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ARCHITECTURE AND LANDSCAPE

Clemens Steenbergen | Wouter Reh

Architecture and Landscape

The Design Experiment of the Great European Gardens and Landscapes

REVISED AND EXPANDED EDITION

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The idea for this book arose in 1984, on the initiative of Clemens Steenbergen. The basic concept, a comparative plan analysis of examples of rational, formal and pictural stage-managing in landscape architecture, was developed and elaborated in research by the Chair of Landscape Architecture at the Delft University of Technology. The first version appeared in 1985. Work on perfecting the book has been underway since. Important steps in the maturation process were the dissertation by Clemens Steenbergen on the French formal garden, entitled *De stap over de horizon* (1990), *Italian Villas and Gardens* (1992), written by Paul van der Ree, Gerrit Smienk and Clemens Steenbergen, and the dissertation by Wouter Reh on English landscape gardens, entitled *Arcadia en Metropolis* (1996). In 1996 this research was the basis for a first abridged English edition, under the title *Architecture and Landscape.*

Now we can present you with a revised edition, supplemented with many illustrations and drawings. New analytic material in the form of aerial photographs and composition drawings has been added. The theoretical framework for the research, laid out in the introduction and conclusions, has been more sharply defined. The whole is complemented with a description of the landscape architectonic transformation in which it is indicated how material from this book can also be used experimentally in research during the design process. In his preface Sébastien Marot, editor-in-chief of the French architecture journal *Le Visiteur* and professor for landscape and urban planning places the study in an international perspective and discusses its significance for instruction in landscape architecture.

We owe a debt of thanks to the many owners and residents of the villas who afforded us their hospitality. Carla van Vlaanderen and Pia 't Lam, both of the Instituto Olandese in Rome, A. Frangioni, the mayor of Fiesole, His Excellency Vegelin van Claerbergen, Dutch Ambassador in Paris, his secretary H.A. Barfoed and Mrs. Karina van Breukelen, the cultural attaché, provided introductions to the residents of various villas. In particular we thank Signora Anna Marchi Mazzini (Villa Medici in Fiesole), Signore Marcello Marchi (Villa Gamberaia), Lord Lambton (Villa Cetinale), The Museum for Etruscan Art (Villa Giulia), Princess Aldobrandini (Villa Aldobrandini), Comte Patrice de Vogüé (Vaux-le-Vicomte), Mr. Bernard Notari (St. Cloud), Mr. Nicholas Day (Blenheim Palace), the Honourable Simon Howard (Castle Howard), Mrs. Sarah Ledger (Harewood) and Mr. Frank H. Thomsen and Mr. Oliver Jessop (Stowe).

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Lynn George translated the original Dutch text, at the same time editing several sections of text translated by Marja Kramp and Paul Willcox, which had previously appeared in *Italian Villas and Gardens.* Supplementary passages and amendments appearing in this edition were translated by Donald Mader, who also edited the final text (the foreword was partly translated by the author himself).

In closing, our special thanks to Gerrit Smienk and to the publisher Kees van den Hoek and his staff. We owe thanks to Gerrit Smienk for his having been with us at the genesis of this extensive research project as a researcher and co-author, thereby providing direction that finally led to this result. We are grateful to Kees van den Hoek for his efforts and his unshakeable confidence in the project. Wim Platvoet proof-read the texts closely and compiled the index. Hans Lemmens worked with care to make this a beautiful book. It is in part through their efforts that this material is now available in this form for our colleagues, and can win a place in landscape architecture.

Clemens Steenbergen, Wouter Reh

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Foreword Sébastien Marot

In scarcely twenty years time landscape has gone from being a relatively insignificant, even neglected topic into one of the major commonplaces in the architectonic and urban planning debate. In the process, a whole procession of new concepts (from 'garden' to 'territory') have penetrated, as in a Trojan horse, into the schools, institutes and academies where this debate is being carried on. At the same time, in many European countries a thorough re-evaluation of landscape design has occurred. As a result of these developments, landscape architects have wormed their way into a position nearly equal to that of architects and urban planners – thereby rekindling the discussion among those more established professions.

Out of laziness or self-interest some might want to insist that this is only a fad or an amusing flash in the pan, a phenomenon of marginal theoretical importance, without lasting effects on the ideas of physical planning. And perhaps there is something to that. As a matter of fact, when the schools of architecture have taken over landscape jargon, it is often almost reluctantly, as if trailing behind a society which, because of all kinds of social, political and economic mutations, is absolutely forced to approach its environments (their management, programming and planning) in a different way. But that these changes perhaps will have consequences for the disciplines of spatial design – and thus require a radical reorientation or reorganisation of the departments where these disciplines are taught – well, it would appear that almost no one in these programmes is concerned about that. The strategies of educational readjustment or diversification inspired by landscape theory – if things should come to that, and they do occur in a modest (or worse yet, noisy) way – are often very superficial. As it happens, it is easier to announce that one is going to include 'the territory' or the so-called 'landscape question' in the programme, than it is to seriously survey the ramifications of this question in the various spatial design disciplines and take up the challenge to thoroughgoing self-examination.

Regrounding landscape design

There are, however, exceptions. Thanks to initiatives from several more or less isolated researchers and lecturers, some universities have begun to seriously tackle this work, which involves both retrospection and experimentation. The most notable of these exceptions is undoubtedly the Technical University at Delft. There, in the circle around the writers of this book, an experimental garden for theoretical investigation in landscape architecture has been created, which can rightly be considered as one of the most active and most tenacious that has ever been generated by a school of architecture and urban planning – not to mention programmes in landscape architecture. *Architecture and Landscape*, the first English edition of which appeared in 1996, only lifted the corner of the curtain on an impressive amount of research, studies and publications in which numerous lecturers, scholars and students have been involved since the late 1970s. This research can be both historical in nature or oriented toward the future; it can involve the tradition of the walled garden or the city park, or focus on the analysis of contemporary territorial infrastructure, or else experiment with yet unseen combinations of programmes and design instruments at the intersection of architecture, urban planning and landscape. The common objective in all these investigations is nothing less than the rediscovery of the foundations, idiom and visual grammar of landscape architecture.[1] By investigating the past in this way, the writers clearly want to contribute to the 'renaissance' and liberation of a discipline.

This enterprise can in certain respects be compared with that of the progressive architects, who beginning in the 16th

century on the one hand surveyed and described the architectural monuments preserved from Greek and Roman antiquity, and on the other devoted themselves to the engraving of ground plans, elevations and bird-eye views of the most notable residences built by their contemporaries. Just as in that time, relaying the foundation of a discipline today requires building up a data bank by means of inventorisation and cataloguing so that comparison and assessment are made possible. The research laboratory at Delft has chosen to first concentrate its efforts on on-the-spot rediscovery of famous examples of gardens and landscape designs by investigating them with the means and instruments of design such as maps, measurements, ground plans, perspective views, but also axonometrics, dissection into layers, and all the other procedures of deconstruction or sequential analysis that are presently possible thanks to digital technology. All this work invested in the representation and in the new analytical drawings that have been thus produced is important not only for the discoveries that can arise from it, or the new hypotheses that one can formulate about each of these creations, but moreover because they are a tremendous instrument for 'situating' the landscape architectonic design and penetrate the logic of its specific achievements. It is here that the great strength and originality of the Delft research laboratory's contribution to the historiography and theory of garden planning unquestionably lies.

The garden as representation of the landscape in situ

A quick glance through the literature is enough to note that even the historians, however learned and fascinating their works may be, have never attempted working out a to some degree systematic graphic and exemplary analysis of parks and gardens. Leaving aside rare, very specific monographs, in the literature one finds almost nothing other than reproductions and interpretations of already existing material (ground plans, engravings, bird's-eye views, 'vues cavalières'[2], sketches and paintings of all sorts, historic photographs, etc.). Beyond the fact that their documentary value is sometimes highly dubious (and left unquestioned), these 'ready-made' representations, instead of a vehicle, very often become mirages, obstacles or screens set between the observer (or even the visitor) and its object. In these studies, the reproduction of what is there is at its best photographic, and one rarely gets beyond the delineation of a few plans or basic sketches (often on the basis of this already existing material) in order to illuminate certain aspects or facilitate comparison. One can conclude that the analyses, characterisations and interpretations which traditional art history offers us (whether these are monumental or structuralist) almost never set about fashioning their own representational devices in order to confront, explore and reveal what their objects (gardens, parks) precisely are, namely constructed representations. Nor is that often the subject or purpose of such studies. Rather, their intention is either to investigate the cultural context – that is to say, the ideological, technical and aesthetic background – on the basis of which these landscape architectonic creations can be interpreted; or to wander in the ambiguous interface between the place and its representations, and in the enthralling choreography or conspiration of the arts (painting, sculpture, poetry, etc.) for which gardens have so often been the stage. But this is precisely where the problem arises. In the historiography of gardens, one can all too easily let oneself be led along by sources of documentation from related (and contributory) arts, with which art historians are normally more familiar, such as literature, engravings, painting and sculpture, etc. Therefore this historiography tends to be very 'iconographic' in nature and to focus primarily on the philosophical thought, the symbolism in the settings, and other sorts of discourses for which the garden only served as a background.

In his *L'art du jardin et son histoire*, John Dixon Hunt has masterfully demonstrated how this bias for the image is almost written in the genes of the historiography of garden architecture, 'which took on real form for the first time during the celebrated period of the English landscape garden'. That is to say, it happened precisely at the time 'that the concept of the garden as an autonomous form of expression disappeared almost totally', and in fact became subordinate to landscape painting.[3] The great disadvantage of historiography of this sort is that the art of garden itself, as well as landscape art of which it is only 'the most refined form', is barely touched upon. Such an approach passes over what the landscape designs fundamentally are, namely a series of territorial representations that, in the words of Monique Mosser and Georges Teyssot, are constructed *in situ* on the 'interface of architecture and topography.'[4] Thus Hunt calls for the creation of a new way of shaping theory about writing the history of gardens, one which begins with the acknowledgement of this art form as *sui generis*. 'The foundations of an adequate theory must be found in the practice of landscape architecture itself.'[5] This is precisely what the point of departure has been for the Delft research laboratory from the very beginning, one which is also expressed in the subtitle of this book: *Architecture and Landscape: The Design Experiment of the Great European Gardens and Landscapes.*

The fundamental intention of the book is summed up in those few words. Although it is certainly its intention to look at landscape creations as 'architectures', and therefore to

investigate them as designed, three-dimensional constructions (and not merely as significant compendiums of the visual culture from a particular period), it does not consider them as subordinate, or as a subspecies of a discipline that has its real centre of gravity somewhere else, in the 'building'. In other words, its undertaking is not only to investigate what architecture does with the landscape on the evidence of these gardens, but more important, to investigate what influence the landscape has had on architecture, and thereby to expose how the point of departure for an genuine design culture lies in the conjunction of these two.[6]

The best evidence of this genuine character, demonstrated throughout the book, is the way landscape creations challenge the usual tools of architectural representation, such as ground plan, section and elevation. Gardens – and in particular the examples discussed in this book – pose specific problems of representation, which can differ from case to case, but may all be traced back to the peculiar nature of landscape design.

Landscape versus architecture

Before continuing my argument, I would first here briefly attempt to distinguish this concept of landscape design. I would define a landscape architectonic intervention as the conscious interpretation, modulation or transformation of a given territorial situation or substratum, i. e. of a 'site'. This implies of course that a good awareness of the previously existing qualities and potentials of the location involved (in a formal, material and cultural sense) is crucial to a proper understanding of such an intervention, but moreover, it means that the way this intervention envisages the world and the landscape *in situ* is basically what defines the meaning and the devices of the garden. Architecture works in another manner. Although every building is of course located in a particular spot, its relation to the site involved can in principle be reduced to a question of situation, access, orientation and finally of foundations. The site is then nothing more than the surface destined for the structure that is to rise upon it, which will peremptorily impose there the logic of its own programme. Our thesis is that the encounter, the negotiation between the site and the programme, which comes about with every project, is quite different for a building than for a garden. While in the case of architecture the site is looked at in light of the programme, and may even develop from it, we see the opposite happen in landscape design: here it is rather the programme which is envisioned through the site, and may even be inspired or engendered by it. If one reserves the term 'building' for architecture, then one is justified in speaking of a discipline of 'foundation', in order to designate that other design experiment in which a site (an element of the world) is given form, featured, staged, and thus translated into an accessible, liveable and consistent representation of the world.

It comes as a consequence of this subtle (and nevertheless clear) distinction between architecture and landscape that a landscape design is essentially relative to – one could even say 'adjective' to – its subject, i. e. the site to which it confers certain qualities, interpretations and accents. Hence the necessity, if one intends to grasp and explain those interventions, of developing oblique tools of chorography, somewhere between the ground plan and the elevation, the topographic survey and the cross section, the map and the axonometry, etc. It is not coincidental that the bird's-eye view and the 'vue cavalière' were the most important methods for depicting the classical garden: after all they do help the viewer to locally relate art and nature, the intervention and the site, architecture and topography, on the scale of the whole design. However – even if we leave aside the delicate issue of their reliability – these conventional images are by themselves too scarce, too strictly axial, and basically unsuitable for investigating the detail of this confrontation, tension or osmosis between site and architecture. In order to account for the spatial, tectonic or atmospheric effects of landscape design and to understand its specific mechanisms, one needs to devise other methods and instruments. And this is why a handful of historians or more conscientious researchers have been led to fashion their own tools themselves. Good examples of this are the situation drawings by Benevolo in *La Cattura dell'infinito*,[7] the series of sketches that Hazlehurst used to study the telescopic longitudinal axes of Le Nôtre's gardens,[8] or elementary analysis layer by layer (buildings and earthworks, water, planting) as it is systematically applied by Moore, Mitchell and Turnbull in *The Poetics of Gardens*.[9]

An optical journey in the history and complexity of gardens

But even through these several independent initiatives – often the work of architects – one only rarely penetrates to the heart of the matter. By confining themselves (in all the meanings of the term) within the limits of the intervention, they help at describing the spatial organisation of the garden or park, but less the transformation of the site. As one reviews the examples mentioned above, it becomes clear how great a leap forward *Architecture and Landscape* represents. The writers of this work have not restricted themselves to using these inventions once again, or adding many new ones to them, calling on contemporary techniques for architectonic and landscape illustration – something which would in itself have been no small advance.

Through their work at the interface of architecture and topography they have moreover developed new kinds of oblique diagrams or perspectives through which we understand the complex interplay and dialectics between site and programme which comes about in these creations. The magnificent prints, in which the structures of the garden have been drawn in transparently in the relief of the substratum, as through they were gigantic fossil ships, are maybe the most startling. On the basis of the three-dimensional images, they provide insight as never before into the subtle process of negotiation through which those great landscape achievements were produced. But it is also the diversity of the techniques used in the book which is particularly striking, as if each period, each style, each culture, and ultimately each site was crying out for specific tools of description and analysis, and this despite the well-documented circulation of models and the endless game of influences, imitations and obvious references upon which traditional garden historians and scholars love to expatiate. To my mind, one of the greatest services rendered by this book is that it allows every individual site to speak for itself, in doing so acting modestly as a guide or an annotated catalogue of situations: in it the several parks and gardens analysed are not only dealt with as many significant steps or moments in the evolution of classical landscape art over three centuries and three cultural styles but also as unique places, where these developments have accumulated into successive layers, and formed specific palimpsests.

This great merit of *Architecture and Landscape* – the way it combines several perspectives – is undoubtedly related to the fact that the book is a cooperative project, but can also be explained by the commitment to bring together results and discoveries from various investigations that the two authors had performed independently, in collaboration with others. Thus three books, each devoted to one of the three important periods in the structure given (Rationalism/Italy/Renaissance; Formalism/France/Baroque; Picturesque/England/Enlightenment) formed the background out of which this one arose. Their titles are *Italian Villas and Gardens* (1992), a collaboration by Paul van der Ree, Gerrit Smienk and Clemens Steenbergen; *De stap over de horizon* (1990), the dissertation by Clemens Steenbergen; and *Arcadia en Metropolis* (1996), the dissertation by Wouter Reh.[10] On the other hand, new studies have also since arisen precisely from the stimulation and authority of the book, and can be more or less considered its sequels. That is particularly the case for *The Enclosed Garden*, by Rob Aben and Saskia de Wit, which with the same ambitions explores the fascinating traditions (barely mapped out so far) of the cloister garden and the *giardino segreto*, thereby demonstrating clearly how these supposedly pre-modern types can be followed throughout history and how their syntaxes may fruitfully be extrapolated in contemporary cities and territories.[11]

Towards a genealogy of sub-urbanism

It is of course no accident that these remarkable studies of European garden and landscape culture come from The Netherlands. Much has already been written about the artificial character of the Dutch landscape and the absolutely unique ability of the Dutch to see and analyse the landscape as a human construction. We also know of the exceptionally vital practice of contemporary Dutch architects, and how much today's architectonic and urban planning discussion owes to the theoretical creativity of a handful of Flying Dutchmen. All these circumstances have their part in the progress that the Delft research laboratory has made in the field of landscape and its historiography. But there is still another element of Dutchness there, which is definitely worth calling to the attention of researchers and professionals who will benefit from these studies: I have in mind here the willingness to carry out an enterprise cooperatively, the capacity to place diverse contributions next to each other and link them one to another, the intention to work together even if opinions in the discussion diverge. This productive discussion can be detected not only from the diverse subjects and themes that the members of the group have chosen to investigate, but also (for the attentive reader) within *Architecture and Landscape*. It functions as the secret motor behind a workshop whose theoretical project is strong enough to bear contradictions, to bridge them or even to feed from them.

I would like to call this sphere of theoretical activity 'sub-urbanism'. All projects, irrespective of their scale or nature, which work from site to programme, can be subsumed in this. The use of the term sub-urbanism has three advantages. The first is of course that it points at the 'substratum' of our practice of design and planning, revealing the site or the landscape as being the actual subject, the ultimate 'infrastructure' which the project is about. The second advantage is that it features this approach as an alternative to urbanism. In the 150 years that the term urbanism has been used, it has almost always consisted in reasserting, at the scale of cities and regions, the primacy of the programme – which obviously is more congenial to architecture and to the scale of buildings – yet without wondering whether such an extrapolation is appropriate. Finally, the third advantage of this term is at one and the same time political and historic in nature: namely, the acknowledgement of the fact that suburbia, this uncertain state between city and countryside, has simultaneously been

the birthplace, the experimental garden and even the very utopia of this particular design discipline which in turn has amply contributed to fashioning its specific forms and *imaginaires*, before they started to spread in all directions, even deep into the cities. *Architecture and Landscape*, by exclusively concentrating on the great changes in the *villa suburbana* in Europe, brings clearly this simple truth to light: namely the fact that the history of landscape architecture in a certain sense can be characterised as the application and development of the concept of suburbia, and that, in a period in which suburbanity in fact has become our condition, one can perhaps find in this history some of the fundamental components of a theory which has yet to be fully developed. *Architecture and Landscape*, as a space-time journey through the genealogy of modern sub-urbanism, is thus also, in its own way, a kind of 'retroactive manifesto'.

To conclude, *Architecture and Landscape* is a must read for at least two reasons. The first one is that, more than many other books before, as we have seen, it provides us with deep insight into the several landscape architectonic masterpieces it discusses. And the second is that the book (almost in passing, as it were) is instrumental in unravelling the conventional tradition of urbanism, guided and limited by the idea of the city and the centrifugal logic that flows from it, and posits a sort of reverse image. In shifting our attention toward those suburban achievements and by looking upon them as genuine laboratories for another kind of design experiment, it is ultimately the meaning of spatial design as such that *Architecture and Landscape* induces us to reconsider. Students in design disciplines, whether they focus on architecture, urban planning or landscape design itself, can learn a lot – first and foremost, to reflect on the subject – by mentally replaying the several geotechnic chess games that this book analyses and stages for them. By the way, it is not surprising that the chess board so often played a significant role in gardens. Cannot all gardens and – in a broader perspective – all territorial situations be analysed as chess problems, brought about by series of previous moves, which one can more or less reconstitute, and loaded, vibrating with others, still latent?[12]

1. See the collectively written *Architectural Design and Research: Composition, Education, Analysis* (published by the architecture department of the TU Delft), Bussum, 2000, as well as: Steenbergen, Van der Kooij, Aben, *Buiten Plaats, city escape*, TU Delft, 2000.

2. [Literally 'from on horseback' or as a mounted officer would have on a battlefield, thus more generally from any slightly raised position; translator].

3. John Dixon Hunt, *L'art du jardin et son histoire*, Paris, 1996. To date, this text, a collection of two lectures given at the Collège de France in March, 1994, has not been published in English, but similar reflections can be found in John Dixon Hunt, *Greater Perfections: The Practice of Garden Theory*, Philadelphia, 2000.

4. Monique Mosser and Georges Teyssot, 'L'architecture du jardin et l'architecture dans le jardin', in M. Mosser and G. Teyssot, *Histoire des jardins de la Renaissance à nos jours*, Paris, 1991, p. 8.

5. Hunt, ibid., p. 19.

6. According to the authors in the first edition, *Architecture and Landscape* is a new tool for present-day and future landscape architects and urban designers. It is intended to provide a profound insight into the way in which this design tradition has developed in Europe, and argues for landscape architecture as an autonomous discipline that distinguishes itself from architecture and urban planning.

7. Leonardo Benevolo, *La Cattura dell'infinito*, Rome and Bari, 1991.

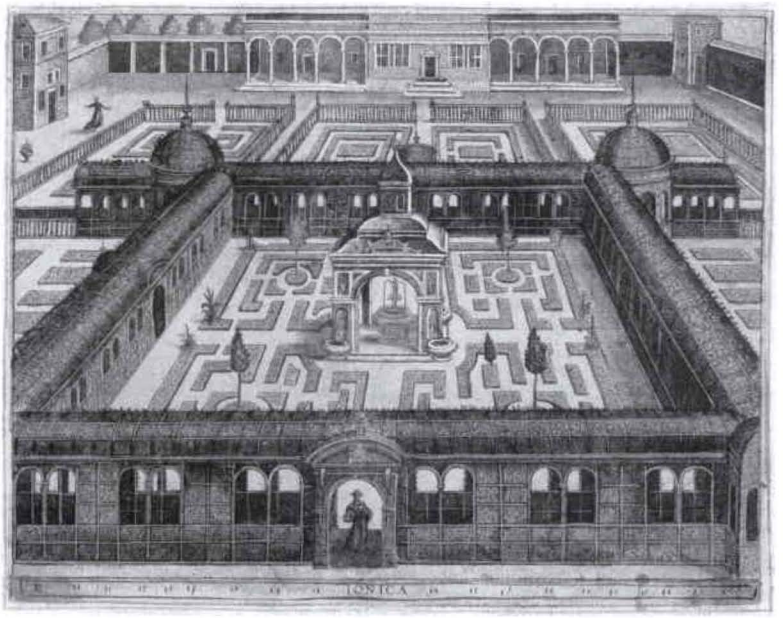
8. F. Hamilton Hazlehurst, *Gardens of Illusions: The Genius of André le Nostre*, Nashville, 1980.

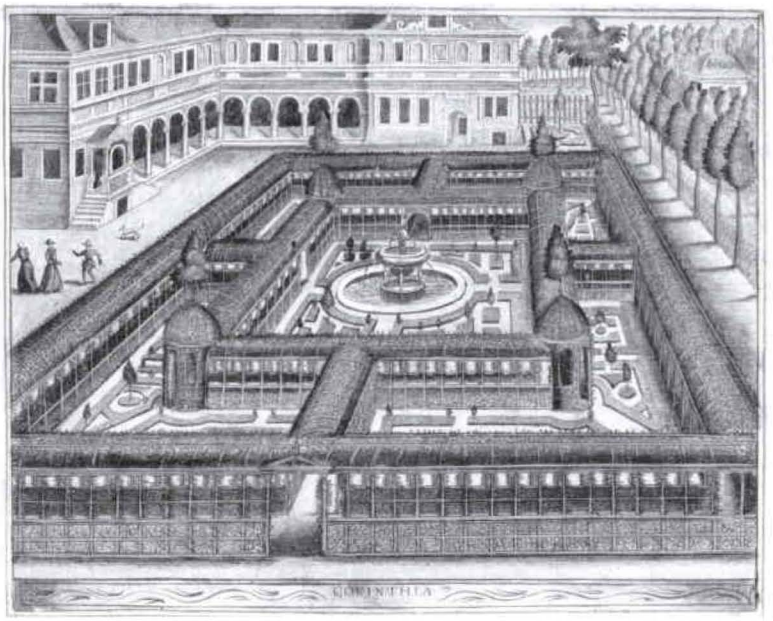
9. Charles W. Moore, William J. Mitchell and William Turnbull, Jr., *The Poetics of Gardens*, Cambridge, Massachusetts, 1988.

10. P. van der Ree, G. Smienk and C. Steenbergen, *Italian Villas and Gardens. A corso di desegno* (Amsterdam, New York, 1992); C. Steenbergen, *De stap over de horizon. Een ontleding van het formele ontwerp in de landschapsarchitectuur* (The step beyond the horizon. An analysis of formal design in landscape architecture) (Delft, 1990); and W. Reh, *Arcadia en Metropolis. Het landschapsexperiment van de verlichting* (Arcadia and Metropolis. The landscape experiment of the Enlightenment). (TU Delft, 1996).

11. R. Aben and S. De Wit, *The Enclosed Garden: History and Development of the* hortus conclusus, 010 Publishers, Rotterdam, 1999. (First published as: *De omsloten tuin. Geschiedenis en ontwikkeling van de hortus conclusus en de herintroductie ervan in het hedendaagse stadslandschap*. Rotterdam 1998).

12. Regarding the place of the chess board in the garden, and in particular in the *hortus ludi*, see Rob Aben and Saskia de Wit, ibid. The comparison of the landscape architect with a chess player appears several times in Steenbergen's publications: 'Apart from stage director, creator, dramatist and choreographer, the landscape architect finally is also a chess player who, like the Emperor Kublai Kahn, as he attentively followed the moves of Marco Polo, notices that certain pieces implied or excluded the proximity of other pieces, and that they move along fixed lines. Neglecting the differences in form between the objects, Kublai Kahn described the way in which they were ordered with regard to each other on the tiled floor. He thought, "If every city is like a game of chess, when I have learned the rules, I shall finally possess my kingdom".' Clemens Steenbergen, 'Teatro Rustico. The formal strategy and grammar of landscape architecture', in *Modern Park Design: Recent Trends*, Bussum, 1993, pp. 132-133.





Doric, Ionic, Corinthian garden.
(Hans Vredeman de Vries, circa 1560)

Architecture and Landscape

The Classic Villa

'Look, Lipsius,' said Langius to his pupil, 'This is the true meaning of the garden: peace, seclusion, thinking, reading and writing.'

Justus Lipsius: *De Constantia in Publicis Malis*, 1584

This book offers the reader a Grand Tour through classic European gardens and landscapes which are the treasure-houses of Western landscape architecture concepts. Once the landscape was discovered as an aesthetic category and an object of architecture, this discovery – to which Renaissance gardens bear witness – found its sequel in the architectonic conquest of natural space in the French baroque garden and the English landscape garden. The examples selected in this book give an account of this conceptual conquest of the landscape and show how the experimental interplay between architecture and landscape developed into an independent discipline with its own set of instruments.

The discovery of the landscape

At the beginning of the Renaissance, between 1458 and 1462, Cosimo de Medici had a villa built in Fiesole, near Florence, for his son Giovanni. The local, steeply curved slope of the Arno Valley was made habitable by an impressive structure of terraces roughly 100 metres long, and retaining walls more than ten metres in height. The terraces were made as large as possible given the site circumstances and the resources available. By means of the terraces, from the interior the horizon was shifted toward the panoramas in the valley. Loggias, arcades and stairs constantly placed the background against a measurable foreground. Natural elements such as rocks, planting and water played a double role. Their material presence represented the physicality of nature, but the forms into which they were moulded alluded to the mythic world.

About a century later, in 1570, in his *I Quattro Libri* Andrea Palladio drew architectonically designed agricultural villas which played a role in the reclamation and exploitation of the fertile plains of the Po. Through the cultural dimension that Palladio was able to confer on this 16th-century recolonisation, investment capital was enticed from Venice to the countryside. The recolonisation was based on the grid pattern of the old Roman land parcels; long, poplar-lined roads lent a formal expression to the productive landscape. In the middle of the estate, the villa was optimally accessible and enabled the landowner to perform his administrative and management tasks efficiently.

The conquest of architectonic space

Another 100 years later, between 1656 and 1661, Nicolas Fouquet, Minister of Finances under the Sun King, Louis XIV, commissioned the landscaping of about 500 hectares, for the building of his new residence in Vaux-le-Vicomte, near Paris. The whole landscape was reconstructed. Villages were moved, hills flattened and small streams rerouted. The projected formal garden, a wide, straight strip of several kilometres with large level parterres on the slopes of a valley, necessitated the displacement of huge amounts of earth. But through shrewdly positioning the main axis of the garden diagonally through the morphology of the valley, the amount of earth to be moved was minimised. This diagonal positioning of the main axis optimally exploited the natural bowl form and the movement of water through the terrain. It created the optical illusion of harmonious, undistorted spatial depth and perfected geometric order. The water moved through this untouchable and mysterious setting, trickling, spouting, falling and reflecting, programmed by a hydraulic system painstakingly tailored to the natural flow pattern.

The great scenic creation

Still a century later, in 1772, in the Age of Enlightenment, Horace Walpole, one of the foremost critics of landscape design in the 18th century, invited his readers to lose themselves in the magnificent landscape of Castle Howard, accord-

ing to Christopher Hussey the 'masterpiece of the Heroic Age of English landscape architecture'. He wrote, 'I never was so agreeably astonished in my days, as with the first vision of the whole place... Nobody...had told me that I should at one view see a palace, a town, a fortified city, temples on high places, woods worthy of being each a metropolis of Druids, vales connected to hills by other woods, the noblest lawn in the world fenced by half the horizon, and a mausoleum that would tempt one to be buried alive – in short, I have seen gigantic places before, but never a sublime one.'

The central part of this 'great scenic creation' was formed by an Arcadian landscape in which architectonic monuments were placed at scenically strategic positions in one another's lines of sight. The Temple of the Four Winds, the Mausoleum and the Howard Pyramid on St. Anne's Hill, keyed to the natural morphology in terms of scale and shape, formed a natural amphitheatre. This composition transcended the logic of rational and formal schemes, which were only recognisable yet in fragments of the plans. It was no longer possible to distinguish the manifestations of the architectonic landscape from the real landscape. The garden dissolved into the landscape and became infinite.

With this we return in a certain sense to the natural landscape which set off the evolution in design. The tension between architecture and landscape gave rise to a cycle that has continued to the present. The rationality of architecture orders the landscape, but the reverse also appears to be the case. Landscape assumes architecture, but never allows itself to be entirely captured in formal abstractions. Landscape architecture moves constantly between ordering and representing nature. But this does not yet account for its specific set of instruments. On what does the design dynamic of landscape architecture rest?

The Villa as Spatial Laboratory

The dilemma of tradition

What does history tell us? The Dutch writer Gerrit Komrij points to the correlation between the concept of the garden and the history of ideas, to the 'controversy between conceptual worlds' that is reflected in the gardens of the 16th, 17th and 18th centuries. 'In the conflict between English and French gardens, which nevertheless both aim at making a world of the garden, and in the emergence of the pastoral and idyll, which wished to make one great garden of the world, the conflicts, triumphs and misfortunes of classicism and baroque, of Enlightenment and romanticism are reflected, with all their regional and political nuances, nuances of national character and power... The *concordia discors*, the sublime, the picturesque, Chinoiserie, asymmetry, prosiness, sentiment: all the key words which surface in painting and poetry also play an important role in the manner in which gardens are realised or idealised in the imagination.'

The classic garden is the mirror of art, but does it also contain the rules of art? Interviewed in the late 20th century, the architect Bernard Tschumi observed, 'In the second half of the 1970s there was a huge gap in architecture. There were two divergent tendencies. Some sought refuge in the history of architecture. In order to redefine the discipline they began to emphasise memory, typology [of architecture] and the morphology of cities. In this way they returned to the centre. But I felt – perhaps because of inclination or instinct – that you have to go as far out as you can. I would never find anything new in the centre. I can only break new ground at the edge, on the margin. And what is the margin of architecture? It is the point where it touches on other areas... Because I operate on the boundaries, I believe I can pose *real* questions. But if I had gravitated to the centre, to history, then I could only have dug deeper into that same centre.'

Thomas Schumacher, lecturer in architecture at the University of Maryland, takes the opposing position. 'I see nothing in schools that pretend to train the avant-garde; a school must teach common architectonic logic.' By way of illustration, he tells a story borrowed from his dean, about two gunslingers in the Wild West. One is the teacher, the other his pupil. The latter challenges his teacher to a shootout, saying 'I think that I am faster than you, and you have taught me everything I know.' 'Yes,' said the elder, 'But I have not taught you everything that *I* know.' Schumacher concludes, 'The great modernists of the first generation, like Le Corbusier, Wright and Aalto, were all trained in classicism of one form or another. They learned it, they went beyond it, and they did not teach it to us any more.'

In these two positions we see the outlines of the contemporary dilemma in design research and architectural education. Is there any sense in going back to the past, to the core of professional practice, or should one only explore the margins, the new problems? Does a designer actually *learn* anything from history? After all, as becomes obvious from the interview with Tschumi, designers are not driven by their knowledge but by their curiosity. On the other hand, knowledge of the tradition of the discipline in a broader sense is a precondition for being able to understand the issues of one's own time, and being able to interpret them in professional terms. You will perhaps not learn how to design by studying history, but without understanding history you cannot design.

Typology and invention

If the form of one design resembles that of another in a number of aspects, one can speak of a *typological* relationship between the designs. A 'type' can thus be conceived as a scheme, derived from a historic series of designs with a clear formal and functional analogy.

Argan sees them as abstract and reduced forms in which the powers of understanding and imagination intersect. According to Argan, typology embodies a specific relation to historical experience. In accepting a type a designer takes existing general notions of imagery, and with them implicitly their ideological significance and content, as the point of departure for creating a new work. Argan therefore presumes a continuity during the design process between the 'typological moment' (tradition, convention) and the 'inventive moment' (a break with tradition). In line with this presupposition, Rossi, Grassi and Aymonino, for instance, use the structural analysis of urban building forms when designing, based on the premise that the rules of architecture are only to be found and applied in architecture itself.

Clear typological relationships also exist among the landscape architectonic designs analysed here. They can all be reduced to the scheme of the classical villa. If we examine the scheme of the classical villa more closely, however, it appears that within this type one can distinguish very diverse landscape architectonic compositions. The type represents only the lowest common denominator.

In spite of their typological resemblances, the compositions discussed here are unique in many respects, and resist paraphrase. They cannot per se be related to any new design assignment. But they indeed contain within themselves design instruments and experimental skills that are still useful today, providing that they are isolated from their historical context in the right way, as an *invention*, retaining its magic.

Composition analysis

Composition analysis makes possible the recognition of design tools as original inventions; this accomplished, they can again be employed and transformed. The dust of centuries is blown away through this 'deconstruction' of the historical thought process. Only by this means can one penetrate into the experimentation and dynamics in the thinking of landscape architecture.

