to this, a portico which could have been used for stalling animals. The rooms to the north of this yard may have been used to store equipment or as accommodation for personnel. The second yard contained an oil processing plant with, to the north, the press-rooms and to the south the settling tanks. Located between the two yards was a pottery workshop and kiln. Unfortunately, the excavation of the working farm at San Rocco has not yet been published in detail.[2]

Not far removed from the plan of the San Rocco villa is that of a villa excavated at Russi near Ravenna (Cat. 25. Fig. 23). The villa urbana, or as much of it as was excavated, was ranged around two sides of a peristyle, while on the third side was located a large barn (see below, Appendix B); the fourth side of the peristyle was apparently not excavated. Immediately to the south of the villa urbana was a second courtyard, where the main agricultural facilities of the villa were located. Again, the rooms of this part of the villa were not completely cleared. In fact, only those to the west of the courtyard were thoroughly examined, and these proved to be largely of an industrial nature, including a pottery workshop, as at San Rocco, and a forge. The largest room (24/5 on the plan) may have been open; it contained a

central basin which, located just to the east of a well head, was probably a drinking trough for livestock, or else a pond for soaking lupines. This is further suggested by a portico running the length of the north side of the enclosure, which could have been used for stalling animals. Away to the east was located a separate bath building. The separation of the bathing suite from the villa urbana, partly as a precaution against fire, is a feature which we shall find repeated at a number of large villa sites.[3] In many respects, the Russi villa is similar to the San Rocco villa in concept; a villa urbana with a central peristyle forming one of the villa's two main nuclei, and a working farm round a second courtyard forming the other. The two are juxtaposed to form an extensive complex, which seems to correspond with the elaborate type of residential farm envisaged by Columella.

At these two sites, the arrangement of the different parts of the villa is compact and tidy. At other sites, a much looser arrangement seems to have been the case. Several villa sites have been identified by scattered structural remains, which suggest a number of independent buildings spread over a wide area. An example of this type of "fragmented" villa is to be seen at Villa Magna near Anagni in the Roman Campagna (Cat. 40. Fig. 24). An inscription of 207 A.D., found at the site, records the construction of a road (deverticulum) which no doubt served as a driveway for the villa.[4] Of the villa itself, some surface remains survive, and these suggest the presence of a number of buildings spread over an area of about 0.5 sq. km.. The structural vestiges to the south of the site may be the remains of a residential complex (villa urbana), for here a semicircular apse (VIII on the plan) and related architectural fragments indicate a building of some refine-

ment. The facing of the wall of the apse is in opus reticulatum, suggesting an early Imperial date. Nearby, a series of cisterns survives, and it would seem that these retained the water supply for the residence.[5] At the north of the site, more upstanding masonry remains indicate a second group of buildings. The construction here is in opus reticulatum with bonding courses of brick. The function of these buildings is quite uncertain and cannot be established without excavation. They may have formed a bathing installation, or perhaps were part of an agglomerate of farm buildings associated with the villa urbana but set at a distance from it.

A comparable villa site is that of "il Casalaccio" recorded in the Ager Veientanus (Cat. 7. Fig. 26) survey. Here again, the villa was provided with its own paved driveway, nearly 1 km. in length, which led from the Via Flaminia. The villa consisted of a number of independently-sited buildings, whose precise function cannot be determined without a more detailed study. The structures which formed the south group of buildings were clearly connected with the water supply of the villa, while the northern building may have been residential - the surface finds from this area included materials for floor mosaics. A third building, located between these two, contained wall mosaics to judge from the surface finds of glass tesserae, but its function can only be guessed.

Another large "fragmented" villa is the early Imperial villa at Ciglio dei Vagni (Cat. 10. Fig. 25) in the Siris-Heraclea district of Basilicata. The villa here seems to have extended over a wide area, though the scattered structural remains would require a more thorough examination to determine their precise relationship. One group of

buildings was examined by Lacava in the 19th century and more recent plans of this complex have been published by Quilici and Adamesteanu.[6] This was a bath building situated on the southeast slopes of the hill-top on which the residential part of the villa was sited.

If it be supposed that such villa sites were the centres of fairly extensive estates, one must then ask on what basis their associated land holdings were farmed. In many cases, excavation or surface survey has revealed evidence of elaborate residential building groups, but agricultural facilities have not been detected with any degree of certainty. This may be due to lack of excavation and one could argue that associated farm buildings must have existed in proximity to the villa urbana. However, the larger the estate, the less practicable it would have been to farm the land from a central location. The latifundia of the Imperial age, many of which were probably created by the absorption of smaller holdings and farmsteads, were more probably farmed from a number of scattered farmsteads spread over the extent of the estate, and operated by tenant coloni.[7] We may thus be wrong in expecting always to find agricultural facilities associated with the residential villa which formed the nucleus of the estate. Rather, the farm equipment and storage facilities may have been located in small farmsteads which remained the centres of operation for the farming of the different parts of the estate.

What of the architecture of the big country farms? How does it compare with that of the luxurious maritime and suburban villas, about which we are reasonably well-informed as a result of extensive excavation (much of it in the 18th and 19th centuries) and from representations in Roman mural art?[8] Grimal has summarized the main archi-

tectural features of these villas; the porticos, towers, pavilions, baths and recreational facilities. Some, such as the gymnasia and stadia, belong clearly to the world of luxury and entertainment.[9] Others, however, although seen in their most exaggerated form in the pleasure villas of the Campanian littoral, also find expression in the architecture of the larger Roman farms. For example, the ambulationes (colonnaded promenades) seen in numerous luxury villas are also found on a reduced scale some of our rural villas. As mentioned above, Columella advises the inclusion of such in the villa urbana of his di ideal farm (D.R.R., I.VI.2). The flanking porticos of the San Rocco villa have already been mentioned in this respect; at Russi, too, the west side of the complex is flanked by a long corridor or walkway, which appears to have been colonnaded. The rural villa at Salapia (Apulia) (Cat. 29), Hellenistic in origin, which seems to have included agricultural buildings sited independently from the villa urbana, also had a lengthy colonnaded walk extending along the eastern perimeter of the complex. Another feature of the luxury villas were the diaetae, which Grimal associates with the various tower-like pavilions which, as we know from excavation and from wall-paintings, graced the gardens of the most luxurious villas.[10] That towers existed in farm architecture, too, seems fairly certain. Varro (R.R., III.3.6.) speaks of pigeons in turribus, and the kind of pigeon-towers depicted amidst the architectural forms in a mural from the Villa of Publius Fannius Synistor may reflect an actual feature of contemporary farm design (Fig. 21).[11] The towers have sloping tiled roofs, and the cotes are located beneath the eaves, above what seem to be storage lofts.

More certainly identified are the independent bath blocks which

have been found in the vicinity of some of the larger farms, such as those at Russi and at Ciglio dei Vagni. The separation of the bath from the main body of the villa was a planning feature which became increasingly common with the luxury villas, according to Grimal.[12] The isolation of the baths resulted both from their greater architectural elaboration and increased social importance, and from the fact that the heating systems presented something of a fire hazard and were therefore well located away from the main body of the villa.

The large farm complexes discussed here illustrate how wealthy landowners in the Imperial period sought to bring a degree of luxury and fashionable elegance to their country estates, a tendency which had been condemned by Varro (R.R., II.13.6) in the early Augustan period, but which was regarded by Columella as acceptable and necessary for the status-minded landowner. The farm envisaged by Columella is more than just an agricultural centre. It is also a country residence of some elegance, where an architectural style which had become established in the suburban and maritime villas of Italy was introduced into the rural estates of the rich.

Notes to chapter 4.

1. Varro, R.R., I. XIII. 3, suggests two courtyards for a large farm, one with a central drinking pond for livestock, the other with a cistern for soaking lupines (used for cattle fodder).

2. With the exception of the oil separation tanks, of which a plan has been published in the interim reports; P.B.S.R. XX (1965) pp.62-5; N.Sc.1965, p.246.

3. See below p.44.

4. C.I.L. X. No. 5909.

5. The apse may be the remains of a nymphaeum supplied from the nearby cisterns; M. Mazzolani, Anagnia - Forma Italiae Reg.I. Vol.6., Rome 1969, pp.136-8.

6. M. Lacava, Topografia e storia di Metaponto, Napoli 1891, pp. 17-20; Adamesteanu, Basilicata Antica, Rome 1975, p.224; L. Quilici, Siris - Heraclea: Forma Italiae Reg. III. Vol. I., Rome 1967, pp.136-8.

7. cf. Horace, Epistles I. XIV.2, where he praises his 'quinque boni patres'. The excavation of a large rural villa near Licenza, reputedly belonging to the author, revealed no traces of an agricultural quarter or of farm equipment; G. Lugli, 'La villa Sabina di Orazio', M.A. XXXI (1926-7), pp.457-599; idem, La villa d'Orazio nella valle del Licenza, Rome 1930.

8. For good summaries of the luxury villas see: P. Grimal, Les Jardins Romains (2nd. ed.), Paris 1969; J. D'Arms, Romans on the Bay of Naples, Cambridge, Mass. 1970. On the graphic evidence: M. Rostowzew, 'Die hellenistich-römische architekturlandschaff', Röm.Mitt. XXVI (1911), p.1ff.; idem, 'Pompeianische landschaften und römische Villen', Jahr.Deut.Arch.Inst. XIX (1904), pp.10-126.

9. Grimal, op.cit., chapters 7 - 8.

10. Grimal, op.cit., pp.259-262; cf. P. Lehmann, Roman wall paintings from Boscoreale, Cambridge, Mass. 1953, pp.106-8; Ward-Perkins, E.R.A., p.583, interprets the word as simply meaning a living-room; cf. A.W. Van Buren, 'Laurentinum Plinii Minoris', R.P.A.A. XX (1943-4), pp.165-192, on Pliny's meaning of 'turres'.

11. Lehmann, op.cit., Plates XIV - XV, p.99f.

12. Grimal, loc.cit., p.258 - 'puis, peu à peu, les bains finissent par se détacher de la maison et par former des ensembles complets et bien définis'.

V. Slavery and Farms

The employment of slaves as a source of labour on farms is a fundamental principle in the works of the Roman agronomists. The system of intensive plantation agriculture outlined by Cato depended on a slave workforce and a slave overseer, and the slave-run farm remained the basis for the works of Cato's successors. Columella, writing in the 1st century A.D., presents his readers with a comprehensive analysis of this type of slave-operated estate.[1]

The sources imply two categories of rural slaves, servi soluti and servi vincti.[2] Whether the latter's condition was permanent or not is uncertain. Cato mentions chained slaves only once, in the context of rations (D.A.56). Columella indicates that shackling was a punitive measure (D.R.R.1.8.17), but this does not mean that it was not a permanent condition for some. The construction of an underground dungeon (ergastulum), which Columella recommends (D.R.R.1,6.3), would require considerable expense, which could hardly be justified for occasional confinement.[3] However, it may be supposed that the structural requirements of a farm housing large numbers of slaves, of whichever kind, will have been different from those of the family farm operated by a resident owner with a few family slaves and hired labour.[4] The need to accommodate the slave force would doubtless have an important effect on the design of the farm buildings. Cato and Varro both mention the slaves' cellae (D.A.14; R.R.

1.13), refering to the small rooms in which servi soluti were housed. the living conditions of the slaves were doubtless rudimentary, considering the attitudes of some of the sources: ' The slaves differ only from the working animals in the fact that the former are gifted with speech, while the latter are inarticulate '.[5] Although a few farm buildings do provide some evidence for the ways in which a slave force might be accommodated, study of these remains has been quite inadequate, and Robert Etienne is right in stressing the need for 'une analyse archéologique des villas d'Italie et du monde Romain pour mieux cerner le problème de l'extension du mode de production esclavagiste'.[6]

Slave accommodation is perhaps best seen in the so-called 'Villa of L. Claudius Eutychus' excavated at Boscoreale in 1903-5 (Cat.6.Fig.27). The excavated portion of this villa appears as two distinct parts: firstly there was a residential quarter, a lavishly decorated villa urbana, which, it has been suggested, at one time belonged to Agrippa Postumus. Immediately adjacent to this, on a slightly lower level, was a compound which contained the slaves' quarters. There was no evidence here of any agricultural facilities, and it is possible that the compound housed a force of domestic rather than agricultural slaves. With only a partial excavation of the villa it is impossible to distinguish. The main entrance to the compound was flanked to the east by a small room (Fig.27.I) from which movements through the gateway could easily be observed. This may well have been occupied by the overseer, thus according with Varro's advice: 'vilici proxime ianuam cellam esse oportet, eumque scire, qui introet aut exeat noctu quidve ferat' (R.R.1.13). The discovery here of a set of iron stocks may imply that the room was used to confine slaves, though it was not an ergastulum in the Columellan sense of the word.

The room on the other side of the gateway is more problematic; unlike any other room around the compound, its walls were decorated with figured paintings, which would seem to relate it more to the residential part of The villa than to the slaves' quarters. The room gave access to a latrine and to the chambers beneath the terrace of the residential rooms. It was most probably an office used by the master of the house.[7]

The most interesting feature of the compound is the row of nine small (2.8 x 1.9 m.) and uniform rooms which occupy the east side. These, it would seem, were the slaves' cellae. Each is identical in plan and simplicity. The floors were of trodden earth, the walls faced with plain monochrome plaster. Each room had a single window, and a small niche in the wall for a lamp. There was also a small hearth near the entrance to each room. Above this row of cellae was a second storey reached by a stairway, the base of which was found during excavation (Fig.27.C^{I}).[8]

A parallel sort of arrangement can be seen in another of the Campanian farms, found at Gragnano (Cat.12.Fig.28). Rostowzew called this farm 'an agricultural factory run by slaves'.[9] To the west of the main courtyard (Fig.28.B) was a row of small uniform rooms which could well have been slave accommodation. They correspond in size fairly closely with those of the Boscotrecase farm (the cellae all measure approximately 3 x 2 m.). An upper storey is again evident. Some of the rooms surrounding the small court (Fig.28.C) may also have housed part of the slave force. The discovery of a set of stocks in the second small court (Fig.28.D) suggests that facilities existed for shackling slaves, though again not an ergastulum in the Columellan sense, since there was no room flanking the court which remotely corresponds to Columella's slave dungeon. At the south side of courtyard D a stairway led to an

upper storey, possibly used for the storage of grain for use in the bakery below (Fig.28.3-4).[10] Here no doubt part of the slave force was employed.[11] Others were engaged in the various other agricultural activities of the farm, which included viticulture and dairy.

Crova has suggested that the Gragnano farm represents only a part of a larger complex, which would have included the owner's residence (the villa urbana).[12] However in default of evidence to support this it may also be hypothesised that the excavated building at Gragnano, in every respect a utilitarian building, was the working centre of a fairly large estate ('not more than 250 iugera in extent'[13]); that operation of the estate was entrusted to a resident vilicus (overseer) with a labour force of slaves who were housed within the farm in a number of purposely constructed cellae; that the estate was run as a capitalist enterprise and owned by an absentee landlord, who made periodic tours of inspection (Cato D.A.11.1).[14]

Two smaller farm buildings deserve mention here in as much as their excavated remains suggest that they too were operated in their owner's absence by a small workforce of slaves. One is a building excavated at Prato La Corte, near Vicovaro in Lazio, and published by Lugli in 1926 (Cat.38.Fig.30).[15] The largest feature of the building is a spacious granary (Fig.30.A) - discussed below in Appendix B - recalling Cato's emphasis on the need for good storage facilities, so that produce may be kept to await a good market price (D.A.III.2). To the south of this are ranged a series of smaller rooms, some of which show clear evidence for their use: press-rooms at D and I, an oil settling vat at G.[16] The south wing of the building contained three rooms (Fig.30.L,M and N) which, according to the excavator, formed the living quarters of the

farm.[17] Indeed they could have provided a simple form of accommodation for the personnel of the farm. The measurements of the two smaller rooms (L and M) , 3.3 x 2.6 m., compare well with those of the slave cellae of the farms at Boscotrecase and Gragnano discussed above. Details of construction are not provided in Lugli's account, though it seems that the rooms lacked paved floors, and were apparently without any wall plaster (this is mentioned only in connection with room G).

Similar conditions appear to have existed at a farm excavated at Boscoreale in 1904 (Cat.2.Fig.29). The plan is of the 1st century A.D. building, and shows how an earlier building was enlarged to provide considerably more storage space. The three largest rooms (Fig.29.10, 12 and 13) were used to store produce and equipment: 10 may have been a wine store, while in 13 a stock of chestnut stakes was found, which were being stored for use as vine-props.[18] The line of small rooms, measuring 3.0 x 3.5 m., along the north-east side of the building provided living quarters for the farm's personnel. These rooms were apparently crudely finished ('rustica e disadorna') and their uniform simplicity suggests that they could have been cellae for a resident slave force.

Neither of these smaller farms is furnished with the kind of 'slave dormitories' which are to be seen in the Boscotrecase and Gragnano farms.[19] However, the series of small, uniform and undecorated rooms which they both contain, though not great in number, may have been slaves' cellae. At each farm the owner of the land appears to have invested his capital mainly in the agricultural equipment of the farm, providing only rudimentary accommodation for the farm's personnel; this would suggest that the farms were designed to be operated in their owner's absence by a small slave force under supervision.

The prevalence of the slave-run farm in Italy cannot be determined from the small amount of archaeological evidence discussed above. Rostowzew used the Gragnano and Boscoreale farms as sufficient evidence to create his category of 'factory farms', a classification adopted by Carrington and others.[20] Certainly there is enough literary evidence to suggest that slave-run farms with absentee landlords were a part of the Italian landscape. But until excavation has provided more evidence for slave accommodation on farms our information concerning the ways in which this type of farm was arranged and constructed will remain very limited. The Gragnano farm provides perhaps the best clue. For here there is evidence both of the slave cellae and of the agricultural facilities in which the slave force was employed. However this farm is unique; others like it may have existed in Campania and elsewhere, but until this can be shown by excavation the major source of evidence for the employment of slaves on farms must remain in the literary texts.

Notes to chapter 5.

1. On capitalist systems of farming in Roman Italy see: White, R.F. p.389f., pp.401-5; idem, A Bibliography of Roman Farming, Reading 1970, pp.xii-xiv; idem, 'Roman agricultural writers I', Aufstieg und Niedergang der Römischen Welt I:4, Berlin 1973, pp.439-497; idem, F.E.R.W., p.213ff.; A.Toynbee, Hannibal's Legacy (2 vols), Oxford 1965, p.291ff.; M.W. Frederiksen, 'The contribution of archaeology to the agrarian problem of the Gracchan period', Dialoghi di Archeologia (1970-1), Rome 1972, p.334ff.