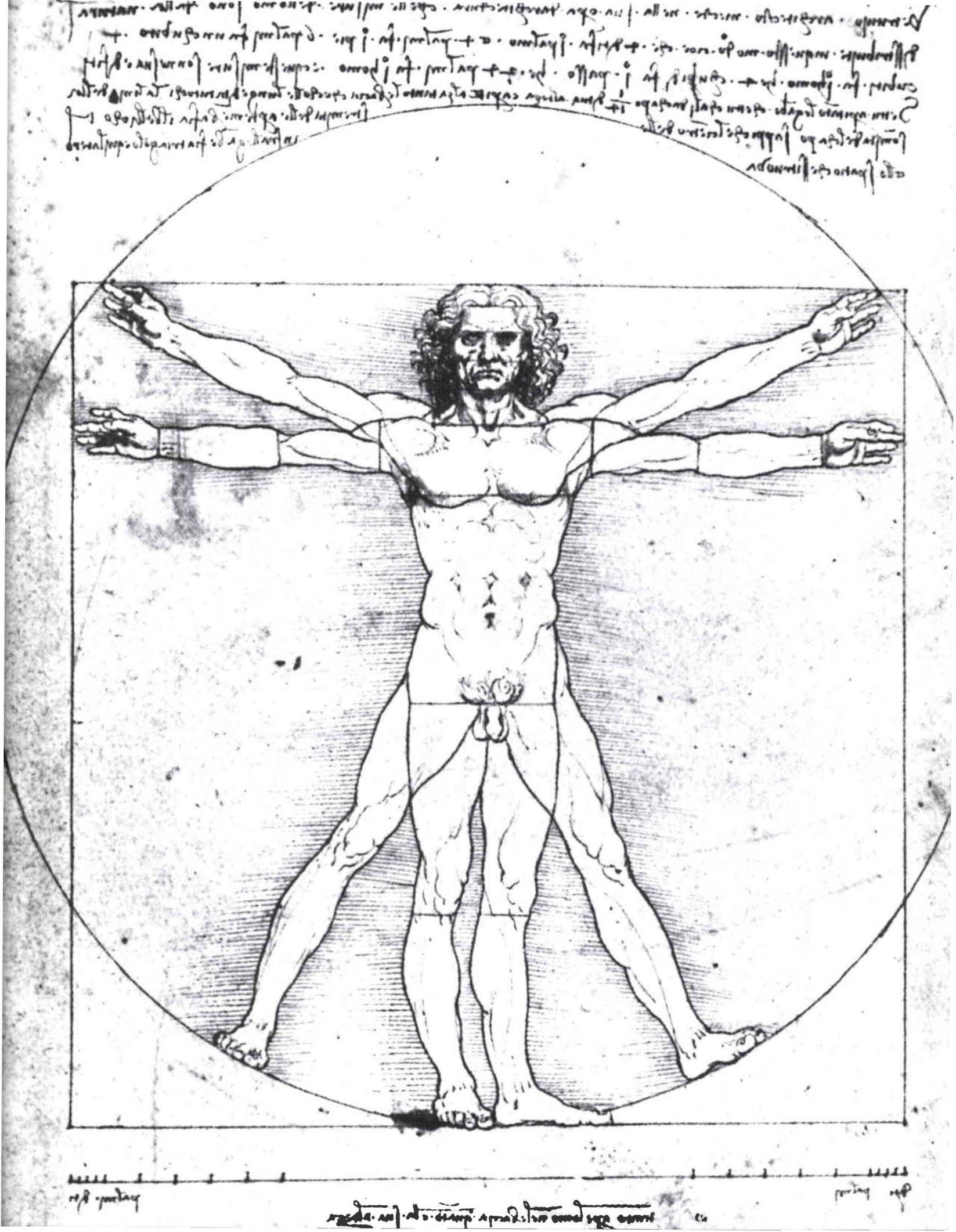
In order to achieve this, the classic gardens are placed in a new perspective here. They are not discussed as examples of a certain style or period, as 'period gardens', as is usually done, but as steps in a development which shaped landscape architecture as a design discipline. The landscape architectonic tradition spans several centuries, during which not only were works of great beauty created, but in which intelligence and ingenuity shaped the set of instruments of the profession. Each Golden Age had its own virtuoso moment, a peculiar magic with which the world was visualised in a new manner and regulated architectonically.

The examples chosen are investigated at a design/technical level; that is to say, in addition to history and topography, particularly the landscape architectonic composition is subject to thorough investigation. On the basis of numerous drawings, the analyses reveal how these compositions came into being, how they were constructed and how they function. This permits designs from different periods to be compared with one another in a meaningful manner, and allows the conceptual development and the dynamics of the composition of the landscape architectonic design to be uncovered.

We believe that the deeper sense, and the real task of scholarly research, lies precisely in this, because it helps us to take leave of the romanticised memory of historic examples, so that the dynamism and inventiveness which lies behind them can again be released. In this way tradition and experiment can be joined in a voyage of discovery, not only to and in the gardens themselves, but even more through the realm of the mind, in order to explore the conceptual possibilities of landscape architecture and expand its range.

A 'corso di disegno'

With this in mind, this book can be read as a 'public lecture' in conceptual thinking and in the art of spatial design. The thought process, as it in fact took place, can no longer be reconstructed; it is lost in time and history. But it can be brought to life again by inviting the reader to 'reenact' the design process in his or her own mind, together with the authors. In the world of chess, where such reenactments are quite common, that is called 'learning from the grandmasters'. In this creative play, the readers can experience the experiment for themselves, and in the process make the beauty of the architectonic landscape their own.



Villa Medici

The Boboli Gardens

Villa Cetinale

Villa Gamberaia

1 The Poetics of the Rational

Cortile del Belvedere

Villa Giulia

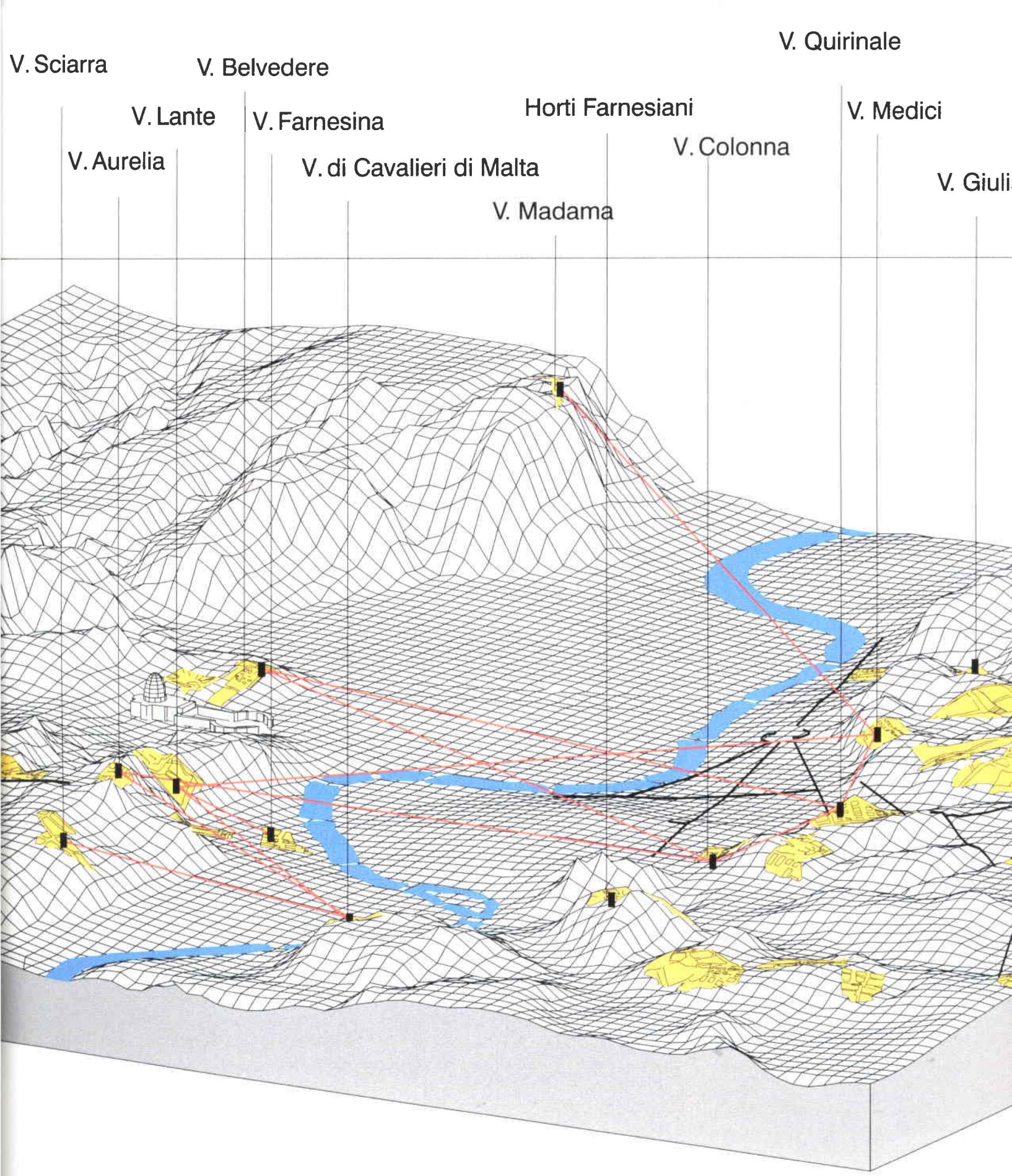
Villa d'Este

Villa Aldobrandini

Villa Emo

Villa Rotonda

Study of the geometry of the human body. (Leonardo da Vinci, 1485)


V. Sciarra
V. Belvedere
V. Quirinale
V. Lante
V. Farnesina
Horti Farnesiani
V. Medici
V. Aurelia
V. di Cavalieri di Malta
V. Colonna
V. Giuli
V. Madama

The discovery of the landscape

Arcadia as the urban ideal

The possibility of building villas arose at a time when control of the hinterland by the cities rendered fortified rural settlements unnecessary. Existing country houses belonging to the large land-owning town nobility could be converted, and newly-built villas, built solely for enjoying rural life, did not need to be defensible. Both types represent the cultural ideal of rural life, what was called the *villeggiatura*.

The beginning of this development, the transformation of *castello* and *podere* into villas, can be observed in 15th century Tuscan villas. In the *villeggiatura*, as it matured in Italy from the quattrocento onwards, a humanist elite breathed new life into the classical ideal of *otium* as opposed to *negotium*, while remaining within the framework of Christian culture. In the villa one could recover from the fatigue and obligations associated with a high social or ecclesiastical position.

One withdrew from the town, but not to turn one's back on it, and even less as a form of criticism. When the architect and theorist Leone Battista Alberti (1404-72) deals in his treatises with the ideal location for a villa, he recommends sites from which there is, apart from a view of hills and plains, also a view of the town. The villa embodied the enjoyment of rural life, which was undertaken in an urban manner: its construction, for instance, complemented the concept of the town and urban palazzo. The artificial arrangement of nature was determined by rules dictated by the cultural world of a ruling class. Alberti determined the degree to which the villa remained essentially utilitarian by the social and economic status of its owner.

During the 15th century the villa increasingly became a place for contemplation and sensuous pleasure. The Romans

already distinguished between the *villa rustica* as a farm and the *villa urbana* as a spacious country house, to which, in the warm season, the owner would retreat from his urban *domus*. The letters of Pliny the Younger, with their extensive descriptions of his own villas and the landscapes in which they were situated, were among the most important classical sources to have had a direct influence on garden architecture in the Renaissance.

In classical times Cicero and Seneca associated a peaceful stay in the countryside with the urban culture of study and philosophy. In 1462 Cosimo de' Medici ('the Elder', 1389-

1464) wrote to his humanist friend Marsilio Ficino: 'Yesterday I went to my villa in Careggi, not to cultivate my land but my soul.' He also made his villa at Careggi the seat of the Academia Platonica, where Ancient Greek literature and philosophy were studied.

Here the humanists tried, in fact, to combine two traditions: monastic contemplation and pastoral seclusion. In Ficino's concept of contemplation, nature takes a central position. The ideal place for contemplation was the garden, where geometry was a reflection of cosmic order and, therefore, of divine order. Since, according to Ficino and his associates, virtue is nothing other than nature transformed into perfection, the garden, in which nature was sublimated, was also the place in which virtue was nurtured. In Careggi, Ficino thought, young men could learn moral laws without any effort. Poetry and intellectual discipline were as established here as the sensuous enjoyment of nature. It was therefore in a villa, L'Albergaccio, that Machiavelli completed his *Il principe* (1513).

One of the books which had a great influence on garden architecture and its being accepted by the cultural elite was Frater Francesco Colonna's *Hypnerotomachia poliphili* (1499), in which insight into Poliphilus' nature is identified with insight into the secrets of classical culture, especially classical architecture. The development of the *villeggiatura* and the contrast between *vita contemplativa* and *vita activa* went hand in hand with a cultural reorientation towards classical literature. Humanist poets, Petrarch in particular, referred to Arcadia (Virgil) and the mythical gardens of the gods.

In association with specific topoi of classical literature, nature 'in the wild' was also introduced into the villa, especially through such elements as the *bosco*, the grotto and the nymphaeum. Ovid's *Metamorphoses* became an important source for revealing the hidden meaning of such elements to the initiated.

The transformation of the hortus conclusus

The Renaissance villa substitutes the sensuous pleasure of tangible nature for the symbolic medieval representation of worldly paradise. In medieval thought the distinction between celestial and worldly spheres was discernible in the Creation. The cyclical movement of the celestial bodies attested to the perfection of the original creation, while in the terrestrial domain the consequences of the Fall had an appreciable effect on the unpredictable and chaotic movements of nature.

The attitude of humankind toward nature was influenced

The Garden of Venus as embodiment of the medieval Hortus Conclusus. *Hypnerotomachia Poliphili*, 1499.

The secrets of classical architecture, from Colonna's *Hypnerotomachia Poliphili*, 1499.

by the awareness that the latter had been perverted by the sin of Adam and Eve. In art and architecture there was no question of the sensuous enjoyment of nature, but rather of it representing the lost perfection as symbolised in the portrayal of the Garden of Eden. The archetypical paradisal garden consists of a square plan with a centrally placed tree or spring. From there four streams flow towards each of the four points of the compass. They can be regarded as an iconographic representation of the four Evangelists, with Christ in the middle. The individual elements have a mystical significance (the Tree of Knowledge, the *fons salutis*, for example) and are linked in a symbolic-anecdotal manner. Since the garden is a miniature representation of God's Creation in a *hortus conclusus* (enclosed garden), it follows that the portrayal of nature in art and architecture is distinct and separate from real nature.

One of the most important written sources on garden architecture in the late Middle Ages is the *Liber ruralium commodorum* (1305), by Pietro de Crescenzi. Although he does not refer either directly or indirectly to the environment or the landscape, his depiction of a farmyard and, just beyond it, a dovecote and an orchard, distinctly evokes a harmonious, closed life cycle. Although the idea of the *hortus conclusus* was preserved in a specific place in the Renaissance garden, termed the *giardino segreto*, the villa concept nevertheless reflects a fundamental change in attitude towards nature. The landscape itself is given meaning in relation to the ideal of the *vita rustica*. Unspoilt nature was an essential part of the villa programme as a setting for the sojourn of the aristocracy in the countryside. At the same time, the significance of the elements of the garden changed.

Persian and Arab influences manifested themselves in the 13th and 14th centuries as a result of Islamic expansion and the Crusades. The Islamic garden, like the European medieval garden, is arranged geometrically, but is, in its layout, more orientated towards sensual enjoyment, expressed especially in the water features. The medieval *fons salutis*, for instance, became the centre of sensuous enjoyment in pastoral poetry (in Boccaccio's *Decameron* [1353], for example). It became a fountain representing the forces and pleasures of nature. The classical topos of the sleeping nymph beside a spring or grotto (nymphaeum) was associated with the Muses, the patrons of art and poetry. It was, after all, to a grotto dedicated to the Muses that Plato summoned his students for profound conversation.

Another important image in which the Christian concept of paradise is coupled with classical culture is the figure of Hercules in the mythical garden of the Hesperides. The architectural interpretation of similar classical literary references in the villa's plan heightened one's enjoyment of nature to the desired intellectual and cultural level.

The hidden geometry within nature

Although in the Renaissance the relationship between art and science remained undivided, a profound change in the way nature was understood and represented took place in the 14th century. In the Middle Ages the depiction of nature took on a metaphysical, symbolic meaning. The medieval garden represented both nature and the supernatural. To Gothic architects, the scientific basis of art was the science of geometry. Together with Pythagoras, Plato and the neo-Platonists, a long succession of theologians from St. Augustine onwards were convinced that 'all is number'. Divine numbers (such as 3, 4, 7, 12, 40), divine proportions (golden section) and divine forms (the equilateral triangle, the square, the circle) were partly derived from Holy Scripture as a secret canon, preserved by the guilds and used by the masters in works of art.

In the doctrine of nature corrupted by the Fall, the accent shifted from corruption to the view that God's order is present in nature, although concealed in an apparent chaos. This order could be exposed by keen observation: Leonardo da Vinci's minute investigations of natural shapes and phenomena are examples of this. 'I learn more from the anatomy of an ant or a blade of grass than from all the books written since the Creation', wrote Bernardo Telesio in the first part of the 16th century.

According to the philosophy of Marsilio Ficino and his pupil Giovanni Pico della Mirandola, the two most important protagonists of the Florentine academy of Lorenzo de' Medici, 'the Magnificent', in this way terrestrial nature became a means of coming closer to God rather than an obstacle. As art was directly connected with science for the *uomo universale*, the old Platonic concept of art as imitation of nature was revived in 14th-century Italy, as expressed in the maxim '*Natura artis magistra est*'.

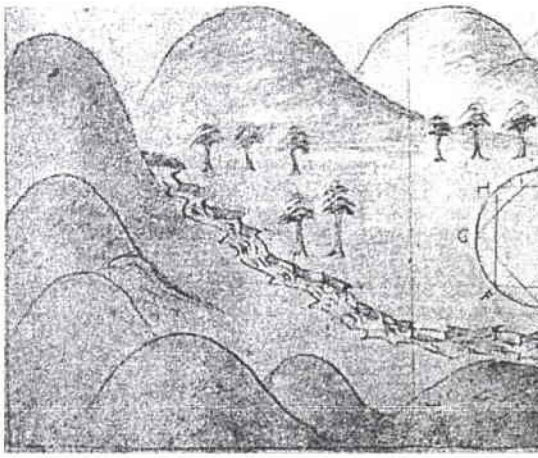
Although Cicero had already rejected the theory of literal artistic imitation, it was the neo-Platonist Plotinus (c. 205-270), in particular, who laid the foundations of a new abstract theory of art: what the artist 'sees' is a reality hidden under the outward visible appearance of the material world but ascertainable through human reason and intuition. By moulding this observation into comprehensive, visible shapes, he reveals the harmony concealed in nature. In 15th-century

Florence, the cradle of political, scientific and artistic experiment, the neo-Platonic idea of the imitation of nature was stated mathematically. It was Alberti who, in his *Della pittura e della statua* (1436), and especially in his *De re aedificatoria* (circa 1450), concluded that the mathematical interpretation of nature is an artistic concept. The study of proportion, based on the scientific measurement of the human figure, created a framework for a renaissance of classical orders and proportions.

In Vitruvius's *De architectura* (circa 25 BC) the proportions of an ideal human figure, with the navel as the centre of a defined circle and square, had already been expressed. 'If nature has formed the entire body in such a way that the limbs are in proportion to the entire body, it would seem that the ancients reasonably determined that, when executing a building, they should also take into consideration the precise measurements of the parts in relation to each other and to the entire body [...]. They derived the basic measurements, apparently essential for all buildings, from the limbs of the body, such as the palm, the foot and the yard.' For Vitruvius it was the human figure in particular that harboured the secret codes of natural order and beauty.

In the Renaissance this idea was justified by Holy Scripture, in which man is called 'the image of God'. As a reflection of the perfect Creator, the human figure could now be interpreted in a wider sense, that is to say as an embodiment of the harmonies of the universe. As such it was a microcosmic image of the macrocosmos. Thus the architectural plan, which in turn reflected *humanitas*, also attained cosmographic significance. It was a metric diagram in which the hidden order of nature was made evident.

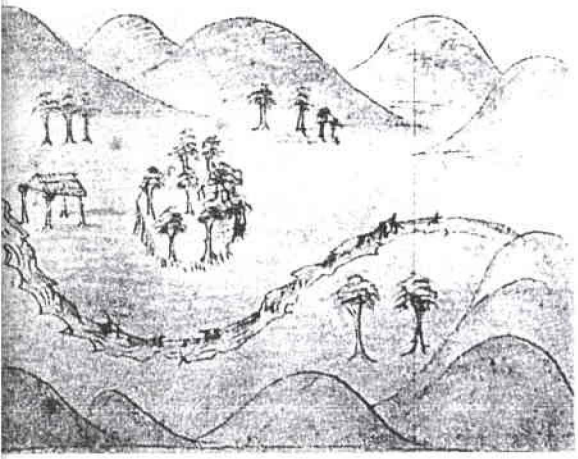
In Alberti's architectural theory three categories were distinguished for this purpose: number (*numerus*), dimension (*finitio*), and ordering (*collocatio*). Favoured numbers were 6 and 10, being, respectively, the ratio of the length and breadth and the ratio of the length and thickness of a human being. Ten was the sum of 1, 2, 3 and 4. Six was the same as 1+2+3 as well as 1x2x3. Series such as 2:4:6, 2:3:6, 2:4:8 etc. were thus derived. In a graphic sense this preoccupation with small integers resulted in the search for square grids. Apart from Alberti, contributions were made to the early architectural theory of the Renaissance by, among others, Antonio Filarete and Francesco Colonna. Filarete, too, preferred the square as a basis for plans and elevations. Colonna used the same source in order to achieve correct proportions for plans and elevations by means of square grids.



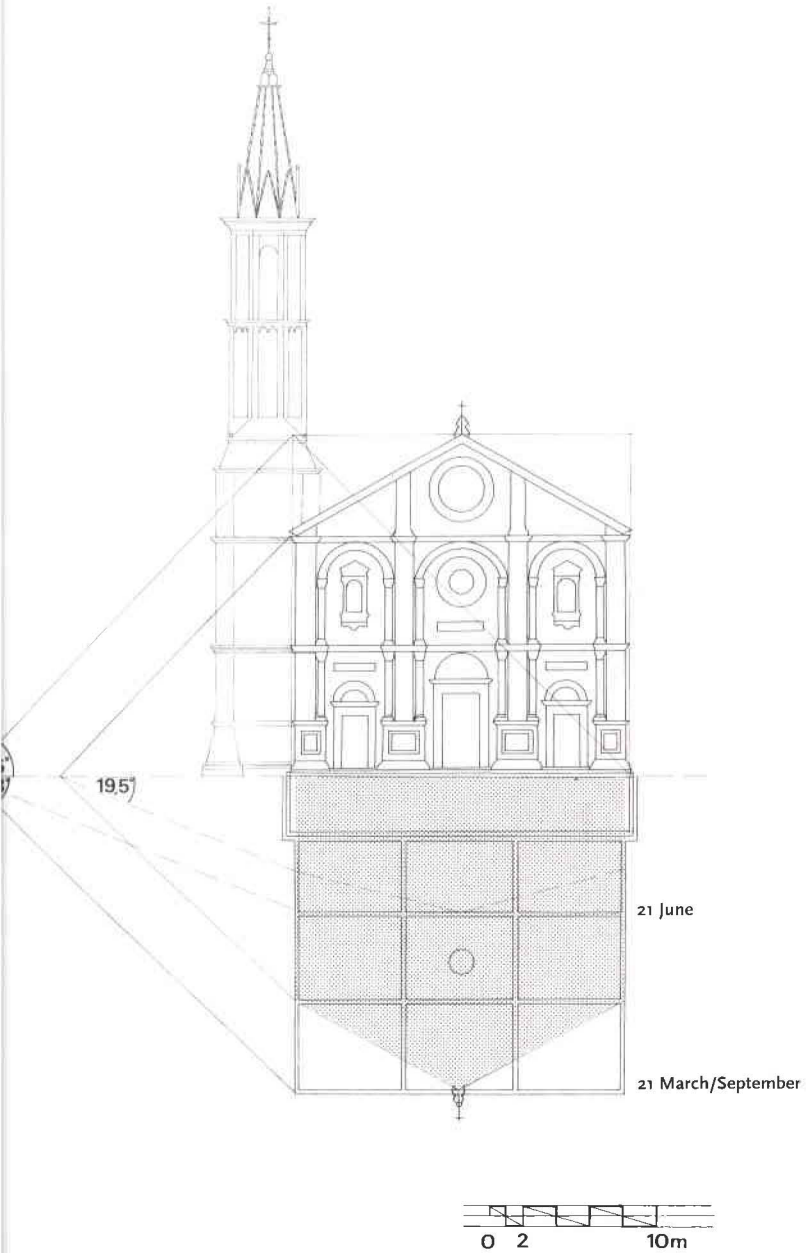
The ideal city of Sforzinda as a geometric symbol in a landscape drawn in perspective. (Antonio Filarete, circa 1460)

An important consequence of this for villa architecture was not only the concept that it should be possible to devise an ideal, proportional system, but also that, above all, the relationship between villa and landscape, or, in an even broader sense, between humankind and nature, could be established within this rational scheme of dimensions and proportions. As has already been mentioned it was important for the villa architect to represent natural landscape within the domain of the villa, and, in addition, to deduce the hidden order from the chaos nature presented to him. Within the confines of the garden, which formed the link between landscape and villa, a game could be played with the representation of nature and its regulation. Natural morphology was defined geometrically in the plan of the villa.

In the Tuscan and Roman Renaissance villa this mathematical model became the new 'aesthetic', designed by the architect, which, within the domain of the villa, placed the land-

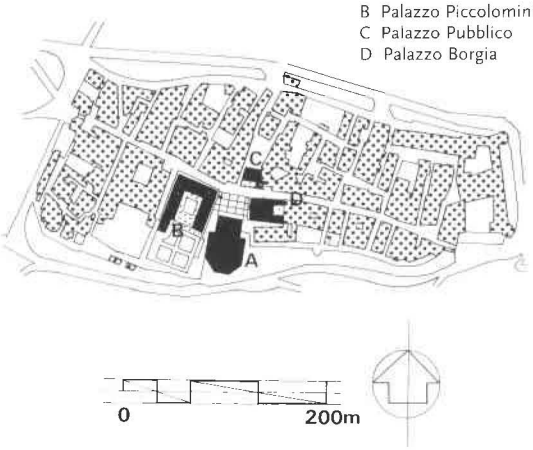


Panorama from the Palazzo Piccolomini in Pienza.



Pienza

A Church
B Palazzo Piccolomini
C Palazzo Pubblico
D Palazzo Borgia



A design by the Florentine architect Bernardo Rossellino (1409-64) provides an example of scientific data being incorporated in architectonic form. Commissioned by Pope Pius II, Piccolomini, he transformed the Pope's native village of Corsignano into a residence, called Pienza (1460-64). Among the buildings constructed was a new church which was not oriented in the traditional east-west direction, but north-south. The north façade of the church casts a shadow on the square laid out in front of it which, when the sun is at its highest position on either the spring or autumn equinoxes (March 21 and September 21, respectively), corresponds with the geometric arrangement of the square. Because Pienza lies at 43° north latitude and the sun's rays on those days fall at a 47° angle, the dimensions of the façade are foreshortened when the shadow is projected onto the square. A ring (*ombelico*) has been introduced into the pavement of the square, which is the same distance from the foot of the façade horizontally as the eye (*occhio*) in the front wall of the church is vertically. The degree to which the façade is foreshortened in the shadow can be read from this fixed reference point. The complex functions as a calendar and a clock at the same time, with the square as its dial, the tip of the shadow of the tympanum as the hand, and the *ombelico* as its centre.

(J. Piper, 'Pienza, over de omgang met de natuur in de stedebouw van de vroege Renaissance' [Regarding the Renaissance handling of nature], *Forum*, 30/1, 1986)

scape under the control of human intellect. At the same time, this determined the position of the villa with regard to the surrounding landscape. In the model of the Veneto villa, as developed by Palladio a hundred years after Alberti, this aesthetic is placed in the centre of the classical Roman trio of 'useful, beautiful and correct'. In the plans of his Veneto villas, which are efficiently organised farms, the functional (Roman) division of the farmlands themselves is represented aesthetically, thus establishing the villa and the landscape in one architectural order.

Viewpoint, perspective and horizon

The geometric scheme of the Renaissance plan expresses the order revealed in nature by science as a 'divine model'. When observing spatial attributes of the geometric plan, it should be noted that its proportions presuppose a subjective point of view. It is the mathematical construction of a perspective that establishes this position and systematically determines the proportions observed.

Space emerges as an independent condition and is defined by scientific perspective. The discovery of perspective was closely related to the discovery of the horizon. Alberti spoke of visible objects whose forms were measured in the mind. Perspective was not considered to be an illusion or trick to manipulate reality, but rather a hidden order — a mathematical structure which gave space, and the objects within it, coherence. Perspective presupposes a vanishing point on the horizon, which thus becomes the limit of the composition.

In medieval art the observer was not involved in the mathematics of optical space. The ideas of the artist were subject to the evocation of a spiritual truth. According to Aristotle's philosophy, place (*topos*) was an accessory of the object. Space did exist, but not as an independent aesthetic entity. On the other hand, Bernardino Telesio (1509-88), in his *De rerum natura iuxta propria principia* (1565), proposed that space and time could be independent of matter and movement, and therefore distinguished between *locus* (the Greek *topos*) and *spatium*.

In Renaissance painting foreground and background, which were originally independent elements of the picture plane, were placed in a spatial relationship in experiments in perspective. The optical distinction between foreground and background, between the scene of action and the landscape backdrop, was thus abolished; both were united in one spatially continuous composition. Not only did the landscape, in which the various actions took place, form a spatial unity, but it was also suggested that it was accessible. The landscape was no longer a changeable backdrop; it had become an integral part of the composition.

In 16th-century theatre design the question of a correct optical relationship between painted background and three-dimensional stage props also led to experiments with actual built space. The background, however, continued to assume the form of a painted surface, framed by columns, arches and building projections. The entire stage was organised in perspective from a viewpoint at the centre of the auditorium.

Giacomo Vignola (1507-73) maintained that the major problem in arranging a theatrical scene lay in establishing the correct perspective relationship between the three-dimensional stage props and the painted decors. The background should be constructed in such a way that it formed a perspective unity with the requisites on stage. As with *quadratura* painting, this construction had a fixed optimal viewpoint for observing this illusionist spatial continuity between three-dimensional reality and the painted picture plane. From all other points, the illusion varied from being less than perfect to completely distorted, thus, in fact, concealed. It is only from the 'seat of the monarch', at the centre of the auditorium, that, from the standpoint of perspective construction, the representation on stage fully revealed its secrets. Guido Ubaldus (1545-1607), Scipione Chiaramonti (1565-1652) and Giulio Troili (1613-85) also had the stage raised higher the further back it receded in order to manipulate the apparent depth of the stage and improve the view.

Important theorists who tried to rationalise subjective observation by experimenting with perspective were Alberti (*Trattato della pittura*, 1435), Jean Pélerin, alias Viator, (1440-1524) (*De artificiali perspectiva*, 1505), and Albrecht Dürer (1471-1528) (*Unterweysung der Messung*, 1525). Leonardo da Vinci (1452-1519) experimented with it in his paintings and constructed practical perspective into a method known as *costruzione legittima*.

The experimental constructions of the first perspectivists proposed a new, speculative hypothesis. Whereas descriptive Euclidean geometry had, until then, stated that two parallel lines do not intersect, they experimented with a hypothetical intersection of such lines at infinity (the vanishing point).

Alberti assumed that a picture is nothing other than a particular section of the imaginary optical pyramid (formed by the rays of vision from the eye), depicted on a projection plane. To him, the most important technical problem was to create a construction method which systematically correlated the observer's position with the size and shape of the object

depicted. Projected onto a picture plane, the size depends on the observer's distance from this particular plane and from the object itself. The shape changes according to the direction of the main line of vision. In his shortened version of the *costruzione legittima*, Alberti, for the first time, created a rational and systematic construction method by means of combining the plan with the front and side elevations.

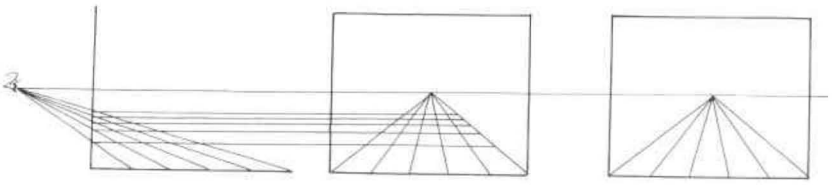
In *quadratura* (also called trompe-l'oeil) painting, 16th-century Italian artists employed perspective in order to escape architectural reality. By adjusting the vanishing point and the horizon to the position of the observer in actual space, the observer gained the impression that the painted space was an extension of existing reality. On the viewpoint, fixed by perspective construction, a continuum of real and illusionary spaces existed. Renaissance *quadratura* painters such as Melozzo da Forli and Andrea Mantegna tried to manipulate the actual distances to the ceiling or dome. The latter's spatial restrictions were kept at a greater optical distance by illusionary paintings of architecture and the use of light effects (clair-obscure). Domenico Ghirlandaio, Michelangelo and Peruzzi were among those who perfected illusionary architecture. Leonardo da Vinci, who meticulously examined the composition of flora, perfected the painting of open foliage. He painted interiors with powerful looking, towering tree trunks, their branches and shoots stretching across an entire ceiling that then resembled an open and transparent pergola.

In the villa the perspectival stage management of natural space became an architectural exercise. When the Italian poet, Francesco Petrarch (1304-74), gave his famous literary account of a completely new kind of spatial experience (1366), the dramatic occasion took place on the summit of a mountain, Mount Ventoux, near Avignon. The extreme remoteness of the location had reduced conventional reference points to meaningless dots in the distance. When all reference points disappear it becomes impossible to measure space. All movement in the panorama, too, is modified by the distance and reduced to nothing. Thus the notion of time, which can only be measured by movement, disappears. Petrarch 'placed himself outside reality'. Reflecting on our world, infinite space emerges as an unknown phenomenon; the uninterrupted vistas bring about a feeling of enclosure on a cosmic scale. Moreover, to Petrarch, actual physical space was assimilated into the purely inner perspective of contemplation and poetry.

It is this experience of space which can be recognised in the villa and which was brought under control by means of architecture. The villa was always projected against the background of the landscape. This natural landscape was integrated into the panorama of the villa; it is the setting to which the villa, in the foreground, had to be linked perspectively. It was still impossible to design this background as a panoramic landscape of great spatial depth. It was, however, possible to place it in a perspective relationship with the garden in the foreground. Framed by a loggia, an arcade or a portico, or disconnected by means of foreground terraces, the panorama became a decorative and controllable part of the villa architecture. In such a segment of the panorama the horizon, framed by the architecture, could be presented as an orderly impression of infinity. It was not the perimeter of the estate which was portrayed as the boundary of optical space, but the natural horizon far beyond it.