2. On chained slaves see: R. Duncan-Jones, The economy of the Roman Empire, Cambridge 1974, pp.323-4; White, R.F., pp.361-2; R. Martin, 'Familia rustica: les esclaves chez les agronomes latins', Actes du colloque 1972 sur l'esclavage (Université de Besancon), Paris 1974, pp.267-297.

3. Columella is the only agricultural author to refer specifically to an ergastulum, which he describes as follows (D.R.R. 1.6.3):

'quam saluberrimum subterraneum ergastulum, sitque id angustis in lustratum fenestris atque a terra sic editis ne manu contingi possint - an underground dungeon, as wholesome as possible, lit by narrow windows far enough off the ground that they cannot be reached by hand'.

Nothing corresponding to this has been found by excavation. Elsewhere (D.R.R. I.3.12) he uses the word to refer to the actual slave gangs; cf. Apuleius, Apologia, 47 ('Quindecim liberi homines populus est, totidem servi familia, totidem vincti ergastulum - fifteen free men make a crowd, fifteen slaves make a disciplined crowd, fifteen chained slaves a work force'). For a discussion of the different uses of the word see R. Etienne, 'Recherche sur l'ergastule', Actes du colloque 1972 sur l'esclavage, Paris 1974, pp. 249-266.

4. J.E. Skydsgaard, Den Romerske Villa Rustica, Copenhagen 1961, p. 95f., sees this as the main distinction between Roman farm types; on the one hand the family-run farm, on the other the slave-run farm with an absentee landlord.

5. White, op.cit. (1973), p.453; Varro, R.R., I.17.

6. Etienne, op.cit., p.266.

7. A similar well-decorated room which 'intrudes into the service quarter' was found in the Casa dei Dioscuri in Pompeii; L.Richardson Jr., The Casa dei Dioscuri and its painters, M.A.A.R. XXIII 1955. Richardson suggests that the room here was used by the mistress of the house as a place where she 'could work and supervise her slaves at the same time'.

8. The main obstacle to the interpretation of these rooms as cellae for slaves is the nature of the excavated contents of some of the rooms. These included pieces of gold and silver, and even some gems and cameos (Della Corte, N.Sc.1922, p.463.). Could such things have been the property of rural slaves? An alternative interpretation of the whole compound is perhaps not impossible; namely that the cellae constituted a privately owned lupanar attached to the imperial residence; cf. the lupanar of Africanus and Victor at Pompeii. H. Eschebach, Die stadtebauliche Entwicklung des antiken Pompeji, Heidelberg 1970. Regio VII. 12, 18-20.

9. Rostowzew SEHRE, p.503 n.21; Carrington, 1931, p.116.

10. On upstairs storage: Varro, R.R., I.LVII.I ('granaria sublimia'); Pliny Ep. II.17.13. ('horreum, sub hoc triclinium'), discussed by Sherwin-White, The letters of Pliny, Oxford 1966, p.194ff..

11. cf. Palladius, D.A., I.42.

12. Crova, Edilizia, p.70.

13. K.D. White, 'Latifundia: a critical review of evidence on large estates in Italy and Sicily up to the end of the Ist century A.D.' Bull.Inst.Class.Stud. XIV (1967), p.73.

14. Della Corte gives no indication of the function of rooms 31-5. Room 2 was a stable, for which see below, Appendix B.

15. The building almost certainly represents a partial excavation of a larger complex, with a courtyard to the south-west, onto which the rooms C - H and L - N opened. It is therefore possible that the residential part of the farm building remains unexcavated. However as it stands the building can be interpreted as providing accommodation for a small work force of slaves.

16. On the press-rooms see Appendix A.

17. C.F. Giuliani, Tibur - part II: Forma Italiae Reg.I. 3., Rome 1966, p.75, following Gatti. No published record exists of the excavated contents of these rooms.

18. Della Corte, op.cit., p.424; Pliny recommends the use of chestnut wood for vine-props (N.H. 17.147), as does Columella (D.R.R. 4.30. 2). For discussion see W.F. Jashemski, 'University of Maryland excavations at Pompeii', A.J.A. 74 (1970), p.65; M. Bonnington, 'Trees, shrubs and plants as sources of raw materials' in White, F.E.R.W., p.235ff..

19. Another large villa which appears to have had ample slave accommodation is a villa at Stabiae, of which a plan is reproduced in P. Grimal, Les Jardins Romains (2nd. ed.), Paris 1969, p.223; here a huge courtyard is flanked by a series of very similar small rooms, which could have been slave cubicles; for details, M.Ruggiero Degli scavi di Stabiae dal 1794 - 1782, Napoli 1881.

Conclusion

The foregoing study gives some idea of the current state of research on the subject of Roman farms in Italy. As was pointed out in the introduction, studies on the villa rustica have, until recently, too often been based on a limited amount of archaeological evidence, which was both geographically restricted and poorly documented. More recent excavation, despite discrepancies in standard, has made available a greater quantity of evidence, drawn from nearly all the regions of Italy, and as a result a slightly clearer picture of the range and style of rural settlement is beginning to emerge. I have concentrated primarily on the physical aspects of excavated farms, in an attempt to create some basis for a study of Roman rural architecture. In this respect, certain general observations can be made, as well as indications of areas in which future villa studies may usefully concentrate.

The first of these concerns regional building types. Although at present there is still too little archaeological evidence to make a valid assessment of regional building types, some preliminary observations can be made. In particular the type of enclosure farm, which is well documented in Greece, seems to be copied in South Italy from the 2nd century B.C., but has not been found in other parts of Italy. Elsewhere, in Etruria, we have observed a type of small farmstead (Cat.26.33), which bears a close architectural resemblance to the domestic architecture of

Greek Olynthos. No farm buildings, however, resembling the Etrurian ones have been found in Campania, despite the relatively large quantity of farm excavations in this particular region. The full extent of regional style will only be revealed by further excavation.

We have examined the ways in which farm architecture reflected and differed from contemporary urban domestic architecture. It has been observed, for example, that the influence of the Hellenic peristyle on Roman domestic architecture was echoed in rural design too (Cat.5.9.21.29). There is also important evidence concerning the developed atrium as a feature of farm architecture. This, a predominant feature of domestic architecture in Italy from at least the 3rd century B.C., seems to have become an increasingly common feature of farm architecture. The earliest example of a developed atrium in a rural building is that in the late 3rd or early 2nd century B.C. villa at Salapia (Cat. 29). A few 1st century B.C. farmhouses contain an atrium (Cat.9.38) and this trend is continued into the Imperial period (Cat.11.13.41). It appears that the urban tastes of wealthy landowners were carried with them to their country properties. In many farms, however, the place of the atrium as the focal room of the house, was taken by a large kitchen (Cat.1.3.30.31), which was never the case in town houses.

At only a few sites can slave dormitories (or cells) be identified with anything like certainty (Cat.2.6.12.38), although there is considerable literary evidence to suggest that the slave-run farm was a co[illegible]ure of the Roman landscape. Furthermore the relation between [illegible]alist slave-operated farm and small farm tenancy is one [illegible]ly be clarified with a much greater amount of archaeological evidence than is at present available. Current opinion favours the con-

tinuation of a small-farm economy alongside the development of larger rural estates, at least into the early Imperial period. This view needs further archaeological support, which can effectively only be provided by comprehensive regional surveys and excavations, which may help to reveal the geographic and chronological relations between the rural structures of a given area.

With the growth of the latifundia, a process which is well attested in the literature of the Roman Empire, can be associated a type of large and luxurious rural mansion (Cat.7.10.39), of which several examples are known from survey, though few have been excavated. The evidence suggests that these opulent country houses reflected in their architectural detail the luxurious residential villas of the Italian coastline. Whereas, however, the latter were of a non-agricultural character, the rural estates must have included farming facilities. How these were allocated within the estates has in no case been made clear; this could only be revealed by a thorough investigation of all the dependent structures within the confines of the large estates of which the country houses were the nuclei.

Study of specialised farm facilities, such as pressing installations and granaries, can now be advanced, owing to an increased quantity of available archaeological evidence. Although reports are scattered and vary in detail, it has been possible to make some assessment of the design features of several types of facility. Architectural styles were doubtless affected by technical innovation and by the relative availability of various construction materials.

A little over forty farm buildings have been discussed in the text. Of these, about half have been excavated within the last twenty-five years, while only twelve derive from the corpus of Campanian villae rusticae

which has formed the basis for nearly every previous study of Roman farms. Twenty-six other known farm sites have beer listed and, although these sites have in many cases produced insubstantial remains, they have been referred to where they can add useful detail to the central study. The extent of the archaeological evidence for Roman farm design has thus increased greatly since earlier studies of the subject appeared. It has been with particular reference to this more recent archaeological material that the present study has been attempted.

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Appendix A.

The Press-room.

Renewed interest has recently been shown in the processes and apparatus used by the Romans in the production of olive oil and wine. However, since Drachmann's major study of the subject, more recent discussions have tended to concentrate either on the literary evidence, or on archaeological material from outside Italy.[1] The well-known passage in Cato (D.A. 18-19), in which he gives specifications for the construction of a large press-room, has received renewed criticism, but in this little mention has been made of the more recent archaeological material from Italy.[2] Yet throughout the Italian countryside, as the number of Roman farm sites that are identified and excavated continues to grow, the remains of numerous pressing installations have come to light. The importance of olive and wine production in Roman farming meant that many farms contained facilities for the processing of these products. Special press-rooms (torcularia) were built to house the apparatus required for the various processes of extraction and refining. However no comparative study has hitherto been attempted of the recorded remains of the many press-rooms that have been found at Italian sites. The scope of such a study is limited by the range of the surviving material; generally this is restricted to those parts of the pressing equipment which were constructed in durable materials and associated with

the floor level of the press-room. However in the surviving pieces of equipment a considerable variety in design can be detected.

White, following Drachmann and basing his analysis on the literary evidence, divides Roman presses into five mechanical types: the lever-and-drum press, two types of lever-and-screw press, the direct screw press, and the 'congeries' press. The archaeological evidence can be less finely classified, owing mainly to the lack of survival of the wooden parts of the presses.[3] Nevertheless from the excavated press-rooms in Italy two distinctive types of lever press can be recognised.[4] These may be termed (i) platform presses, and (ii) circular-bed presses.

Platform presses are known from several Campanian sites, most notably from the press-rooms of the Villa Pisanella at Boscoreale and the Villa of The Mysteries at Pompeii.[5] The design is similar in each case; the press was mounted over an elevated platform, which was flanked by a raised curb to form a shallow basin, with its floor inclined to allow the extracted liquid to drain away into nearby receptacles. The mechanics of these presses is indicated by the square slots which held the vertical wooden beams of the press; one in the platform at the rear of the press to hold the main standard, and two in the press-room floor in front of the platform to hold the upright timbers of the winching drum. The beams were securely anchored by underground bolts or cross-pieces. Surviving examples of this type of press have generally been well recorded, and it is therefore on the next type of press that this report will concentrate.

The second type of press is known from many excavated remains in Italy, but has been poorly documented. The press is characterized by a circular press-bed, which is usually found in conjunction with a stone

anchor block which served as a footing for the vertical beams at the rear of the press. Drachmann supposes that press remains of this type, consisting only of a rear anchor-stone and a press-bed, with no evidence for weightstones or drum supports, must indicate a type of lever-and-screw press. However such remains could also indicate the existence of a more simple manually controlled lever press. Although remains of this kind have been found at numerous Italian sites, standards of recording these have varied greatly. In some cases important details have been omitted, while in others there have been basic misinterpretations of the evidence and confusion of terminology.[6]

At most sites where press-rooms have been found the pavement surrounding the press base has been at least partially preserved. The platform presses usually occupied much of the room in which they were housed. The platforms themselves, over which the extracted liquid flowed, were customarily made of opus signinum, while at ground level the floor on which the operating personnel walked was more commonly simply one of trodden earth. With the circular-bed presses, however, the pavement around the base of the press, being at ground level, was simply the floor contained by the walls of the press-room. The most common material for the floor surface was again opus signinum.[7] Foundation materials have rarely been noted, except at Titignano where a rubble and mortar base beneath an opus signinum surface was recorded.[8] This would seem to correspond closely to the kind of pavement recommended for the press-room by Cato (D.A.18.7). At other sites brick pavements have been found, with the bricks usually laid in the pattern of opus spicatum.[9] One press-room, at Granaraccio near Tivoli, had a pavement made of tufa paving stones, while at two sites pavements of monochrome mosaic were

found. The latter could, however, be due to the conversion of domestic rooms to agricultural use.[10]

Set into the pavement at the rear of most excavated circular-bed presses was a rectangular stone block which acted as the footing for the upright timbers. Such blocks have been found at many sites and can be easily recognized by the two squared recesses cut into their upper surface, into which the uprights could be slotted. Surviving examples, made from tufa or travertine, range in length from 1.23 - 1.86 m., and in width from 0.37 - 0.74 m.; the thickness of the blocks has not often been recorded (they have generally been left in situ), but where noted ranges from 0.15 - 0.53 m.. The blocks may be related to Cato's forum (D.A.18.3), which he describes as the footing for the rear uprights of the press and for which he gives measurements of 5 x 2.5 x 1.5 pedes (1.48 x 0.74 x 0.44 m.). Cato also mentions the use of poured lead as a seal at the base of the timbers. At Granaraccio and Giudonia, near Rome, traces of lead were found around the inside edges of the recesses of the anchor-stones.[11]

The circular press-bed could be constructed in a number of different ways. In some cases it was a flat cylindrical slab of stone forming a small elevated platform; bases of this type have been found at Titignano and Giudonia. Elsewhere squared stones have been found with circular drainage grooves cut into their upper surface.[12] At Granaraccio a circular channel, 0.08 m. wide, was cut into the flat surface formed by two contiguous blocks of tufa. Where the press-room pavement was made of brick, the press-bed was generally constructed in the same material, the bricks laid to form a circular footing, as at Pareti, Monte Canino and Grotta del Malconsiglio.

Different methods were employed for draining the extracted liquid away from the press-bed. Sometimes the entire pavement was inclined so that the liquid could run off in one direction.[13] Alternatively the press-bed was surrounded by a circular drainage channel, Cato's canalis rotunda (D.A.18.6), and the liquid passed from this into a conduit which led to the collecting vats. The construction of such conduits varies in the surviving examples; at Giudonia it was built in brick with a mortar lining, whereas at Granaraccio a channel was cut into the tufa paving of the press-room floor.

For the initial extraction of the juice from grapes, treading tanks were commonly used. Often they were portable and made of wood, but at farms where wine production was carried out on a commercial scale more permanent types of tank are found.[14] At Granaraccio the base of a stone-built tank, measuring 2.25 x 1.40 m., and lined with opus signinum, was found close to one of the presses.[15] That this was a treading tank is clear from the fact that its floor was at a higher level than that of the press-room, and also was inclined so that the juice could run out through a hole at the base of the tank into a channel which joined the run-off duct leading from the press. Another large treading tank, 3.35 x 2.63 m., was excavated at Giudonia. This was brick built and lined with opus signinum. It was linked by means of a channel in the press-room floor with a collecting vat at a lower level.

Large sunken earthenware jars were sometimes placed immediately beside the press to receive the extracted liquid.[16] More commonly though, rectangular vats, used for the processing of olive oil, have been found located near the presses. The more elaborate plants preserve a series of three vats, designed so that the settling process which allowed the

heavier lees to separate out of the oil, could be repeated more than once. The oil was either baled or passed by controlled overflow from one vat to the next.[17] Systems using three vats have been found at San Rocco (Francolise) and at Granaraccio. Often two adjacent vats were employed, or even a single vat with a central division. In some cases, as at Vicovaro and Scalea, a single vat sufficed.[18] Invariably the vats were lined with opus signinum. Sometimes steps are found built into one corner, presumably to facilitate the baling process, while at many sites the vats contain a circular sump in the middle of the floor, designed to serve as a catchment for the impurities as they sank to the bottom.[19]

Cato includes in the equipment to be housed in the press-room the mill used for bruising the olives prior to pressing (D.A.18.5). The mechanics of the different types of Roman olive mills have been often discussed, most thoroughly by Drachmann.[20] However little comment has been made concerning the location of the mills in relation to the presses which they serviced. At only one site in Italy has a mill been found located, as Cato would wish, actually in the press-room itself. This was at a farm excavated near Stabiae, recorded by Ruggiero and discussed by Rich.[21] Here the mill was placed centrally between two platform presses. More commonly, however, mills were housed in a room adjacent to the press-room, in a sort of press-room annexe. This arrangement has been found at several farms; at the Villa Pisanella at Boscoreale, at Granaraccio, and possibly at a recently excavated farm at San Sebastiano al Vesuvio, where part of a mill was found 'fuori dell'ambiente E' (the press-room), and may have been located in a nearby or adjacent room.[22]

Recorded remains of press-rooms in Italy:

Type II presses.

Site	No. of presses	Dimensions of press-room	Pavement	Anchor-stone	Press-bed	
Giudonia Cat.11.Fig.34.	1	5.8 x 3.8 m.	Op.Sig.	Travertine 1.23 x 0.64 x 0.53	Travertine	1.86 d.
Granaraccio Cat.14.Fig.33	2		Tufa	Tufa 1.86 x 0.74	Tufa	1.50
Grotta del Malconsiglio. Cat. 15.Fig.35.	1	7.0 x 6.6	Brick		Brick	1.60
Monte Canino	1	6.3 x 4.7	Brick	Travertine	Brick	
Pareti Cat.20.Fig.36	3		Brick		Brick	1.80
San Sebastiano al Vesuvio. Cat.28.			Mosaic	Travertine 1.35 x o.55		
Scalea - fondo Marigliano-Filardi Cat.32.	1		Mosaic	Tufa 1.50 x 0.54 x 0.26		
Scalea - fondo di Puglia. Cat.32.	1		Op.Sig	Tufa 1.37 x 0.37 x 0.15		

Type II presses (cont)

Site	No. of presses	Dimensions of press-room	Pavement	Anchor stone	Press-bed	
Titignano. Cat.35	1	5.40 x 2.70 m.	Op.Sig	Travertine 1.30 x 0.60	Travertine	1.30 d.
Via Tiberina. Cat.37	1	9.40 x 5.80	a)Brick b)Op.Sig			1.80
Vicovaro 'D'. Cat.38	1		Op.Sig			1.15
Addendum:						
Camarelle 'L'. Cat.9.Fig.18.	1	8.50 x 8.30	Op.Sig		Op.Sig.	c.1.50

Notes to Appendix A.