The concept of rational stage management

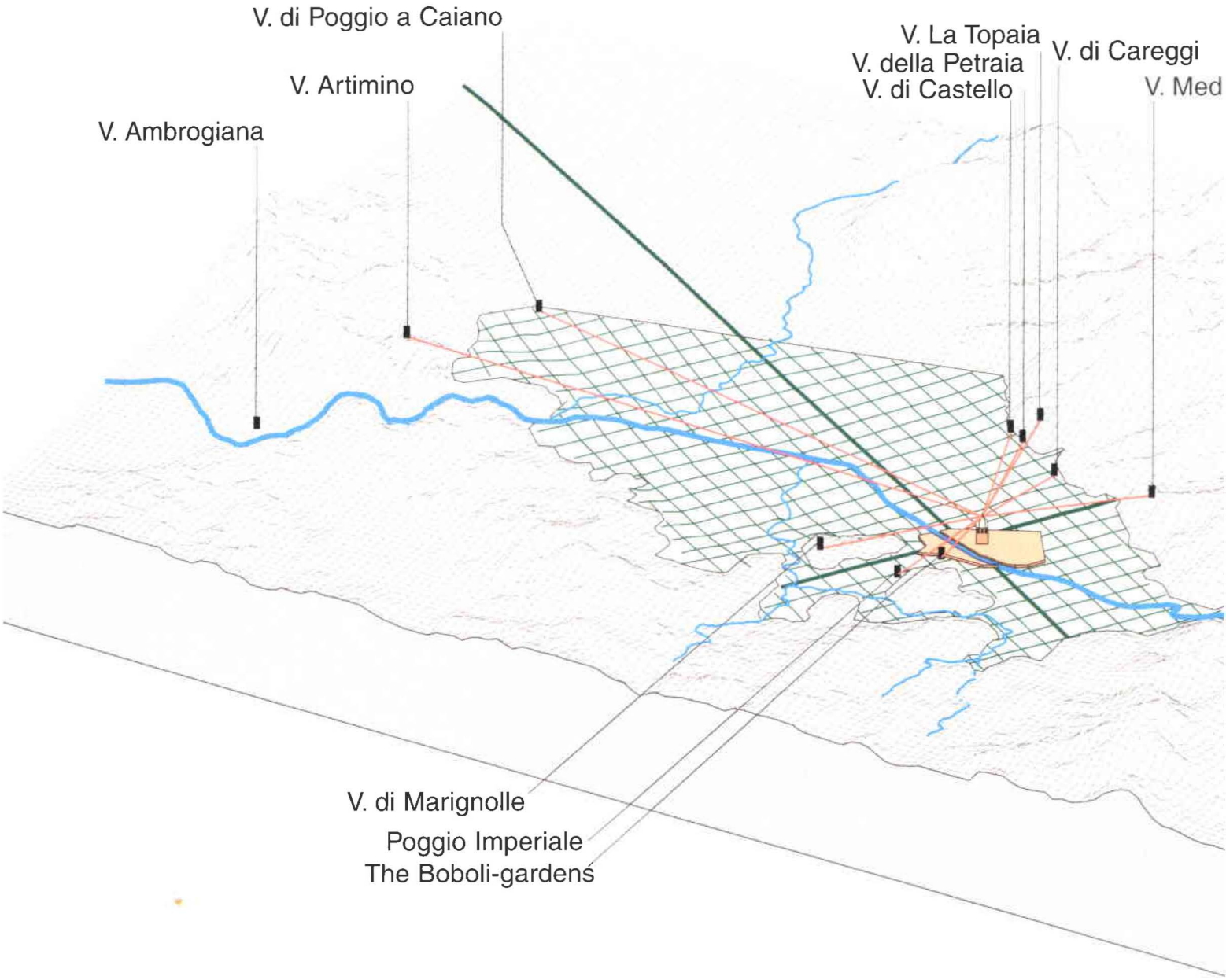
In the garden the organisation, conversion and perfection of the natural elements were carried out according to prescribed architectural rules, which brought about the *integrazione scenica* of the villa into the landscape. The villa plan can be seen as



Perspective construction according to Alberti. The optical foreshortening is determined by the intersections of the lines of vision with the vertical scene.

a rational scheme superimposed on the landscape, in which those parts of the landscape covered by the scheme are ordered and intensified. Thus, at Villa Medici (Fiesole), the position of the villa in relation to the contour lines of the landscape is emphasised by the oblique garden wall in the upper garden and by the verticality of the terraces in the sloping terrain. The Villa Giulia in Rome is situated in such a way that its architectural axis coincides with the natural axis of the side valley of the Tiber in which the villa is situated. It is particularly due to the treatment of the edges of the garden that the villa is defined in the landscape. At the Villa d'Este the boundary on the Tivoli side has been treated very differently from the one opposite it, which adjoins the panorama.

Apart from the manipulation of the geometric matrix and the edges of the plan, the differences in interaction between



Florence. The territory around the Medici villas.

villa and landscape are determined by number, grouping, and the specific architectural treatment of the elements in the garden. In placing the elements of the garden-like objects in a grid, nature becomes ordered, the interaction with the landscape is established and the representation within the overall composition of unordered nature is determined. It is also a matter of the architect employing a codified sequence of particular parts. Such a series of elements, which recurs in all plans, is formed for example by the sequence casino-parterre-bosco. Examples of other sequential combinations are nymphaeum-grotto-cascade-reflecting pool, house-*giardino segreto*-terrace-panorama and loggia-arcade-pergola.

The number of elements is limited if they are categorised according to formal characteristics: a half-round wall, a screen, a gate, a reflecting surface, a column, a colonnade, and so on. The separate elements only receive their various meanings through the organisation of the garden.

The position of the house as an element in the plan is ambiguous. It is part of the architectural composition, but its siting in the villa complex also coincides with its symbolic significance. At Aldobrandini, for instance, the villa is represented by the façade of the house facing the valley, and its relationship to the landscape is directly determined by the incorporation of the hillside into the two intersecting tympana. The garden is situated between the slope and the house at the rear.

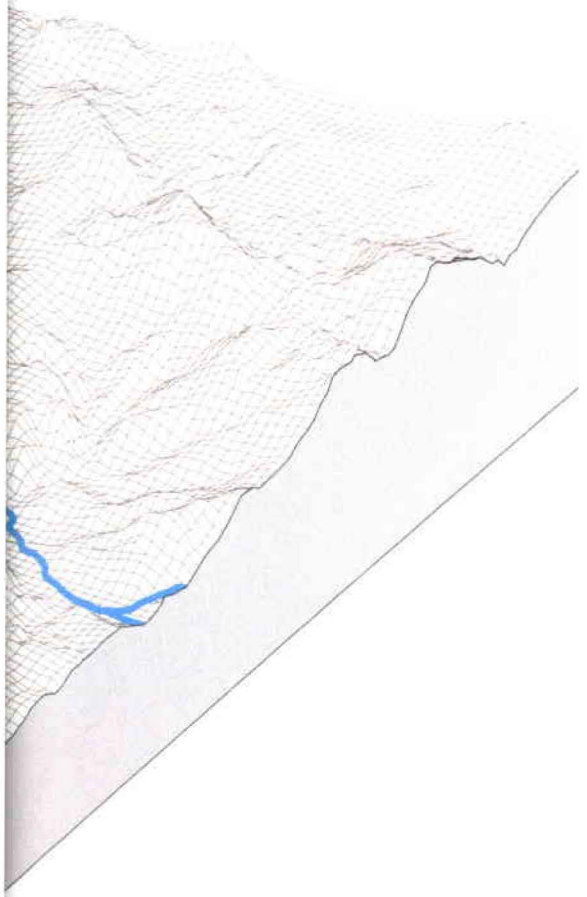
The significance of the garden as a link between villa and landscape did not remain constant, and in Palladio's villas, for example, a number of shifts occurred by which house and landscape became more directly involved with each other. Palladio's villas were situated in a vast, flat, fertile landscape, which did not encourage a direct reference to the Arcadian ideal of the *vita rustica*.

In Palladio's agricultural villas the garden is a ceremonial introduction to the steps and the *piano nobile* in which the status of the landowner is symbolised. The interaction between villa and landscape is defined by the way in which the landscape itself is organised.

There comes a time in the villa-building process, therefore, when one could ask whether the scenic staging is still controlled within the plan or whether its organisation has been taken over by one of the elements of the plan. This is the case in the introduction of the axis, superimposed onto the landscape.

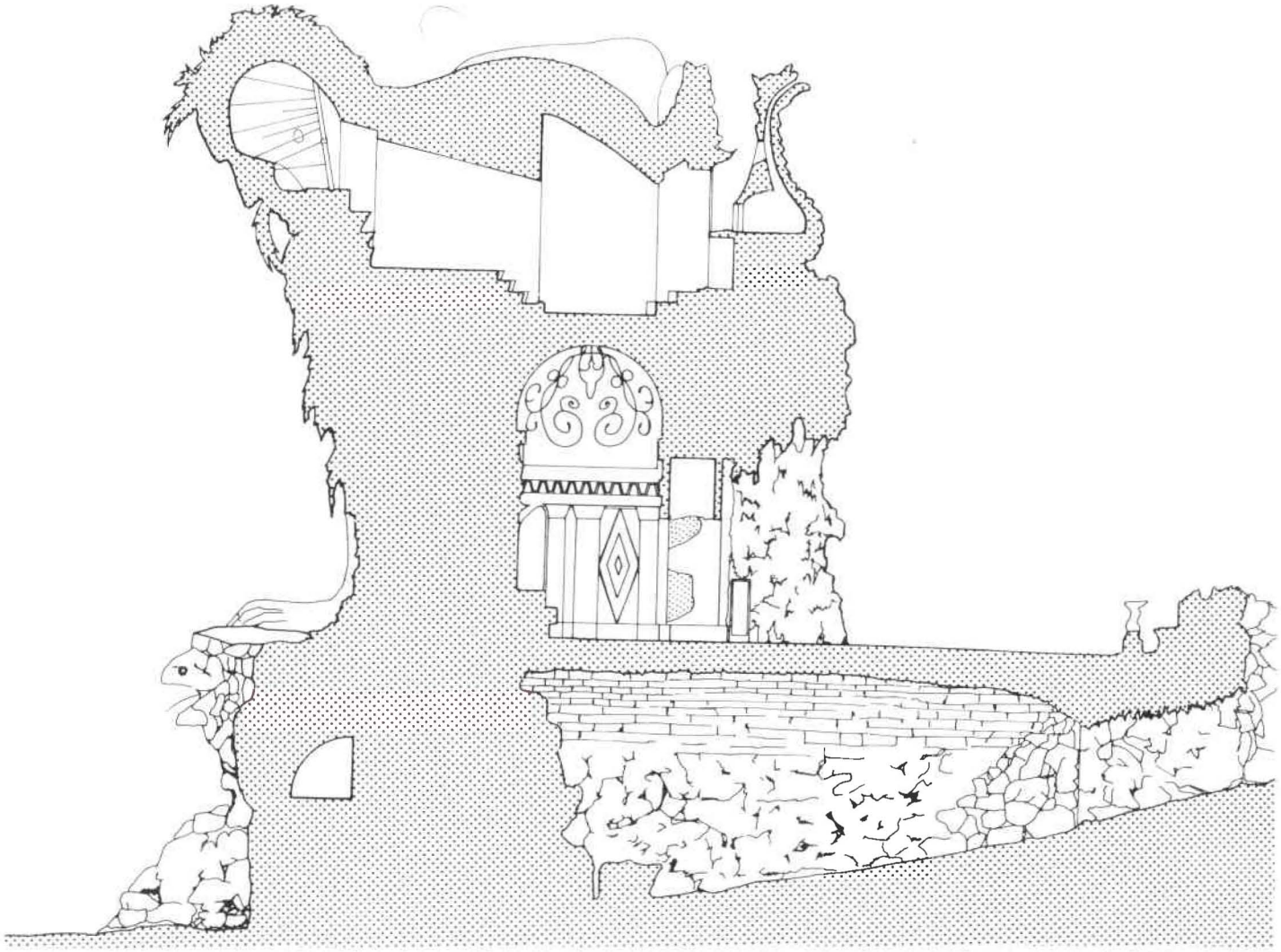
In the Renaissance villa the axis, even when it has become autonomous to a certain extent, remains one of the elements around which the plan is arranged. When special perspective

ratolino

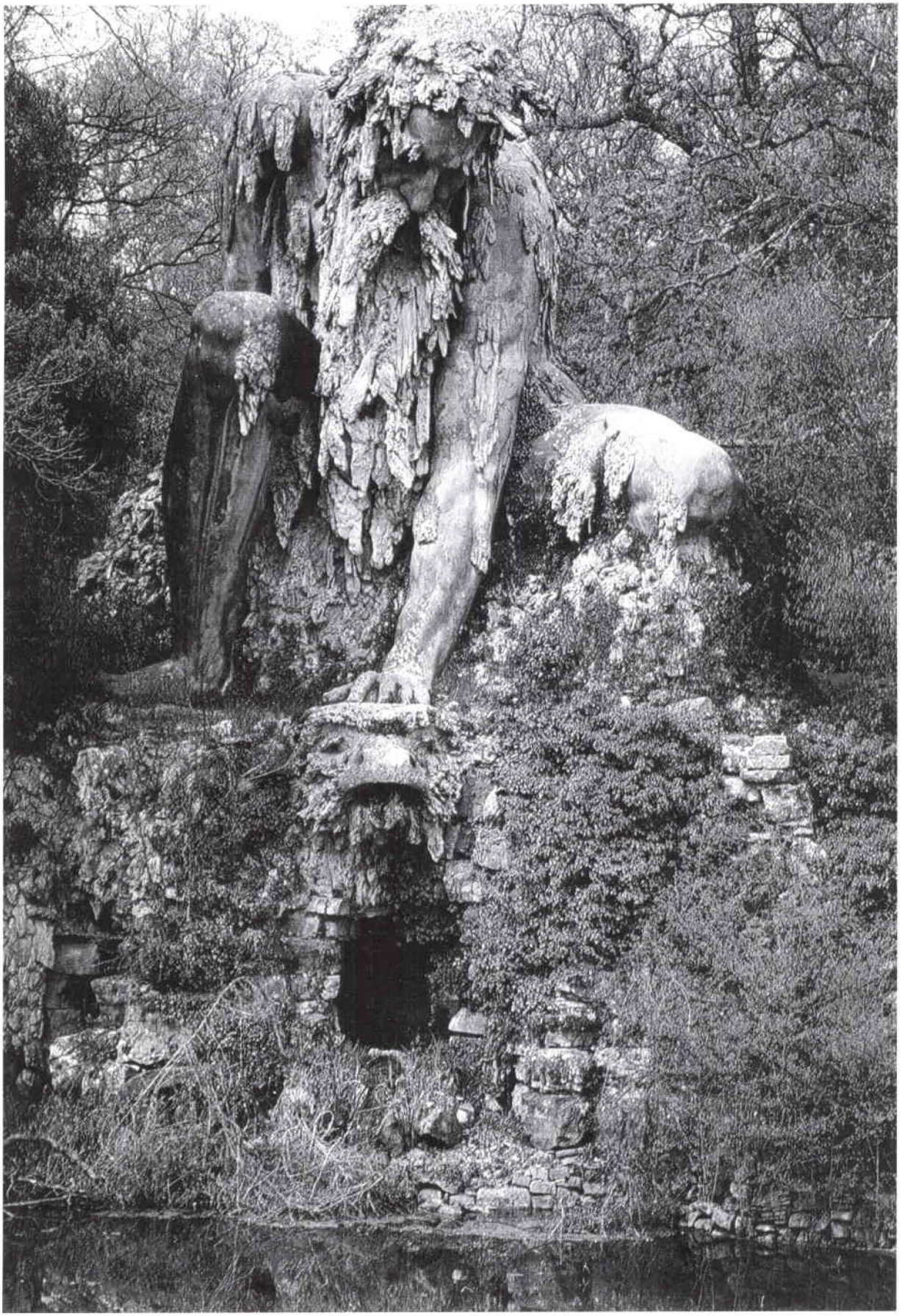


effects have been used, such as those found at the Villa Giulia or the perspective distortion of the cascade at Villa Aldobrandini, they remain linked to the special development of one of the parts of the plan.

The point at which the axis became more independent and detached from the plan signified the end of the development of villa architecture as such, and at the same time marked the inception of new regulating principles in landscape architecture related to another concept of nature and its spatial representation in the landscape.



The Appennino in Villa Pratolini, near Florence (1992). With his hand the titan presses on the head of a monster spouting water. Inside the titan there were grottoes decorated with frescos. At the top was a fireplace; the smoke escaped through the nostrils of the giant. (P. van der Ree)



The Appennino.

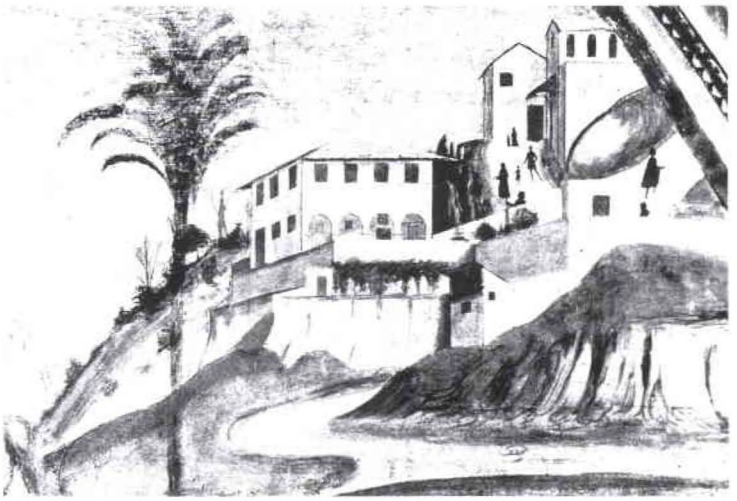
Villa Medici

History

In Tuscany the *villeggiatura* was to be found around towns such as Lucca, Pisa, Siena and Florence, though the latter was the most important centre. In the 15th century many prosperous citizens built numerous villas on the slopes of the hills surrounding the city of Florence. Villani says that the greater part of the nobility and the rich citizenry used to spend four months of the year in the countryside. The city dwellers and the court followed a seasonal cycle, moving from town to countryside and from one villa to another. The villas built around Florence during the Renaissance suited the already existing system of the *case coloniche*, the modest residences in the countryside.

In 15th-century Florence, it was the Medici family in particular who were historically important in initiating the building of villas in the Arno valley outside the city. Cosimo de' Medici had the Careggi, Cafaggiolo and del Trebbio villas built by the architect Michelozzo di Bartolommeo (1396-1472). In the villas he built the transition from *castello* (castle) and farm to villa is visible. Lorenzo de' Medici (1449-92) commissioned Giuliano da San Gallo (1445-1516) to build the agricultural Villa Poggio a Caiano and in 1477 he bought Villa Castello.

When in the 16th century a new branch of the Medici family came into power, their possessions were expanded into an imposing territorial system of villas: Cosimo I (1519-74; Villa Castello, the Boboli Gardens, Petraia, Poggio Imperiale), Francesco I (1541-87; villas Pratolino, Marignolle and Lapeggi) and Ferdinando I (1549-1609; villas Artimino and Montevettolini). The choice of new locations was determined by general economic, political and speculative considerations. Furthermore, a view of the town (the centre of their power) and a view of their other property played an important part. The villas were preferably situated in each other's field of vision. Those that were not actually visible could be admired in paintings in the interior.



Villa Medici. Fresco in Santa Maria Novella, Florence. (Domenico Ghirlandaio, 1486-90)

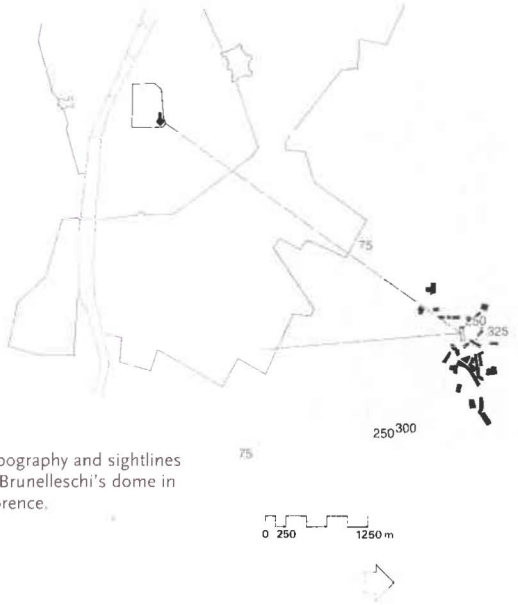
According to Vasari, the Villa Medici at Fiesole was built between 1458 and 1462. Built for Giovanni, son of Cosimo de' Medici 'the Elder', it was also designed by Michelozzo. A fresco in the Santa Maria Novella in Florence by Domenico Ghirlandaio (1449-94) depicts the villa in what was possibly its original state. The eastern loggia of the villa is shown as having four arches, while the terraces, also on the east side, are entirely bounded by retaining walls. Agnolo Poliziano (1454-94) wrote a poem, *Rusticus*, about the villa and, in a letter to Marsilio Ficino, praised its location, the local climate and the view. In 1671 the Medici family sold the villa.

Based on the evidence of the few available sources, including drawings by Zocchi of 1744 and by Buonaiuti of 1826, Bargellini, among others, surmised that between these dates the villa had undergone some changes. The villa was at the time owned by Margaret, Lady Orford (from 1772), and by Giulio Mozzi (from 1781). The part of the house located north of the corridor would have been built during this period. This assumption is supported by the fact that the southernmost loggia-arch in the east façade was bricked up in order to restore the balance of the façade. Geymuller and Patzak also assumed that this arch had been bricked up. In another drawing by Zocchi of 1744, cited by Bargellini and her followers, the western loggia still has three arches, which makes it probable that the present fourth (northern) loggia-arch was added later. It is also possible that during the same period stables and a coach house were built at the eastern entrance of the garden and connected with the Via Fiesolana by the construction of a *viale* (drive). The edges of the eastern terrace must have been reconstructed at the same time. Around 1850 William Blundell Spence became the owner of the villa and in 1860 he enlarged the *viale*. At the beginning of the 20th century, Lady Sybil Cutting-Scott-Lubbock bought the villa. She had the library on the *piano nobile* refurbished. At that date the garden was also restored by Cecil Pinsent and Geoffrey Scott; they designed the *buxus* parterres on the west terrace and the lower terrace. In 1959 the villa was bought by Aldo Mazzini, whose widow still occupies it.

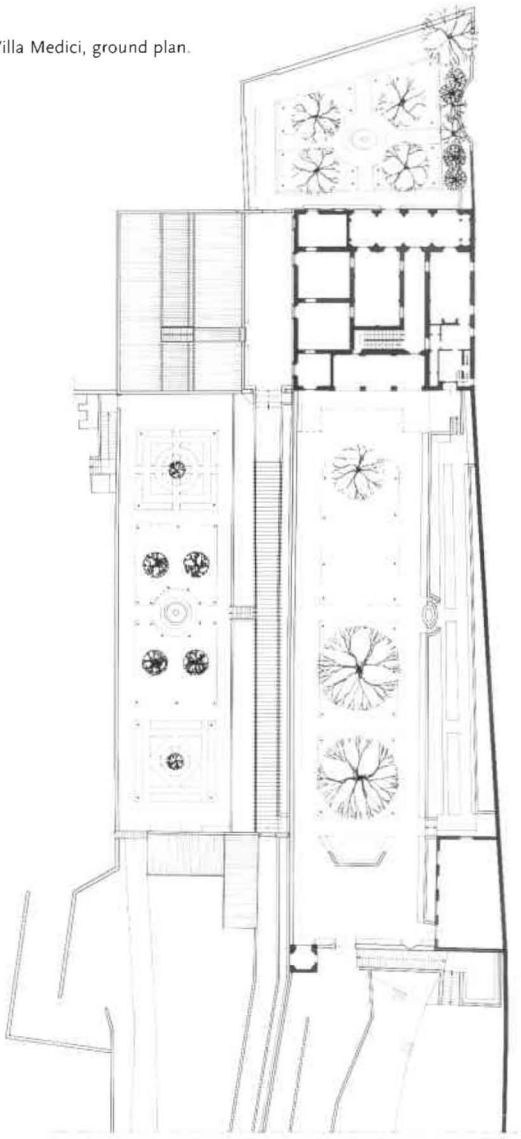
Pliny's landscape theatre

The northern and eastern slopes of the Arno valley rise to more than 700 metres. On the southern side of the valley the terrain is less accentuated. In antiquity Pliny the Younger had already described this natural space as a gigantic amphitheatre. The panorama extends to 15 kilometres from east to west and 8 kilometres from north to south. From the villas, which are situated at an ideal height of 50 to 150 metres above the valley floor, this panorama was observed from visually strategic positions. Thus the Florentine landscape was spanned by a network of lines of vision, with the town of Florence as an integral part of the panorama.

Yet the town also plays an active part in the architectural development of the natural space in which it is situated, thanks to the town-planning of Brunelleschi (1377-1446) in Florence. This is most clearly expressed in his design for the dome of the Santa Maria del Fiore Cathedral in Florence (1418-46), the shape of which expresses perspective equilibrium



Topography and sightlines to Brunelleschi's dome in Florence.



Villa Medici, ground plan.

and continuity. From whatever side it is observed, the dome is identical. With this dome, Brunelleschi achieved not only a new coherence and spatial unity within the town plan, but also provided a reference point for the town from the surrounding landscape and hills. This is indicated by the numerous toponyms in the Florence area, such as *L'apparità* and *L'apparenza*, which are at points from which the city is revealed by the dome's outline. The dome also attested to the historical significance of a city with new cultural and political prestige, which controlled an extensive territory. Its 'shadow' had to 'cover' not only the Florentines but also the other inhabitants of Tuscany. The dome has the ideal shape with which to relate the town in its totality to the horizon of the surrounding hills, on which the natural dome of the sky seems to rest. In this sense Brunelleschi's dome transforms the natural landscape into an architecturally determined space.

Site

The villa is situated at a height of around 250 metres above the Arno valley, in which, about 5 kilometres further on, the old centre of Florence is situated. On the site of the villa the undulating foreground changes into a steeper, south-facing hilltop (325 metres), against which the southern façade stands out convincingly on its foundation of terraces. A southern exposure of the garden was recommended by the theorist Pietro de Crescenzi. The slope protects the villa against the cold north-east winds in winter. In summer the sea wind can bring cool air from the west. The building is aligned with the points of the compass and at an angle to the natural slope. This slope, therefore, closes the field of view to the east, whereas the building is orientated towards the Mugnone side valley and, across that, towards the distant line of the Arno valley. In the transverse direction the scheme is laid out like a balcony overlooking the source of the Arno valley to the south. The view is in accordance with what Alberti later recommended. Cosimo, however, was not particularly happy with it. He, more than his son, believed that the view should really be part and parcel of his country property.

Plan

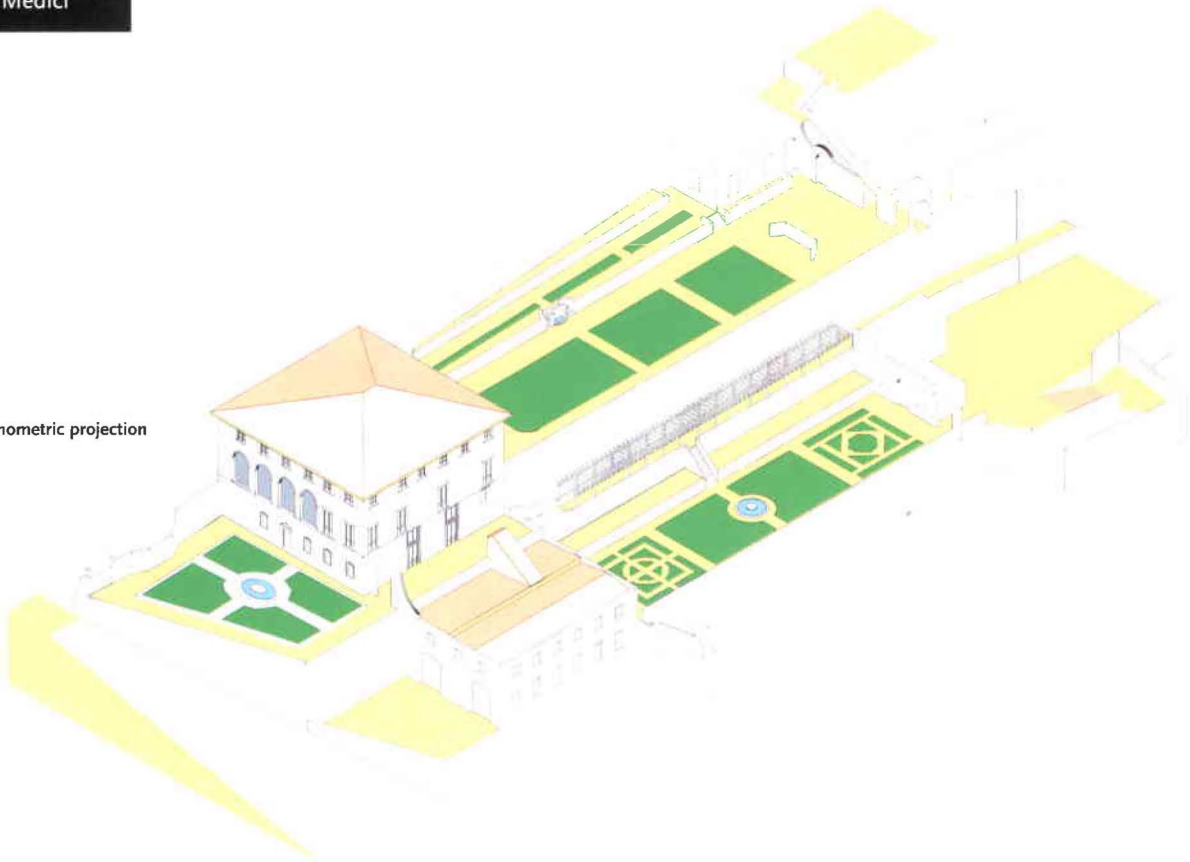
The villa consists principally of two levels. The upper level is formed by the extensive north terrace, which is now reached via the *viale*. This level is joined to the *piano nobile* and the two loggias of the house. The lowest level consists of the south terrace, which today is bounded by coach houses on the east and west sides. The total difference in height between the north and south terraces varies from 11 to 12 metres and is supported by means of a massive retaining wall with a pergola running along it.

Inside the garden it is impossible to move from one terrace to another. Apart from an outside path that now meanders down along the *viale*, the two levels are only connected to each other inside the house. A long, single flight of stairs descends one storey from the corridor to the level of the garden rooms on the south façade. The narrow terrace in front, the west terrace and the rest of the basement comprise an intermediate level situated roughly halfway between the highest and lowest terraces. On this level there are large French windows in the south façade. In the west façade of the basement there are only small windows. It is striking that the ceremonial entrance to the villa in the west façade is not directly connected to the *piano nobile*. The north-east part of the basement is carved out of the rock and consists of storage space linked to the kitchen by a service staircase.

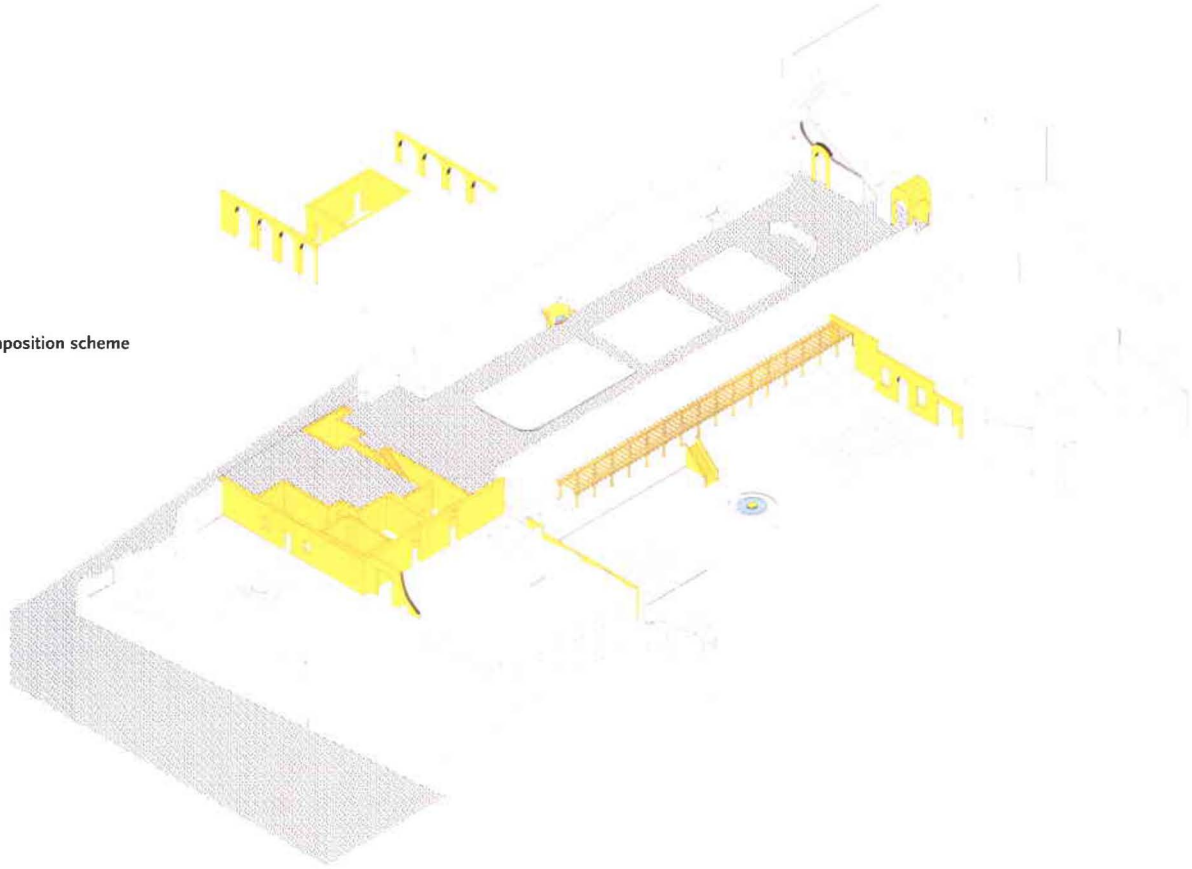
Beneath the east loggia on the *piano nobile* is what is now the most commonly used entrance to the house. From here a long off-centre corridor leads directly to the west loggia. The central position in the floor plan is occupied by the rectangular salon. North of the corridor are the dining room and kitchen, the latter being connected by a service staircase to an intermediate floor above and, subsequently, to the second floor of the villa. The façades of the *piano nobile* are largely defined by the loggias. The north façade is closed, apart from a few high windows and a small service entrance. The second floor of the house consists mainly of bedrooms. Above the dining room and kitchen, adjacent to the intermediary floor beneath, are separate living quarters for the servants. On this floor all the façades are defined by fairly small, identical windows. Several windows have been bricked up from the inside. Generally speaking, the present state of the façade is remarkable for its lack of any system. In the existing west façade only the ceremonial entrance is symmetric.