1. A.G. Drachmann, Ancient Oil Mills and Presses, Copenhagen 1932. For recent discussion of the literary evidence see K.D. White, Farm Equipment of the Roman World, Cambridge 1975, pp.107-17;225-33; H. Plommer, Vitruvius and Later Roman Building Manuals, Cambridge 1973, pp.8-11. On the archaeological evidence from the Roman provinces see, for example, H. Camps-Fabrer, L'olivier et l'huile dans l'Afrique Romaine, Alger 1953; D. Oates, 'The Tripolitanian Gebel: settlement of the Roman period around Gasr ed-Daun', P.B.S.R. XXI (1953), pp.81-113; M. Ponsich, Recherches Archéologiques à Tanger et dans sa Région, Paris 1970, pp.271-83; L. Maurin, 'Etablissement vinicole à Allas-les-Mines', Gallia XXII (1964), pp.218-21.

2. J. Horle, Catos Hausbucher, Padeborn 1925, p.177ff; Drachmann, A.O.M.P., p.99ff; E. Jungst and P. Thielsher, 'Catos Keltern und Kollergange', Bonn.Jahrb 154 (1954), pp.32-93; R. Goujard, 'Etude critique de quelques passages de Caton, De Agricultura.' Rev.de Philologie 46.2.(1972), pp.266-74; idem, Caton: De l'Agriculture, (Ed. Bude), Paris 1975.

3. White F.E.R.W., p.229ff. Attempts to reconstruct press mechanisms from surviving archaeological remains have not been conclusive; for example the weightstones found at numerous Tripolitanian sites were interpreted by Drachmann, A.O.M.P. p.97, as parts of lever and screw presses, but by Oates, op.cit., p.86.Fig.3, as parts of lever and drum presses.

4. Examples of direct screw presses have rarely been found in Italy. I know of only two sites at which press bases apparently belonging to this type of press have been found; at the Posto villa (Cat.22), and at Luogosano, E. Gabrici, 'Luogosano - avanzi di costruzioni di età Romana sul Monte San Stefano', N.Sc.1901, pp.333-6.

5. Boscoreale Pisanella (Cat.3); A. Maiuri, La Villa dei Misteri, Rome 1947, pp.96-102. Other platform presses have been found at Stabiae (Cat.34), in Pompeii, Ins.II.5 (W.F. Jashemsky, 'University of Maryland excavations at Pompeii, 1968', A.J.A. 74 (1970), pp.62-7), and at another farm at Boscoreale (M. Della Corte, 'La villa rustica N.Popidi Flori esplorata dalla signora Giovanna Zurlo - Pulzella nel fondo di sua proprietà in contrada Pisanella l'anno 1906', N.Sc.1921, pp.442-60.

6. For example the press-bed (ara) is referred to as an area (threshing floor) at Grotta del Malconsiglio, as a trapetum (mill) at Giudonia and Via Tiberina, and as a mola (mill) at Titignano.

7. e.g. at Camerelle (Cat.9), Giudonia (Cat.11), Salapia (Cat.29), Titignano (Cat.35), and Via Tiberina (Cat.37).

8. Minto (Cat.35), p.167.

9. e.g. at Grotta del Malconsiglio (Cat.15), Vicovaro (Cat.38), and Monte Canino (M. Pallotino, 'Capena - resti di costruzioni romane e medioevali in località "Montecanino" ', N.Sc.1937, pp.7-28). At Pareti (Cat.20) the bricks of the floor were laid in a simple block formation.

10. Tufa paving stones at Granaraccio (Cat.14); mosaic at Scalea - Fondo Marigliano-Filardi (Cat.32) and at San Sebastiano al Vesuvio (Cat.28).

11. Faccenna (Cat.14) p.152; Caprino (Cat.11) p.47.

12. e.g. at Orbetello, G. Maetzke, 'Orbetello - trovamenti archeologi vari', N.Sc.1958,pp.34-49 (dimensions: 51.5 x 38.5 x 0.21 m.); at Tarquinia (Località San Giorgio), M. Pallotino, 'Tarquinia - rinvenimenti fortuiti nella necropoli e nel territorio, 1930-38', N.Sc.1943, pp.255-6 (dimensions: 1.77 x 1.70 x 0.40 m.). This is the kind of press-bed found frequently in North Africa.

13. e.g. at Grotta del Malconsiglio and at Titignano.

14. White F.E.R.W., pp.164-5. An elaborate treading-floor described by Palladius (Op. Ag. 1.18.1) is dicussed by Plommer, op.cit., p. 8ff; cf. White s.v. 'calcatorium'.

15. Faccenna (Cat.14) p.151.

16. e.g. at Boscoreale Pisanella (Cat.3) and Stabiae (Cat.34).

17. White F.E.R.W., p.159; Columella D.R.R. 12.52.11-12.

18. San Rocco (Cat.27). The most common arrangement seems to be the two-vat system, found for example at Posto (Cat.22), Giudonia, Grotta del Malconsiglio, Camerelle, Via Tiberina. The single vat with a central division recorded at Salapia (Cat.29) may correspond to Columella's gemellar (D.R.R. 12.52.10); White F.E.R.W., pp.149-50 s.v. gemellar, quotes another archaeological find, also from Apulia, which, he suggests, could exemplify Columella's device.

19. At a few sites, for example at Camerelle, Pareti and Grotta del Malconsiglio, large dolia were found standing in the settling vats. The reason for these is uncertain, though they may simply have been put in because the vats began to leak.

20. Drachmann A.O.M.P., pp.7-49; cf. White F.E.R.W., pp.226-9; R.J. Forbes, Studies in ancient technology III, Leiden 1955, pp.146-8.

21. M. Ruggiero, Degli scavi di Stabia dal 1749 al 1782, Napoli 1881, p.351ff; A. Rich, A Dictionary of Roman and Greek Antiquity^2, New York 1901, s.v. 'torcularium'; Crova Edilizia, pp.144-6; White F.E.R.W., s.v. 'lacus'.

22. G.C. [illegible]elli, 'S. Sebastiano al Vesuvio - villa rustica romana', N.Sc. 1965, Suppl., p.175.

Appendix B.

Granaries, store-sheds and stables.

The function which the individual rooms of a farm served is not always precisely defined by excavation. Some clue of the use to which different rooms were put may be provided by an analysis of the excavated contents. But perhaps the clearest indication is provided in the case of farm facilities which, for a specific function, required particular features in their design. This has already been illustrated with respect to facilities built for the processing of olive oil and wine. Distinctive structural elements can also help in identifying rooms used as granaries, store-rooms and stables.

Rickman's study of Roman public granaries in the northern provinces of the empire has provided a synoptic account of building types in that area.[2] The North European climate made it imperative that the floors of granaries be raised above ground level. This could be done in a number of different ways, either by setting the floor on a series of dwarf piers, rather in the manner of a hypocaust, or by raising it on a number of transverse or longitudinal sleeper beams.[3] In a small granary the floor could also be raised by laying it on a masonry offset parallel to the wall, as is seen in the Roman villa at Stroud (Hampshire) in England.[4] Both Columella and Vitruvius emphasize the need for a granary, even in a Mediterranean climate, to have an elevated, and hence

well ventilated floor.[5] Columella gives details of the way in which the ground beneath may be treated to prevent the intrusion of vermin. He suggests covering the earth with a layer of opus signinum and sealing this against the side walls of the room at ground level. However neither author gives details of how the floor of the granary is to be supported.

Facilities at only two farm sites in Italy can be identified with all probability as granaries. One of these is the large room 'A' at Vicovaro (Fig.30), the other the large barn at Russi (Fig.23). Neither of these is built at a distance from the rest of the farm, as Vitruvius advises (D.A.VI.6.5.), but each forms part of a larger complex of rooms. Room 'A' at Vicovaro was a large room measuring 29.5 x 14.8 m. with walls in reticulate. The interior of the room contained a triple series of dwarf piers, whose purpose, it would seem, was to support an elevated floor. The space between the piers is transversely 3.0 m. and longitudinally 2.8 m. The large dimensions of the granary would seem to suggest that the estate for which it existed was extensive.[6]

The internal arrangement of the Russi granary is less certain. Four series of internal piers are evident, the larger of these probably serving as roof supports. The secondary series of smaller piers along the west wall of the room may, on the other hand, have supported a raised floor containing grain bins. The presence of what appears to be an oil-settling vat in the south-east corner of the room suggests another function of this large room. The small piers are 2.0 m. apart longitudinally, slightly closer than the series at Vicovaro.[7]

A few farms in Italy include in their plans long store-rooms, which, although they were probably used for storing a variety of products and equipment, can be considered here as a group,

owing to their similarity of plan and construction. These rooms characteristically have a long rectangular form with a single row of piers down the centre to serve as bases for the upright timbers which held the wooden framework of the roof. In some cases, for example at Casalotto (Cat.8) and Pratella (Cat.24.Fig.31), the roof was supported by a series of closely spaced piers. Elsewhere, as in the barn of the Boscoreale Stazione farm, the internal support for the roof consisted of two widely separated piers. This latter system may also have been used in the long room at the south end of the Villa of Publius Fannius Sinistor at Boscoreale (Fig.20), and in the outhouse at Monna Felice (Cat.18). The materials used for the piers in these various buildings show considerable variety. At Pratella they were made by packing squared stones around a rubble core; at Casalotto they were built of mortared brick. The long store-room of the Villa Selvasecca contained at least two central supports which rested on squared blocks of tufa.

The use to which these rooms were put probably varied from site to site. Storage of farm produce and equipment seems a likely function. Certainly this was the case at Casalotto, where the room was found to contain numerous sunken dolia, and clearly served as a cella vinaria or olearia.[8] It is possible that some of the rooms were used for stabling livestock. The room at Boscoreale seems to have served a double function, both as a store for wood and hay, and as a stable.[9]

The dimensions of the store-rooms that have been discussed are as follows (dimensions in metres):

Site	External measurements	Intercolumnar space
Boscoreale Stazione	21.8 x 5.8	6.3
Boscoreale (Cat.5)	x 6.3	
Casalotto	x 5.1	2.20 - 2.50
Monna Felice	16+ x 3.2+	
Pratella	x 9.2	2.10 - 2.30
Selvasecca	28.5 x 6.0	2.70

In some of the farms excavated in the region of Vesuvius, stables have been identified by the discovery of a quantity of animal bones of beasts which were clearly being housed in a particular room of the farm at the time of the eruption. Thus at the Boscoreale Pisanella farmhouse a room which was found to contain the skeletal remains of three horses may be supposed to have served as a stable (Fig.16, I). Likewise at Gragnano (Fig.28) room 2, which contained numerous skeletons of horses and oxen, doubtless had the same function.[10] In these two stables there is no indication of the internal division of the room into stalls for the animals. However, in this respect the literary sources provide some information. Vitruvius (D.A.VI.6.2) recommends a width of 1.48 - 2.22 m. per head of oxen, with a depth of at least 2.07 m.. Thus, allowing for a manger and walkway, the depth of a stable with a single row of animals would, according to Vitruvius, be around 4 m.. Columella (D.R.R.1.6.6) advises that the width of a stall be between 1.33 and 1.48 m..

The internal division of a stable can perhaps be seen in a large room of a partially excavated farm at Lucinico (Cat.17.

Fig.32). This room was found to contain a large number of animal bones, which may perhaps be accounted for by a sudden destruction of the building, possibly by fire or earthquake. However, the most interesting feature of the room is a long water trough which runs the length of the north wall of the room. This trough was bridged by horizontal slabs of stone at regular intervals, leaving a series of openings approximately 1.30 m. apart. If each of these openings served as a drinking hole for one beast the stable would have housed 12 or 13 head of cattle.

Another farm building which may have served as a stable is the 'portico' on the north-west side of the courtyard of the Posto farm at Francolise (Cat.22.Fig.13). This had a depth of 3.6 m. and the space between the supports ranged from 2.3 - 3.2 m., probably allowing for a double stalling between each.

The available evidence shows the following dimensions for stables (dimensions in metres):

Site	Dimensions of stable	Width of stall (per head)
Boscoreale Pisanella	9.2 x 3.1	
Gragnano	13.0 x 6.0	
Lucinico	21.0 x 10.85	1.3
Posto	x 3.6	1.2 - 1.6

Notes to Appendix B.

1. S. Applebaum, 'Farms and their uses', in H.P. Finberg (ed), The Agrarian History of England and Wales: Vol I, Cambridge 1972, p. 151ff.

2. G. Rickman, Roman Granaries and Store-buildings, Cambridge 1971. cf. A.P. Gentry, Roman Military Stone-built Granaries in Britain, Oxford 1976; White R.F., p.189, 427-8.

3. Rickman Granaries, p.213ff. In Britain only four stone granaries have floors raised on dwarf piers. These are at Housesteads, South Shields, Castlecary and Ribchester. The rest employ sleeper beams. In Germany, however, the preference is reversed.

4. Applebaum, op.cit., p.175.

5. Columella D.R.R.I.6.12f.. Vitruvius D.A.VI.6.4. The text of Vitruvius is here corrupt. The editor of the Loeb text prefers the reading sublinata, a word meaning 'smeared' (from the verb lino). However, the reading sublimata, meaning 'elevated', seems more appropriate in the context.

6. The width of the granary (14.8 m.) far exceeds the average width of public granaries in northern Europe, which is around 6.09 m.. Rickman Granaries, p.228.

7. No details are provided in the published reports of the construction materials of the Russi barn.

8. On store-rooms containing sunken dolia, see Rickman Granaries, pp. 73-6.

9. Crova Edilizia, p.45.

10. The considerable breadth of the room suggests that it contained a double series of stalls, perhaps byres for oxen on one side of a central corridor, and for horses on the other; Applebaum, op.cit., p.149.

Appendix C.

An alphabetical catalogue of farm buildings discussed in the text, with bibliographical references.

1. Boscoreale (contrada Civita Giuliana), Campania:

A. Sogliano, N.Sc.1895, p.214, N.Sc.1897, p.391; Crova, Edilizia, p.77, Fig.9; Rostowzew SEHRE, p.552 No.14.

2. Boscoreale (contrada Civita Giuliana), Campania:

M. Della Corte, 'Altra villa rustica, scavata dal sig. cav. Carlo Rossi-Filangieri nel fondo di Raffaele Brancaccio, nella stessa contrada Civita Giuliana (comune di Boscoreale) nei mesi da gennaio a marzo 1904', N.Sc.1921, pp.423-6; Carrington, 1931,p. 122; Crova, Edilizia, pp.177-8; Rostowzew SEHRE, p.552 No.26.

3. Boscoreale (Pisanella), Campania:

For the excavation see A. Pasqui, 'La villa Pompeiana della Pisanella presso Boscoreale', M.A. VII (1897), pp.397-554; G. Fiorelli, N.Sc.1876, p.196, N.Sc.1877, p.17, 96, 128; A. Sogliano, N.Sc.1895, p.207; A. Pasqui, N.Sc.1896, p.234. For the treasure from the villa, now in the Louvre, see A.H. de Villefosse, 'Le tresor de Boscoreale', Monuments Piot V (1899), p.7ff. For comment Cagnat and Chapot, Manuel d'Archéologie Romaine, Paris 1916, pp. 302-6; Carrington, 1931, p.119; idem, Pompeii, p.89f; Crova, Edilizia, pp.47-54; J. Day, 'Agriculture in the life of Pompeii', Yale Classical Studies III (1932), pp.180-4; Frank ESAR V, p.[illegible] p.264ff; Rostowzew SEHRE, p.552 No.13, p.564; J.E. Skydsgaard, Den Romerske Villa Rustica, Copenhagen 1961, p.12f; C.A. Yeo, 'The economics of Roman and American Slavery', Finanzarchiv XII (1952), p.445ff; White, R.F., p.422ff..

4. Boscoreale (Stazione), Campania:

M. Della Corte, 'Villa Rustica, esplorata dal sig. Ferruccio De Prisco nel fondo d'Acunzo, posto immediatamente a mezzogiorno del piazzale della stazione ferroviaria di Boscoreale (Ferrovia dello Stato), l'anno 1903', N.Sc.1921, pp.436-42; Crova, Edilizia, p.

43f, Fig.1; Rostowzew SEHRE, p.552 No.28; Day, op.cit., pp.167-208; Carrington, 1931, pp.116-22; White, 1970, p.430, Fig.7.

5. Boscoreale (Villa of Publius Fannius Synistor), Campania:

F. Barnabei, La villa pompeiana di P. Fannio Sinistore, Rome 1901; P. Lehmann, Roman Wall Paintings from Boscoreale, Cambridge, Mass. 1951; Rostowzew SEHRE, p.552 No.16; M. Robertson, 'The Boscoreale figure paintings', JRS XLV (1955), pp.58-67.

6. Boscotrecase (Villa of Tiberius Claudius Eutychus), Campania:

M. Della Corte, 'La villa rustica "Ti. Claudi. Eutychi, Caesaris l(iberti)" esplorata dal sig. cav. Ernesto Santini, nel fondo della sua proprietà alla contrada Rota (comune di Boscotrecase), negli anni 1903-5', N.Sc.1922, pp.459-79; Carrington, 1931, p.112; idem, 1934, p.273; Day, op.cit., p.176; Crova, Edilizia, p.68, Fig.7; Rostowzew SEHRE, p.552 No.31.

7. Casalaccio (Ager Veientanus), Lazio:

A. Kahane, L.M.Threipland, J.B. Ward-Perkins, 'The Ager Veientanus North and East of Rome', P.B.S.R. XXIII (1968), sites 540-541, pp. 139-44, 157.

8. Casalotto (Via Cornelia), Lazio:

P. Romanelli, 'Via Cornelia - resti di villa rustica', N.Sc.1933, pp.246-8.

9. Castrovillari (contrada Camerelle), Calabria:

F.T. Bertocchi, 'La villa Romana di Camerelle', Klearchos V (1963), pp.135-152; C.Pepe, Memorie storiche della città di Castrovillari, (1880), p.64.

10. Cugno dei Vagni*(Siris/Heraclea), Basilicata:

M. Lacava, Topographia e Storia di Metaponto, Napoli 1891, pp.17-20; L. Quilici, Forma Italiae, Regio III Vol. I: Siris - Heraclea, Rome 1967, pp.123-132; D. Adamesteanu, La Basilicata Antica, Rome 1975, p.224f.