Geometry

In the villa plan a certain dimension, which we shall call A, appears to occur regularly. A turns out to be approximately 4.9 metres. The present plan of the entire *piano nobile* is 5A by $5^1/_3$A. Excluding the area with the dining hall north of the corridor, which was added at a later date, the floor plan measures 5A by 4A. This rectangle can be interpreted as being composed of two squares, each 4A by 4A, with an overlap of 3A, which takes up precisely the central part of the house, while the

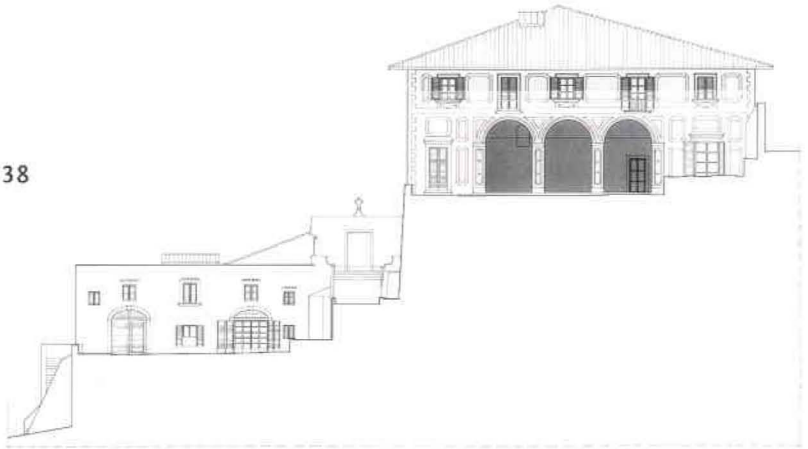


Axonometric projection



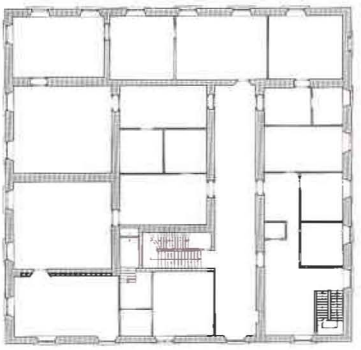
Composition scheme

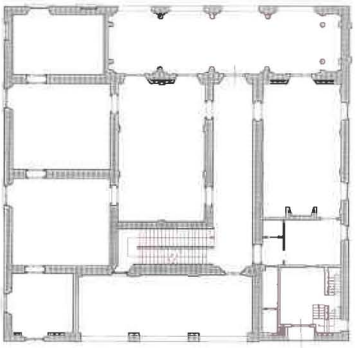
Active composition elements

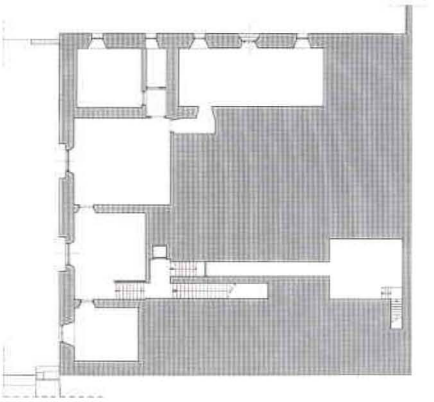


North-south section with view of the east façade.

Floor plans of the souterrain, piano nobile and the upper storey.







loggias with a depth of A are not included. Likewise, if a certain strip on the north side of the villa is omitted, the plan of the north and south terraces together measures 9A by 14A, from the rear wall of the east loggia to the rear of the half-round wall and hedge on the top terrace. This rectangle, too, can be explained as consisting of two squares, each 9A by 9A, now with an overlap of 4A. The north-south axis, which formally connects the two terraces, is situated centrally and symmetrically within overlap.

A, which functions in the house as a margin and which accommodates the depth of the loggias, therefore appears to have a similar role in the garden. The geometric systems of the house and of the garden overlap each other by this dimension A (the depth of the east loggia). Furthermore, A can be recognised as the margin of the half-round hedge at the end of the upper terrace. A is also the depth of the pergola along the retaining wall between the north and south terraces. Even the main dimensions of the east façade (wall height 2A and width 4A) seem to fit into the geometric system if its northern part is omitted.

It is clear that some parts of the present villa plan do not conform to the hypothetical geometric system of squares. This is especially the case with the strip on the north side of the villa. Bargellini and her followers had already assumed, on the basis of their historical research, that this northern part of the house had been added in the 18th century. This is confirmed by the geometric interpretation of the villa. It now seems safe to suppose that at the same time the changes were made in the 18th century the entire garden edge was also shifted northwards. With this a zone of varying width was created which enabled the irregularities of the hillside to be accommodated. The levelling operations associated with the construction of the *viale* also led to modifications to the edge of the east terrace. Except for the north-south axis, the patterning of the upper terrace does not comply with the geometric system and is probably also of a later date.

In short, the original ground-floor plan of the villa can be seen as a system of squares: two small ones in the house and two larger ones in the garden. Further refinement of the analysis shows that the large squares in the garden appear to be constructed from the basic square (module) found in the casino (4A by 4A). The salon and the north-south axis (elements of the central plan) are situated in the overlaps of the squares. Incorporated into the margin, whose width is A, are the transitional elements: the west retaining wall, the two loggias, the winter and the summer houses on the terrace and the pergola.

The hypothetical geometric system can be seen as a dimensional scheme in which the connection between the plan of the house, the garden and the landscape could be controlled mathematically. It is a means of rationalising this connection. In the following section it will become clear that the elements defined by the geometry of the plan also play a leading role in the spatial *integrazione scenica* of the villa.

Integrazione scenica and composition scheme

The parts of the villa which in the previous geometric model were distinguished as essential elements must now be placed in their spatial context. In what manner do they form a coherent architectural system, and how is the particular location of the villa, with regard to the panorama, determined?

The formal interaction between the villa and the landscape is further determined by a number of architectural components or elements with their own form and position. If we term the elements that play an active role in the staging of the villa in the landscape the active composition elements, then both architectonic elements and garden elements will be found among them. The architectonic elements are the rock-cut cellars, *piano nobile*, salon, loggias, niche, belvedere and the architectonic screens. The garden elements are the spring or nymphaeum, stair, reflecting pond, terraces and the pergola or stoa. These elements are placed in a co-ordinating orthogonal matrix, distributed over the terraces. Although the house has no central place in the plan, it occupies the key position in a mutual linking of the separate elements into one coherent composition.

In the salon, which has no windows in the outer façade, the *villeggiatura* is represented by paintings. The feeling of enclosure is not really overcome, however, by the landscape painted on the walls: there is still no connection between the natural perspective of the salon and the perspective of the framed paintings. The salon is directly connected to the loggias by a corridor. Because of the low situation of the west terrace the panorama from the west loggia has no foreground. The panorama itself is deep and lacks architectural features to lend scale to the space. This causes the meeting of the villa and the natural space on the west side to appear as a confrontation.

At the other end of the corridor is the east loggia. This is moved southward, downhill from the west loggia. The east loggia looks onto the north terrace, which, sloping upwards from the loggia, presents itself as an enclosed garden. In the present layout the east-west direction of the terrace is accentuated by the symmetric location of a niche and belvedere at the rear of the *giardino segreto*. These correspond, respectively, to the corridor and the door in the bricked-up loggia-arch of the house. On the rear wall of the belvedere is a painting representing the actual scene behind it.

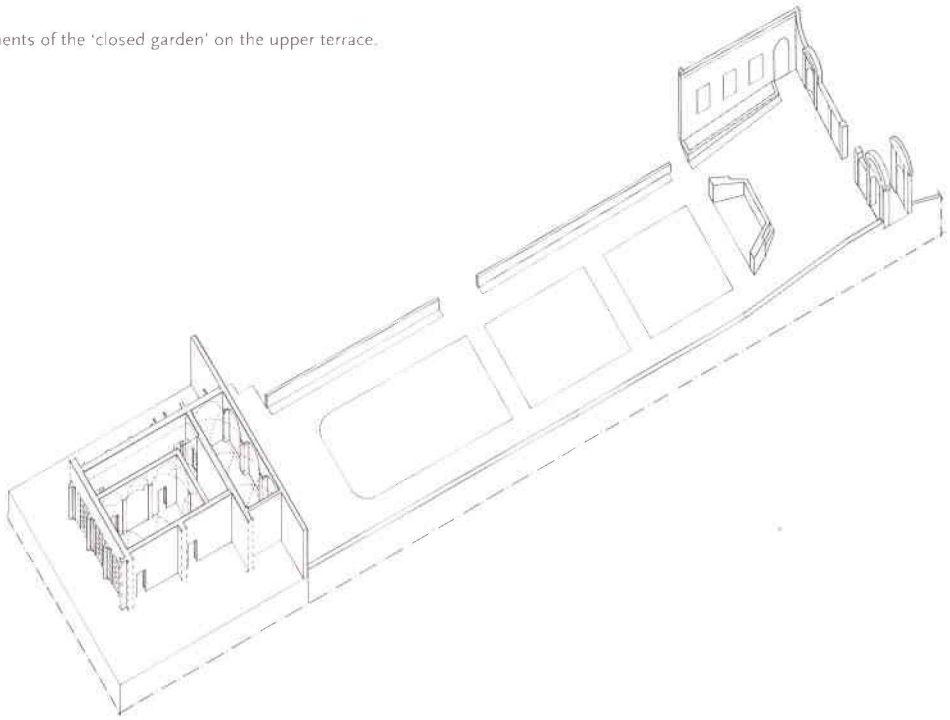
It is possible that this device was intended to suggest the view from the garden, while at the same time obstructing the actual view from the *viale* in the garden. In the middle of the north terrace the east-west direction is pierced by a transverse axis of symmetry, which begins at a spring. It is an incidental reference to the southern panorama, which, from here, only appears as an indefinite space without any scale.

To return to the corridor in the house, the descending steps and garden rooms form the first links in the connection with the south terrace. However, the most important spatial link is the pergola, situated high up along the massive retaining wall, between the north and south terraces. Visually enclosed by ramps at each end, it is a shady porch facing the southern panorama. Apart from the framing effect of the columns, the view is given depth by the carpet-like foreground on the south terrace. On the terrace, topiary and terracotta pots containing small citron trees provide the panorama with a readable scale and subdivision. Brunelleschi's dome in Florence is, after all, clearly visible from here. This gives the natural space of the panorama an architectural definition. It may be said that the spatial system of the villa consists of three levels: the salon, the garden and the panorama. Inside the house itself these three levels are connected by the corridor, two loggias, the staircase and the garden room. The panorama is of the new spatial type which had to be integrated into villa architecture. The extended terrace and stoa are the classical means which have been used to control this natural space. In Villa Medici this lateral structure is only incidentally intersected by axial elements. This serves to direct the view, which is not yet fixed by, for example, interventions in the panorama itself.

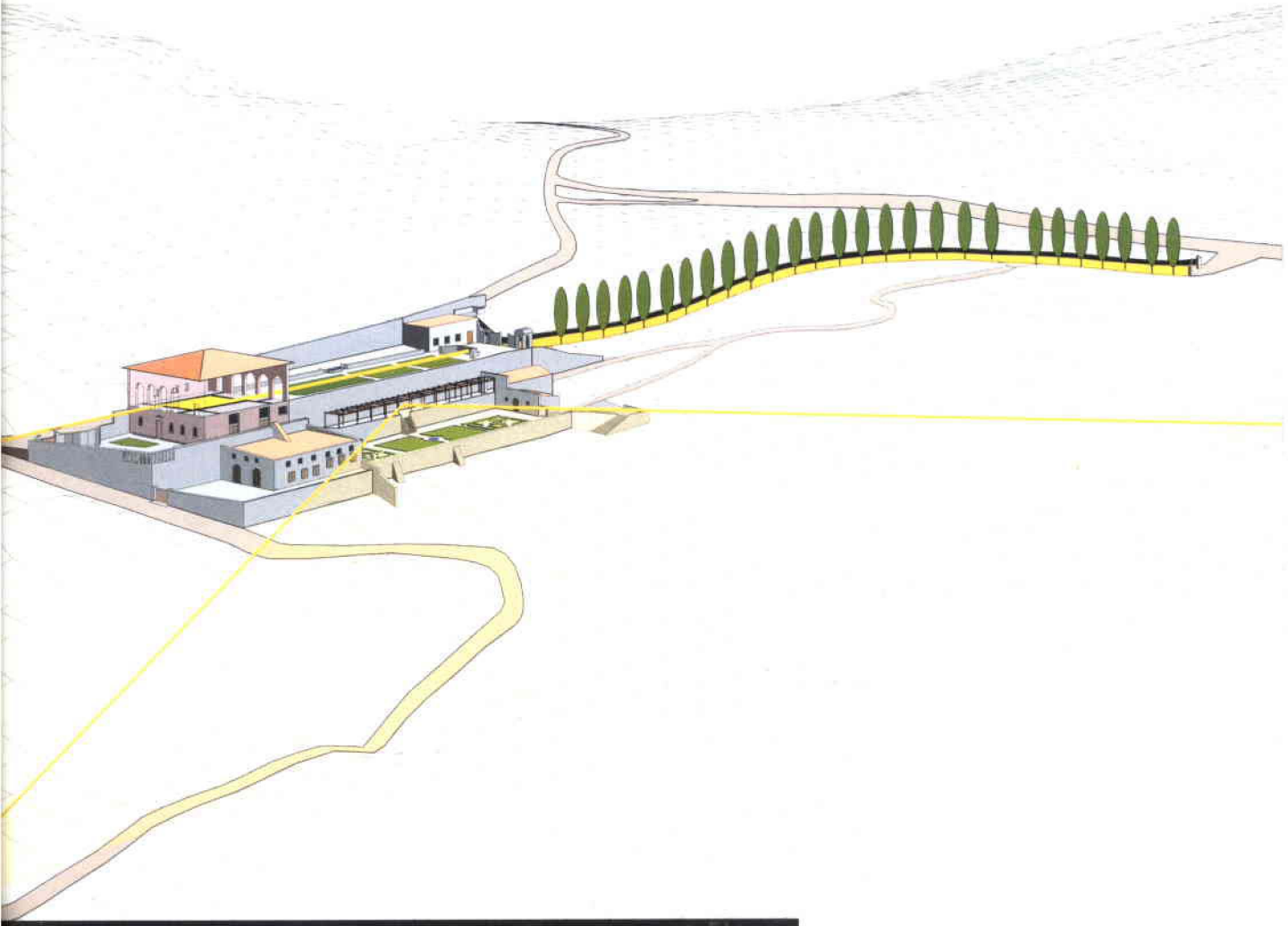
Observatory and labyrinth

The plan of the villa is determined by two main directions. In a west to east direction the most important garden elements are the west terrace lying on the lower side valley of the Arno; the west loggia; the east loggia with its large upper terrace, which has been moved southwards; and the curving mountain slope, still further to the south, with the entrance drive (*viale*). The west terrace, apart from its northern strip, comprises a grass parterre with box dwarf hedges and four high column-shaped trees (*Magnolia grandiflora*). At the foot of the east

Villa Medici, the elements of the 'closed garden' on the upper terrace.

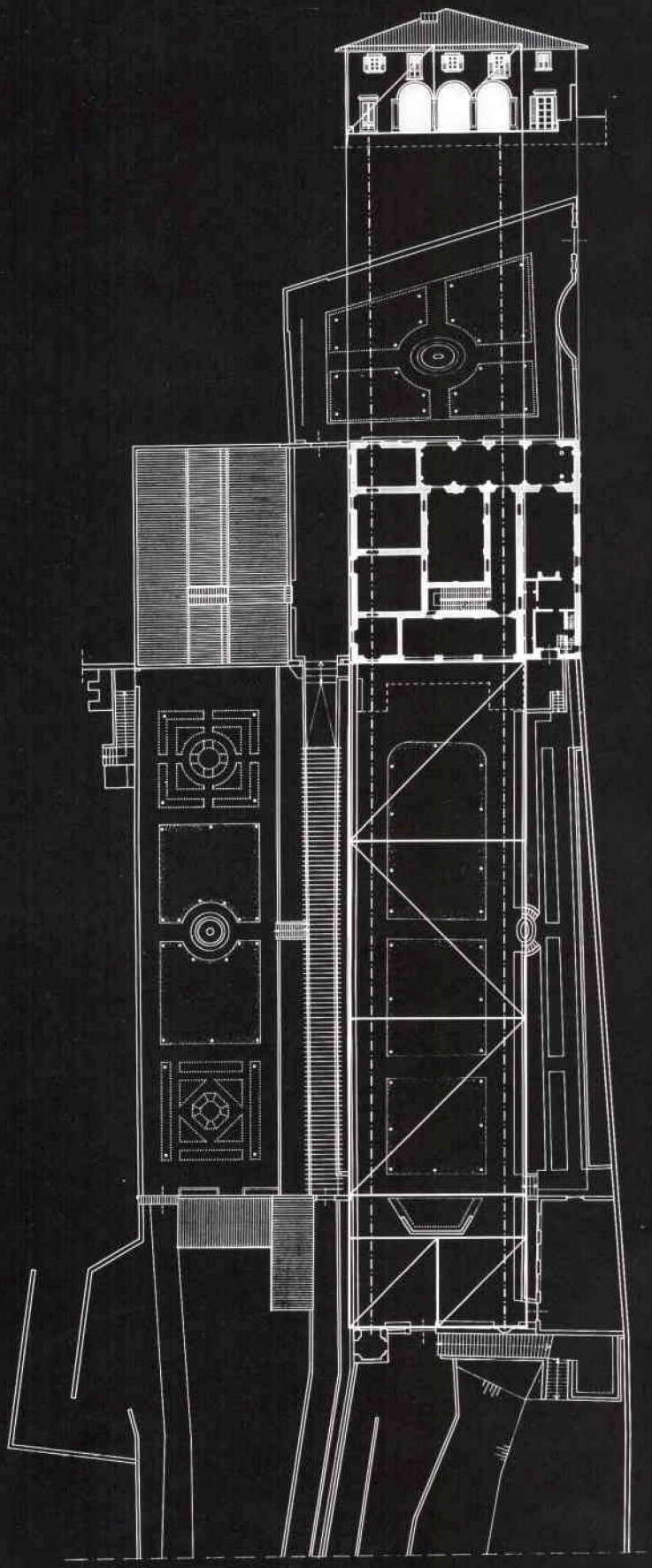


The elements that link the villa with the panorama.

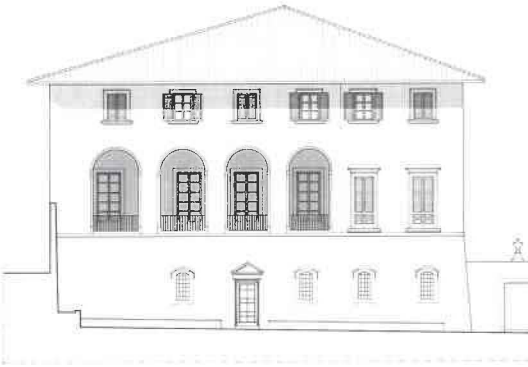


Villa Medici, integrazione scenica.

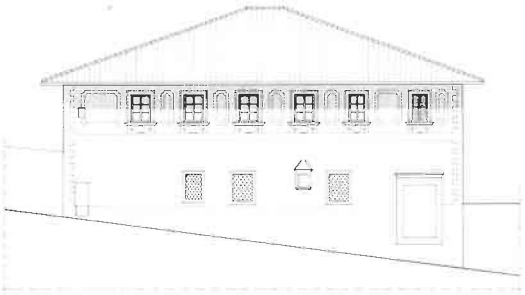
Foreground and panorama. (Photo G. Smienk)



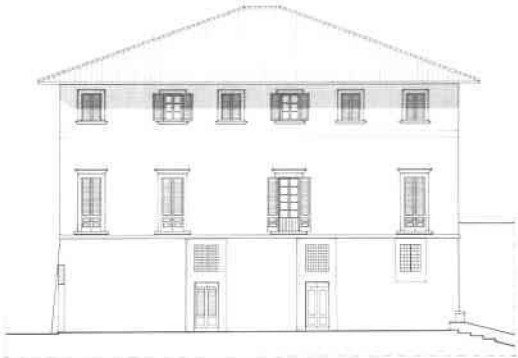
Villa Medici, geometric model.



West façade.



North façade.



South façade.

East façade.

front, on the elevated northern terrace that slopes upwards in an easterly direction, is natural stone paving and, further up, a grass parterre. This is terminated by a small wall with a holly hedge running along it at the now eastern entrance to the garden. The parterre is divided into three sections, each one smaller than the other. In the section by the east front of the house is a *Magnolia grandiflora*, while in each of the other two there is an old *Paulownia tomentosa* that provides shade in summer.

Grass parterres with (fruit) trees were mentioned, among others, by Colonna in his *Hypnerotomachia poliphili*. At Villa Medici these trees are integrated into the natural vegetation of olive trees and cypresses (the *bosco*) of the mountainside outside the garden. In their mutual cohesion and as a visual, west-east series, the parterre, hedge and *bosco* can be seen as pictorial gradations of naturalness. The most important elements of the garden in a north-south direction are symmetrically placed on the axis, which links both large terraces geometrically to each other. The northern garden wall is covered in ivy, while roses have been planted in the border running along it. The transverse axis begins on the northern terrace at a small natural spring in the middle of the northern garden wall. It ends at a round reflecting pond in the centre of the south terrace. Halfway along are steps linking the level of the pergola along the retaining wall with the lower situated south terrace, which is also divided symmetrically into four parterres. The centre two consist of grass bordered by box, while the two outer ones are filled in with various clipped box patterns. *Calendula officinalis* have been planted between the low box hedges. Box parterres are mentioned by Alberti when quoting from the descriptions of Pliny the Younger. Colonna also refers to them in his *Hypnerotomachia poliphili*. Such parterres were planted, among others, with aromatic herbs, such as basil, thyme, myrtle and marjoram as well as violets.

According to some, the patterns of the box parterres refer to the ideal plan of a city. Four clipped *Magnolia grandiflora* grow in the middle parterres, while cone-shaped *Laurus nobilis* can be found in the two outer ones. The pergola between the north and south terrace is overgrown with *Campsis radicans*, while the walls of the coach house are covered with *Wisteria floribunda* and *Bougainvillaea*. In the summer small orange trees in large terracotta pots on stone pedestals are set out along the parterres. In their mutual cohesion, the elements placed symmetrically on the axis form a water system (spring-steps-reflecting pond) that incorporates nature into the estate in a tangible and pictorial way.

The overgrown elements and the water series have been integrated into the geometric and spatial system of the villa, so as to form a composition of poetry and reason in the labyrinth of nature.

Reconstruction of the east façade.

A rational prototype

The Villa Medici at Fiesole was one of the first villas in Tuscany in which the cultural ideal of country life was separated from the traditional context of farm and *castello* and evolved into an independent architectural form. In the house this is shown most clearly in the way Michelozzo made use of the loggia, a traditional element in Tuscan farm building, as a separate element added to the exterior of the house.

A second aspect that distinguishes Villa Medici as an independent architectural type is the scale and the shape of the terrace structure. This must have involved the usual technical and financial problems which arose when dealing with the steep, poorly accessible slope. The ground is also entirely unsuitable for agriculture. This all suggests that the choice of location must have been determined primarily by social, visual and climatic factors. The terraced construction of the villa was possibly inspired by Pliny the Younger's description of his terraced villa. When visiting the villa one is struck by the fact that these two elements, the loggias and the terraces, still occupy key positions in the architectural effect of the villa's interaction with the landscape. The 18th-century modifications discussed earlier do not seem to be of overriding importance as they do not really affect the original *integrazione scenica* of the villa, but in some respects actually reinforce it. The villa remains one of the first and clearest examples of the new way of thinking about nature, geometry and space in the quattrocento: a rational prototype of landscape architecture.

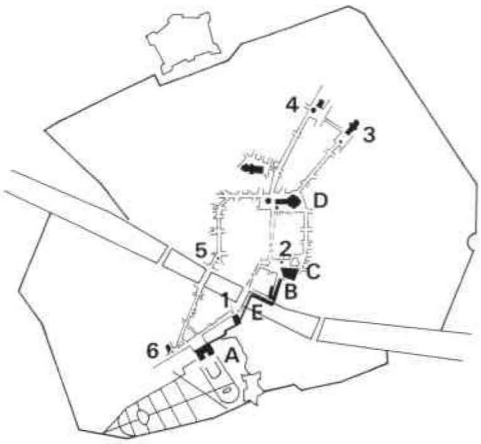
Palazzo Pitti, Boboli Gardens and Belvedere fort in 1599. (Justus Utens)

Between 1450 and 1465 Lucca Pitti had a number of houses along the Via Romana in Florence demolished in order to build a palazzo with a piazza in front, designed by Brunelleschi. In 1550 Grand Duke Cosimo I de' Medici's wife, Eleonora di Toledo, bought the palazzo. Behind it, on the slopes of the hill of Boboli, a garden was laid out after a design by Niccolò Tribolo (1500-50), who, at the same time, was working on the Villa Castello. Tribolo had water conducted from the Porta San Giorgio in order to make a spring in the garden.

After Tribolo's death in 1550 Bartolomeo Ammanati began extending the palazzo and, in 1558, building the *cortile* and its grotto. In 1565 the Palazzo Pitti was connected to the ancient Palazzo della Signoria in the city centre by a covered, raised walkway, which went over the Ponte Vecchio, along the Arno and through the Uffizi. The walkway was designed by Vasari to mark the wedding of Francesco de' Medici, the son of Cosimo I. It forms the tailpiece to a century of developing the relationship between the city and surrounding landscape.

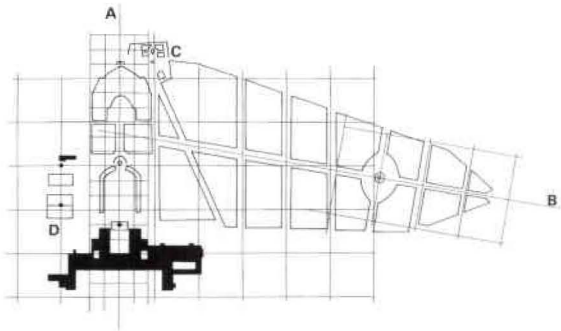
Villa and urban expansion

The original Roman centre of Florence (59 BC) is rectangular and as a *templum* (holy plan) orientated in the traditional north-south manner. The city lies in the valley of the River Arno, which flows in a northwest-southeast direction. This orientation is emphasised by the layout of the Roman settlement, which is charted across the entire valley as a framework. The *cardo maximus* (axis) of this settlement grid is at right angles to the river, while the *decumanus maximus* (transverse axis) runs parallel to it. These orthogonal axes form the basis of the landscape divisions in the valley. The landscape grid has a module size of roughly 2,400 square Roman feet (710 square metres). The north-south orientated heart of Florence appears in this grid as a rotated rectangle and lies where the main and transverse axes of the grid intersect. This is the strategic point where the most important tributary, the Mugnone, flows into the Arno, the valley widens and the river can still be crossed. In later city planning the landscape grid was 'translated' into streets and incorporated into the city so that the town plan lost its autonomy in relation to the landscape. From the 13th century onwards the appearance of the city changed radically. New city walls incorporated huge chunks of the settlement and the Arno into Florence. The guilds also commissioned Arnolfo di Cambio (1232-1302) to build two important new centres within the city. To the north of the old city, work began on a new cathedral, the Santa Maria del Fiore on the Piazza del Duomo (started 1296). Just outside



The Boboli Gardens in Florence and the 16th-century urban ceremonial circuit.

1 Ercole e il Centauro
2 Equestrian statue of Cosimo I
3 Equestrian statue of Ferdinando I
4 Column on Piazza S. Marco
5 Column on Piazza S. Trinita
6 Column on Piazza S. Felice
A Palazzo Pitti
B Uffizi
C Piazza della Signoria
D Santa Maria del Fiore
E Corridor by Vasari



Plan of the Palazzo Pitti and Boboli Gardens.

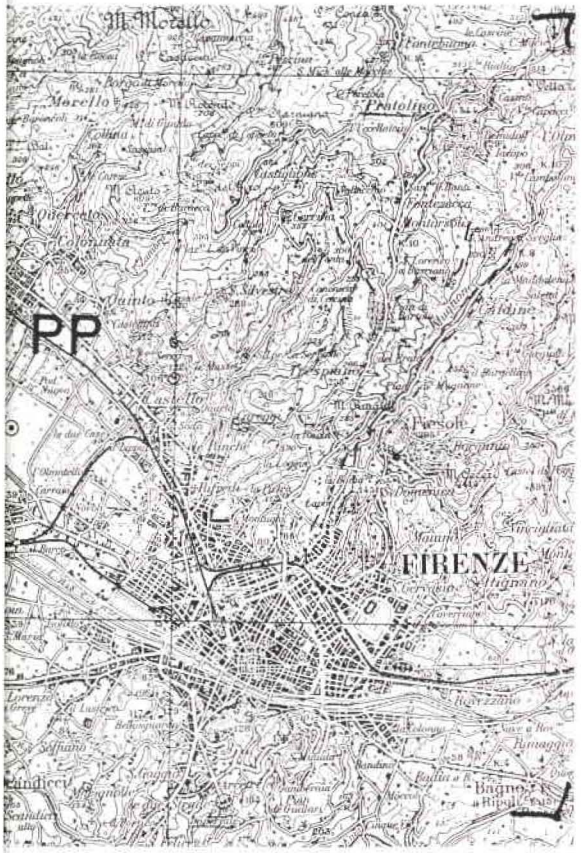
A Original layout
B Viottolone and Isolotto by Alfonso Parigi (1618)
C Giardino del Cavalieri (1670)
D Kaffeehaus (1776)

the southern boundary of the Roman city, Arnolfo built the new Palazzo della Signoria (1299-1310) for the city council on the piazza of the same name. The new buildings were linked to each other by the Via dei Calzaiuoli. During a process of demolition, relocation and renovation spanning the 14th century, in which aesthetic motives played an increasingly dominant role, the Piazza della Signoria was made into a ceremonial square. The north and south sides of the square are orientated according to the grid of the city, while the west and south sides follow the direction of the landscape grid. The dialectic between the two systems comes together architectonically in the walls of the piazza.

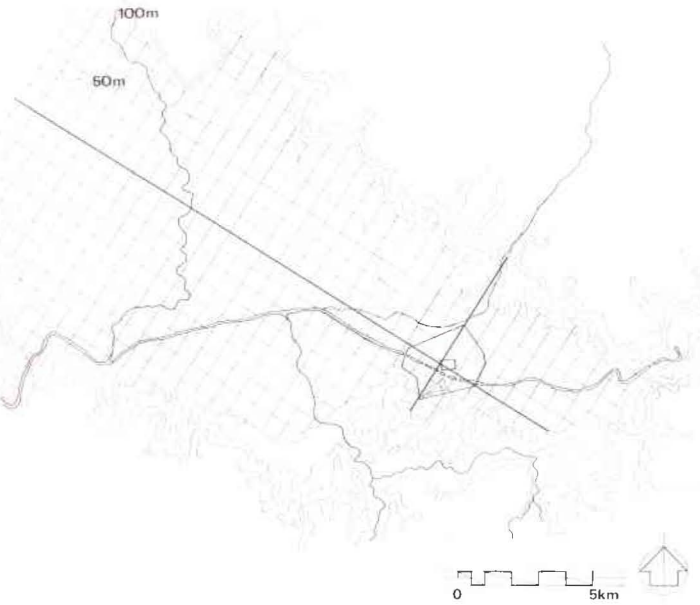
In 1540, when the ruling Medici family moved their place of residence to the Palazzo della Signoria, Cosimo I had the idea of bringing together the most important magistrates of the city in one complex. For this purpose he designed the Uffizi (begun 1560), a 'street' of administrative buildings erected where there was an opening in the Piazza della Signoria leading to the River Arno. Longitudinally the street, with its severely arranged layout and walls, functions as a 'telescope' especially in the direction of the river, where a large open portico frames the hilly landscape with the Boboli Gardens on the opposite bank of the Arno. The landscape is thus incorporated into the town in the form of a picture. The 16th-century paintings in the Palazzo Vecchio depicting, among others, views seen through the town and panoramas across the landscape have now become reality – a reality which is physically accessible via Vasari's walkway to the Boboli Gardens.

The balcony garden

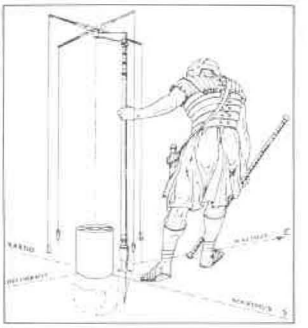
The Boboli garden was adorned with statues during the celebrations of the wedding of Francesco de' Medici. The *cortile* served as an open-air theatre, while the larger stone amphitheatre, linking the garden to this, is ascribed to Bernardo Buontalenti, who worked on the garden from 1583 until 1588. He also designed the Grotto Grande to the north-east of the palazzo. From 1620 to 1640 Giulio and Alfonso Parigi further extended the palazzo. It was then that the *bosco* – on the top of the hill at the end of the garden axis – was felled. A second, even larger amphitheatre was created, consisting of grassy



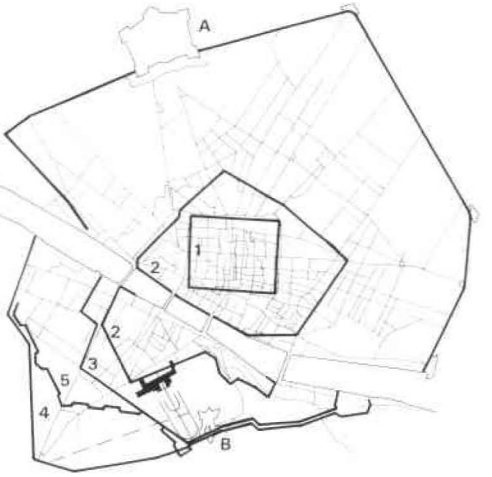
Topographic map of Florence, 1:100.000, 1956. (Instituto Geografico Militare)



The plan of the centuriatio, Arno Valley, Florence. The cardo and decumanus maximus follow the principal orientation of the valley. As a templum, the old urbs of Florence is oriented by the points of the compass.



The centuriatio, or determining the cardo and decumanus maximus with the aid of a groma. (Leonardo Benevolo, *The History of the City*, 1980)



Florence: the successive city walls and urban extensions. The rotation between 1 and 2 indicates how the expansions outside the original urbs have followed the orientation of the Roman land division.

1 Roman wall (1st century B.C.)
2 Cerchia communale d'Oltrarno (1173-75 et seq.)
3 Mura d'Oltrarno (1258)
4 Cerchia communale (1299-1333)
5 Wall of Cosimo I (1544)
A Antonia da Sangallo, Fortezza di S. Giovanni Battista (1534-35)
B Bernardo Buontalenti, Fortezza di S. Maria of di Belvedere (1590-95)

terraces (this theatre is not shown on the Utens lunette of 1599), which was used for important festivities. The niche with the Medici coat of arms at the termination of the garden axis was replaced by a statue of Abundance by Giambologna.

Alfonso Parigi also extended the garden westwards. Up until then the garden had been bounded to the west by the city wall of 1544. Parigi laid out the Viottolone, the long avenue which descends to the Porta Romana. Originally the avenue was overgrown like a tunnel, as many of the paths still are. It was later planted with cypresses. There were also labyrinths along both sides. The *isolotto* (island), which was very similar to the one at the Villa Hadriana, was constructed at the lower end of the Viottolone.

The two non-aligned wings of the palace, called the *rondo*, were built between 1746 and 1819. In 1860 the palazzo became the property of the Crown. In 1919 Victor Emmanuel III presented it to the Italian State.

The colossal dimensions of the Palazzo Pitti, made possible by the rock foundations, were kept under control by Brunelleschi by means of the square modular structure of the façade. This

dimensional system was also followed during the later extensions to the palazzo.

The building is symmetrically placed on the axis, which ascends the hill from the north-west to the south-east. On the axis are situated (from below to above) the piazza on the Via Romana, the palazzo, the *cortile*, the Artichoke Fountain, the first (stone) theatre, the Neptune Fountain and the second (green) amphitheatre. The piazza was used to introduce a sense of distance from the Via Romana, and Brunelleschi's façade was placed against the background of the wooded hill. Entrance to the *cortile*, which is cut out of the rock, is via the archway at the centre of the ground floor of the palazzo. The rock base remains visible on the garden side because of the grottoes of Moses, Hercules and Antaeus which have been cut into it. From here steps lead up to the garden on the hillside, which can be surveyed from the (former) loggia of the central axis on the *piano nobile*. The *cortile* and the first and second theatres are not only placed above each other, they also become successively bigger so that they appear to be the same size and suggest a vertical plane facing the loggia. The first amphitheatre, with its elongated curved shape, seems visually to be a continuation of the palazzo's *piano nobile*. Its height is such that the rear façade of the palazzo acts as stage scenery and determines the view in the direction of the town. It is only along a diagonal line of vision that the sacred and political poles of the city of Florence become visible: Brunelleschi's dome and the campanile of the Palazzo della Signoria. From the large upper amphitheatre the palazzo is reduced to a neutral screen concealing the ancient city: only the campanile of Santo Spirito protrudes above its roof. The Arno valley with its hills, however, is visible above this screen.

The Uffizi portico as viewing window between the city of Florence and the landscape. The buildings on the opposite bank of the Arno are of a later date. (Photo P. van der Ree)

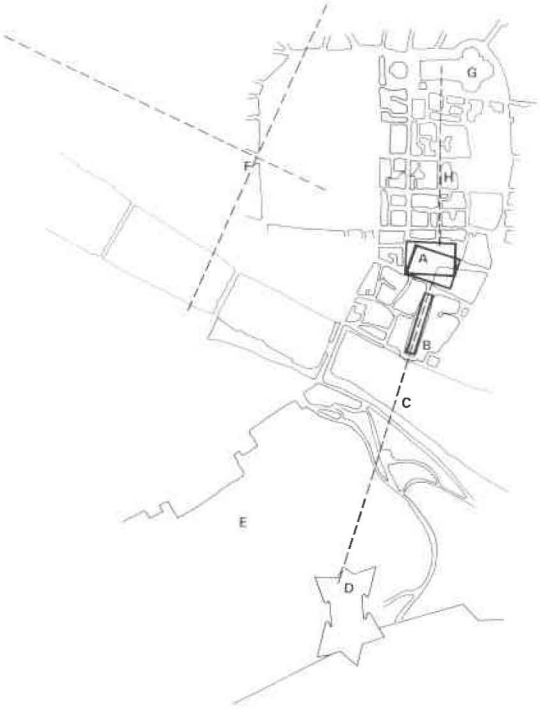
The sequence of spaces provided by the theatres, which seems to culminate at the top of the hill, is given a surprising sequel. The view back over the palazzo and the city shows the garden united with the natural arena of the Arno valley. This 'periscope' effect is a way of siting the urban palazzo as a villa in the landscape. The staging of Brunelleschi's dome from the first theatre and the landscape from the second has the additional effect of separating the observer's optical experience of the landscape from that of the city. In contrast to the sequence of levels, spaces and dimensions on the axis of the palazzo, the Viottolone forms a continuous link with the Porta Romana and the Villa Poggio Imperiale outside.

Before the construction of the stone amphitheatre, the *cortile* was used as a theatre. It was there that a famous naumachia took place in 1589, for which the court was flooded in order to form the stage for a sea battle between Turks and Christians. The garden against the hillside then served as an informal tribune for this extravaganza. In the large green amphitheatre mounted, costumed pageants were held, such *as Il Mondo Festeggiante*, for the marriage of Cosimo III and Marguérite-Louise d'Orléans in 1661. On that occasion Cosimo himself, in the role of Hercules, commanded the knights. At least 20,000 people must have been present at this spectacle on Florence's urban balcony.

Palazzo Pitti and the bridge over the Arno. (Aerial photo P. van Bolhuis/Pandion)

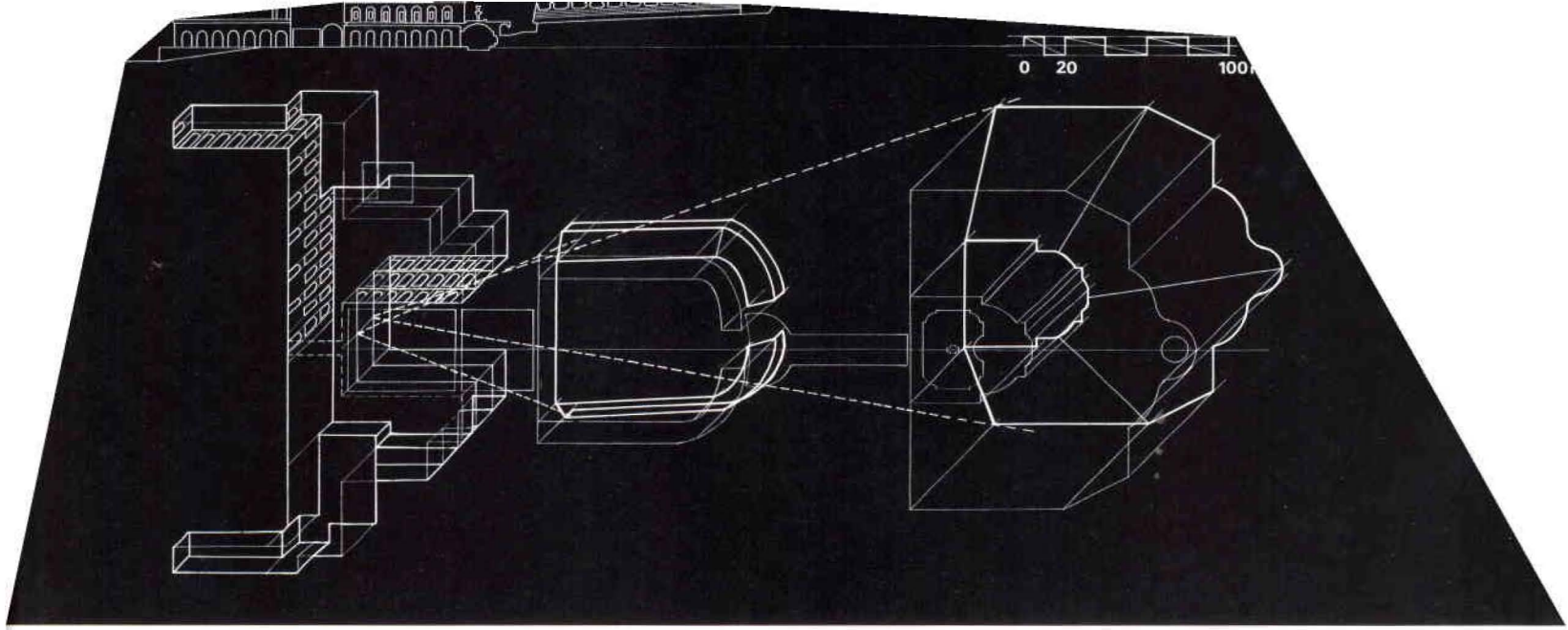
The Piazza della Signoria in Florence, on the boundary between the urbs and the city expansion. Two sides are in the grid of the urbs, the other two and the Uffizi follow the orientation of the centuriatio.

A Piazza della Signoria
B Uffizi
C Arno
D Fortezza di S. Maria
E Boboli Gardens
F Centuratio
G Dom S. Maria del Fiore
H Via dei Calzaioli



Piazza della Signoria and Uffizi.

A Loggia della Signoria
B Original entrance to the Palazzo della Signoria
C Uffizi
D Loggia of the Uffizi
E S. Cecilia and Loggia dei Pisani
F S. Romolo
G Tribuna della Mercanzia
H Connection between the Palazzo della Signoria and Uffizi
1 Equestrian statue of Cosimo I (Giambologna)
2 Neptune fountain (Ammanati)
3 David (Michelangelo)
4 Ercole and Caco (Bandinelli)

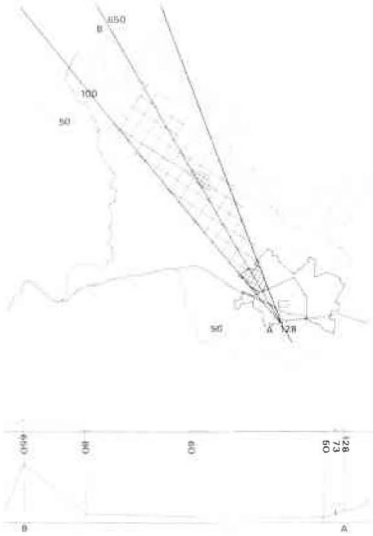


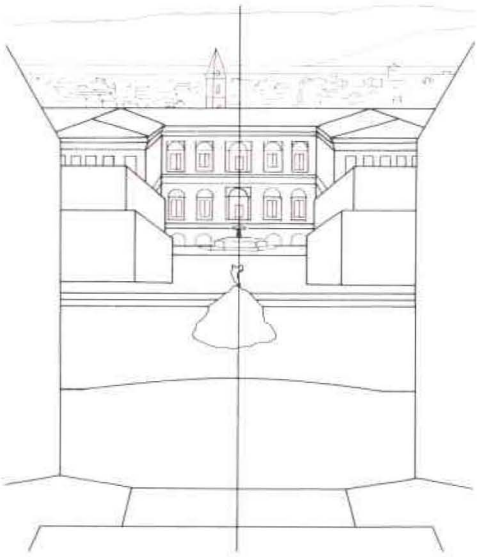
Florence: ground plan and elevation of the panorama from the furthest point in the Boboli Gardens. The depth of the panorama is about 15 kilometres. The vertical scale is exaggerated in the bottom profile.

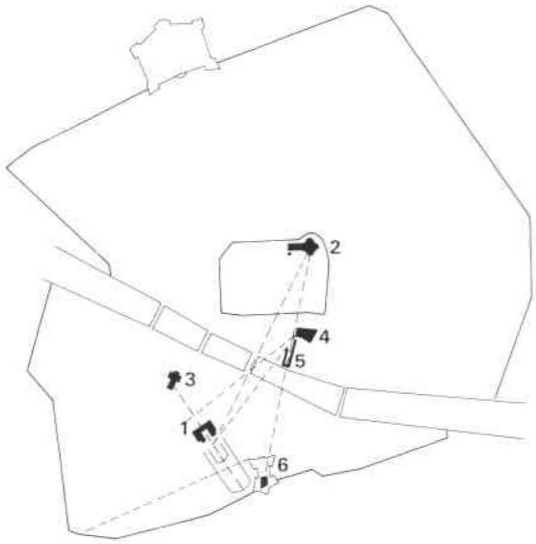
View back from the furthest and highest point in the Boboli Gardens. In the 16th century the city was not visible in the panorama above the palazzo.

Florence, sightlines between the Boboli Gardens and the city.

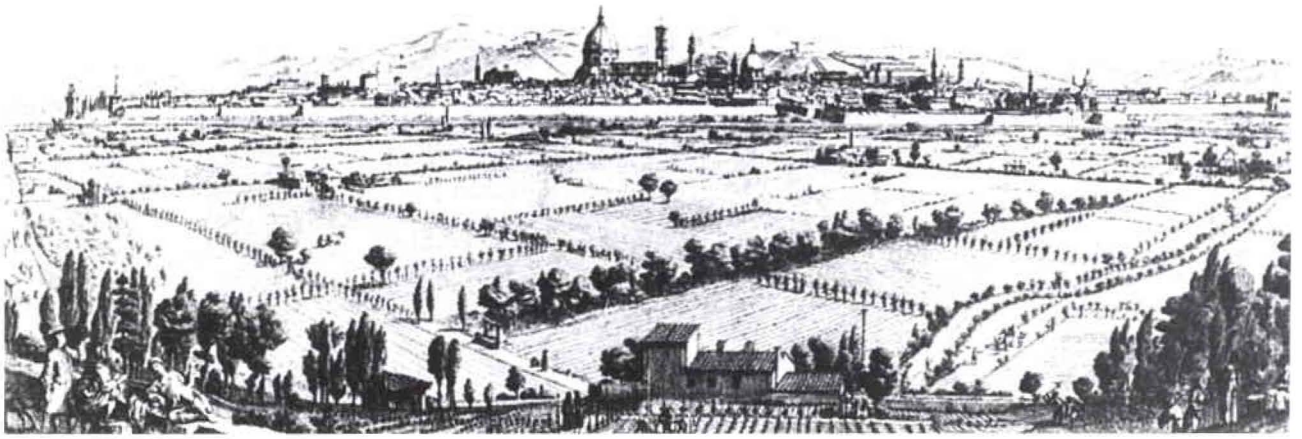
1 Palazzo Pitti
2 Dome of S. Maria del Fiore
3 Campanile of S. Spirito
4 Campanile of the Palazzo della Signoria
5 Uffizi
6 Fortezza di Belvedere







Villa Gamberaia



The Arno Valley and Brunelleschi's dome.

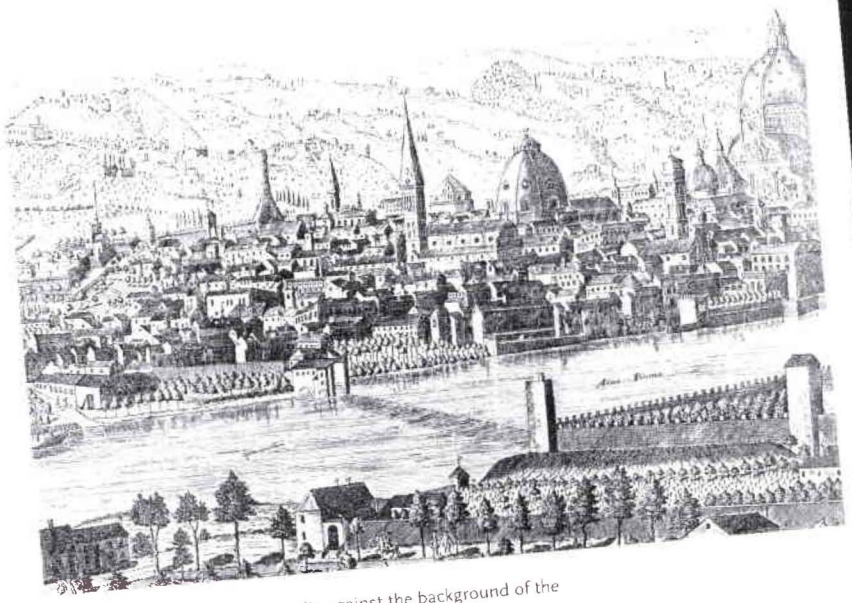
Villa Gamberaia lies near Settignano, several kilometres east of Florence. The villa is sited at a lower level than Villa Medici, at a height of about 100 meters, where the north-south oriented side valley of the Mensola opens into the larger Arno Valley, filled with olive trees.

In the 14th century a farm which belonged to the monastery of San Martino at Mensola stood on this site. In 1592 Domenico di Jacobo Reccialboni sold the house to Giovanni, the son of the famous architect/sculptor Bernardo 'il Rossellino', pupil of L.B. Alberti. Through the renovations and extensions this house then acquired the name of a 'Palagio di Gamberaia', which perhaps refers to a nearby fish pond with crayfish (*gamberi*). In an inscription from 1610 the creation of the villa is ascribed to one Zanobi Lapi, whose heirs claimed the property on his death in 1617. The Lapi completed the villa and chapel, and particularly expanded the water system with new supply pipes and reservoirs. The garden was constructed between 1624 and 1635.

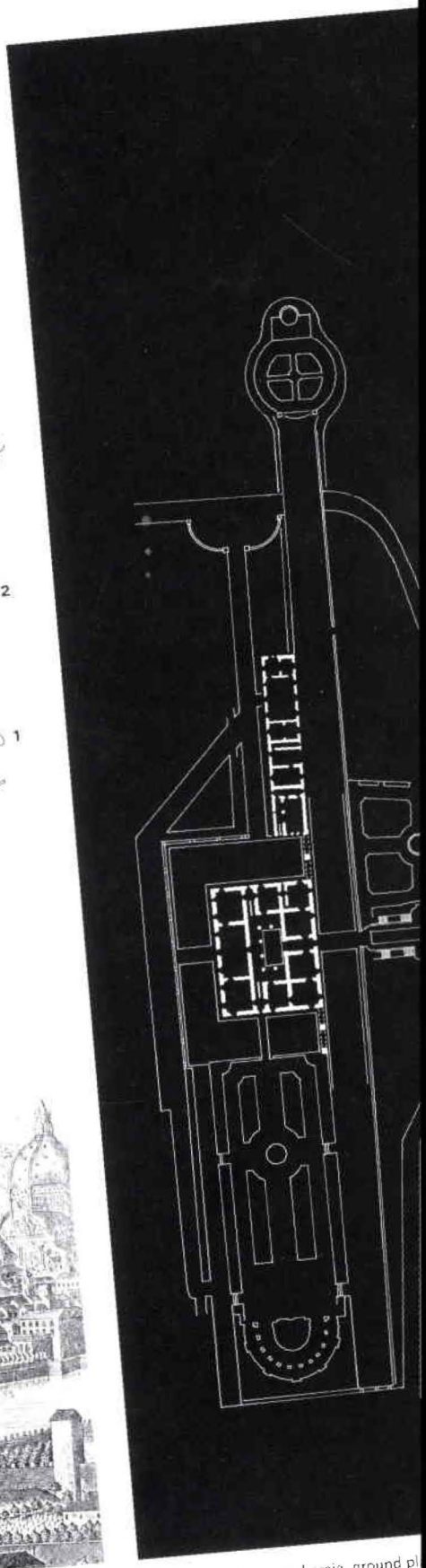
The villa came, with its accompanying farms, into the hands of the Capponi in 1717; they enlarged the house, embellished the garden with fountains and statues, and laid out the bowling green, with the grotto and entrance to the orchard, at right angles to the house. In all probability the villa was given its present form during this period. Towards the end of the 19th century Princess Giovanna Ghyka of Serbia came into possession of the villa, after a long period during which it had been neglected. She added the reflecting pools in the parterre. The house, which was destroyed during the Second World War, has been reconstructed in its original state by the present owners, the Marchi family.

The location of Villa Gamberaia is similar to that of Villa Medici at Fiesole in that it is situated at a comparable distance from Florence. Both villas are almost invisible from their access roads. The Villa Medici is separated from the road by a high wall, and the Villa Gamberaia remains concealed from the entrance road because of a difference in level; in the latter case the road even runs beneath a part of the garden. The two villas are also similar in their modest setting. Villa Gamberaia, which occupies a prominent position on top of a ridge, is nevertheless tucked away among trees. In both villas the relationship with the landscape is revealed from within the villa by the way the panorama unfolds from the terraces.

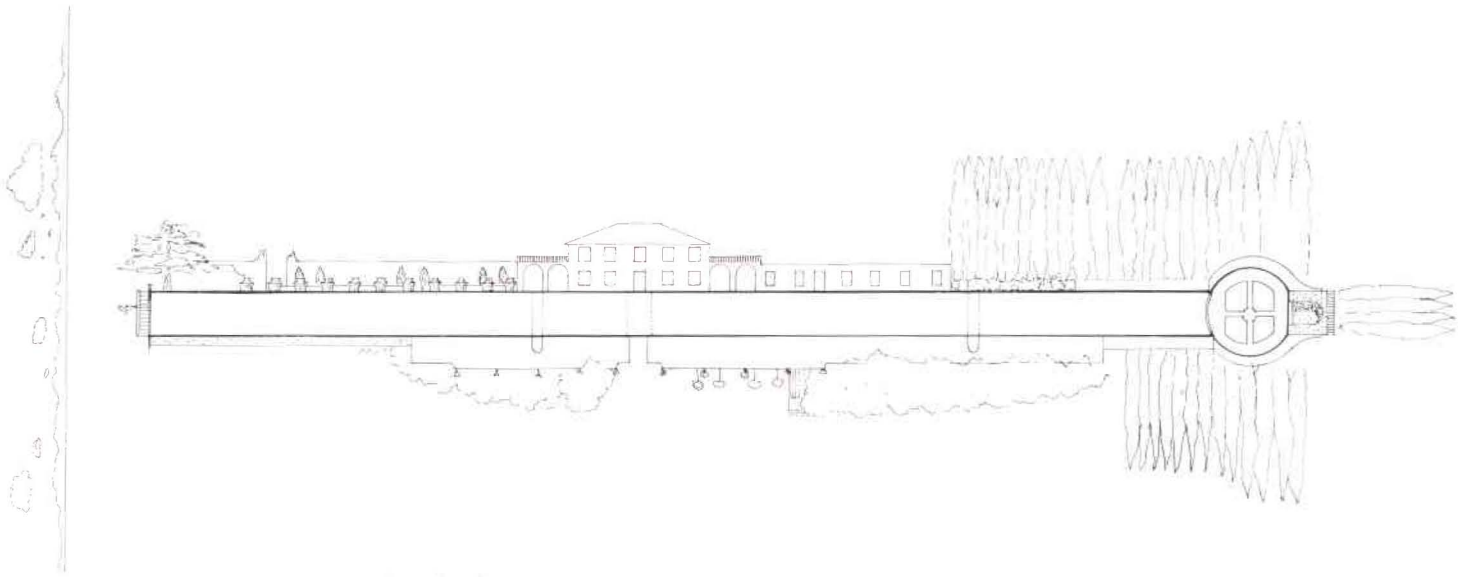
Villas in the Arno Valley. The shading indicates the areas along the valley from which Brunelleschi's dome is theoretically visible.



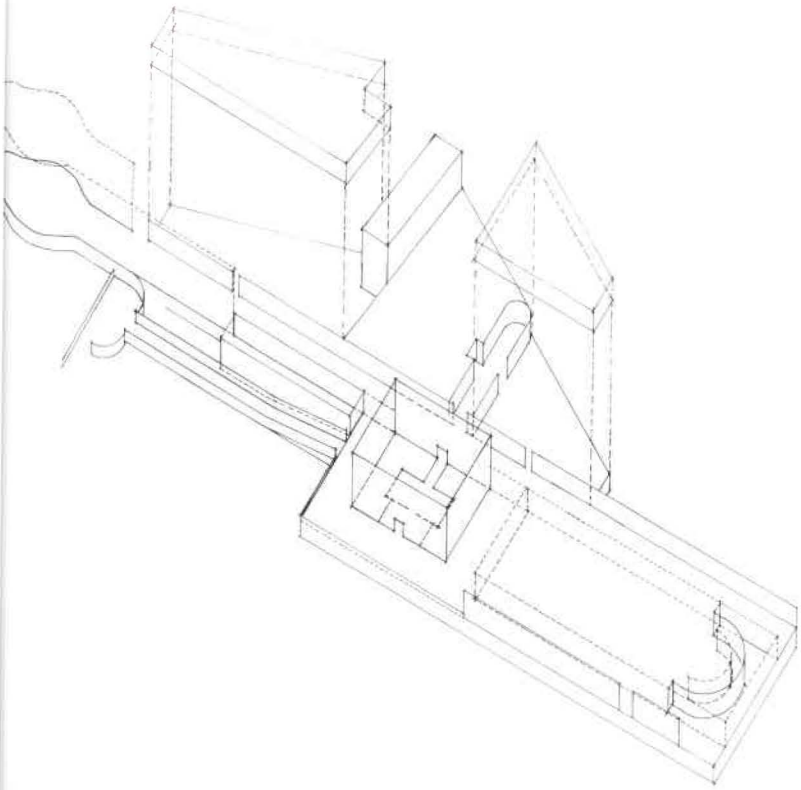
Florentine villas, seen from the city against the background of the Arno Valley.

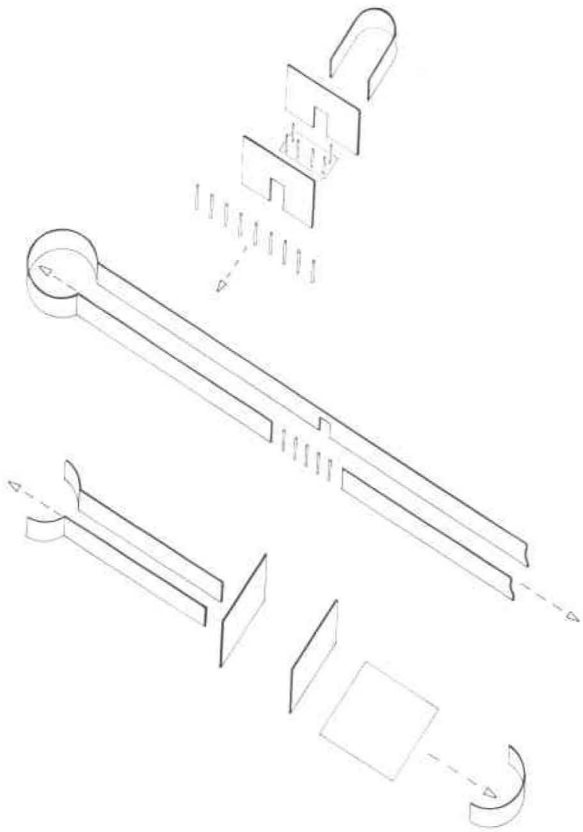


Villa Gamberaia, ground pl

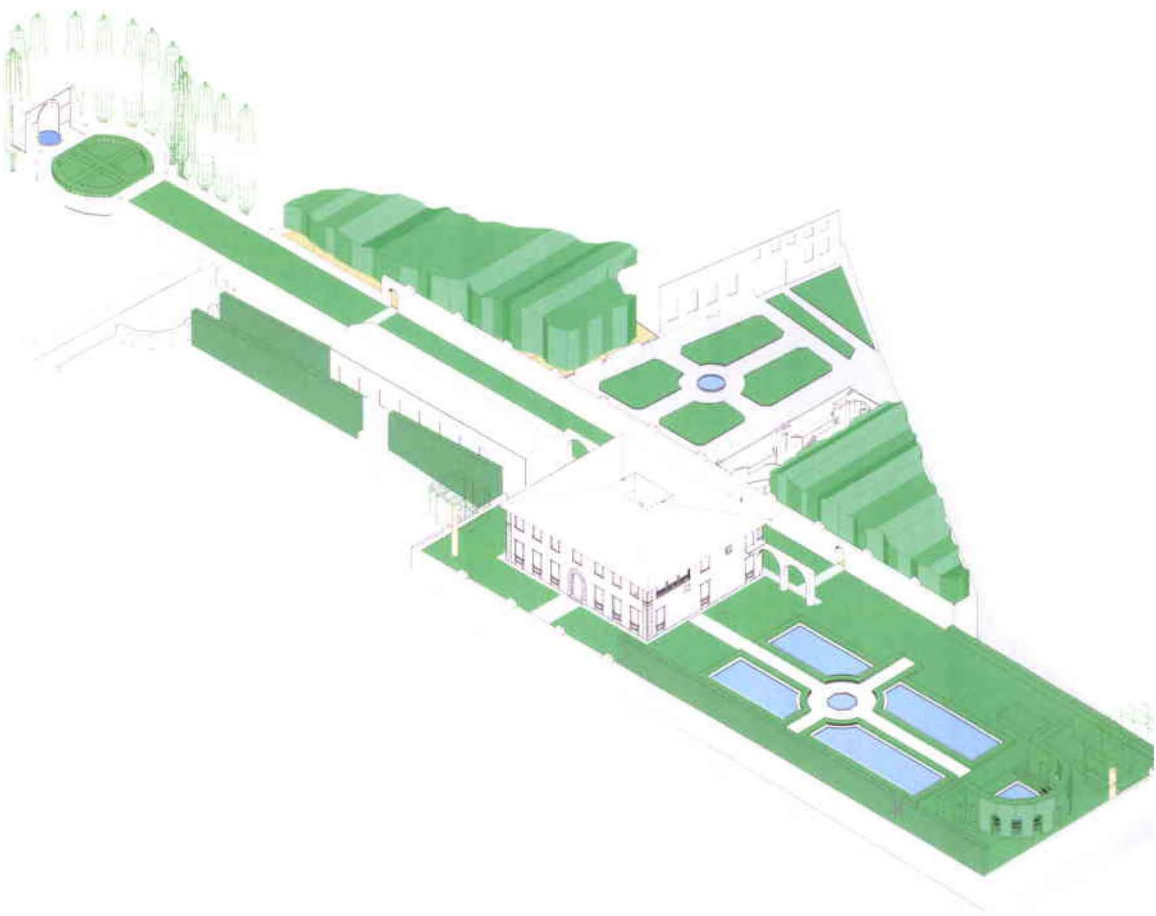


Villa Gamberaia, bowling green.

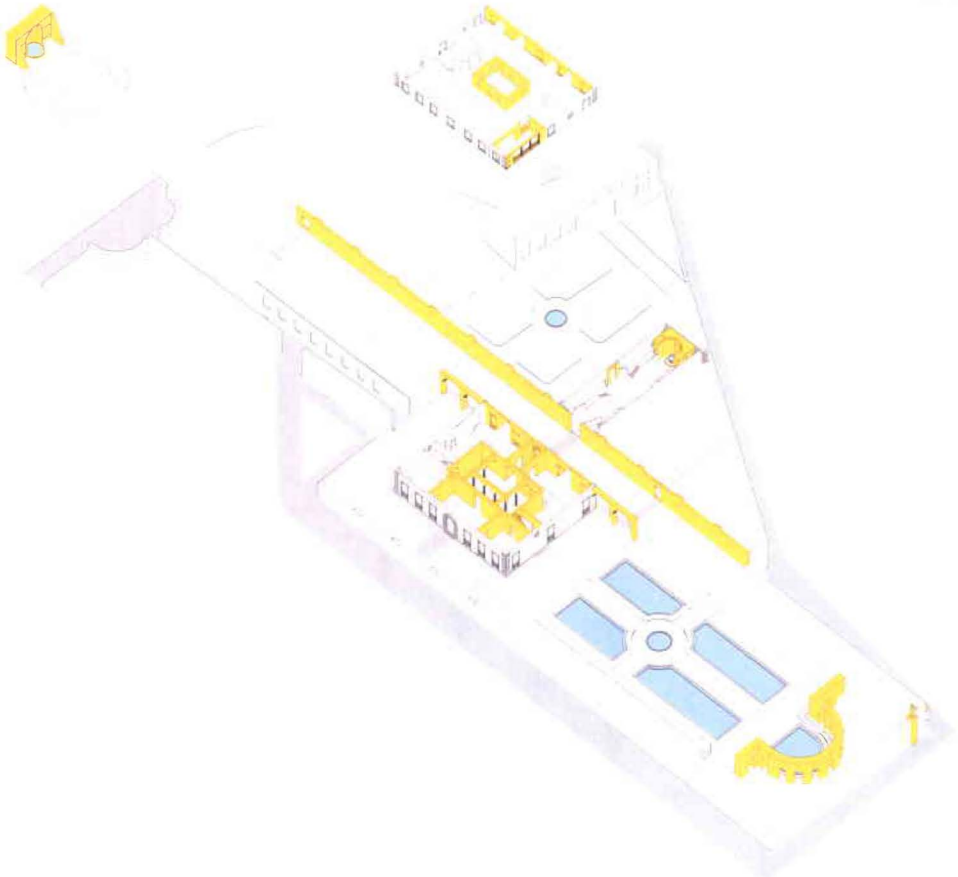




Spaces, screens and vistas.

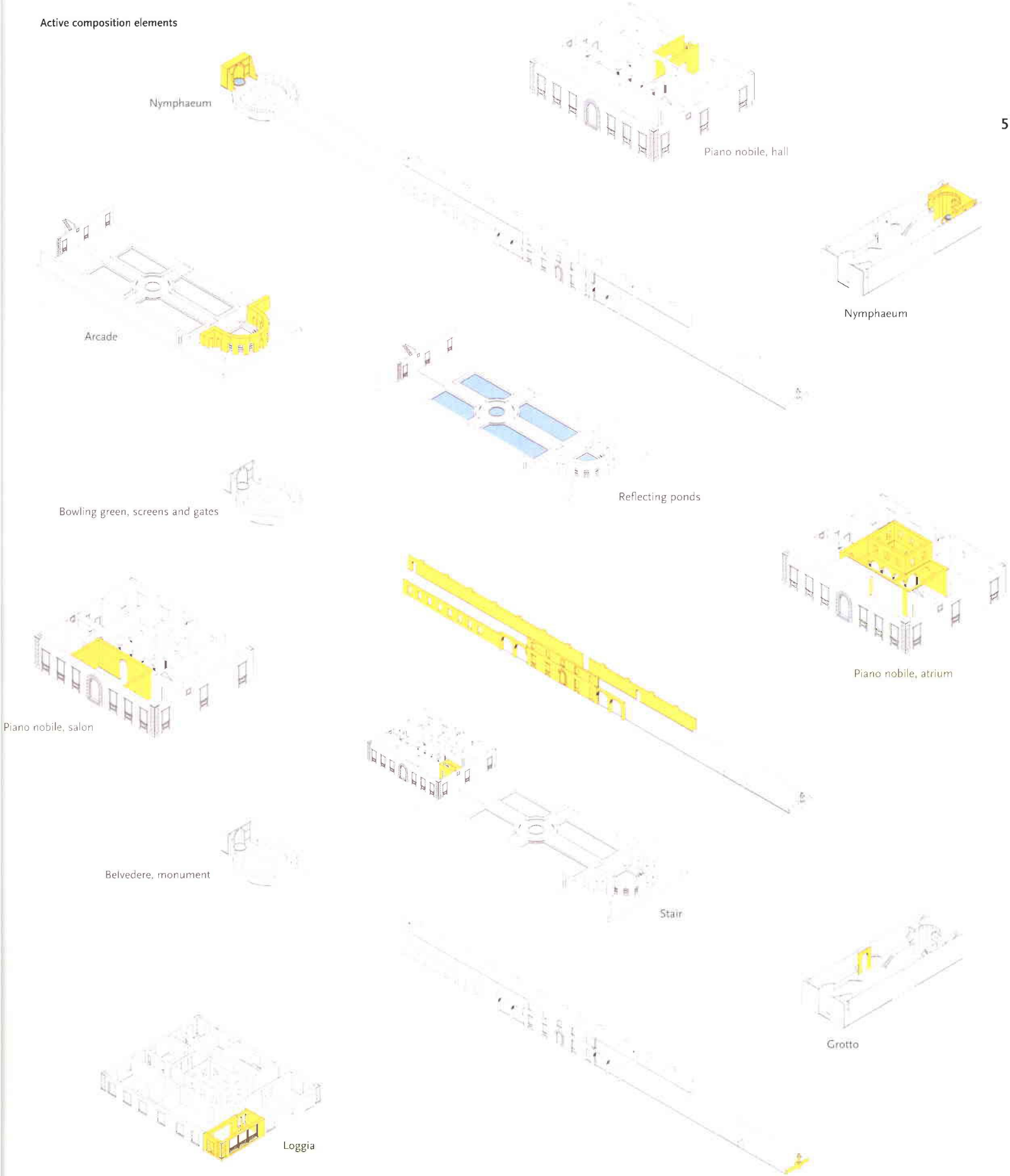


Axonometric projection



Composition scheme

Active composition elements



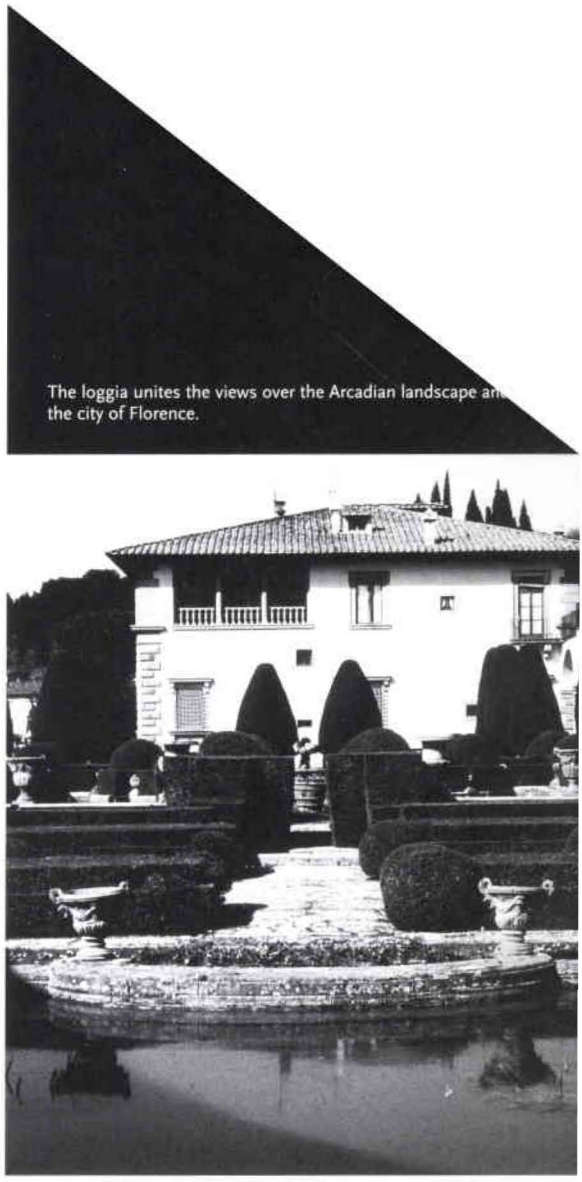
The Stanze garden

The plan of Villa Gamberaia was designed according to the stanze concept in that it comprises a number of autonomous and separately designed parts defined within the total composition. The various parts of the garden are devoted to one single motif such as the strong-smelling lemon trees, the *amora bosco* and the perfectly clipped topiary garden with its semicircular 'theatre'. The separate elements are united by the long central lawn – the bowling green – which on one side connects the villa to the earth by means of a grotto (the nymphaeum of Pan) cut into the hill; on the other, the statue of Diana, on the edge of the ravine, directs the view to infinity.