* Quilici refers to the site by the name Ciglio dei Vagni

11. Giudonia (aeroporto di), Roma:

C. Caprino, 'Giudonia - villa rustica con torcularium', N.Sc.1944-5 pp.39-51.

12. Gragnano (contrada Carita), Campania:

M. Della Corte, 'Villa rustica esplorata dal sig. cav. Carlo Rossi -Filangieri in un fondo del sig. comm. Agnello Marchetti, posto immediatamente ad ovest della Via Scafati - Gragnano, nella contrada Carità, in comune di Gragnano', N.Sc.1923, pp.275-80; Carrington, 1931, p.122; idem, 1934, p.272; Crova, Edilizia, pp.70-2; Day, op.cit, p.185; Rostowzew SEHRE, p.553 No.34; White RF, pp. 437-8; Yeo, op.cit., pp.449-51.

13. Gragnano (contrada Messigno), Campania:

M. Della Corte, 'Villa rustica esplorata dal sig. Giacomo Matrone in un fondo di sua proprietà, posto immediatamente ad Occidente della via vicinale che attraversa, in direzione Nord - Sud, la contrada Messigno, in comune di Gragnano', N.Sc.1923, pp.271-4; Carrington, 1931, p.121; idem, 1934, p.275; idem, 1936, pp.94-5; Rostowzew SEHRE, p.553 No.33.

14. Grannaracio (Tivoli), Lazio:

D. Faccenna, 'Tivoli (localita Grannaracio) - resti della parte rustica di una villa', N.Sc.1957, pp.148-53.

15. Grotta del Malconsiglio (Sybaris), Calabria:

E. Galli, 'Due ville romane in agro Sybaritano', Atti del IInd Congresso nazionale di studi romani: I, Rome 1931, p.267f.; idem, 'La villa rustica della Grotta del Malconsiglio', A.M.S.M.G. 1929, p.46f.. E. Magaldi, Lucania Romana Rome 1947, pp.62-3.

16. Lago del Lupo (Metaponto), Basilicata:

D. Adamesteanu, Basilicata Antica, Rome 1975, p.78ff; idem, 'Le suddivisioni di terra nel Metapontino' in M. Finley (ed), Problèmes de la terre en Grèce ancienne, Paris 1973, p.78ff.

17. Lucinico (Gorizia), Venezia Giulia:

S. Stucchi, 'Lucinico (Gorizia) - villa rustica romana', N.Sc.1950, pp.1-16.

18. Monna Felice (Civitavecchia), Lazio:

O. Toti, 'Civitavecchia - edificio rustico romano in località Monna Felice', N.Sc.1966, pp.79-90; M. Torelli, 'Contributo archeologia alla storia sociale: I - l'Etruria e l'Apulia', Dialoghi de Archeologia, Anno IV - V (1970-1), pp.431-442.

19. Monte Forco (Ager Capenas), Lazio:

G.D.B. Jones, 'Capena and the Ager Capenas: Part I', P.B.S.R. XVII (1962), pp.172-3, site No. 154; idem, P.B.S.R. XVIII (1963), pp. 147-158.

20. Pareti (Buccino), Campania:

S.L. Dyson, 'Excavations at Buccino, 1971', A.J.A. 76 (1972), pp. 161-3.

21. Portaccia (Tarquinia), La[illegible]

P. Romanelli, 'Tarquinia - [illegible]menti fortuiti nella necropoli e nel territorio (1930-38)', [illegible]1943, pp.213-2[illegible].

22. Posto (Francolise), Campania:

P. Von Blankenhagen, M.A. Cot[illegible]on, J.B. Ward-Perkins, 'Two Roman villas at Francolise', P.B.S.R. XX (1965), pp.55-69; idem, 'Francolise (Caserta) - Rapporto provvisorio del 1962-4 sugli scavi di due ville romane della Repubblica e del Primo Impero', N.Sc.1965, pp.237-252.

23. Priorato (Gela), Sicilia:

D. Adamesteanu, 'Contrada Priorata (Butera) - scavo di una fattoria greca', N.Sc.1958, pp.264-73.

24. Pratella (Imola), Emilia e Romagna:

D. Scagliarini, Ravenna e le ville romane in Romagna, (Collana di quaderni di antichità Ravennati, cristiane e bizantine diretta dal prof. G. Bovini dell' Università di Bologna. Quaderno No.X), Ravenna 1968, pp.16-21, Fig.10; G.A. Mansuelli, 'La villa romana nell' Italia settentrionale', P.P. LVII (1957), pp.454-55.

25. Russi (Ravenna), Emilia e Romagna:

G.A. Mansuelli, La villa romana di Russi, Faenza, 1962; idem, 'Russi (Ravenna) - scavo di una villa romana (1953-5)', Bolletino d'Arte II (1956), pp.151-57; idem, Le ville del mondo Romano, Milano 1958, pp.77-8; D. Scagliarini, op.cit., pp.12-28.

26. Sambuco (Blera), Lazio:

C. Ostenberg, 'Luni and Villa Sambuco', in Etruscan Culture, Land and People, Malmo 1960, pp.313-20; E. Berggren, 'A new approach to the closing centuries of Etruscan history', Arctos V (1967), pp. 29-43.

27. San Rocco (Francolise), Campania:

P. Von Blankenhagen, M.A. Cotton, J.B. Ward-Perkins, 'Two Roman villas at Francolise', P.B.S.R. XX (1965), pp.55-69; idem, 'Francolise (Caserta) - Rapporto provvisorio del 1962-4 sugli scavi di due ville romane della Repubblica e del Primo Impero', N.Sc. 1965, pp.237-252. J.B. Ward-Perkins, E.R.A., p.319. Fig.124.

28. San Sebastiano al Vesuvio, Campania:

G.C. Irelli, 'S. Sebastiano al Vesuvio - villa rustica romana', N.Sc.1965, Suppl., pp.161-178.

29. San Vito (Salapia), Puglia:

M. D.Marin, 'Scavi archeologici nella contrada S. Vito presso il lago di Salpi', Archivio Storico Pugliese 1964, p.171ff.

30. Scafati (contrada Crapolla), Campania:

M. Della Corte, 'Villa rustica parzialmente esplorata dall' on. sig. Vincenzo De Prisco in un fondo di sua proprietà alla contrada Crapolla (comune di Scafati)', N.Sc.1923, pp.284-7; Rostowzew SEHRE, p.553 No.36.

31. Scafati (contrada Spinelli), Campania:

M. Della Corte, 'Villa rustica scavata dal sig. ing. Gennaro Matrone in un fondo di sua proprietà situato nella contrada Spinelli (comune di Scafati) a sud del portellone n.27 nel R. Canale del Sarno', N.Sc.1923, pp.280-284; Rostowzew SEHRE, p.553 No.35; Skydsgaard, Den Romerske Villa Rustica, Copenhagen 1961, p.17f., Fig.7.

32. Scalea (Cosenza), Calabria:

G. Pesce, 'Scalea - trovamenti varii', N.Sc.1936, pp.67-74.

33. Selvasecca (Blera), Lazio:

E. Berggren and A. Andren, 'Blera (località Selvasecca) - Villa rustica etrusco-romana con manifattura di terrecotte architettoniche', N.Sc.1969, pp.51-71; Berggren, 'A new approach to the closing centuries of Etruscan history', Arctos V (1967), pp.29-43.

34. Stabiae/Gragnano, Campania:

M. Ruggiero, Degli scavi di Stabia dal 1749 al 1782, Naples$_2$1881, p.351ff; A. Rich, A Dictionary of Roman and Greek Antiquity, New York 1901, s.v. 'torcularium'.

35. Titignano (comune di Orvieto), Roma:

A. Minto, 'Titignano (frazione del comune di Orvieto) - avanzi di un torcularium di età romana', N.Sc.1914, pp.167-8.

36. Valle di Pompeii, Campania:

M. Della Corte, 'Valle di Pompei. Parziale esplorazione di una villa rustica, nella cava di lapillo di Angelantonio De Martino', N.Sc.1929, p.190ff..

37. Via Tiberina, Roma:

B.M. Felletti Maj., 'Roma (Via Tiberina) - villa rustica', N.Sc. 1955, pp.206-16.

38. Vicovaro (Licenza), Lazio:

G. Lugli, 'La villa Sabina di Orazio', M.A. XXXI (1926), p.125ff, p.502, No.14; C.F. Giuliani, Tibur: part II. Forma Italiae Reg.I.3. Rome 1966, p.74. No. 2; Fig.73.

39. Villa Magna (Anagni), Lazio:

M. Mazzolani, Anagnia: Forma Italiae Reg.I. Vol.6., Rome 1969, pp. 133-8, No. 104; T. Ashby, 'The classical topography of the Roman Campagna - III (the Via Latina)', P.B.S.R. V (1910), p.425.

40. Vittimose (Buccino), Campania:

R. Ross Holloway and S.L. Dyson, 'Excavations at Buccino, 1970', A.J.A. 75. (1971), pp.151-54; Ross Holloway, 'Villa romana', in Atti del IX convegno di studi sulla Magna Grecia, Napoli 1970, p.203.

Appendix D.

Other sites: a further catalogue of excavated (or surveyed) rural villas in Italy.*

Akrai (Siracusa), Sicilia:

G.Gurcio, 'Akrai (Siracusa) - richerche nel territorio: la fattoria tard[illegible]enistica', N.Sc.1970, pp.447-465.

Casignana, Calabria:

G.Foti, Atti del V convegno di studi sulla Magna Grecia, Napoli 1966, p.225f..

Cecchignola (Via Ardeatina), Roma:

P.E.Arias, 'Villa repubblicana presso La Cecchignola', N.Sc.1939, pp. 351-60.

Colle Faustiniano (Praeneste), Lazio:

M.P.Muzzioli, Praeneste - Forma Italiae Reg.I. Vol.8., Rome 1970, No. 106, 'Villa e cisterna', pp.103-4.

Livastrito (Cori), Lazio:

P.B.Vittucci, Cora - Forma Italiae Reg.I. Vol.5., Rome 1968, No.32, pp. 113-6.

* This catalogue does not include t[illegible] rema[illegible] 'Campanian villae rusticae' listed by J. Day, 'Agricultu[illegible] in the [illegible]e of Pompeii', Yale Classical Studies III (1932), Table C, [illegible] list is selective; it includes buildings that have been [illegible]cavated [illegible]r those which have been surveyed to provide an adequate plan [illegible] main features. It also contains references to recent excavations whose detailed publication may be forthcoming.

Luogosano (contrada S. Stefano), Campania.

E. Gabrici, 'Luogosano - avanzi di costruzioni di età romana sul Monte S. Stefano', N.Sc.1901, pp.333-6.

Macerata (Anagni), Lazio:

M. Mazzolani, Anagnia - Forma Italiae Reg.I. Vol.6., Rome 1969, No.35, pp.113-4.

Mensa Matelica (Ravenna), Emilia e Romagna:

G.A. Mansuelli, 'Ravenna (frazione Mensa) - abitato preistorico. Casa romana', N.Sc.1959, pp.31-5.

Metauros (Sybaris), Calabria:

A. De Francescis, 'Metauros: la casa romana', A.M.S.M.G. III (1960), pp. 52-6.

Montecanino (Capena), Lazio:

M. Pallottino, 'Capena - resti di costruzioni romane e medioevali in località "Montecanino" ', N.Sc.1937, pp.7-28.

Monte Cuculo (Capena), Lazio:

G.D.B. Jones, 'Capena and the Ager Capenas: Part I', P.B.S.R. XVII (1962) Site No. 204, p.179.

Monte Irsi (Gravina), Basilicata:

A.M. Small, Monte Irsi, Southern Italy, (B.A.R. Supp.Vol.36), Oxford, 1977.

Nocera Superiore, Campania:

M. Della Corte, 'Nocera Superiore - piscina e ruderi di una villa rustica', N.Sc.1932, pp.318-9.

Orbetello, Lazio:

G. Maetzke, 'Villa rustica in tenuta Polverosa', N.Sc.1958, pp.34-49.

Persolino (Faenza), Emilia e Romagna:

A. Schassi, in Archivio della soprintendenza alle antichità dell'Emilia e Romagna 1959.

Pollena Trocchia, Campania:

M. Della Corte, 'Pollena Trocchia - cella vinaria e piscina presso i ruderi di una villa rustica', N.Sc.1932, pp.311-14.

Porto Saturo (Leporano), Puglia:

E. Lattanzi, in Atti del X convegno di studi sulla Magna Grecia, Napoli 1971, p.541.

Pratigioli (Anagni), Lazio:

Mazzolani, op.cit., Nos. 76/79, pp.124-5.

Punta della vipera (S. Marinella), Lazio:

M. Torelli, 'Terza campagna di scavi a Punta della Vipera (S.Marinella)' Studi Etruschi XXXV (1967), pp.331-352.

Pyrgi, Lazio:

F. Castagnoli and L. Cozza, 'Appunti sulla topografia di Pyrgi', P.B.S.R. XXV (1957), pp.16-21; p.20 Fig.2.

Riolo (Bologna), Emilia e Romagna:

A. Negrioli, 'Riolo - scoperte di costruzioni romane', N.Sc.1913, pp. 202-4.

San Marino (Napoli), Campania:

A. Rocco, 'S. Rocco di Mara[illegible] (Napoli) - ricognizione archeologica nella frazione di S. Rocco', N.Sc.[illegible], p.33ff.

Serrone (Anagni), Lazio:

Mazzolani, op.cit., No.89, 'Villa rustica e terrazamenti agricoli al Serrone', pp.128-9.

Tolve - Moltone (Tolve), Basilicata:

D. Adamesteanu, La Basilicata Antica, Rome 1975 p.219, Plate p.2[illegible]. Popoli anellenici in Basilicata, 1971, p.90f., Plate XXXV. Publication of this farm forthcoming in Atti del XII convegno di studi sulla Magna Grecia.

Torricella, Puglia:

F.G. Lo Porto, 'Resti di una villa rustica romana', Atti del XI convegno di studi sulla Magna Grecia, Napoli 1972, p.500. Plate CXXXVIII.

Vagni (Buccino), Campania:

S.L. Dyson, 'Excavations at Buccino, 1971', A.J.A. 76 (1972), pp.159-163.

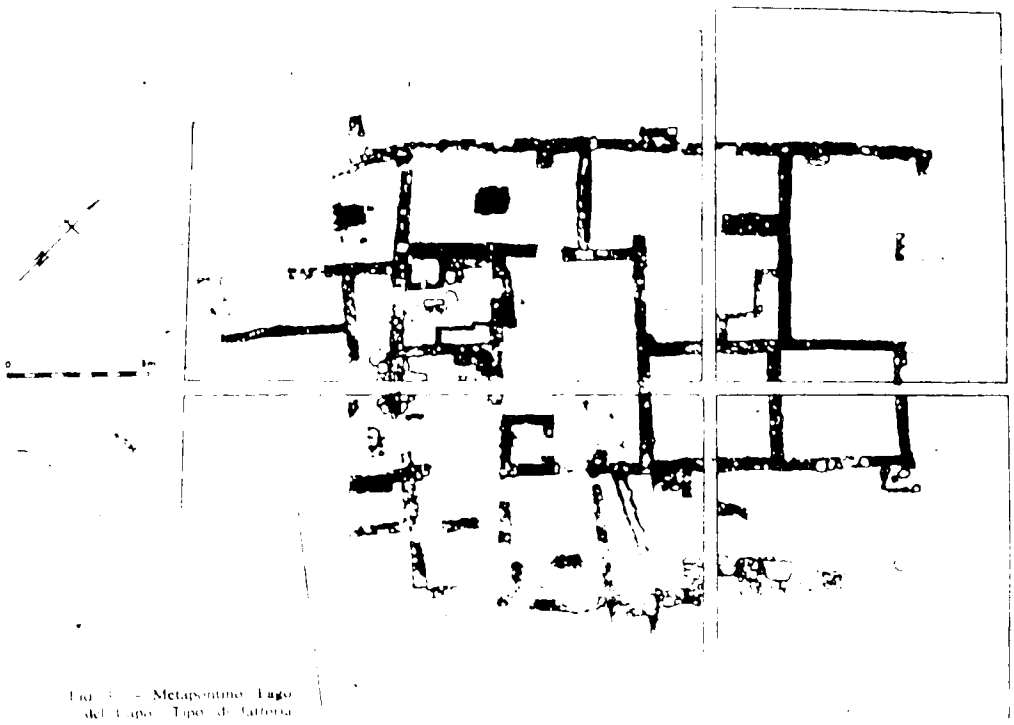


Fig.1. Lago del Lupo.

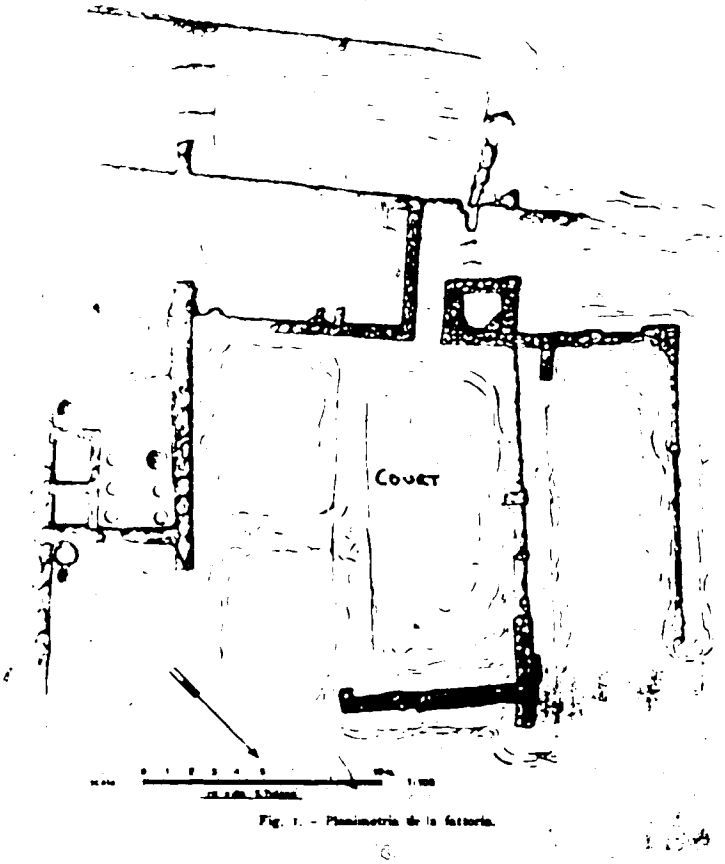


Fig.2. Priorato.