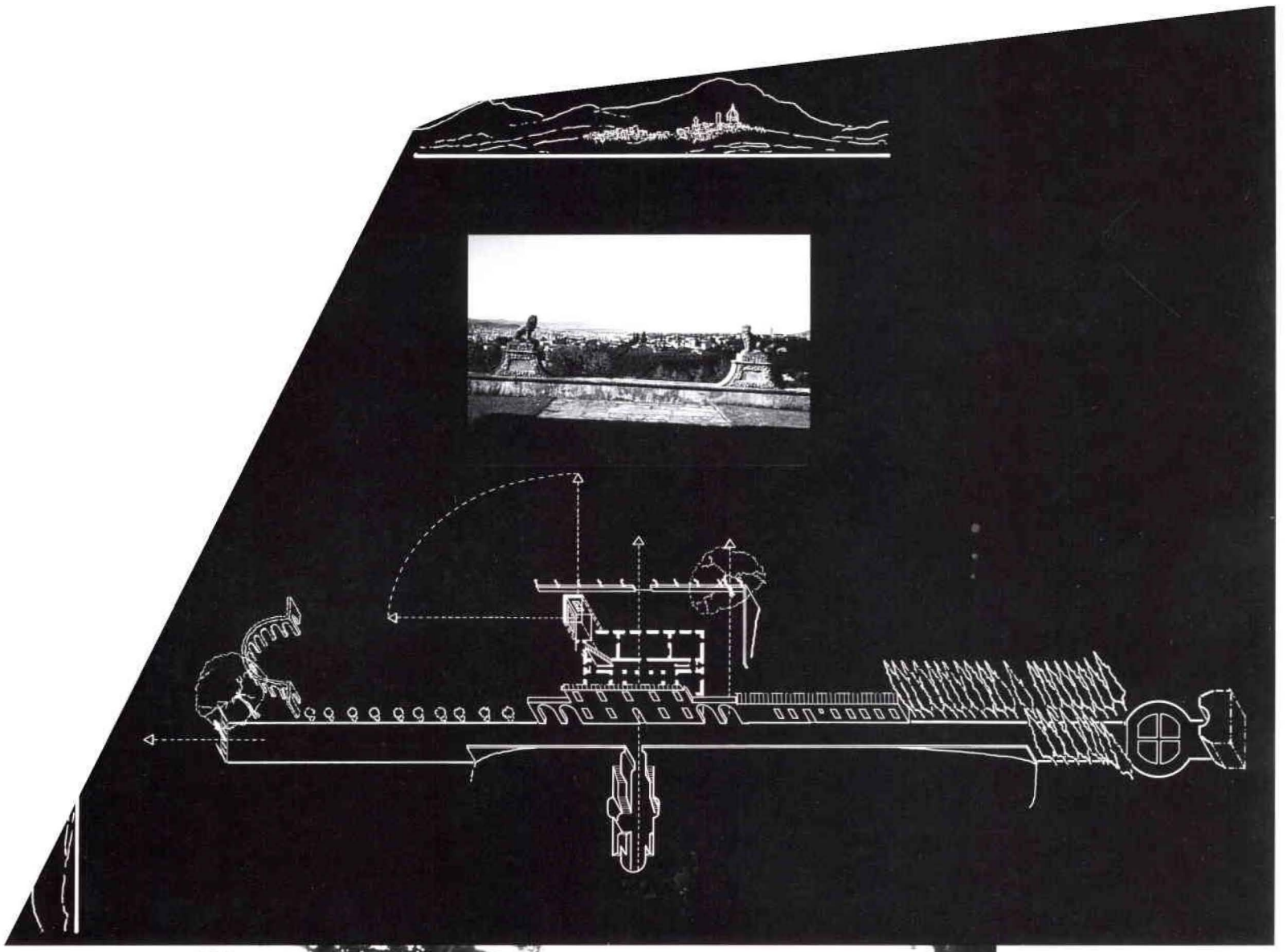
There are several views from the villa. On the terrace at the top of the hedge-screened entrance avenue the villa opens out, almost as if by surprise, to the panorama of Florence. The city can also be seen through the house itself from the grotto garden, which lies at right angles to the bowling green on the building's main axis. The panoramic view reoccurs like a projected image in the archways on each side of the house and is, thus, inserted into the series of themes which are connected by the long open central space of the bowling green. The house is also an element of this series.

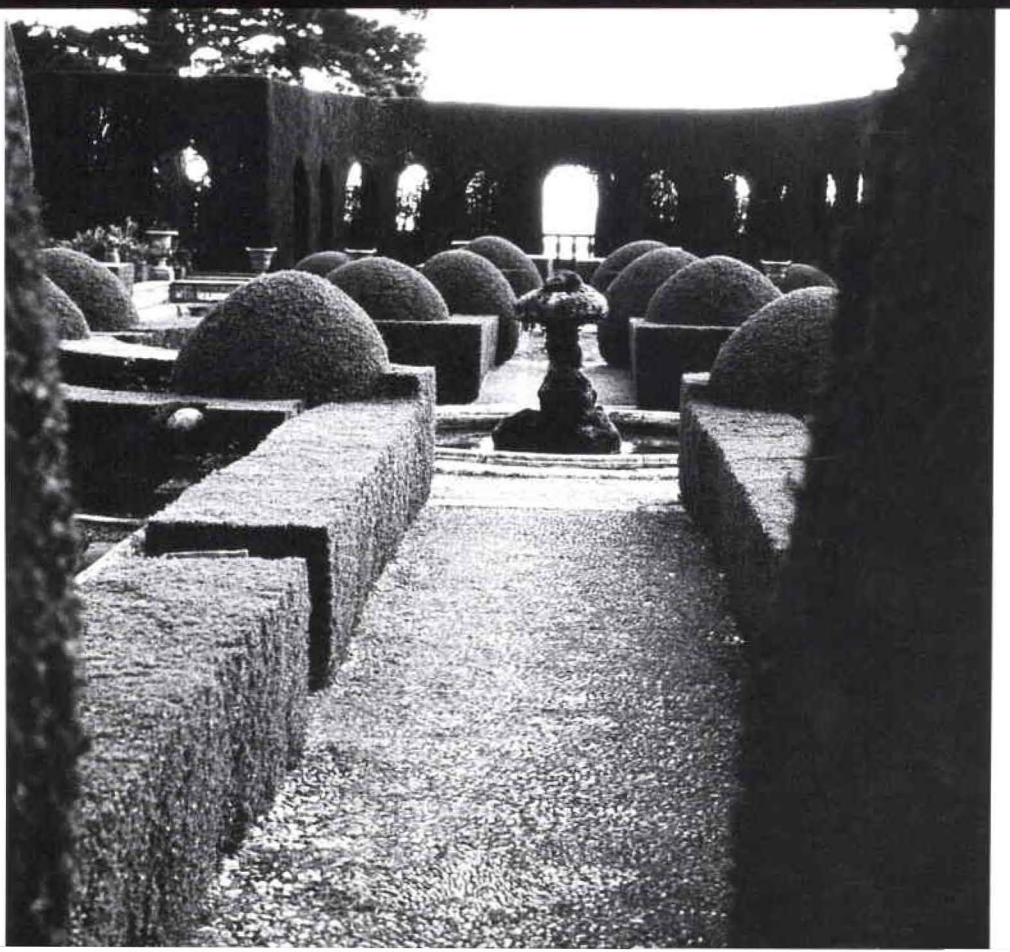
The entrance to the house, which is directed towards the bowling green, is not visible from the side of the approach avenue; nor is there direct access from the topiary garden. In this arrangement the patio of the house is the counterpart of the enclosed space of the grotto garden. Whereas at Villa Medici at Fiesole the spatial system of the villa is finally distilled in the house itself, at this villa it is the long rectangular open space between the hillside and the statue of Diana which constitutes the focus of the stage management. According to this interpretation the patio can be seen as an internal loggia connecting the two parts of the house on the axis from the grotto garden to the panorama.

Within the matrix of the composition the references to nature and landscape are expressed in different ways. The topiary garden is an extraction from nature. The secrets and patterns of nature are revealed in this geometric garden and controlled by imitation. The trees and hedges are transformed into spheres, cones and statues. The reflecting pool mirrors nature and presents its image to humankind. The edge of this garden is enclosed by a high semicircular hedge in which archways have been cut, the central one revealing 'real' nature outside the domain of the villa. Just as in the Villa Medici, the active composition elements are placed in an orthogonal matrix, with as new elements here the grass strip (bowling green) and patio. The grotto, belvedere, screens, gates, nymphaeum, hall, patio, salon, parterre, exedra and loggia are not coupled directly to one another, but via the bowling green, which organises all the elements like an internal street. The loggia of the house is not situated at the centre of the façade but at a corner of the first floor. It is detached from the geometric arrangement of the villa, and from here the view over the garden to the landscape and the town is organised into one single panorama.

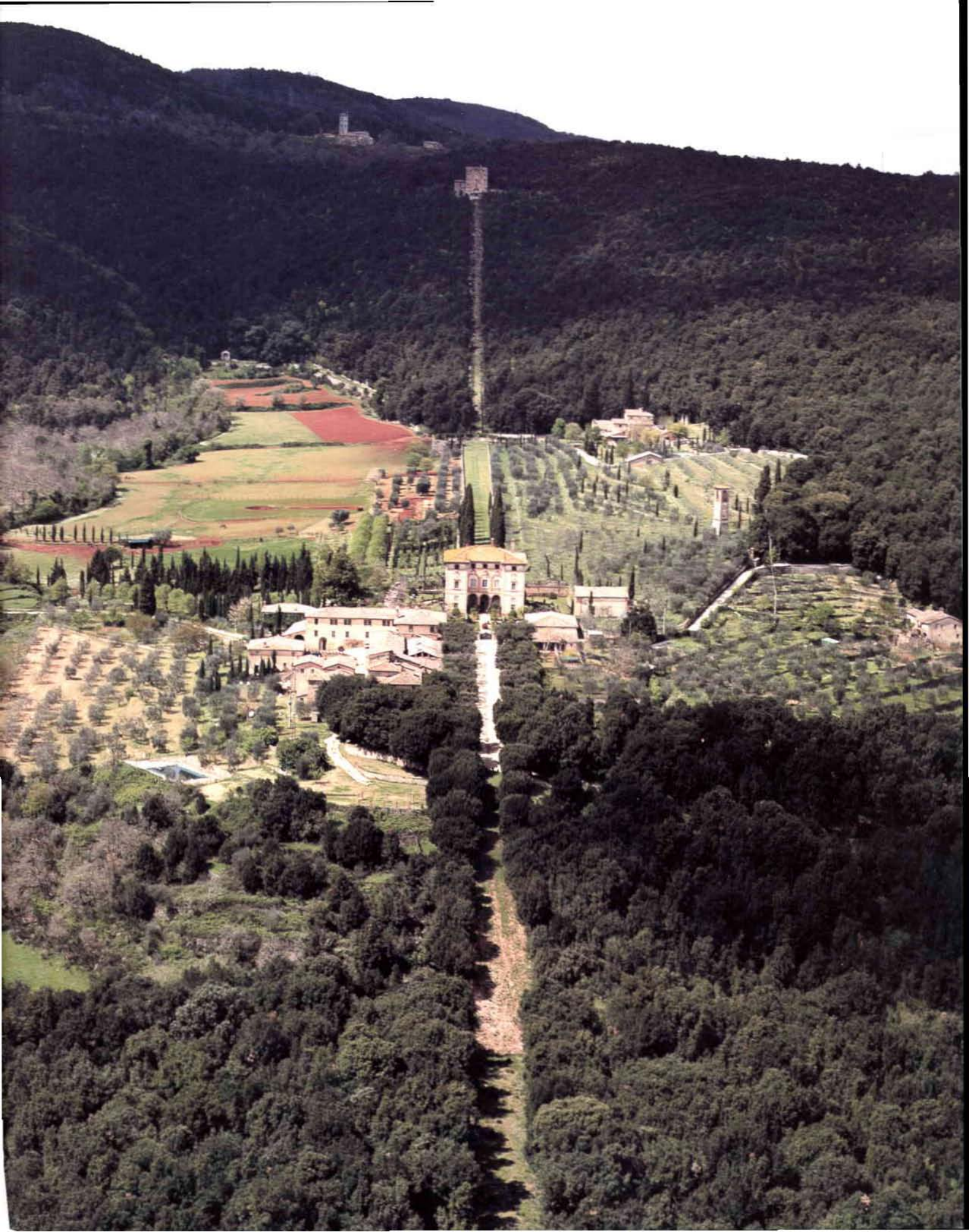


The loggia unites the views over the Arcadian landscape and the city of Florence.





The geometric garden at the foot of the loggia. (Photo G. Smienk)



Villa Cetinale

Villa Cetinale, south-west of Siena, was expanded and embellished according to designs by Carlo Fontana, to become the summer residence for Cardinal Flavio Chigi, a nephew of Pope Alexander VII (1655-1667). The Pope had spent considerable time during his youth at Cetinale, which was then still a farm. Among other elements, Fontana designed the double marble stair for the façade, to accentuate the axis, and the *piano nobile* on the first storey of the house.

The reconstruction into a villa took place in a period when French baroque gardens were in fashion. It is possibly for that reason that the significance of the plan in the history of villa architecture has remained somewhat underappreciated. Fontana was nevertheless one of the most prominent villa architects of the mid-17th century. In the way in which the situation is integrated into the plan with apparently simple means, this villa represents one of the high points of his oeuvre.

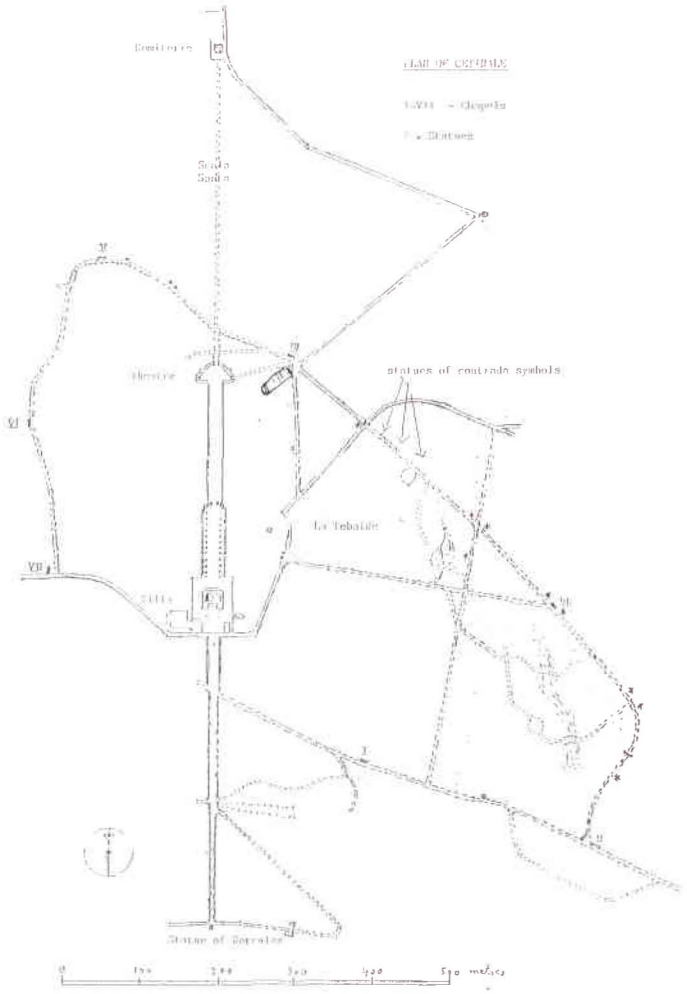
The plan of Villa Cetinale shows a number of similarities with that of other villas such as Bombicci (south of Florence) and Gori (north of Siena), and within the range of Tuscan villa architecture these form a separate category. What is striking about these plans is the introduction of linear elements (simple axes), whereby a number of independent components which fall outside the reach of the villa are still involved in the plan. Unlike the Veneto villa by Palladio, where, thanks to the axis of symmetry, the building and garden fit into the landscape as an architectonic unit, here elements dispersed in the topography are again brought into mutual spatial relationship by the addition of axes. Moreover, the geometric plan provides impetus for the integration of natural landscape forms into the composition.

The villa is presently in the possession of Lord Lambton, who has carried out extensive restoration with great care.

View back from the entrance to the theatre, at the foot of the scala santa.

A route between heaven and earth

At Villa Cetinale the house is placed on an almost square-walled terrace, which has been made as a sort of bastion on the slight slope. This can clearly be seen in historic illustrations that are present in the house. The house stands squarely on the north-south oriented main axis of the complex, which continues into the landscape. On the south side it crosses the country road which now serves as an access road. On this side the axis becomes independent, as an open strip in the wooded slope, edged with holly and closed off across a valley with a statue of Hercules about double life-size, deep in the woods. On the north side of the house the axis is a terrace-shaped strip of mown grass, later edged with cypress trees to about 100 metres from the house. Beyond two broad, half-round brick columns, which frame the view like a gate, the strip



Villa Cetinale, ground plan. (According to the present owner: Lord Lambton)

Villa Cetinale, romitorio.

continues somewhat narrower, following the contour to subsequently lead to a low-walled, semicircular theatre at the foot of a hill. The theatre formalises the confrontation of the almost horizontal grass strip with the steep slope. Two of the busts (Napoleon and one of his field marshals, who visited Cetinale in 1811) placed on the low wall opposite one another here invite the viewer to enjoy the panorama. The one bust looks toward the other, which in turn looks diagonally back over the axis toward the beginning of the country road in the valley. In the gaze thus established, the axiality of the composition is playfully linked with the irregular topography of the much larger area.

The axis is continued past the theatre as *scala santa*, a narrow stair of 200 steps carved into the rock, along which the stroller can climb the steep slope. Purified, one ultimately reaches the *romitorio* (hermitage) on the top of the hill.

This building comprises five storeys, including a chapel. A stair leads upward in the interior. Above a gigantic Lorraine cross in the façade with busts of Christ and the four evangelists, a round opening (*oculus*) has been made, a sort of 'all-seeing eye'. Here one can look back over the villa as a whole. The axis that one below perceived as an autonomous architectonic intervention is now completely taken up into the man-made landscape; in fact it appears to be a field in the terracing on

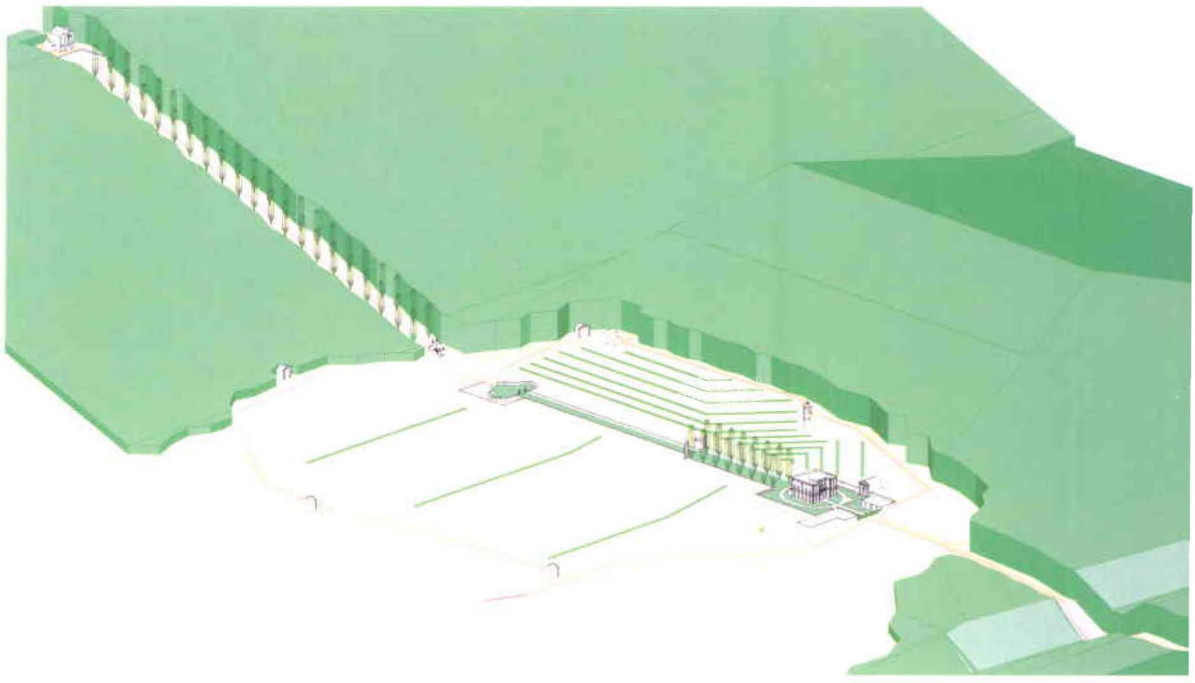
Villa Cetinale. (Aerial photo P. van Bolhuis/Pandion)

the hillside necessary for cultivating olives. Far out of reach, at the other end of the axis, the statue of Hercules, which indicates the incorporation into nature and marks the villa horizon, can be descried.

From the eye of the *romitorio* the composition can be understood as *integrazione scenica* of virgin nature, agriculture and architecture. The house, as the centre of worldly enjoyment of this, here comes to stand under the all-seeing eye of God. Through the elevation of the *romitorio* and its sober form, accentuated by a tympanum and the recessed arch-form framing the Lorraine cross, this divine gaze is palpable all the way into the interior of the house.

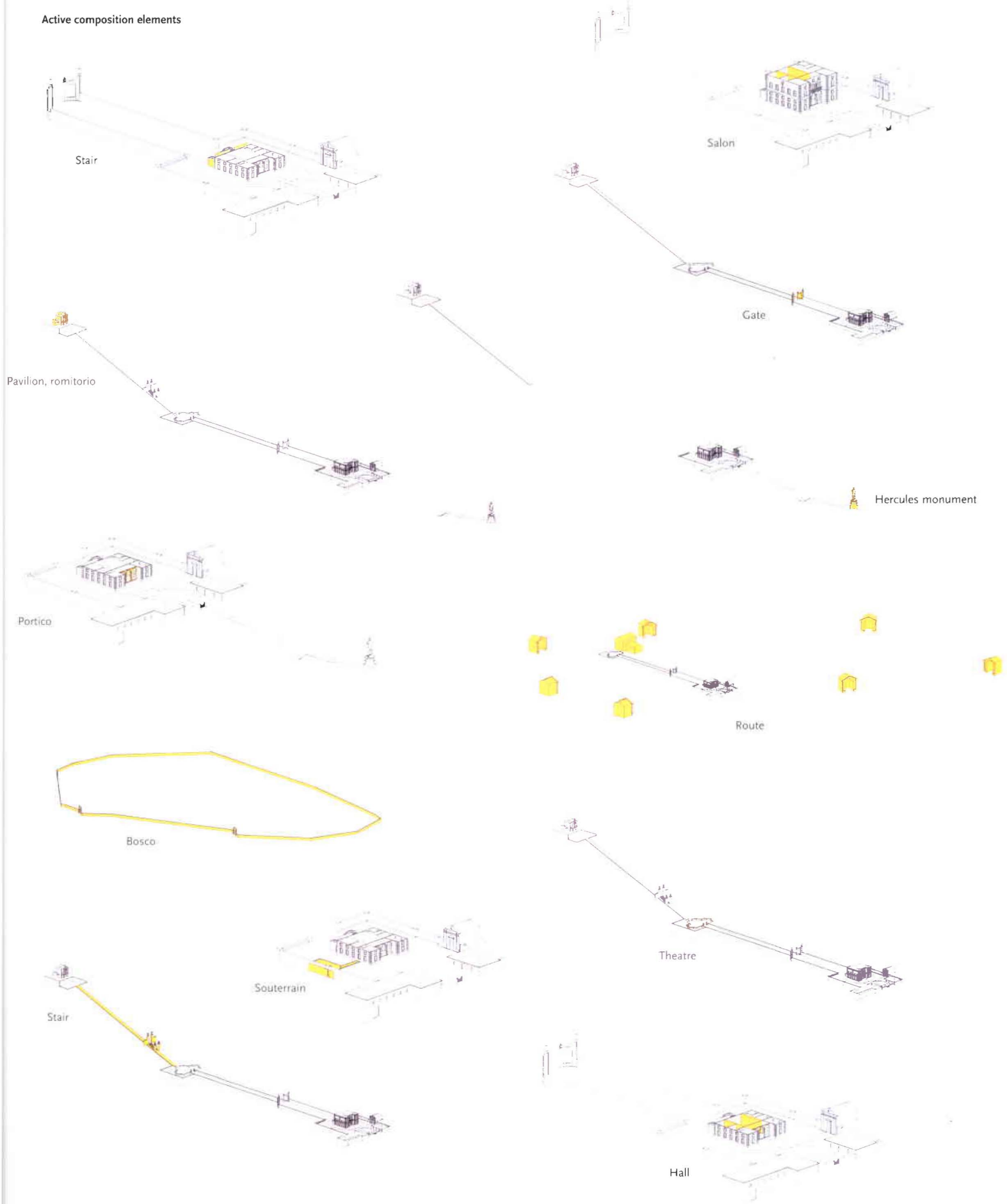
Relatively apart from the main structure of the villa and subordinate to it, Fontana has created a circumambient route. A path, with seven chapels along it (for the seven sorrows of Mary), runs along the whole outer edge of the estate, crossing the axis in the north near the theatre and in the south beyond the house. In the eastern section of the estate, lying at a higher elevation, there is a walled sacred wood (*sacro bosco*) or Thebaid (the domain of anchorites), populated with threatening monsters and praying monks, made by the sculptor Bartolomeo Mazzuoli. Each vista in this wood ends with a sculpture that reminds the visitor of God. Still other elements are found along the peripheral route, such as arches painted

Axonometric projection



Composition scheme

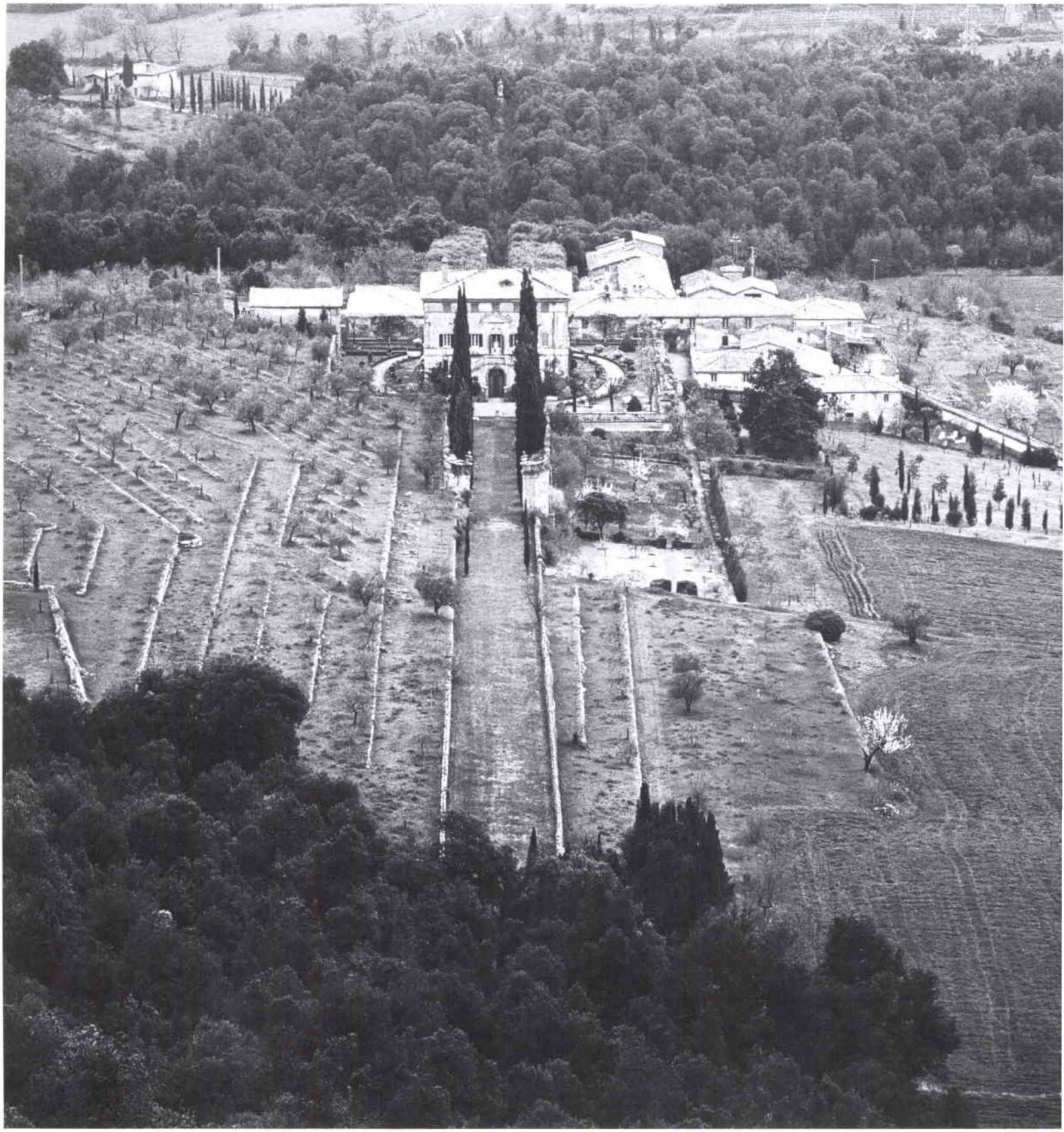
Active composition elements



View along the axis to the romitorio.

with frescos, bas-reliefs and *contrada* symbols reminding one that the Sienese horse races were held here sixteen times between 1609 and 1717.

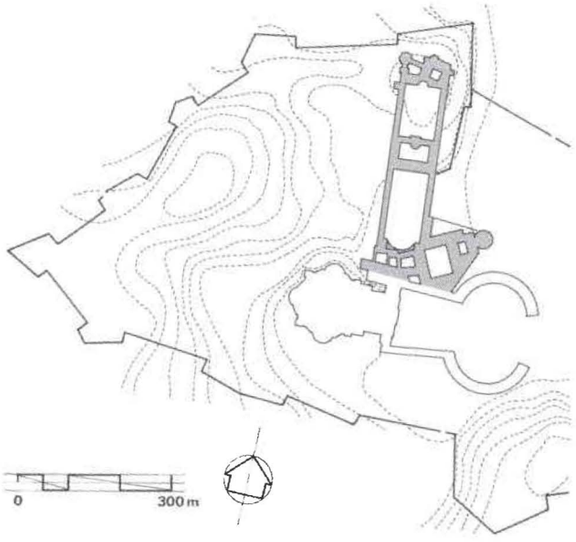
The active composition elements of the villa are partially organised in a line, comprised of a grass strip, *piano nobile*, gate, theatre, stair, *romitorio*, *oculus* and Hercules. But the location and structure of the elements cannot be only explained in terms of a formal model. They are also related to the plan of the villa through their connection with the theatre and house via the circumambient route. The theatre is the most important link, together with the Cerbia, an old house painted with frescos that occupies a key position immediately to the east of the theatre at the junction of five paths linking various elements. This permits Villa Cetinale to also be read as a composition of separate landscape elements. The axis, as the route between heaven (*romitorio*) and earth (Hercules), and the thematic landscape route are of equal weight. The independence of the route, the acceptance of the natural geomorphology and the inclusion of the man-made agrarian landscape in the plan of the villa point forward to a new compositional order which will later be worked out in the 18th century English landscape garden.



The panorama from the oculus in the romitorio.

Cortile del Belvedere

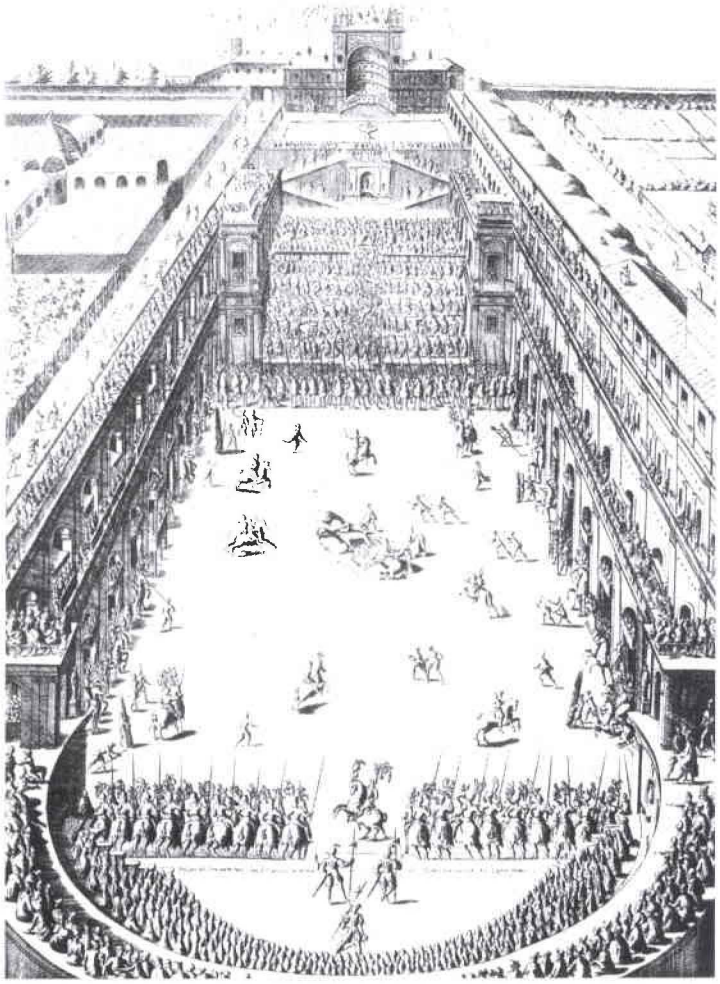
The Cortile del Belvedere is a large walled court with a rising floor, lying between the Vatican and the Villa Belvedere on the edge of Vatican Hill. It was part of the cultural programme undertaken by the popes, from Nicholas V onwards. Giuliano della Rovere 'Il Terribile' in particular, as Pope Julius II (1503-13), wished to make Rome the centre of civilisation. He especially took it upon himself to restore the ecclesiastical state which under his predecessor, Alexander Borgia VI, had been on the verge of collapse. This aim was furthered by a building programme, among other means, intended as the *renovatio imperii*, the revival of imperial Rome, and which was to have a great impact. The Vatican was the starting point of the *instauratio Romae*. The old Basilica of Constantine and the papal palace next to it were to be transformed into a complex that could compete with other imperial seats, such as Constantinople. Donate Bramante (1444-1514) was appointed architect to achieve this aim.