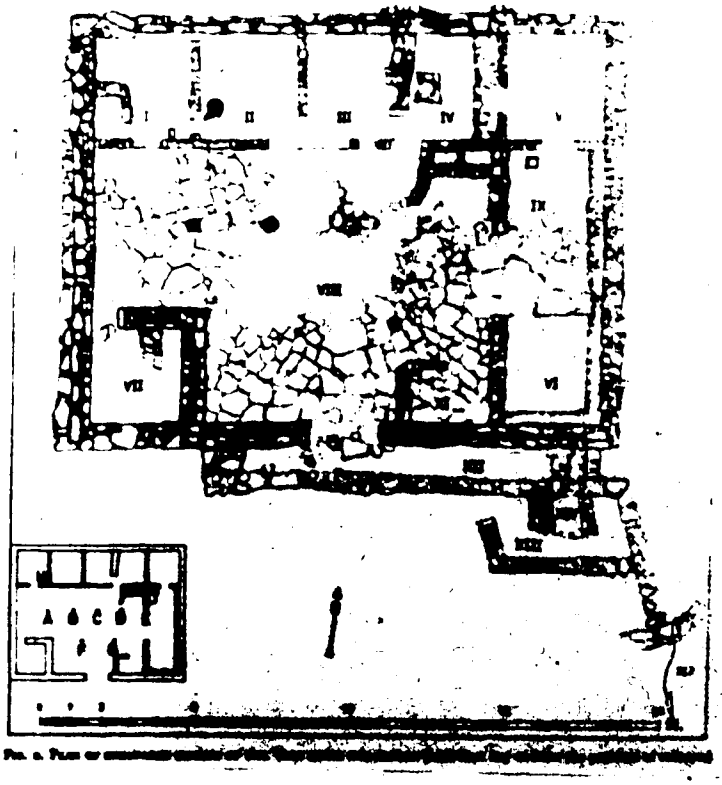


Fig.3. The Vari House

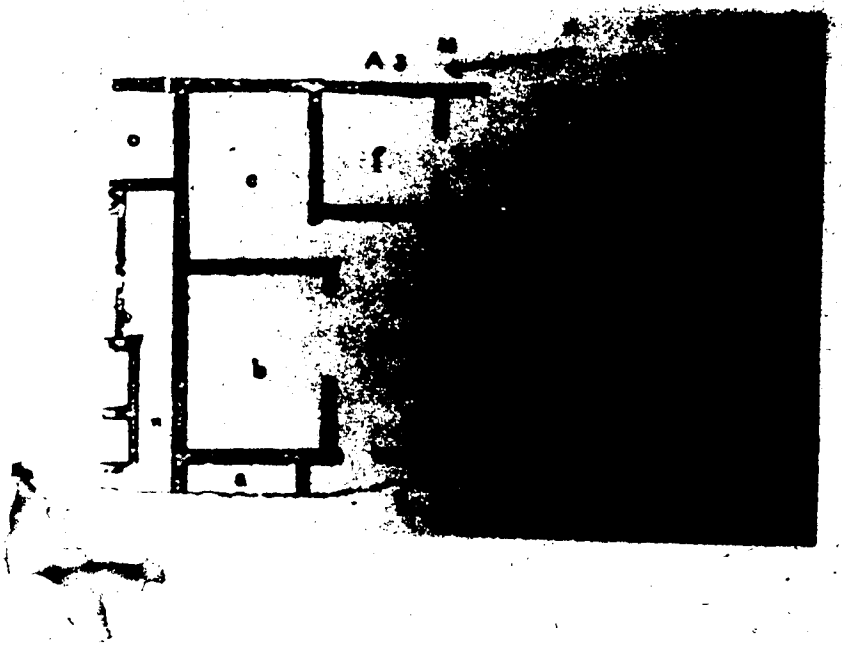


Fig.4. House A3 at Olynthus.

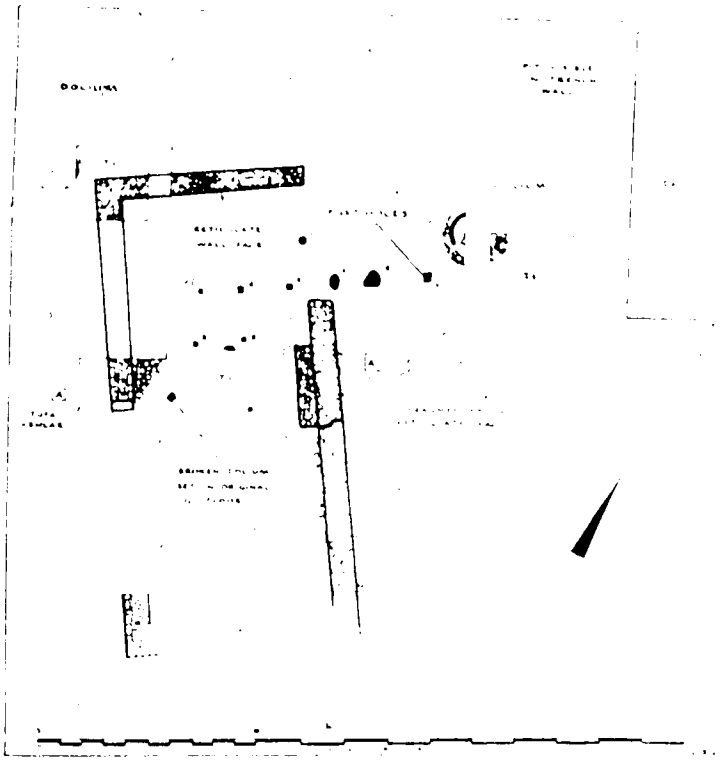


Fig.5. Monte Forco

Fig.6.

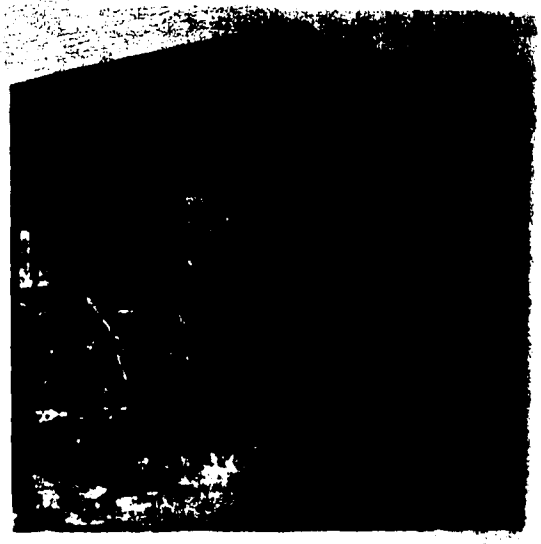


Fig.7.

Fig.8.

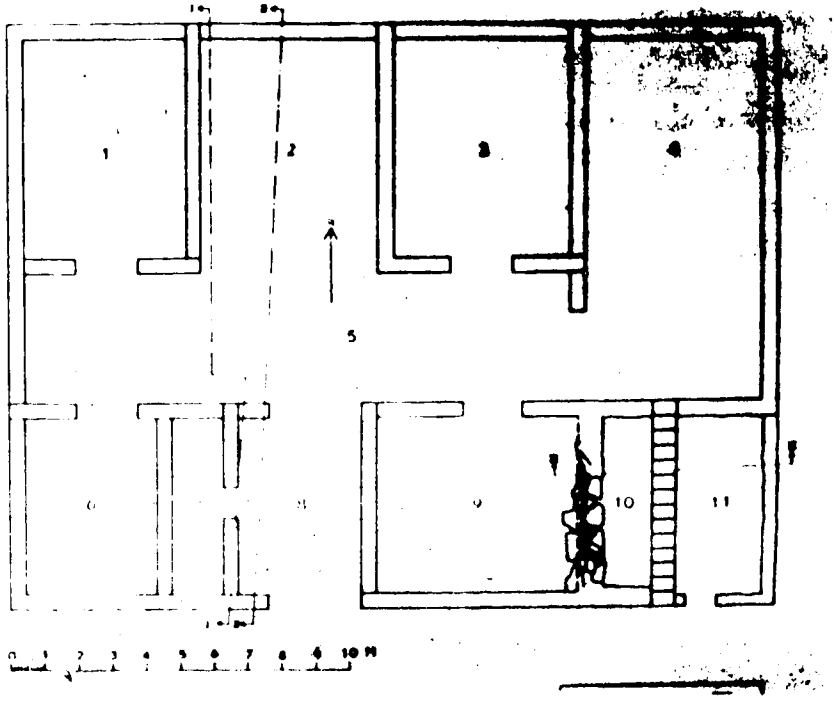
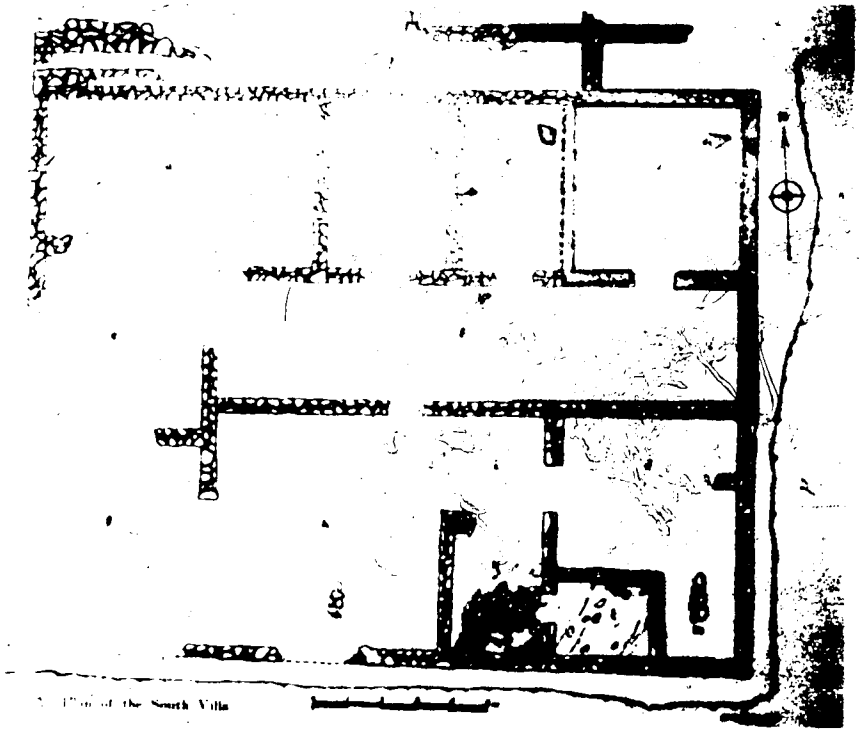


Fig. 287. Villa Sambuco. Reconstruction of the ground plan

Fig.9. Villa Sambuco.

Fig.10. The South Villa at Olynthos.



KEY TO FIG. 9. (After Ostenberg)

1 - 4. Storage rooms.

5. Corridor.

6. Stable.

7. Stairwell.

8. Entrance hallway.

9. Slaves' living quarters. (In fact a kitchen)

10. Tower.

11. Store-shed.

KEY TO FIG. 10. (After Robinson)

a/b/c/d. Domestic rooms.

f. παστας

e/g. Uncertain use.

h/i. Courtyard.

j. Oecus

k. Front hall/shop.

l. Kitchen.

m. Bathroom.

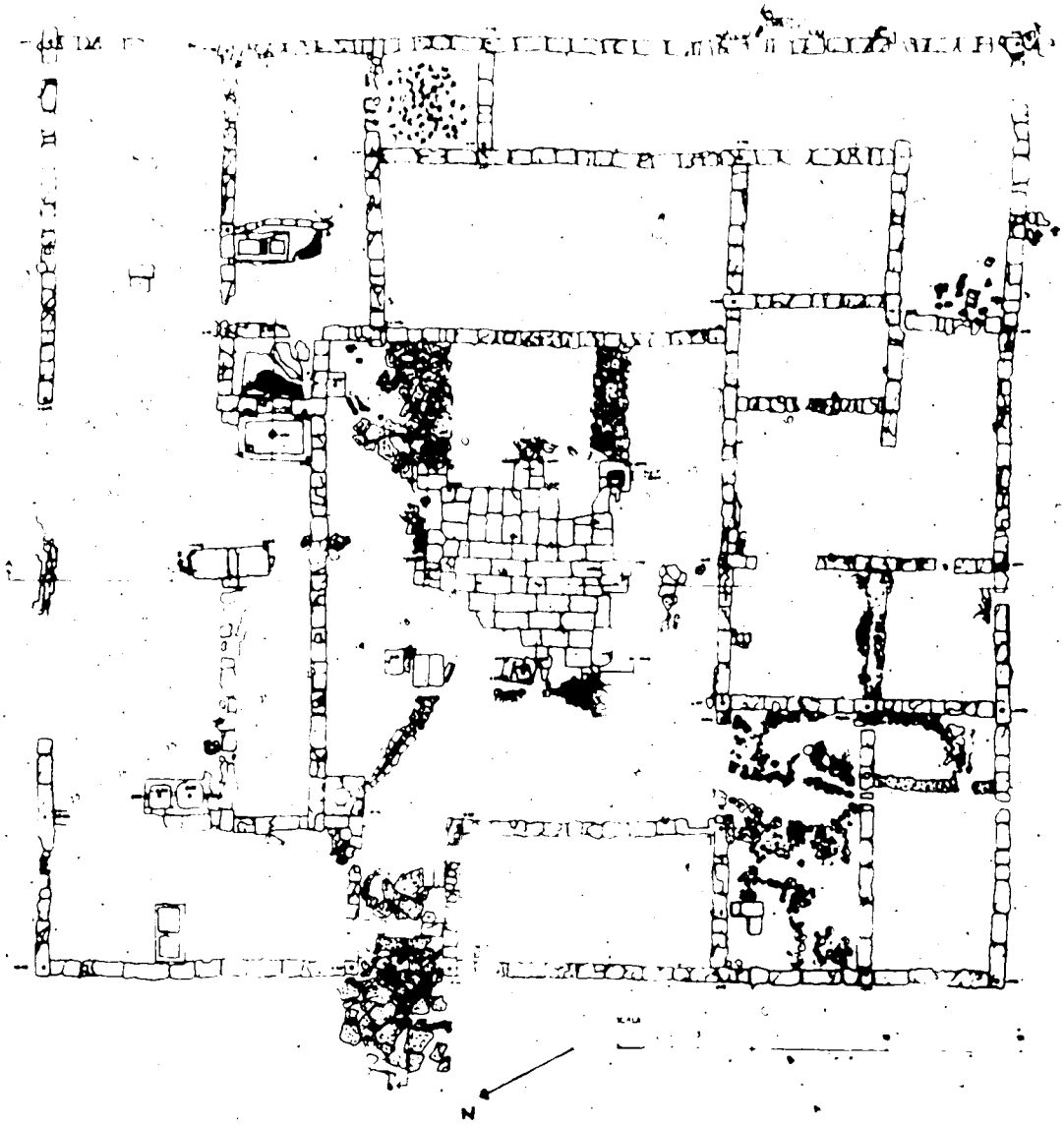
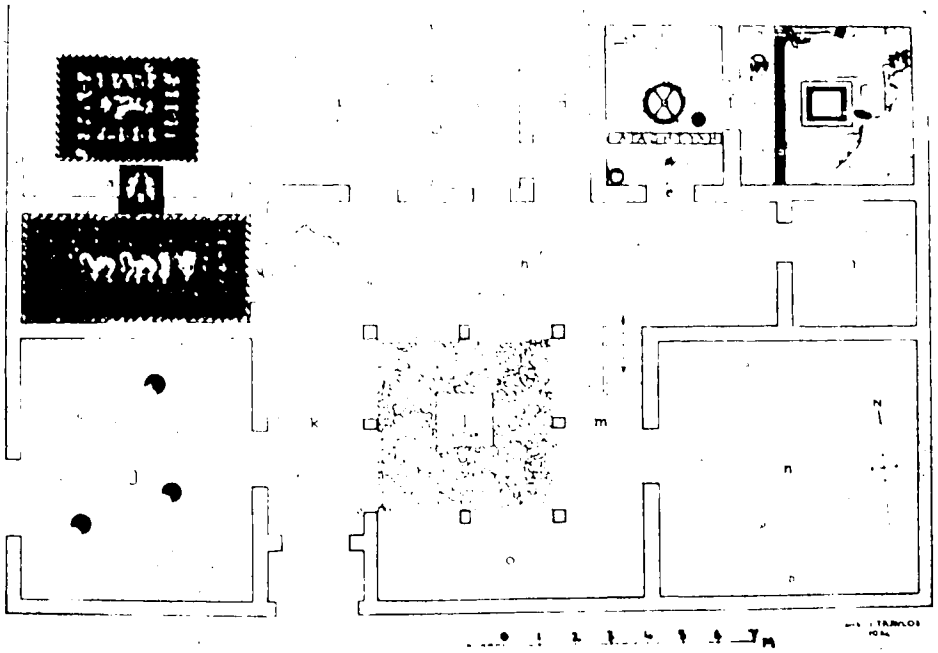


Fig.11. Villa Selvasecca.



2. Restored Plan of the Villa.

Fig.12. The Villa of Good Fortune at Olynthos.

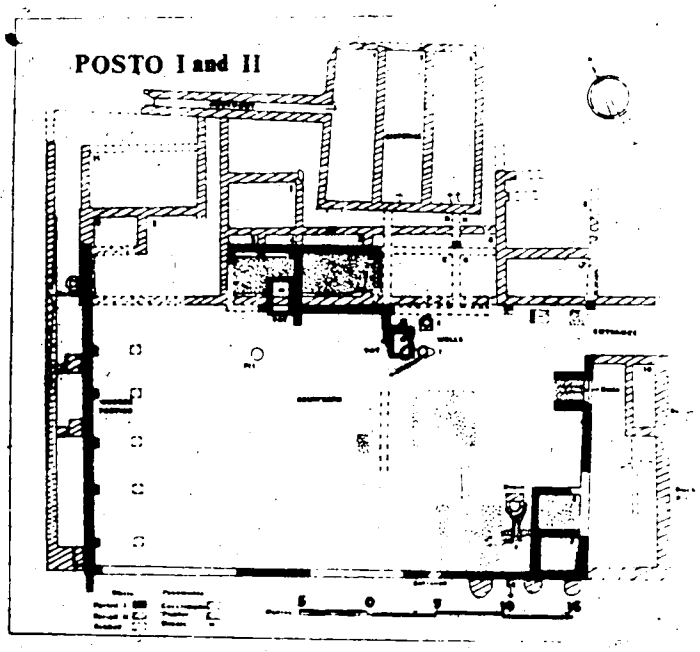


Fig.13.Posto.

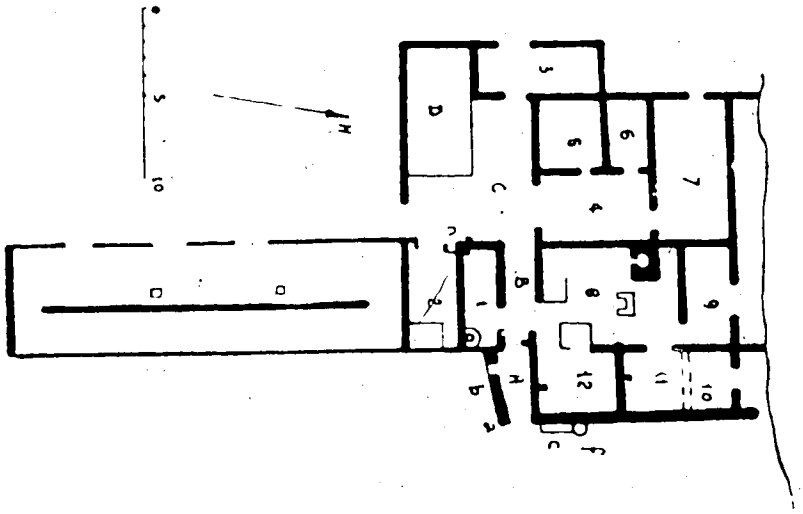
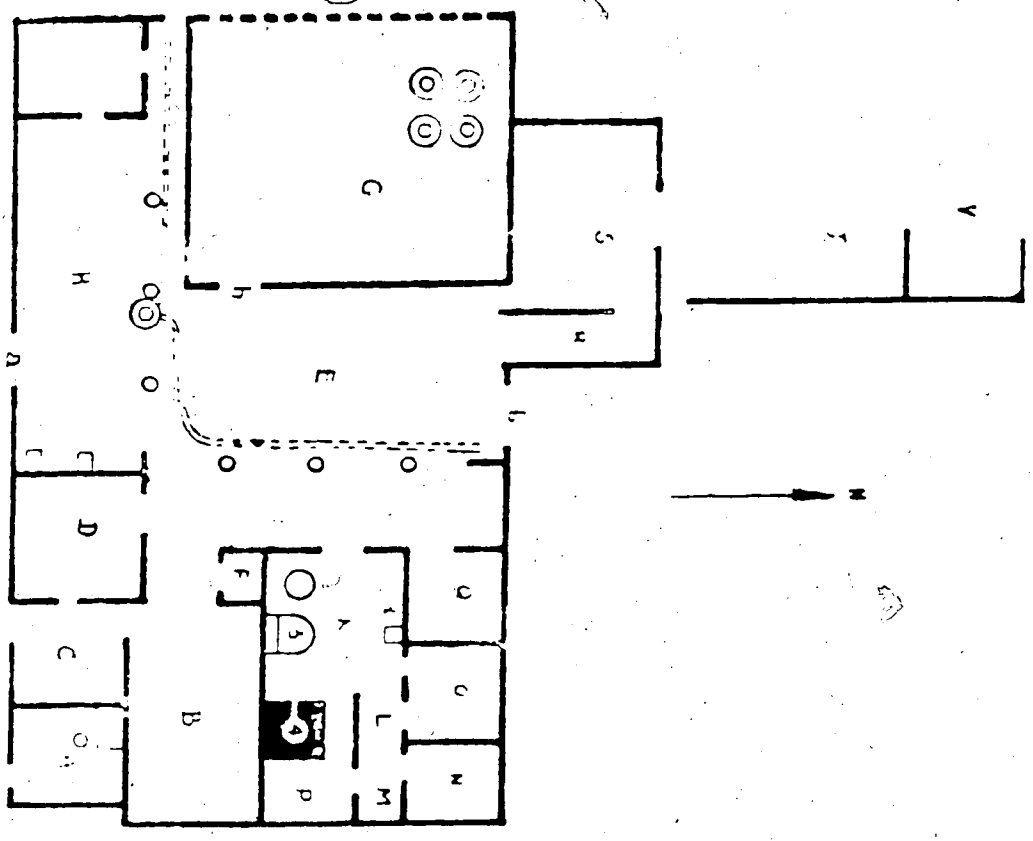


Fig.14. Boscoreale Stazione

Fig.15. Boscoreale (contrada Giuliana)



KEY TO FIG. 14. (After Crova)

A. Main entrance.

B. Inside corridor.

C. Courtyard.

D. Vegetable garden.

a. Pilaster.

b. Bench.

c. Stove for preparing hot drinks.

f. Water trough.

1. Room with oven and cupboard.

2. Small press-room.

3. Room with dolia.

4 - 6. Domestic rooms.

7. Barn.

8. Kitchen.

9. Use uncertain.

10 - 11. Sheep pen.

12. Dining-room.

KEY TO FIG. 15. (After Crova)

A. Lararium

B. Dining-room.

C. Bedroom.

D. Press-room store.

E. Courtyard.

F. Store.

G. Wine store.

H. Press-room.

K. Kitchen.

L/M. Corridor with latrine.

N - P. Use uncertain.

Q. Bedroom.

R - 1. Stairs.

S. Barn.

T/V. Threshing floor.

3/4. Ovens.

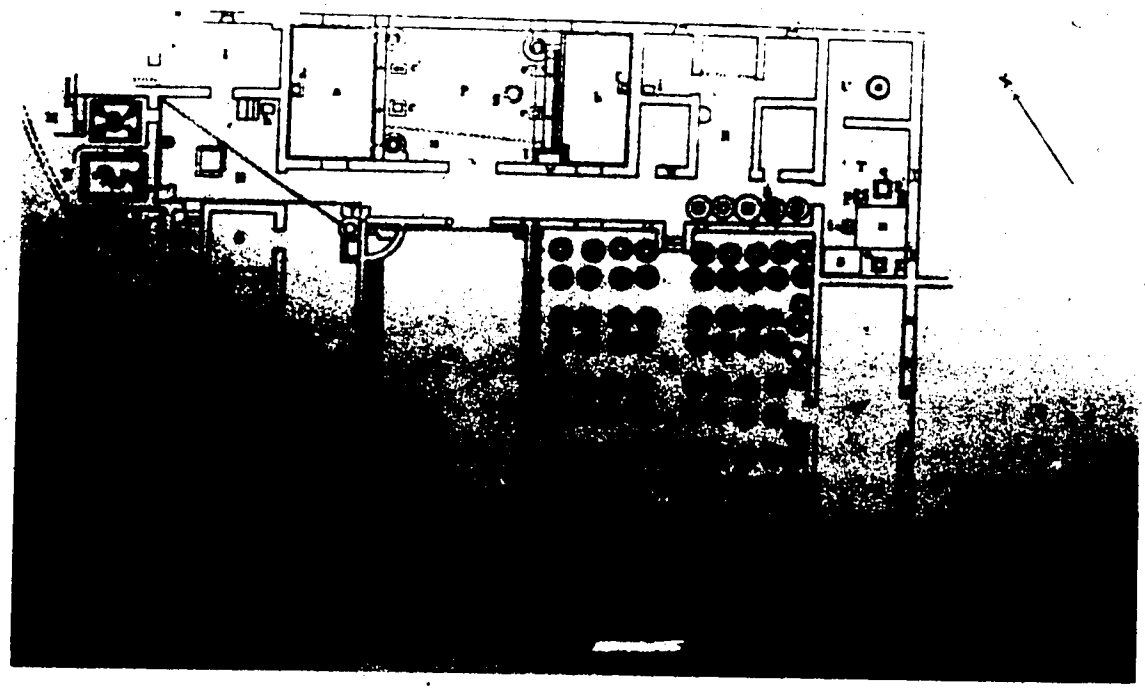
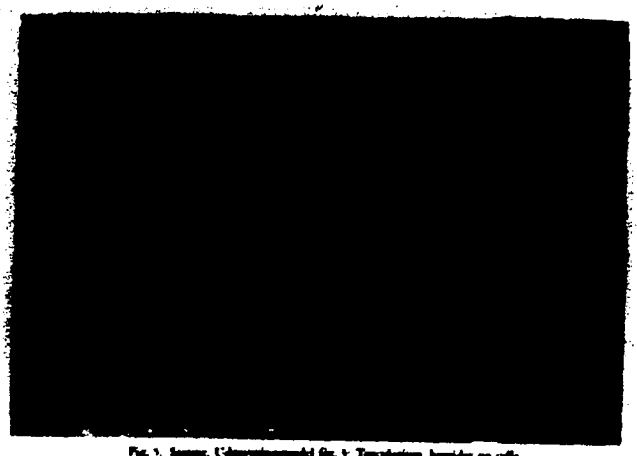


Fig. 16. Boscoreale (Pisanella).

Fig. 17. Model of the same (Museo della Civiltà Romana).



KEY TO FIG. 16 (After Pasqui)

A. Courtyard.

B. Anteroom.

C. Uncertain use (domestic).

D. " "

E. Corridor.

F. Uncertain use (domestic).

G. Tool store-room.

H. Kitchen.

I. Stable.

L - O. Bath rooms.

P. Press-room.

Q. Wine store.

R. Room with hand-mill.

S. Corridor with dolia.

T. Press-room.

U. Room with olive mill.

V. Store-room/barn.

Z. Threshing floor.

a. Press platform.

b. "

c/c^1. e/e^1. Slots for drum supports.

d/f. Slot for main upright standards.

g. Inspection hatch.

h. Chamber giving access to d.

i. " " " to f.

l. Collecting tank.

n. Press platform.

o. Slot for main upright.

p/p^1. Slots for drum supports.

q. Inspection hatch.

r. Chamber giving access to o.

s/t. Collecting tanks.

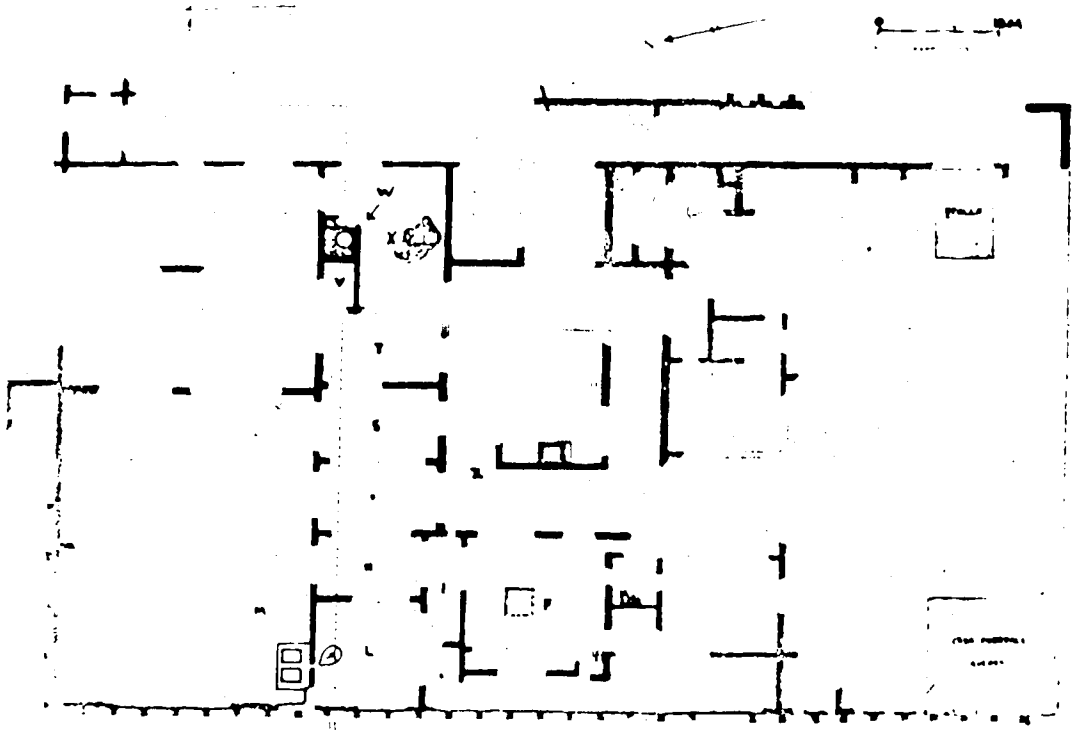
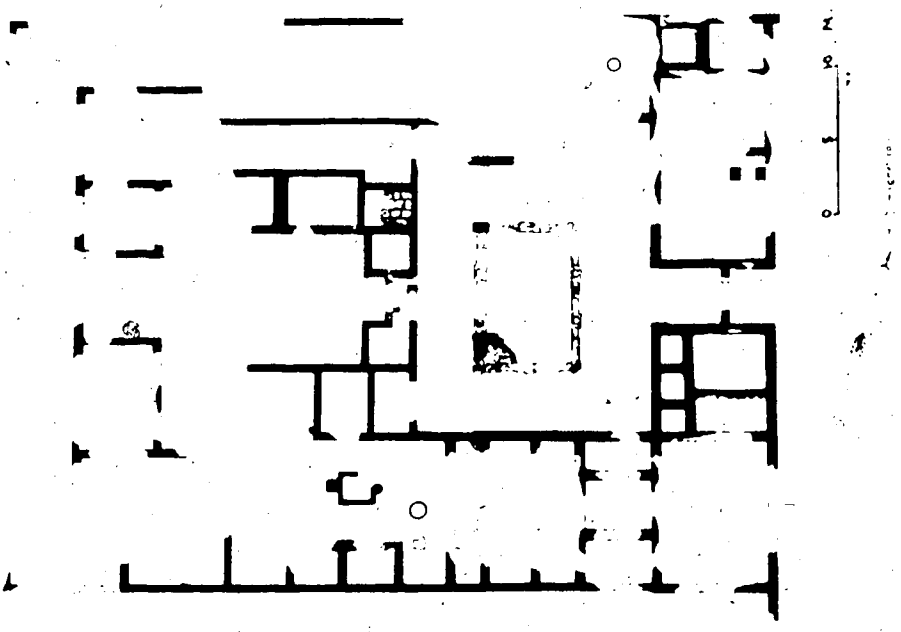


Fig. 18. Camerelle.

Fig. 19. Portaccia.



KEY TO FIG. 18. (After Bertocchi)

F. Impluvium.

G/I. Uncertain use.

L. Press-room.

M. Store-room.

N/O/S/T. Store-rooms.

V/W. Settling vats.

X. Press-room.

Z. Peristyle.

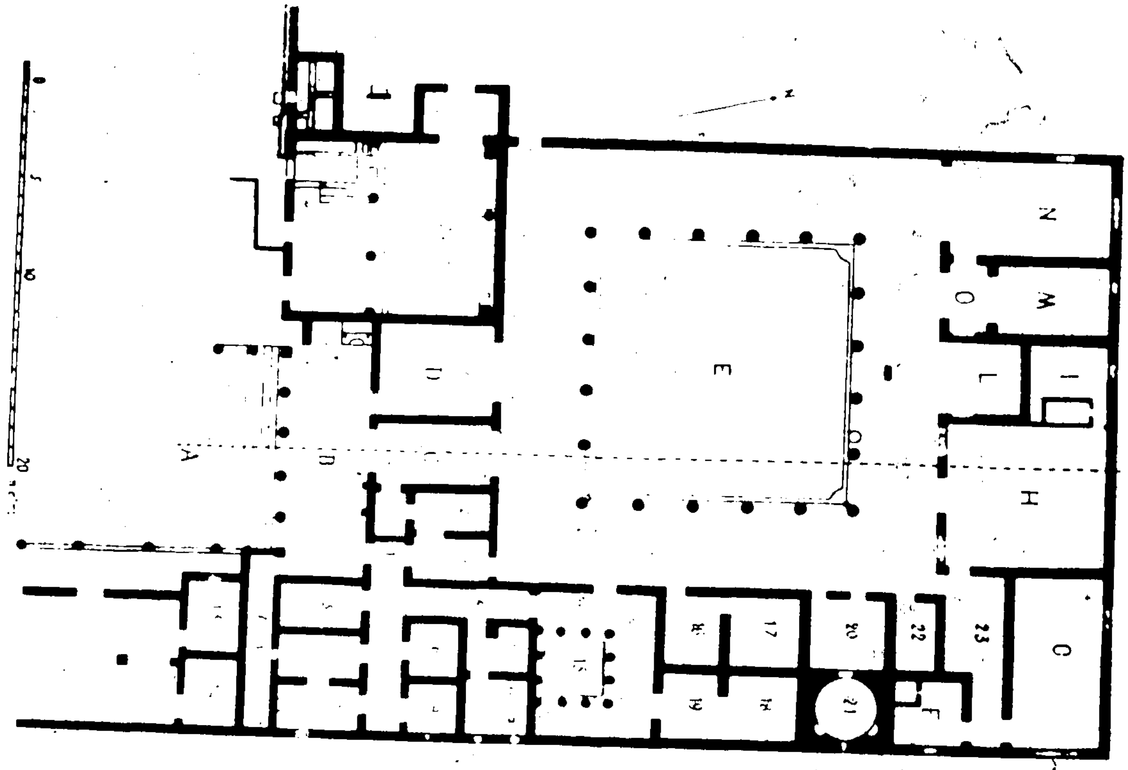


Fig. 20.

Fig. 21.

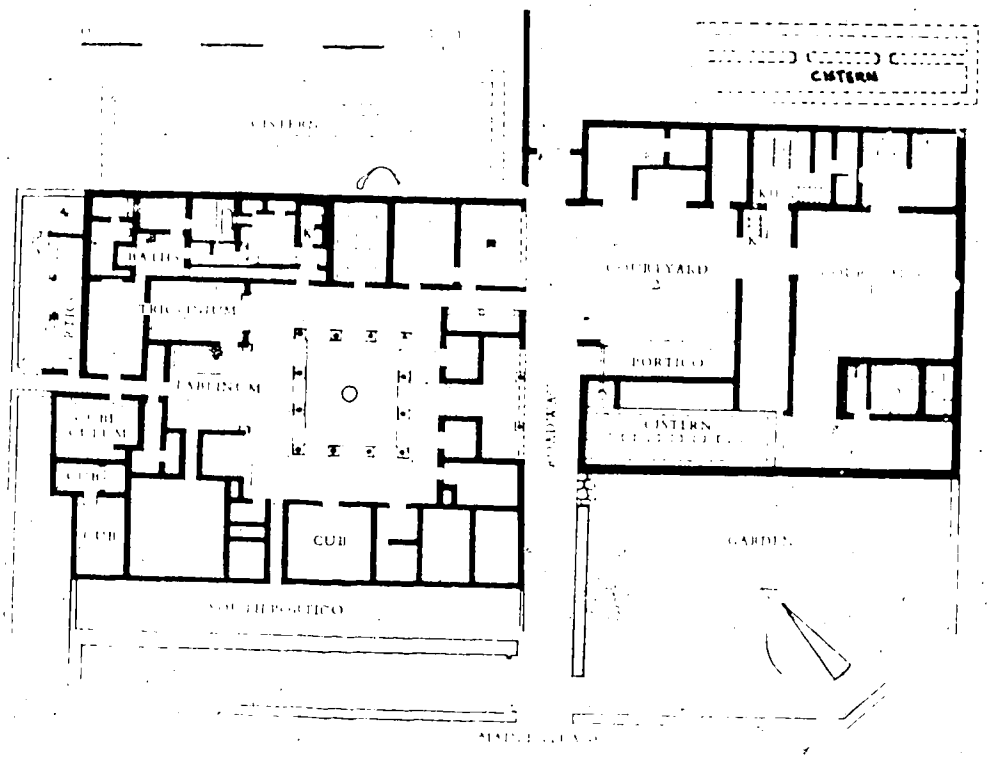


Fig. 22. San Rocco

Fig. 23. Russi.