The Cortile del Belvedere between the Villa Belvedere to the north and the Vatican to the south.

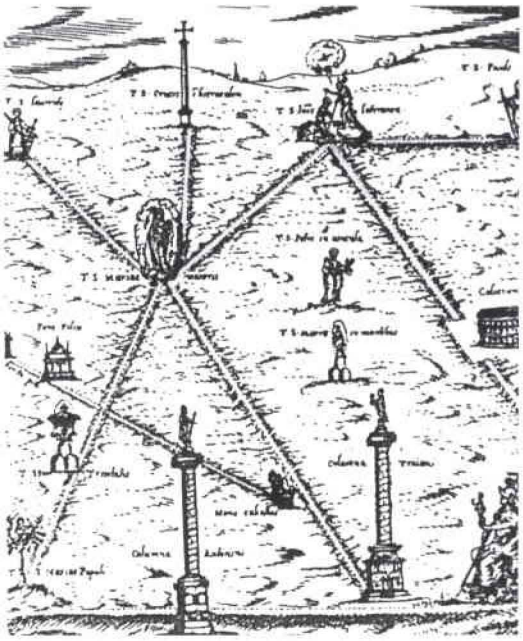
The Roman villeggiatura

The Roman *villeggiatura* of the 15th and 16th century was greatly influenced by the church's bid for dominance of Renaissance culture. Popes and cardinals acted as protectors and patrons of humanists and artists, convinced that cultural leadership was the responsibility of the church. Two periods can be distinguished in the prelates' endeavours to turn Rome into the leading city of world culture. The first began during the reign of Nicholas V (1447-55) but was dramatically interrupted by the Sack of Rome (*sacco di Roma*) in 1527. The second period started with the Council of Trent (1545-63) and lasted for a hundred years. During both periods the papal *villeggiatura* was, more than ever before, concerned with cultural life. In the Middle Ages, too, the popes had fled from the oppressive heat of the city during summer to their country seats in the hill towns of the Roman Campagna. It was only during the Renaissance that villas were built in Rome itself, giving the city an important cultural and representative status. Between about 1485 and the Sack of Rome, important villas were built near the Vatican, on the west bank of the Tiber. During the period after the Council of Trent, villas were built in the hilly eastern area of the city. This took place within the framework of the urban schemes of Gregory XIII (1573-85) and Sixtus V (1586-90) in particular. They granted licences to build and provided water supplies, with the intention of systematically developing the eastern part of the city. Finally, towards the end of the 16th and at the beginning of the 17th century competing cardinals were building increasingly larger villas on the



The Cortile del Belvedere being used as a jousting field. (Engraving, circa 1560)

Map of Rome, on which the streets of Sixtus V are shown as straight lines between churches. (G.F. Bordino, 1588)



outskirts of the city. The largest of them all were the Villa Borghese (1608) and the Villa Doria Pamphili (1630) situated just outside the city wall.

Rome as a landscape theatre

In Rome the topographical conditions faced by the *villeggiatura* were determined by the structure of the Tiber valley. On its western side the north-south line of the main Tiber valley is bounded by the steep slopes of the Janiculum, which projects a strategic finger of land to the north, jutting into the Tiber valley. This is Monte Sant'Egidio, on which the stronghold of the Vatican lies. Beyond the deep side valley, north of this promontory, the river continues its way past the steep hills of the Monte Mario. The difference in height between the Tiber valley and the western hills is roughly 50 metres. On the east bank the relief is less pronounced, the difference in elevation being some 25 metres on average. Thus, there are no steep slopes here, only hills gently rolling down to the river. These are the proverbial seven hills on which the ancient city was built. The geographical origin of Rome was the Palatine Hill above the *Forum Romanum*, where, at a sharp bend in the Tiber, an island facilitated the fording of the river. The successive hills lie more or less orthogonally along the winding main Tiber valley. The outline of the old city, defined by the Aurelian wall, consists principally of the asymmetric Tiber valley and the hills surrounding it like an amphitheatre.

Three elements of the ancient city show a structural relationship with the situation of the villas. The first of these are the consular roads, the great ancient Roman arterial roads. In the hilly district it was especially along the Via Pia and Via Appia that numerous villas were constructed. In the north the Via Flaminia and, in the west, the Via Aurelia also linked a series of villas to each other. The second element is the Aurelian wall. In the Middle Ages the area enclosed by these fortifications had become too big for the decayed city and numerous villas were built in a wide green belt inside as well as outside the wall. In this way the wall was quite often breached and integrated into the villa plans (Villa Medici, Villa Belvedere). Finally, the water supply was an important factor in the siting of the villas. The deserted hilly area only became inhabitable after old aqueducts had been repaired and new ones built by the popes (including the Aqua Vergine by Sixtus IV, Aqua Felice by Sixtus V, and Aqua Paolo by Paul V). Aqueducts were an indispensable source of water for the villas (e.g. Aqua Vergine for Villa Medici and Aqua Felice for Villa Montalto).

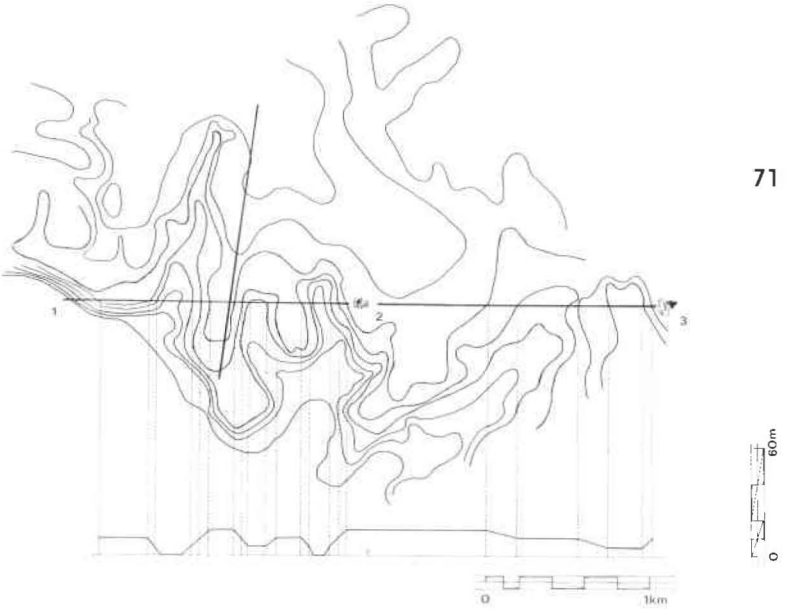
One of the first villas to be built along the Tiber valley was Villa Belvedere, built by Pope Innocent VIII in 1485, just outside the Vatican, where the strategic north wall of the stronghold dominated the Tiber valley. Villa Belvedere radically broke with the closed character of the medieval Vatican fortress. In the north wall of the villa an open loggia has an unrestricted view of the *prati* (meadows) along the Tiber, the city, Monte Mario and the Sabine Hills. Most pilgrims and processions from the north, on their way to the Vatican, could be seen from afar and when they passed below the villa. The closed rear wall of the loggia was painted with a landscape panorama. Vasari mentions that this depicted the city of Rome as well as Milan, Genoa, Florence and Naples and showed much more than could be seen in the real panorama. As the city of Rome could not be seen from the north-facing loggia this 'defect' was thus remedied by its depiction on the rear wall. Thus the art of painting made it possible to include the entire conceivable space within the panorama.

In the early 16th century other villas were built on prominent viewpoints on the western slopes of the Tiber. Villa Sciarra (circa 1530) and Villa Lante (1518) were built on the Janiculum and Villa Madama (1517) was built outside the town on Monte Mario. Villa Farnesina on the other hand was located on the Tiber, while Villa Barberini (which no longer exists) was on the Janiculum near the Vatican.

The representative layout of villas to the east of the Tiber was established during the period of the Counter-Reformation. Villa Medici (1564), Villa Quirinale (1574), Orti Farnesiani (1570) and Villa dei Cavalieri di Malta (circa 1560) are all situated on hills along the Tiber. Towards the end of the 16th and the beginning of the 17th century, Villa Ludovisi, Villa Montalto (neither of which now exists), Villa Colonna and Villa Mattei were built.

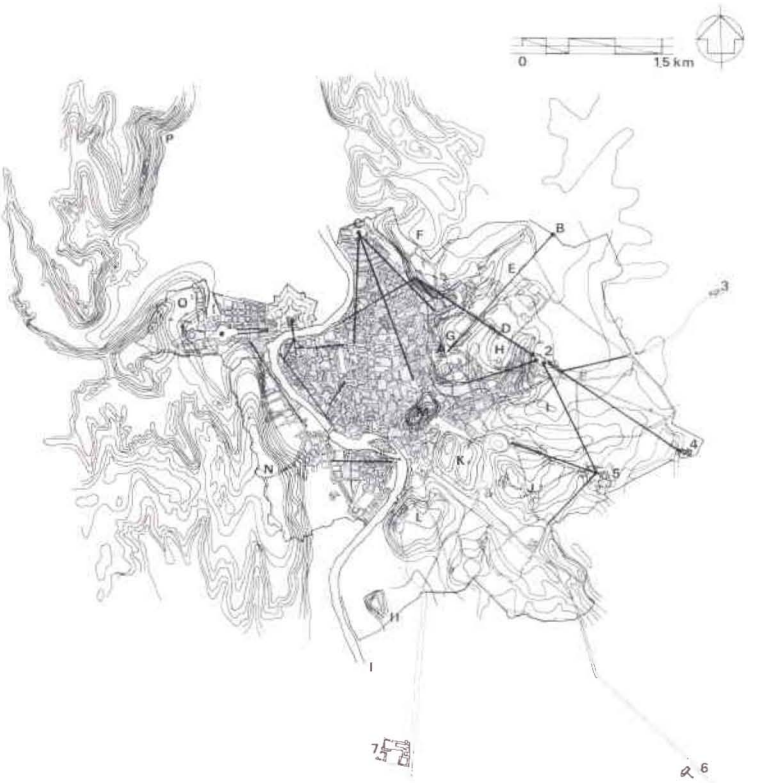
From this it would seem that in the western and eastern areas of the town the visually strategic locations were occupied by villas. In the bowl shape (two or three kilometres in diameter) formed by the geomorphological conditions, the town is the stage for the villas nestled on the balconies of this gigantic open-air theatre. The residents of the villas could look down on the ecclesiastical and political centre of the world.

In this elevated position above the low-lying city the villas were in each other's field of vision. Just as in Florence, the villas balanced on the edge of free space, making it perceptible without creating it themselves. In Rome, however, the scale of the landscape-theatre was different. In Florence the panorama measured some 15 kilometres east to west and 8 kilometres



Rome. Strada Felice. Elevation.

1 M. Pincio with S. Trinita dei Monti
2 M. Esquilino with S. Maria Maggiore
3 S. Croce in Gerusalem



Rome: streets laid out by popes in the 15th and 16th centuries.

A Villa Quirinale
B Porta Pia
C Piazza del Populo
D Strada Felice
E Strada Pia

F through P: Hills
F M. Pincio
G M. Quirinale
H M. Viminale
I M. Esquilino
J M. Caelio
K M. Palatino
L M. Aventino
M M. Capitolino
N M. Janiculo
O M. Sant'Egidio
P M. Mario

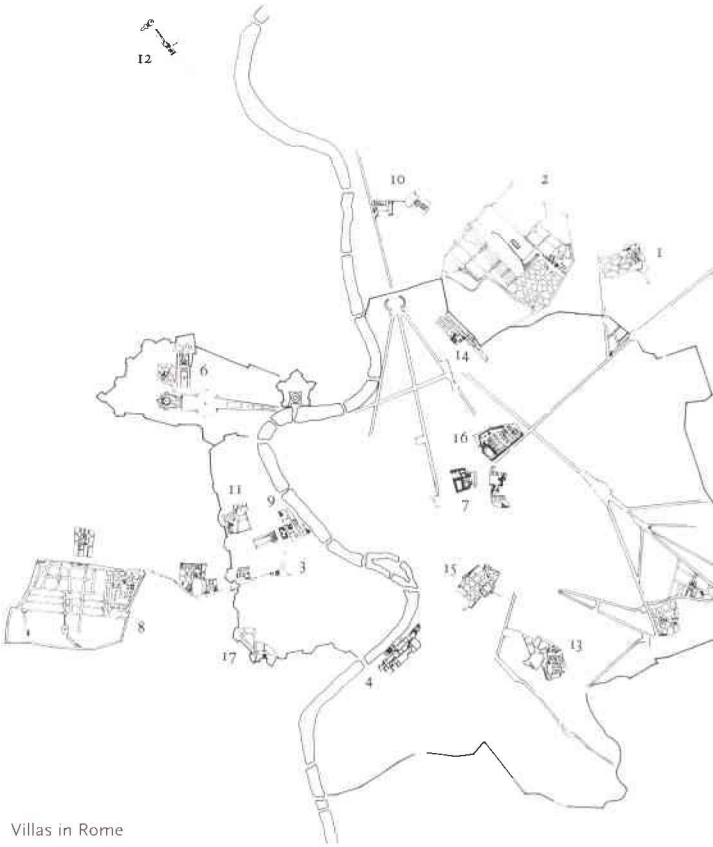
1 through 7: Votive churches
1 S. Pietro
2 S. Maria Maggiore
3 S. Lorenzo
4 S. Croce in Gerusalem
5 S. Giovanni in Laterano
6 S. Sebastiano
7 S. Paolo

north to south; in Rome it spanned only 2.5 kilometres by 3 kilometres respectively. Thus both vertical and horizontal dimensions were far more restricted in Rome. In Florence the villas were also situated higher (150 to 200 metres above the valley) than those in Rome (50 metres). The most important difference, however, was that in Rome the entire panorama had become urbanised. Towards the end of the 16th century control of this urban space was confirmed by the building of the 119 metre-high dome of St. Peter's (1558-89). Just like Brunelleschi's dome in Florence, it was a central reference point in the panorama, precisely defining the natural space of the town landscape.

At the same time, the views in the villas changed character. The area of the villa grounds increased after 1550. This demanded adequate internal organisation, which was solved by the axial organisation of the villa plan. Towards the end of the 16th century the view from the terraces was channelled by visual axes (as at Villa Doria Pamphili, for example). The origin of this development can be seen at the Cortile del Belvedere (1504), in which Bramante created an axial link between the Vatican and the Villa Belvedere. Through the axial framing of views the villas were more forcefully connected with each other, like a powerful chain.

The urban atrium

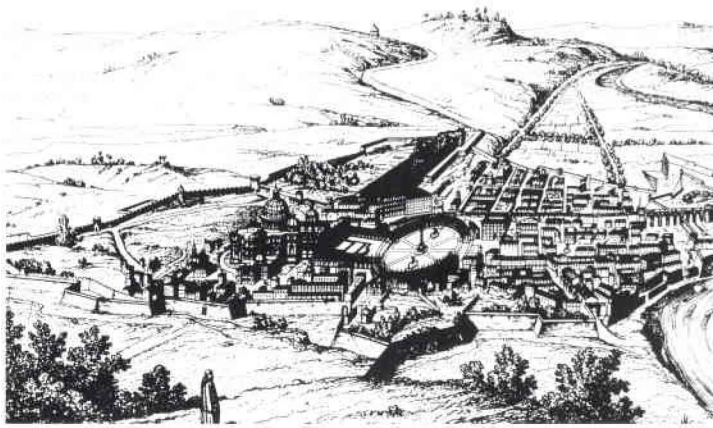
The Cortile del Belvedere was Bramante's most important commission involving the extension of the papal palace. In 1505 a start was made on the northern extension and the link to Innocent VIII's Villa Belvedere. Bramante's plan consisted of an elongated, enclosed courtyard between the palace and the villa. It is possible that this idea was derived from ancient villas (such as the Domus Aurea) and from fragments of imperial Rome (such as the Vatican naumachia of the first century). Internally the courtyard was divided into three terraces. The lowest served as a hippodrome or open-air theatre; the middle had seating terraces, a nymphaeum and steps; and the highest was arranged as a garden with parterres and trees. On their long sides the terraces were flanked by *ambulations* (corridors) with crypto-*portici* (galleries). In Bramante's plan the latter consisted of superimposed orders (Doric, Ionic and Corinthian) in the lowest courtyard and one single order in the top one. Two small projecting towers were placed beside the seating on the central terrace. The east wall, which coincides with the city wall, was the first part to be completed. The entrance from Porta Julia was in the centre of the section bordering the lower courtyard. The north end of the *cortile* con-



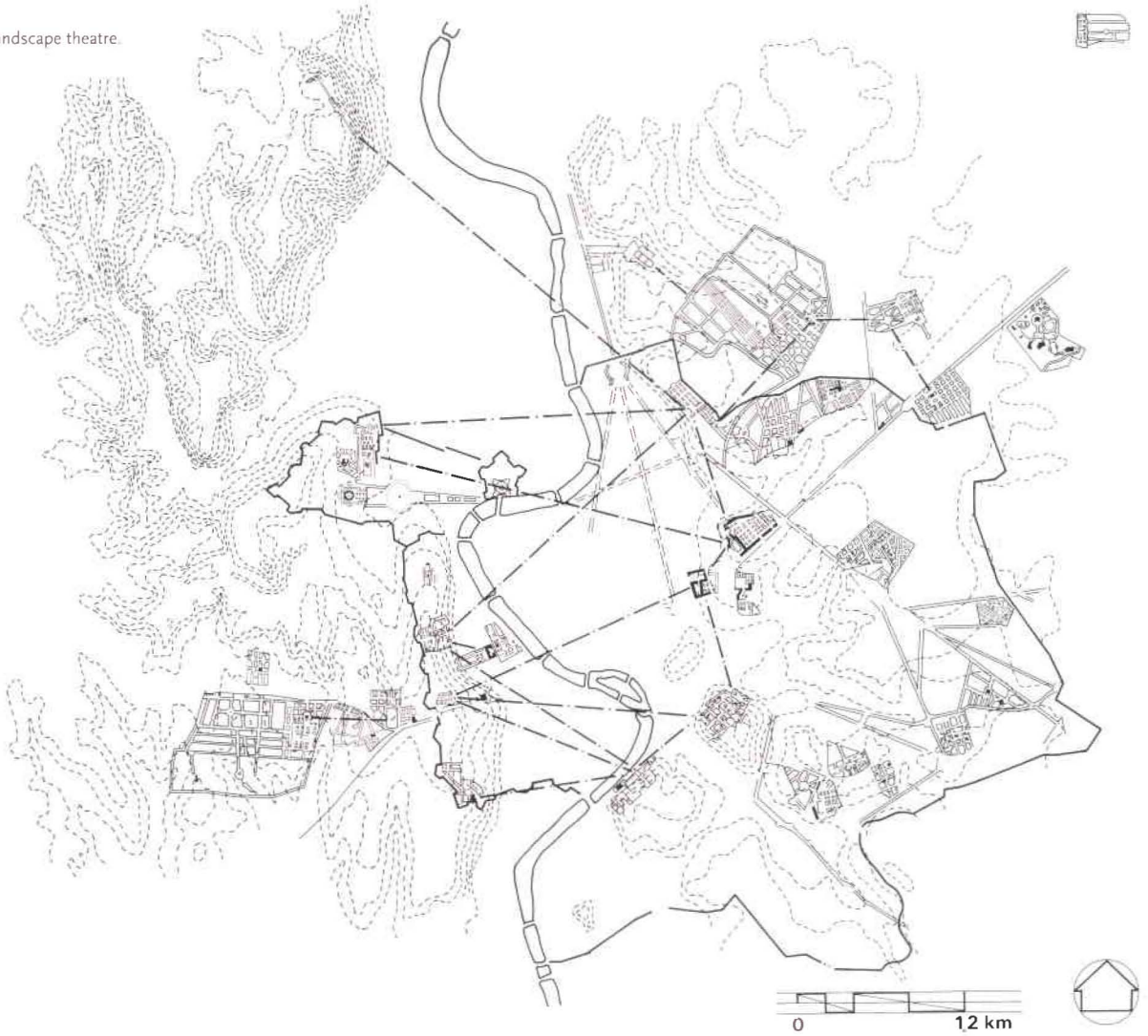
Villas in Rome

1 Albani
2 Borghese
3 Bosco Parrasio
4 Cavalieri di Malta
5 Chigi
6 Cortile del Belvedere
7 Colonna
8 Doria Pamphili
9 Farnesia
10 Giulia
11 Lante
12 Madama
13 Mattei
14 Medici
15 Orti Farnesiani
16 Quirinale
17 Sciarra

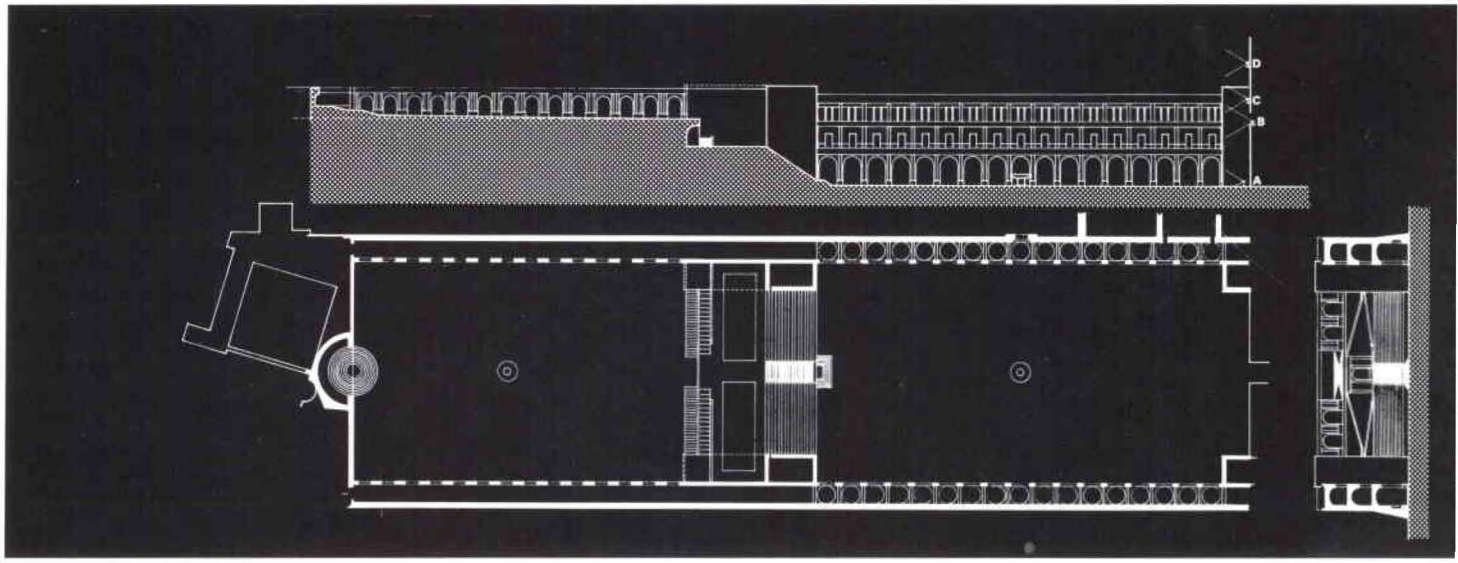
Rome from Monte Gianiculo. The Villa Belvedere lies at the northernmost point of the city wall. (Paul Marie Letarouilly, 1853)



Rome as a landscape theatre.



The panorama of Rome, seen from St. Peter's. Left on the horizon the Villa Borghese, right the Villa Medici. (Photo P. van der Ree)



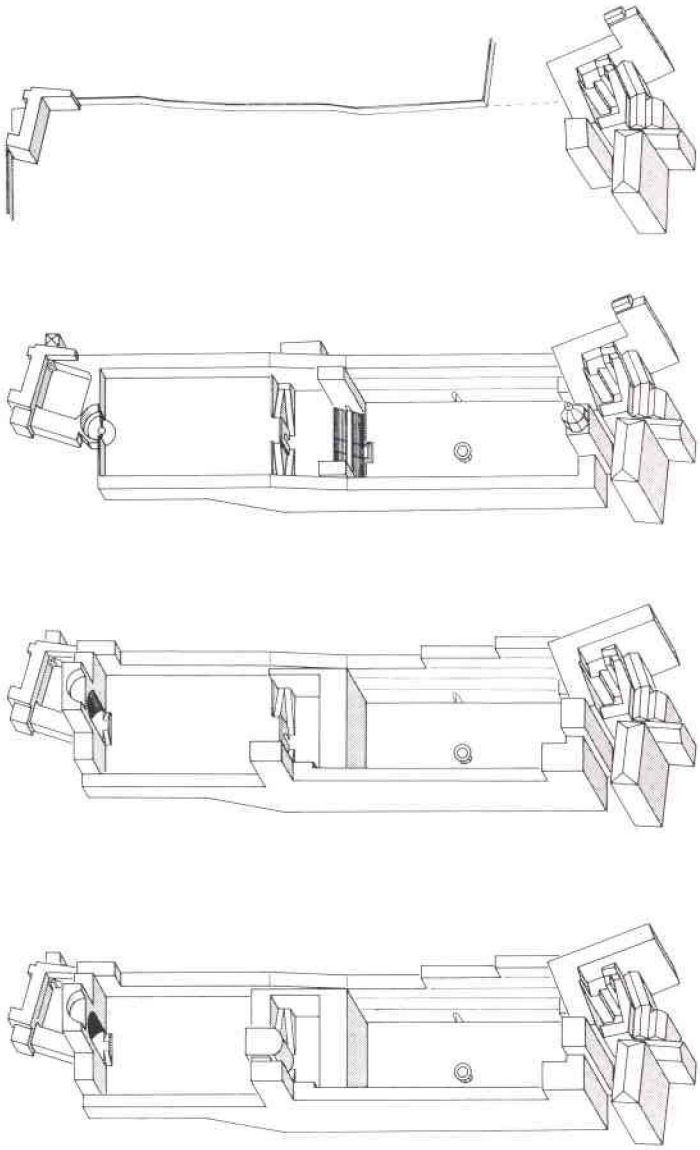
Plan elevation and cross section of the Cortile del Belvedere.

sisted of a round concave-convex flight of steps adjoining an exedra, which originally had only one storey. To the north, as a last link between the *cortile* and the Villa Belvedere, was an antiquarium in the shape of an open, square sculpture gallery. After 1505, when Bramante concentrated all his attention on the new plans for St. Peter's, the construction of the *cortile* was entrusted to other architects, among them Antonio da Sangallo and Baldassare Peruzzi. Under Julius III (1550-55) the exedra in the rear wall was raised by one storey, as were parts of the east gallery. At the same time, Bramante's flight of steps was replaced by a straight one. Under Pius IV (1559-65), Pirro Ligorio converted the exedra into a niche, crowned by a semicircular-shaped loggia. He was also responsible for the earlier design of the west gallery of the *cortile*. Pius V (1566-72) had all the antique pagan sculptures moved from the Belvedere and transported to cities such as Florence. Gregory XIII (1572-85) had the Torre dei Venti built roughly in the centre of the west wing.

Sixtus V (1585-90), who, together with his architect Domenico Fontana broke through the hilly part of Rome by constructing axial streets, built an impediment in the axial structure of the *cortile* in the form of the Biblioteca Sistina. This cut straight through the *cortile* at the point where the seating terraces were and destroyed the original spatial concept. Under Pius VII (1800-23) the Braccio Nuovo was also built straight across the *cortile*, this time at the point where the steps and nymphaeum were situated. In its present state, Bramante's *cortile* has disintegrated into a series of separate courtyards.

The overall size of the original Cortile del Belvedere was roughly 100 by 300 metres. From the ground floor, the *cortile superiore* and exedra were hidden from view. The visitor, entering the complex through the gate and looking north, saw a vertical accumulation of galleries, steps and a nymphaeum. The total plan could only be seen from the papal rooms situated above (the Borgia apartments and Raphael's Vatican Stanze). The best viewpoint was the window of the Stanza della Segnatura, the private study of Julius II. Seen from there, all the elements of Bramante's plan coalesced into one central perspective scene. The floor of the *cortile superiore* slants upwards in a northerly direction more than the architrave of the side walls. This shortened the columns of the adjacent galleries in the direction of the garden, causing an illusory increase in the depth of the space, just as in Mannerist and baroque stage constructions. Viewed from the papal rooms, the horizon was, as it were, pulled forward. This optical lengthening was reinforced by the treatment of the walls of the *cortile*. The junction of the side walls of the *cortile superiore* was concealed by two small towers, placed level with the centre terrace, like the side wings of a stage. The exedra, whose depth is difficult to judge because of its semicircular shape, is wider than the opening in the back wall, making this junction invisible as well. The optical lengthening is also reinforced by the treatment of the orders. The openings in the porticoes of the *cortile inferiore* are separated by a single pilaster, whereas in the *cortile superiore* there are two, making the opening smaller.

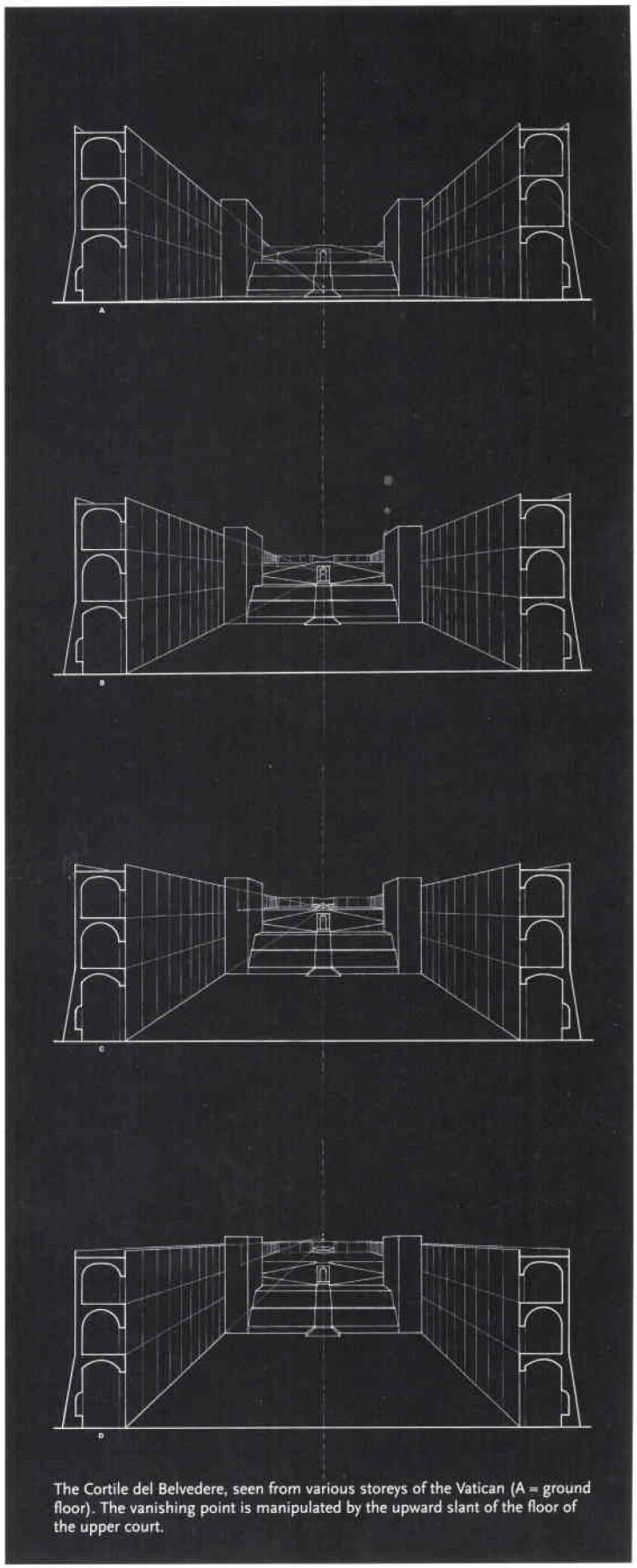
Due to this perspective distortion, in Bramante's design space was manipulated by architectural means as if in a painting. Like an illustration, framed by the Stanza della Segnatura



Phases in the development of the Cortile del Belvedere.

window, this scene became a part of the mural decoration of the room.

The *giardino segreto* on the upper terrace only became visible to the visitor moving in an axial direction through the plan. The raising of the exedra at a later date changed this. Moreover, Ligorio's loggia built above the exedra introduced a view from the opposite direction over the Vatican to St. Peter's, which was then under construction. The Torri dei Venti, built even later on the west wing, offered Gregory XIII a view over the town to Villa Buoncompagni (family property of the Pope) and the Quirinale (the papal summer palace), both on the east bank of the Tiber.



The Cortile del Belvedere, seen from various storeys of the Vatican (A = ground floor). The vanishing point is manipulated by the upward slant of the floor of the upper court.

Villa Giulia

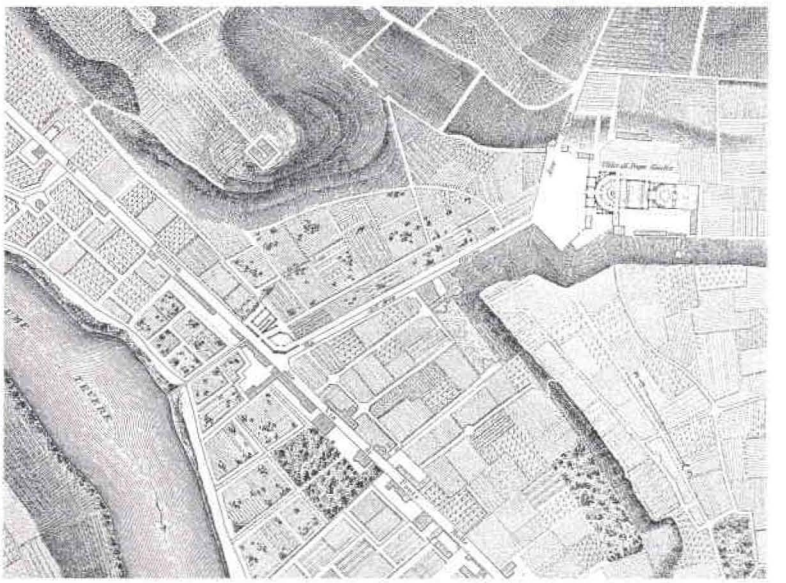
Preliminary work on the building of Villa Giulia began in 1550, immediately after the election of Cardinal Giovanni Maria Ciocchi del Monte as Pope Julius III. In accordance with his new status he ordered an extensive villa complex to be built. Before his appointment he already owned a villa and several country estates along the Via Flaminia, just outside the Porta del Populo, the city gate on the north side of Rome. From 1550 onwards, the property was rapidly extended to include the vineyards in the immediate surroundings until it incorporated all the hills between the Aurelian wall and Ponte Milvio. Within a relatively short time it could compete with the Villa Madama (1517) on the other side of the Tiber.