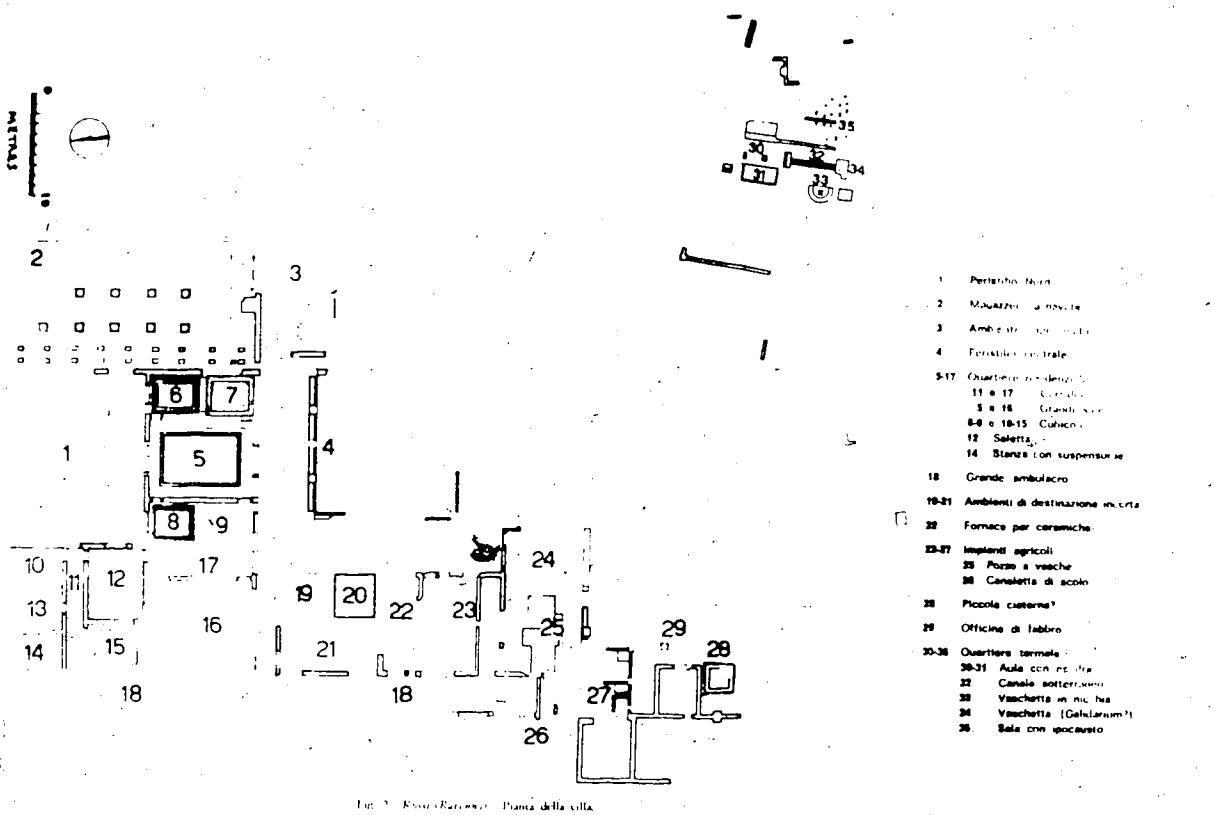


Fig. 3. Rocca Ranuccio. Pianta della villa.

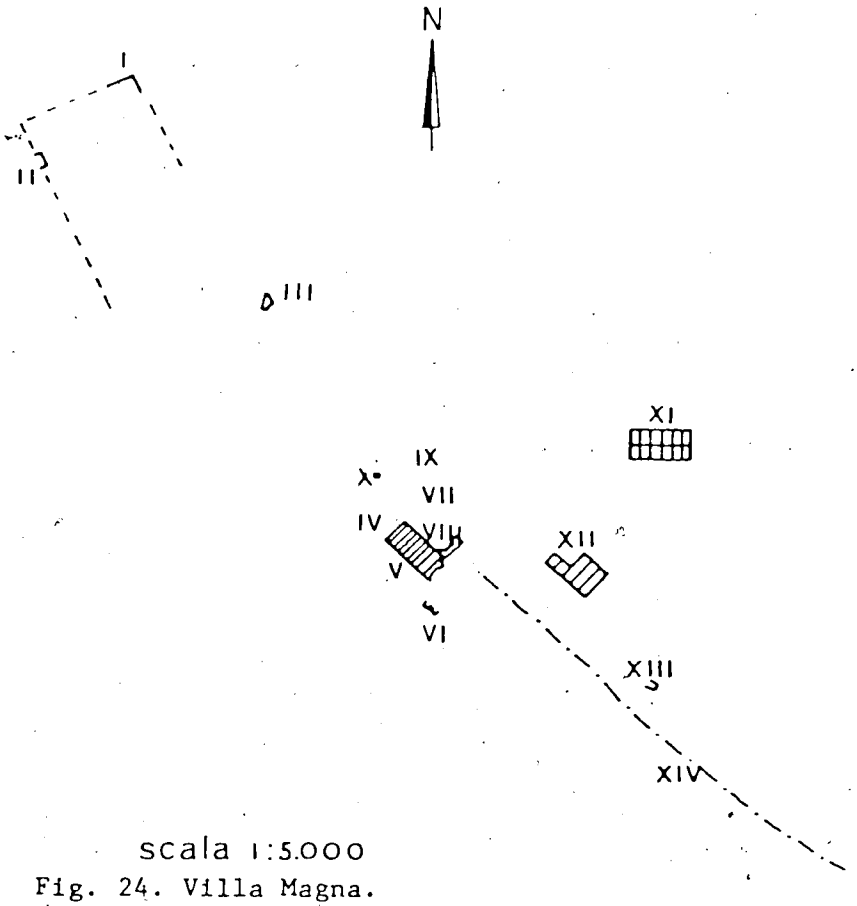
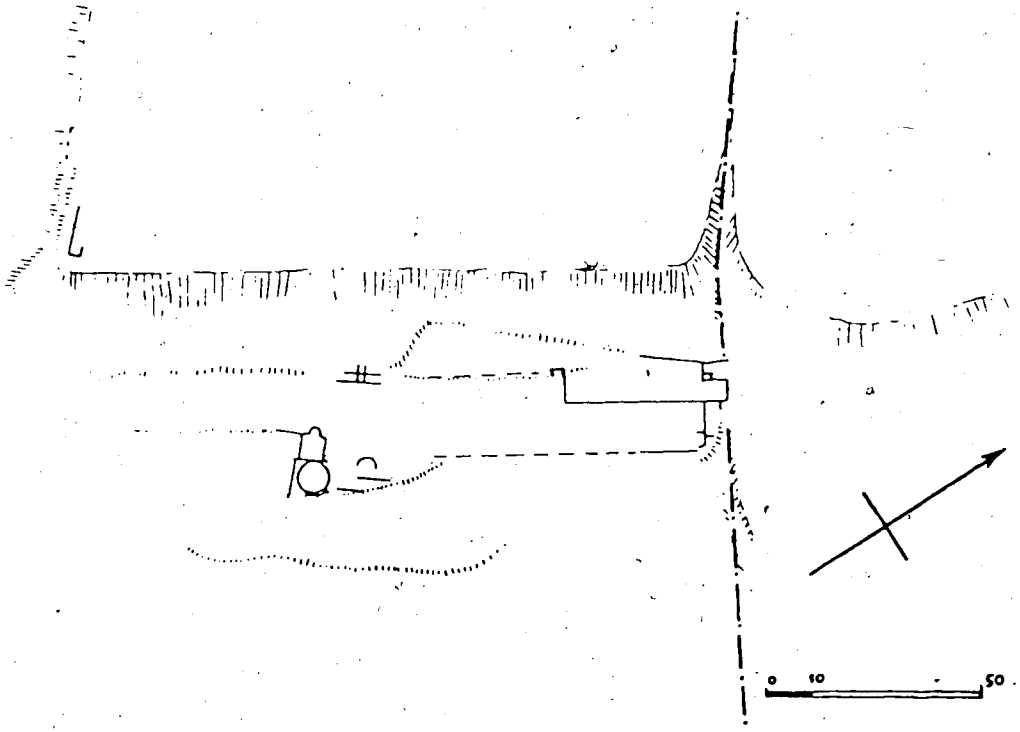


Fig. 24. Villa Magna.

Fig. 25. Cugno dei Vagni.



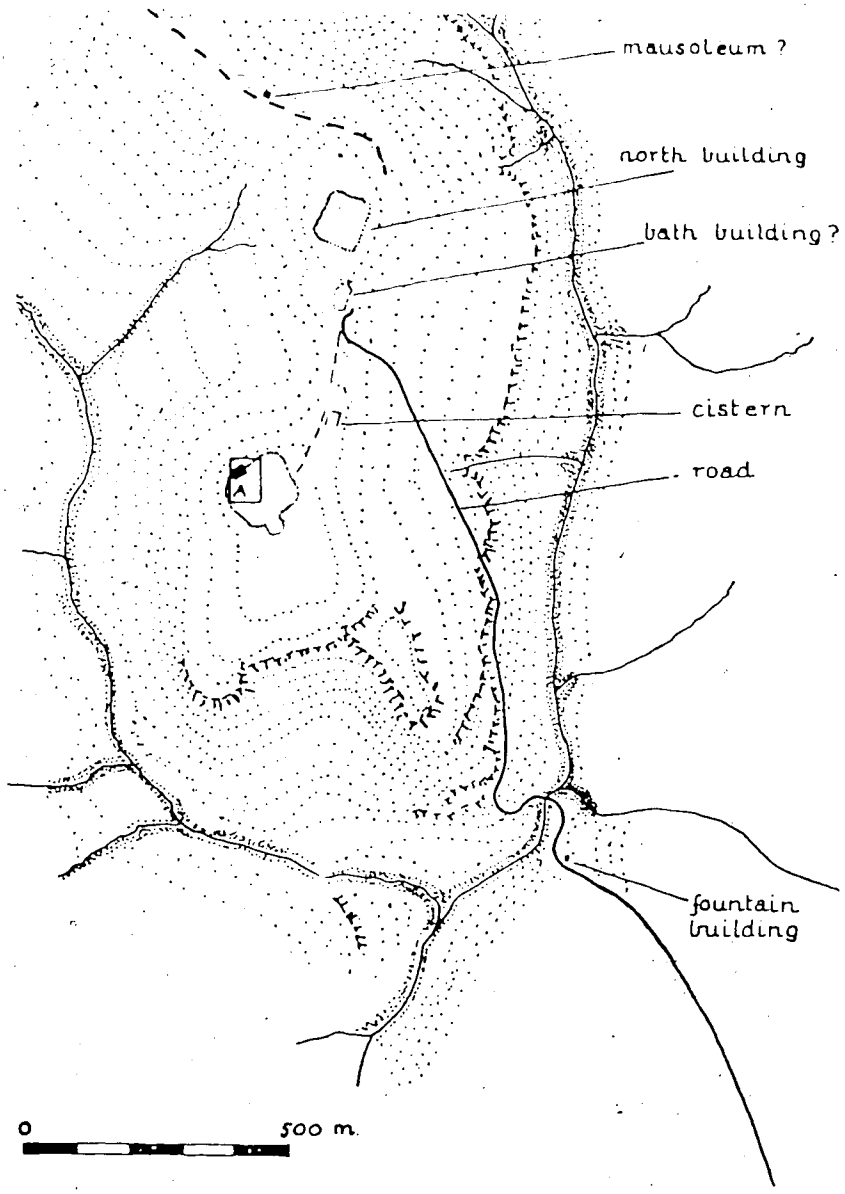


Fig. 26. Casalaccio.

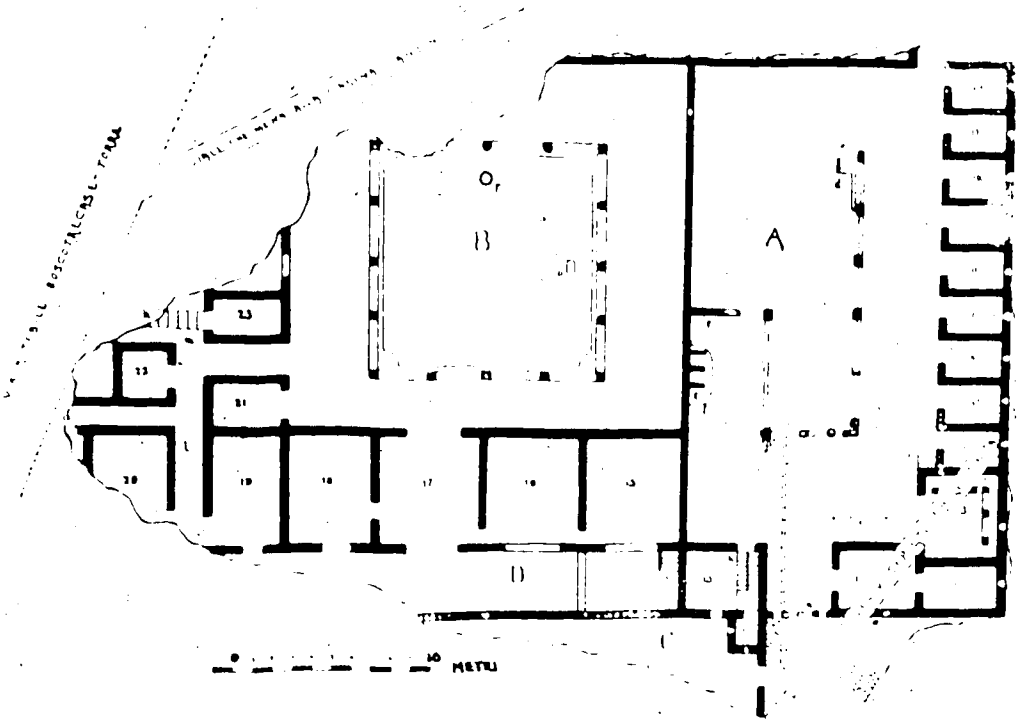

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Fig. 27.

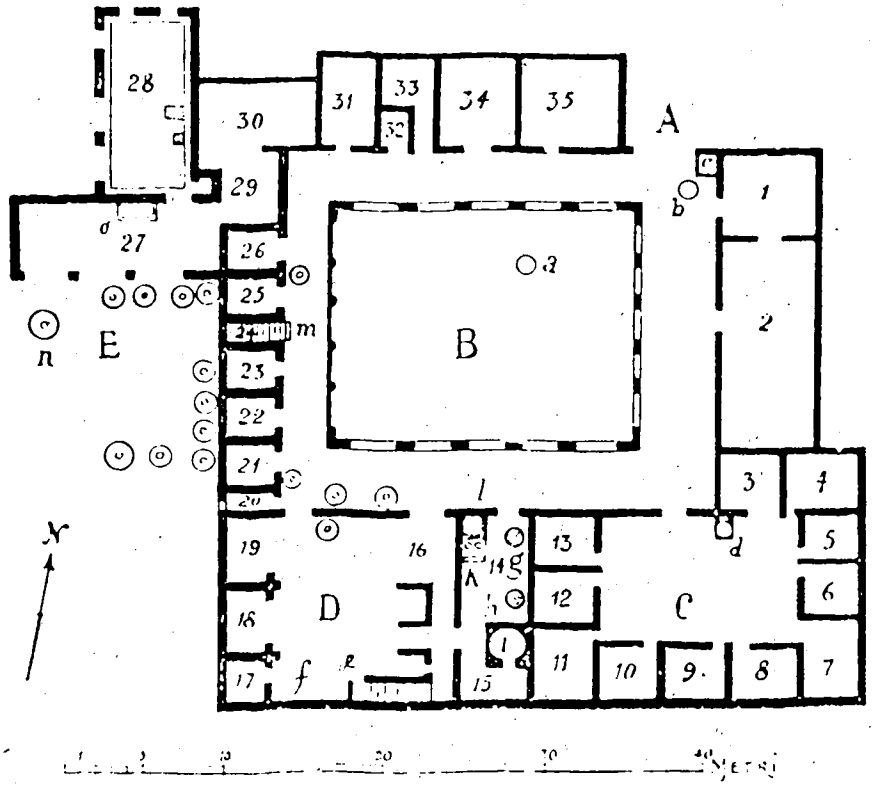
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Fig. 28.

KEY TO FIG. 27. (After Della Corte).

A. Rustic courtyard.

B. Peristyle.

C. Garden.

D. Cryptoporticus.

1/2. Overseer's rooms ?

3. Stable.

4 - 12. Slaves' cellae

13. Master's office ?

14. Latrine.

15 - 23. Domestic rooms.

KEY TO FIG. 28. (After Della Corte)

A. Main entrance.

B. Courtyard.

C/D. Secondary courts.

E. Wine store.

1. ? cella ostiaria

2. Stable.

3 - 13. ? Slaves' cellae

14 - 15. Bakery.

16 - 19. Uncertain use.

20. Not indicated.

21 - 23. Slaves' cellae.

24. Stairs.

25/26. Slave cellae.

27. Portico. Wood store.

28. Press-room.

29/30. Not indicated.

31 - 35. ? Store-rooms.

a/b/c. Drinking troughs.

d. Oven.

e/f. Not indicated.

g/h. Flour mills.

i/k. Ovens.

m. Stairs.

σ. Vine-prop store.

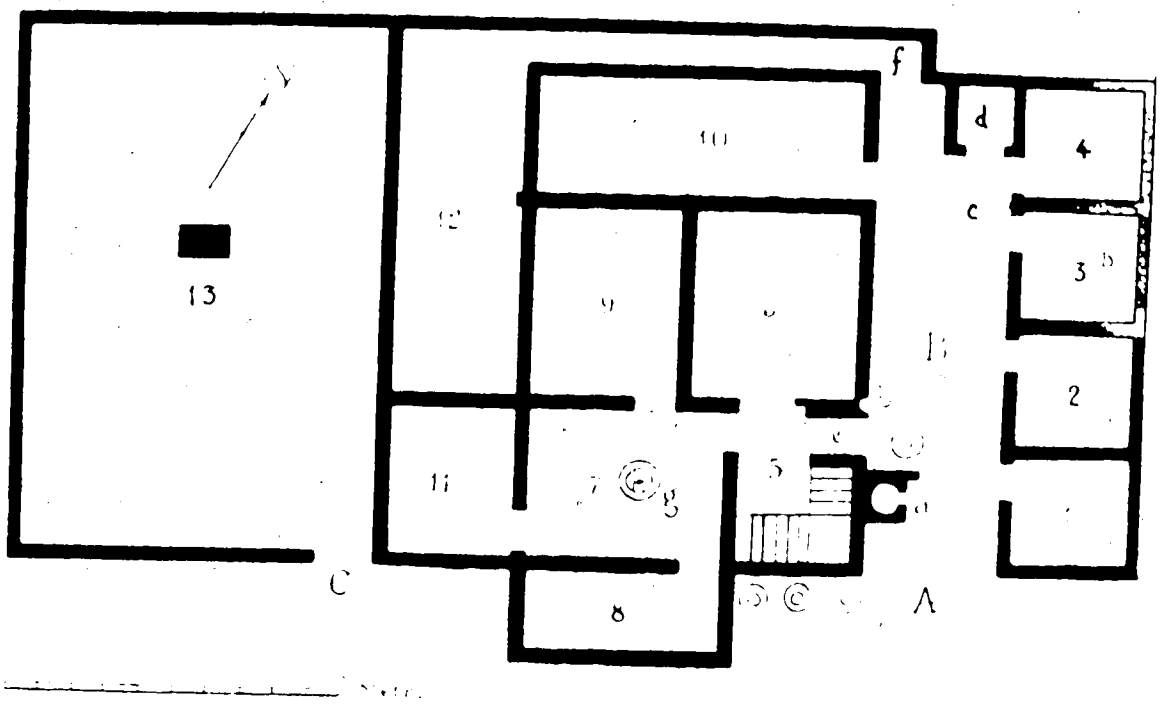
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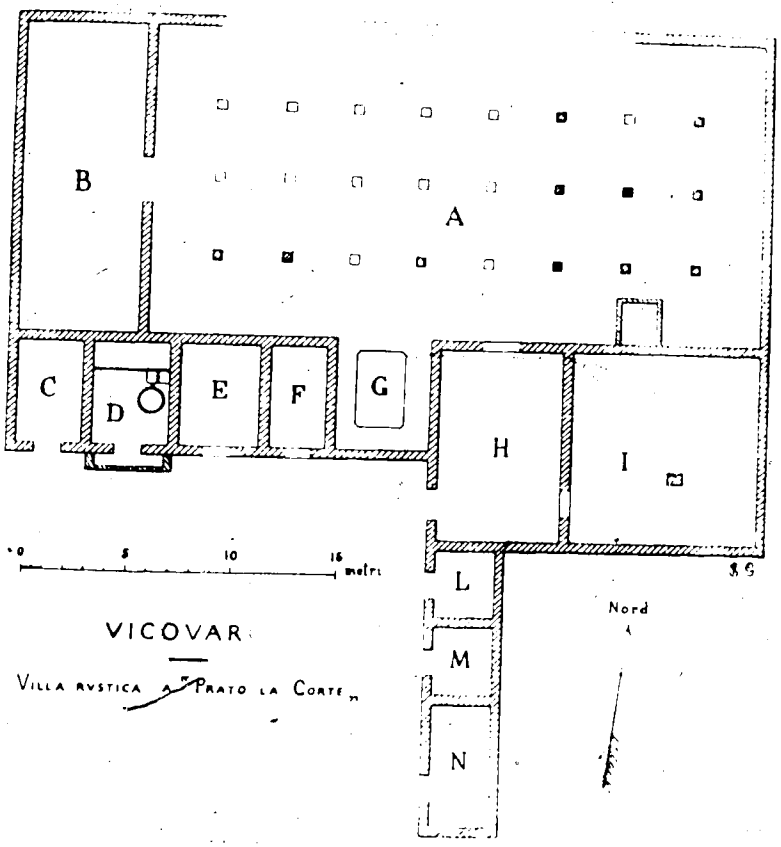
Fig. 29.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VILLA RUSTICA A PRATO LA CORTE

Fig. 30.

KEY TO FIG. 29. (After Della Corte)

1 - 4. Slaves' cellae.

5. Stairway.

6. ? Kitchen.

7. Milling room.

8 - 11. Uncertain use.

12. Store-room.

13. Barn.

A. Main entrance.

B. Open court.

C. Entrance to barn.

a. Oven.

b. lararium.

c. hand-mill.

d. latrine.

e/f. Not indicated.

g. Olive-mill.

KEY TO FIG. 30. (After Lugli)

A. Granary.

B. Store-shed.

C/E/F/H. Uncertain agricultural use.

D. Press-room.

G. Settling vat.

I. Press-room.

L/M/N. ? Slave accommodation.

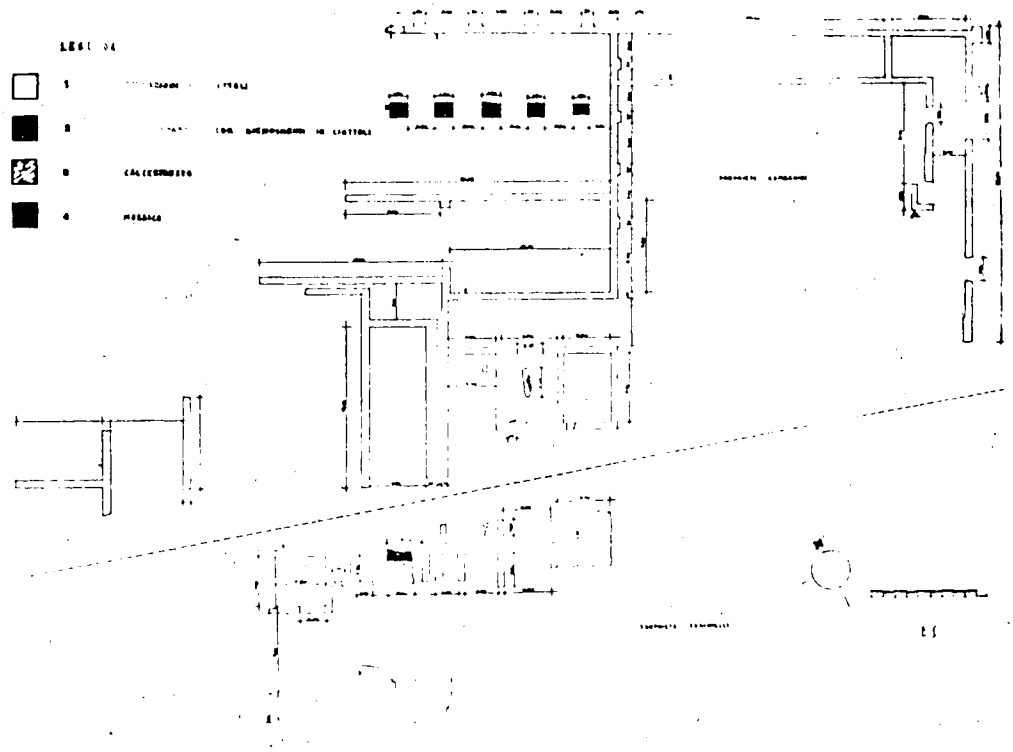
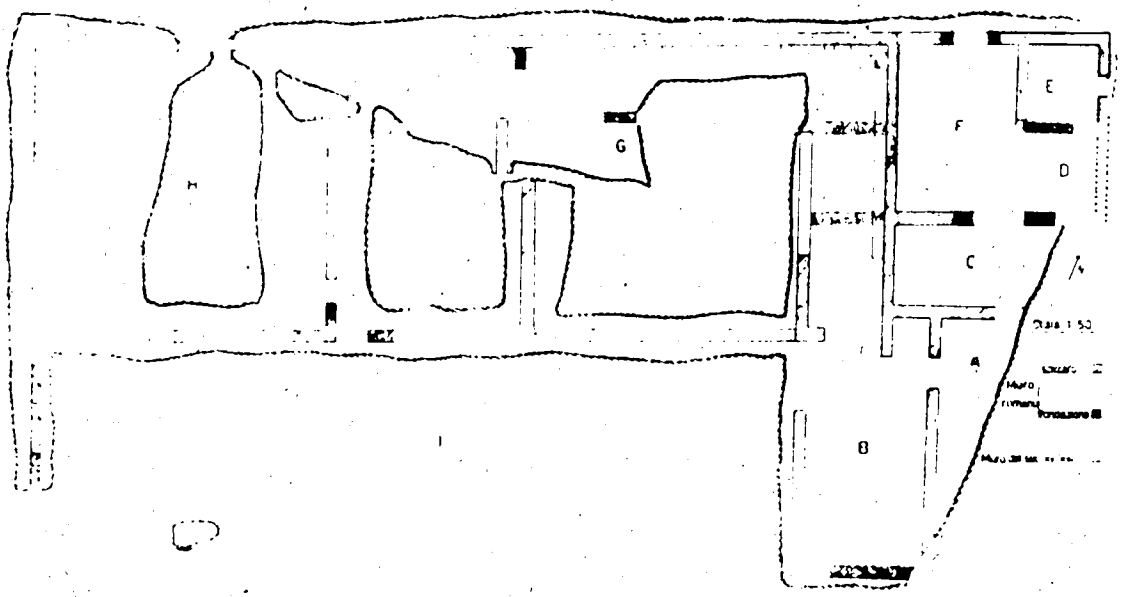


Fig. 31. Pratella.

Fig. 32. Licinico.



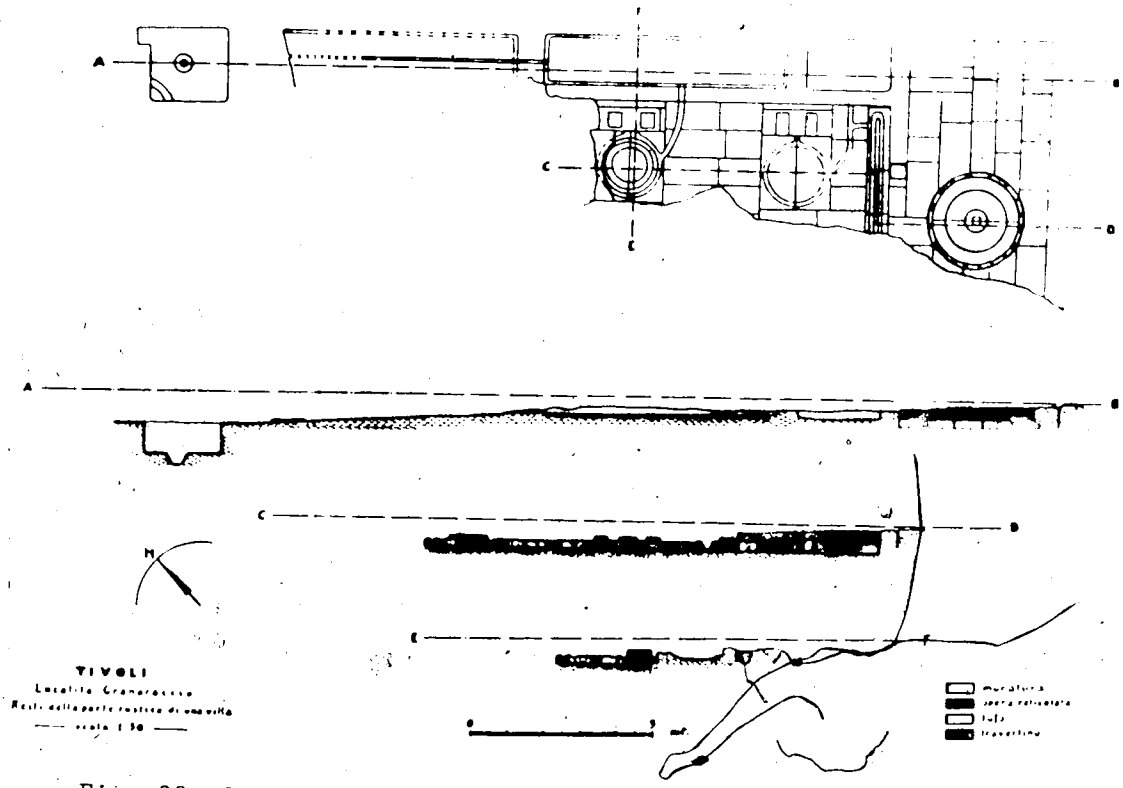
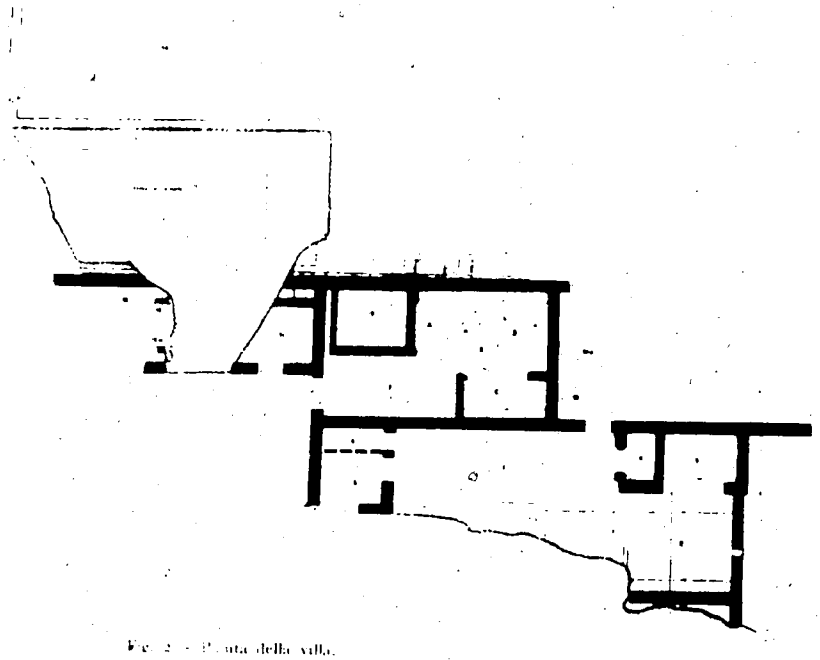


Fig. 33. Granaraccio.

Fig. 34. Giudonia.



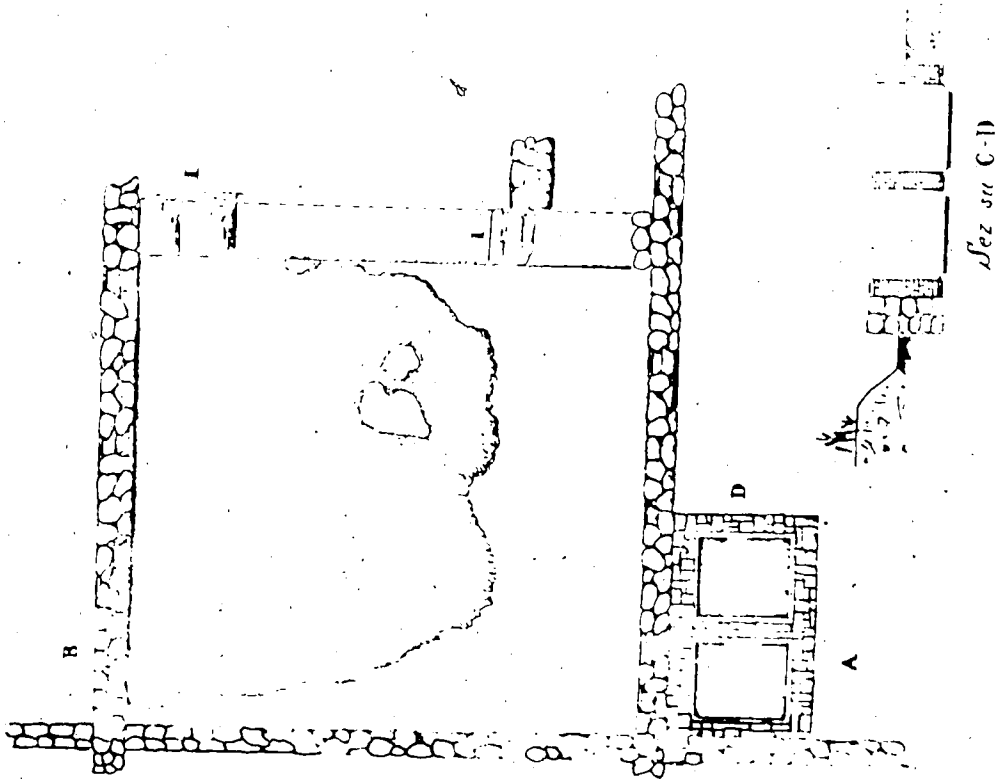


Fig. 35. Grotta del Malconsiglio.

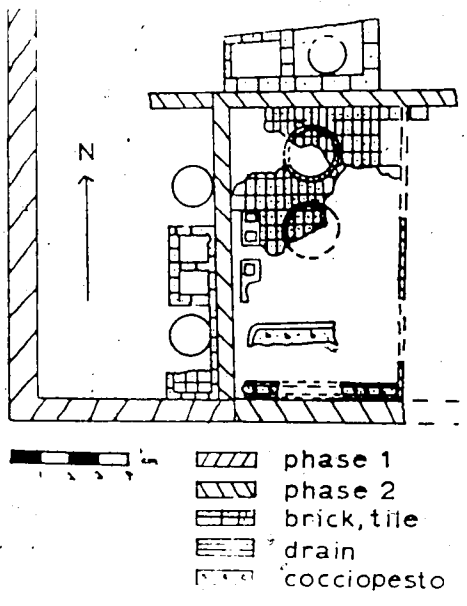


Fig. 36. Pareti.