The villa site included a small strip of land along the River Tiber, and the building of a new harbour provided a direct link between the villa and the Vatican Palace. A covered passage connected the Vatican with Castel Sant' Angelo, from which a ceremonial boat transported the Pope and his guests to his country residence. From the mooring point a pergola led to a gate on the Via Flaminia that gave access to the garden grounds.

Some of the most famous architects of the time were engaged in the project. The original concept was probably developed by Giorgio Vasari (1511-74), while Michelangelo, who was working at St. Peter's, acted as adviser. Vignola and Ammanati, both still at the beginning of their careers, worked on the central part of the villa. Vignola was responsible for the building of the casino and for engineering the waterworks of the sunken nymphaeum, while Ammanati designed the nymphaeum itself and the courtyard connecting it to the casino.

Movement and illusion

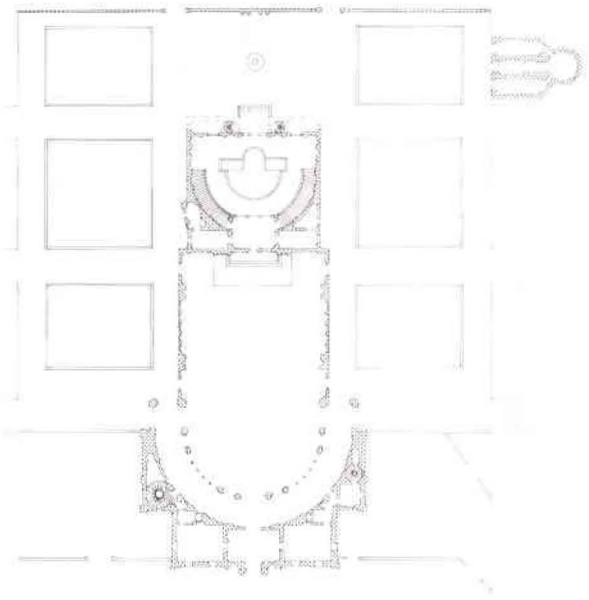
In the early 16th century an influential new approach to villa architecture emerged. This became known as Mannerism and the basic principles of Mannerist villa architecture can be traced to the design of the Cortile del Belvedere. The axial construction, the linking of a series of autonomous inner and outer spaces, and the internal manipulation of perspective, which were characteristic of the Cortile del Belvedere, were further developed in subsequent Mannerist villa architecture.



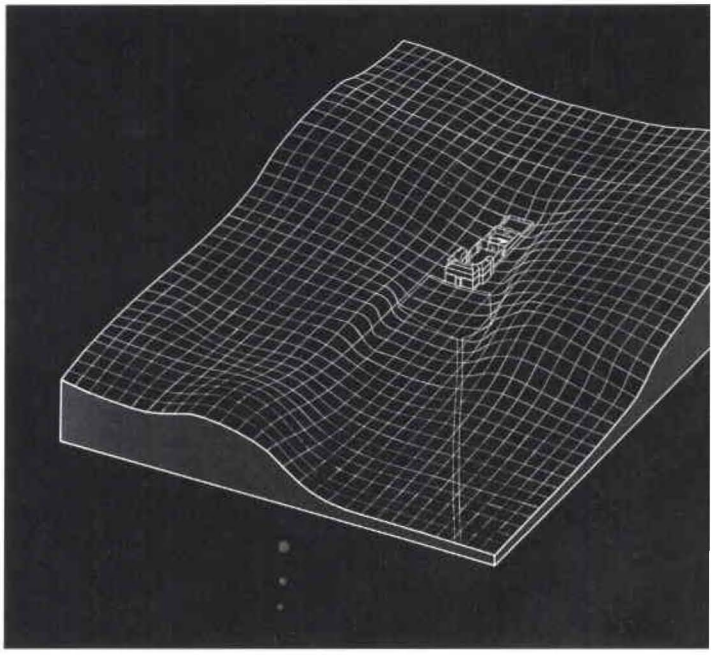
Topography of Villa Giulia, in a side valley of the Tiber, across the Via Flamina. (Paul Marie Letarouilly, 1853)

Villa Madama (1516-27), designed by Raphael and Giulio Romano, was the first villa design in which these principles were applied and in which house and garden were treated simultaneously. While still under completion the villa was almost entirely destroyed by fire during the Sack of Rome in 1527 and the second half of the villa was never finished.

Because of the instability of the period, villa building in the Roman Campagna ceased almost entirely over subsequent



Plan.



Siting of Villa Giulia in the geomorphology.

years and Mannerist villa architecture developed only in northern Italy. In Mantua, Giulio Romano, one of the architects who had fled Rome to take advantage of a more stable political and geographical climate, built the Palazzo del Tè and gardens (1525-35). The elaborately painted iconographic programme in the palace, with themes from classical mythology and geographical references, became one of the characteristics of Mannerist villa architecture, for which the Palazzo del Tè would serve as an example.

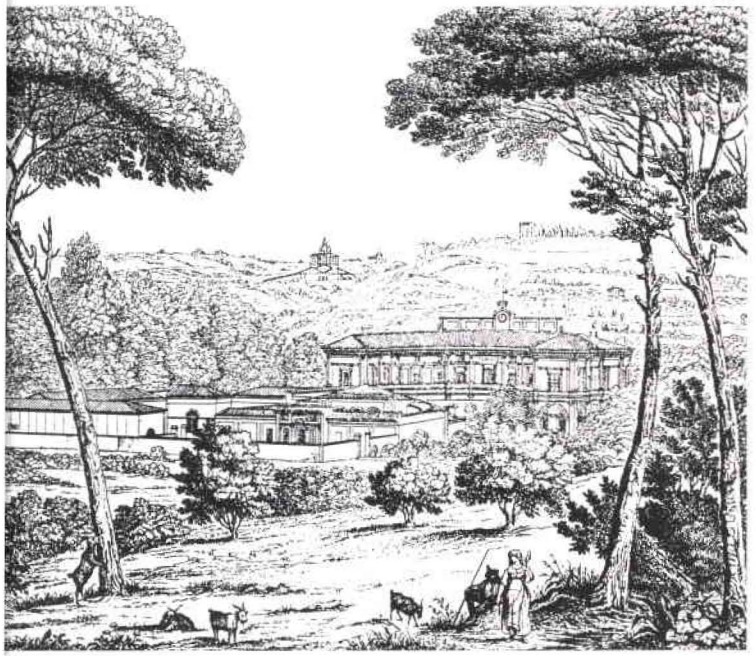
Yet it was in and around Rome, however, that a more mature form of Mannerism developed in the second half of the 16th century. Its most important exponents were the archaeologist and architect Pirro Ligorio (1491-1580), the Bologna educated architect, perspective designer and theorist Giacomo Barozzi da Vignola (1507-73), and the architect Giacomo del Duca (1520-1601). Individual contributions were also made by the noblemen Niccolo and Vicino Orsini. The most important clients at that time were the Farnese and Orsini families, who owned the greater part of the northern Roman Campagna. The design which heralded the new period was that of the Villa Giulia (1550-55), which lay just outside the walls of Rome and which Vignola and Ammanati built for Pope Julius II. The main elements of this villa were arranged geometrically in a linear series of screens and views.

It is only through movement, the route, that the axially connected spaces are visually linked to one another. In that way, the route becomes a necessary condition for comprehending the architectonic system. The movement is organised around the main, central axis. In order to reach the following space, however, one must depart from the axis for a moment. This creates a tension between route and axiality, between movement and illusion.

The theatre garden

The villa has a remarkable situation. The house was not erected on a hilltop, but low in a side valley of the Tiber that runs in a north-westerly direction. The two directions, arising from a bend in the valley, meet each other at the point where a long entrance drive ends at the forecourt of the villa. As the avenue is laterally defined by trees, it only becomes apparent at the last moment that it does not lie in the main axis of the villa but follows the bend of the valley. Because of this bend, it seems as though the villa, from whatever direction it is viewed, is situated in a broad enclosed valley. The villa, however, is not only an object against the background of the natural landscape but the landscape itself is integrated into the architectural treatment of the villa plan, which extends as far as the eye can see. Nothing is left to chance. The slopes were completely covered with trees by the landscape architect Jacopo Meneghini. In one of his letters Ammanati reports that 36,000 trees of various species were planted from 1550 onwards.

The architecture of the villa, with its main building and series of garden courtyards to the rear, clearly alludes to the



View of Villa Giulia from the top of the valley. (Paul Marie Letarouilly, 1853)

design of Cortile del Belvedere of Julius II, while the semicircular enclosure of the first courtyard is reminiscent of Villa Madama. Following these two large designs, which were built in the same area as Villa Giulia, a spatial scheme was developed in which a synthesis occurred between architecture and landscape.

Whereas the building at Villa Madama acts as a gateway to the garden, in Villa Giulia the transition from building to garden is less immediate. The courtyards, as a series of voids, are developed to such an extent that the architecture of the building becomes the framework for the garden itself.

Vignola's fondness for using the façade as *decorum* is discernible in the contrast between the front and rear elevations of the house. The openness of the villa towards the landscape is not evident at first sight; the severe, closed front elevation of the villa is directed towards the square and has a clearly representative function. The triumphal arch motif in the centre of this façade is repeated in the rear elevation and thus forms the link between the two sides. The playful rear elevation has the character of an inner façade in that the treatment of the concave shape refers directly to the interior of the Pantheon. Facing this apparent inner façade, the central section of the garden manifests itself as a series of inner spaces, and the sense of intimacy of both the building and garden behind it is intensified. The surrounding landscape is also an integral part of the composition. The interaction between the architecture of the house and the garden, as well as the surrounding landscape, are central to this design and has been treated in several different ways.

Even before one enters the garden, the semicircular arcade along the rear façade, painted on the inside by T. Zuccari as an open, green pergola, forms an introduction to the two side gardens and the hills immediately adjoining them.

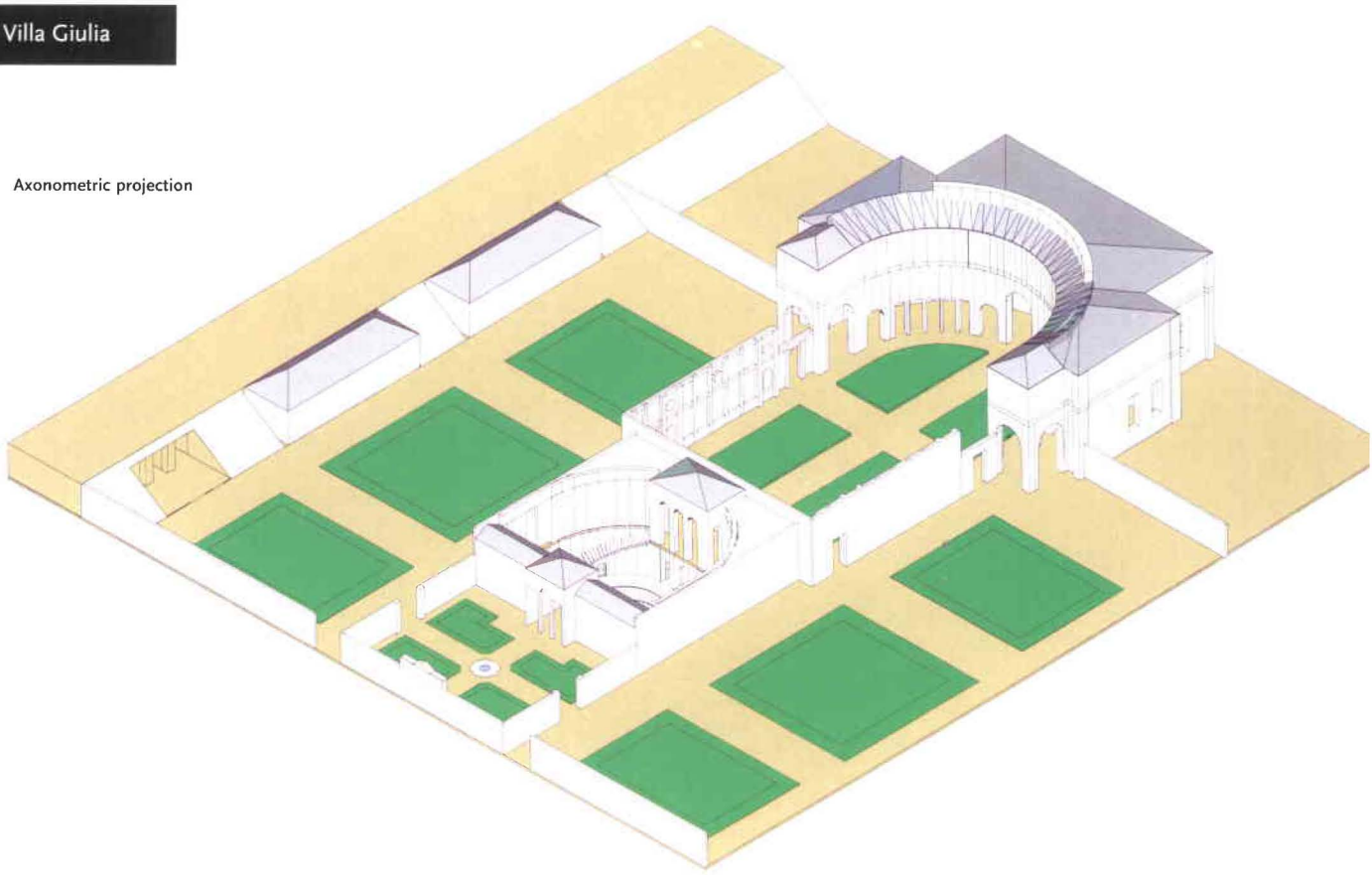
The main elements of the garden are organised geometrically on the central axis in a linear series of screens and perspectives. From the building towards the hill the openings in the screens widen while the density of the elements and the height of the walls decrease. This increasing transparency is also given material form by the gradual transition from stone to vegetation. From the hill towards the casino the density of the vegetation diminishes. It is only from the first floor of the building that there is an accurate view across all the walls, and that the view over the central axis is directed towards the surrounding landscape, although the curved loggia also offers an initial view of the adjoining hills across the side gardens before the visitor actually enters the garden.

In one of his letters Ammanati compares the building to a theatre and the garden to a proscenium and a stage. The play is initiated by the visitor himself; he is both spectator and actor in his progress through the plan. Movement is essential for unveiling the spectacle.

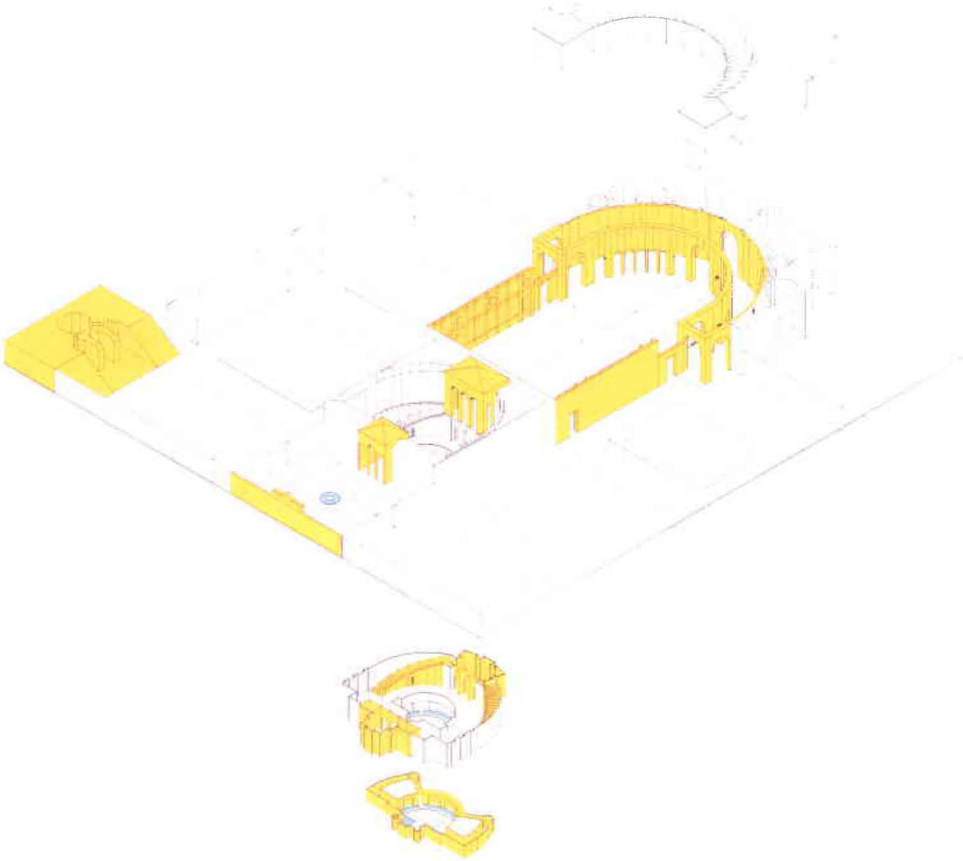
Although the three middle garden courtyards are visually linked to each other on one axis, each consecutive space can only be reached by leaving the axis obliquely. Thus, a tension between axis and route is created and even heightened by the vertical construction of the nymphaeum, which consists of three layers, thereby forming a repetition of the tripartite division of the entire geometric garden layout. Opposite the semicircular colonnade in the main building, an almost closed wall originally concealed this nymphaeum from the entrance. Only a small doorway in this wall (now replaced by three open arches) gave access to a loggia, offering a view over this sunken *giardino segreto* carved out of the rocks. Two paired ramps lead to the middle level, while two small flights of steps descending to the lowest level are hidden from view.

From the intimacy of this hidden lowest level of the garden, which is decorated with grottoes, a relationship with the broad valley has been created by means of a vertical sequence which broadens and becomes increasingly transparent. The decorations, too, reinforce this sequence. The lowest floor is dominated by various water elements and by the surrounding mossy grottoes. Here the original topos of the villa is hidden: the low-lying marshy valley. On the edge of the middle level

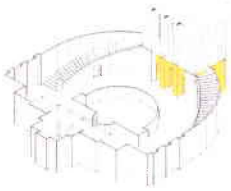
Axonometric projection



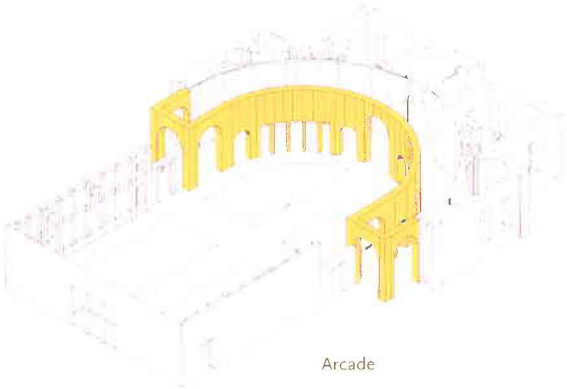
Composition scheme



Niche

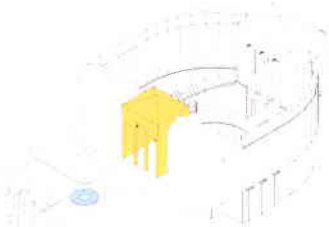


Grotto

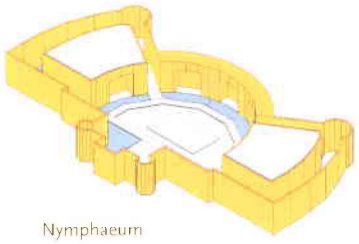


Arcade

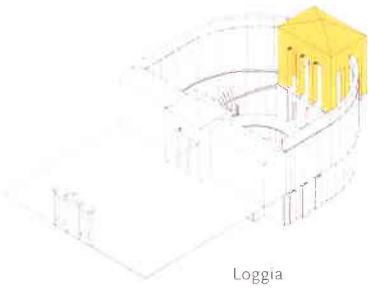
Grotto
(ice cellar)



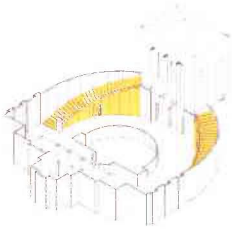
Loggia



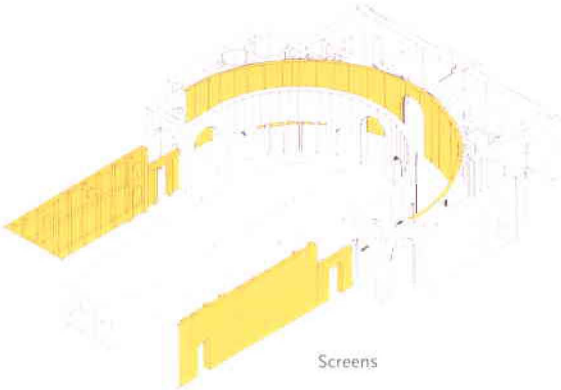
Nymphaeum



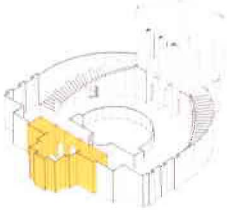
Loggia



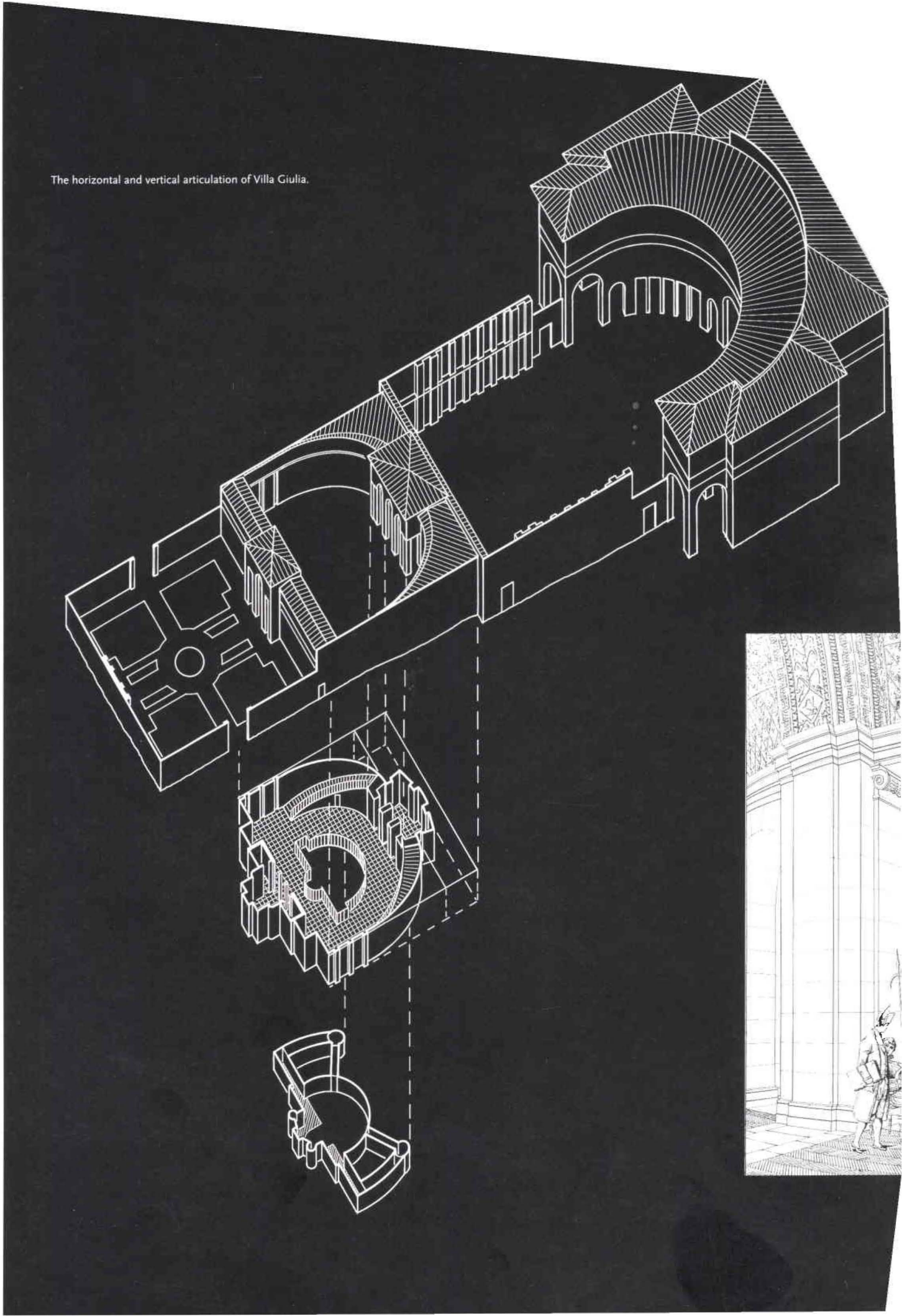
Stair



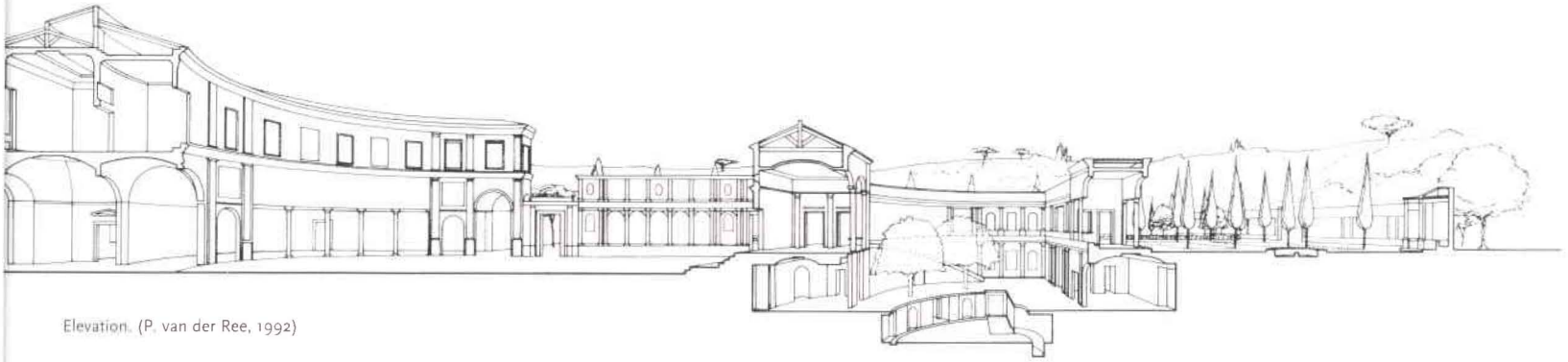
Screens



Grotto



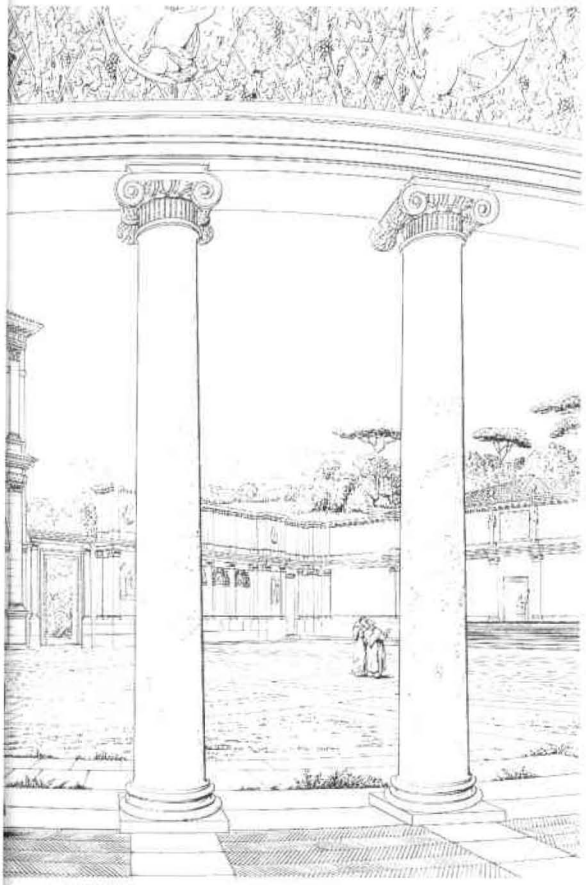
The horizontal and vertical articulation of Villa Giulia.



Elevation. (P. van der Ree, 1992)

two enormous statues of river gods were placed in niches, and four plane trees were planted around the open centre. On the highest level the inner walls were painted with landscape scenes, and the screen was broken open twice above the niches towards the sky; behind these openings birdcages were placed. Eventually the vegetation of the surrounding landscape became visible above the walls. In this villa the panorama was controlled as far as the horizon, not from above but from below.

View from the portico with the slope of the valley in the background. (Paul Marie Letarouilly, 1853)



Two small staircases, again hidden from view, connect the nymphaeum and the section at the extreme rear. These finally emerged next to the birdcages and were covered by small towers, whose shapes referred to the planned (but never executed) domes above the staircases of the main building. In the rearmost section the axis is terminated by a niche in the end wall, and it was only here, that the full width of the plan was properly visible and emphasised. Movement was directed towards the sides, where there were several features along the boundary, including an ice cellar at the south side.

The ridge of hills was also accessible from here by means of various paths that were embellished with statues or specific plantings. In the wooded *barchetto* several arbours, birdcages and loggias marked the viewpoints from which one could see not only the villa itself in the valley below, but also the Vatican Palace, Castel Sant' Angelo and Villa Madama. These features were integrated into the villa's plan in order to compensate for its deficiency: that it could not afford a view of Rome.

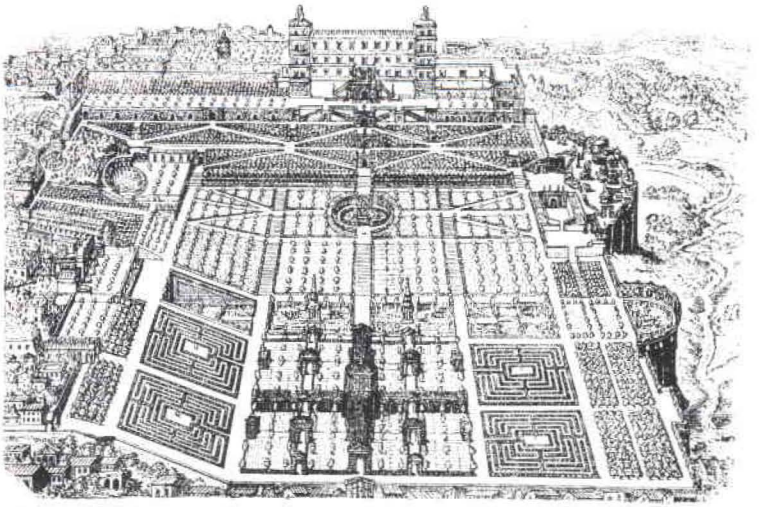
The building of the villa was interrupted after the death of Julius III in 1555. Some years later a number of changes were carried out by Pius IV, probably under the direction of Pirro Ligorio. The casino near the fountain on the corner of the Via Flaminia is also ascribed to him. Towards the end of the 18th century, however, during the restoration work carried out for Pius VI, some changes were made that seriously affected the nymphaeum; at its rear, for example, a loggia was added and the birdcages and the small staircase towers were bricked up. The villa also suffered greatly during the 19th and 20th centuries from its constantly changing functions and from extensive changes to its urban setting: the wings added to the museum and the busy road around it now obscure the actual relationship between the villa and the landscape. The ingenious system of horizontal and vertical vistas that made it possible in this villa to unfold the panorama from the valley, is now limited to the interior of the theatre garden.

Villa D'Este

In 1550 Ippolito d'Este II (1509-72), cardinal of Ferrara, also a patron of the arts and a keen collector of antiques, was appointed governor of Tivoli, 30 kilometres north-east of Rome, by Pope Julius III. His residence there was a 13th-century Franciscan monastery situated on a hillside. It was built on the western wall of the city, between the Porta Santa Crucis and the Porta Romana, where the terrain descends in a north-westerly direction to the Valle Gaudente. Because of its fresh air, Tivoli had been a favoured resort for well-to-do Romans since ancient times. Nearby are the ruins of villas such as Hadriana, and those of Quintilius and Varro. With these examples in mind, Cardinal d'Este bought up gardens and vineyards on the hillside, with the idea of transforming the whole area into a villa complex.

The introverted character of the original monastery complex can still be felt in the *giardino segreto*, the former cloister garden with its modest layout and restricted views of the outside world. In the developments which followed, the complex was expanded and became more extraverted. Ippolito's wish was to surpass the achievements of his rival, Cardinal Farnese, at Caprarola. Just as at the Villa Farnese at Caprarola, the Villa d'Este also contained an additional element: close to the small village of Bagni di Tivoli a *barco* (hunting grounds) was laid out in which an elaborate hunting lodge was constructed. Ippolito was advised on the villa's design by the archaeologist and architect Pirro Ligorio, who had studied the ruins of Villa Hadriana and had assisted him with his archaeological purchases and excavations.

Around 1565 the sloping site was excavated and filled in to allow for terraces, with the city wall acting as a retaining wall. At the same time, an aqueduct from Monte Sant' Angelo and an underground canal from the River Anio were constructed



Villa D'Este, Tivoli. (Etienne du Pérac, 1573)

to ensure a constant water supply of 1,200 litres a second. The terraced gardens were laid out during the next seven years. The addition of a double loggia on the garden side gave the monastery the appearance of a country residence. Several years later a dining loggia was built at the south-west point of the upper terrace.

After Ippolito's death the villa passed into the hands of his cousin Luigi. For most of the 17th century the villa remained the property of the Este family and the garden was well-maintained. During this period Bernini designed the Bicchierione (shell) Fountain and the waterfall between the water organ and fishponds. During the 18th century the villa deteriorated and was put up for sale in 1743. In 1750 the antique statues began to be sold off, which explains why, by 1803, when the male line of the Este family died out and the complex came into Habsburg hands through Maria Beatrice d'Este, archduchess of Austria, almost all of these had been removed

from the building and garden. Today some of them can still be seen at the Museo Capitolino in Rome.

The villa continued to be neglected until 1850, when a German cardinal, Gustav Adolf von Hohenlohe, was allowed to live in the villa under the condition that he maintain it. After the death of von Hohenlohe in 1896 the House of Habsburg again became responsible for the villa. After the First World War the Villa d'Este became the property of the Italian state. Although the garden has remained for the most part intact, most of the hedges, as well as the statues, have disappeared, the pergolas have been demolished, the fountains are overgrown with moss and ferns, and the cypresses have grown tall. Nature, freed from its restraints, has given the garden a romantic 'patina'. Currently the garden is being carefully maintained and the whole water system has recently been restored.

Villeggiatura in the Roman Campagna

The 15th and 16th-century *villeggiatura* in the Roman Campagna was mainly concentrated in two areas. A great number of villas are situated in the neighbourhood of Lago Albano, south-east of Rome, and another conspicuous group of villas is found in the neighbourhood of Lago di Vico, near Viterbo, north-west of the city.

There were two distinct motives which determined the choice of these locations. The first group of villas are situated close to the ruins of classical Roman villas. From the beginning of the Christian era this rural area had been a favourite location for the villeggiatura of the affluent nobility. Between 118 and 138 AD Emperor Hadrian built his Villa Hadriana some 25 kilometres east of Rome. The remains of this gigantic villa complex at Tivoli were to inspire many Renaissance architects. During the same period the small town of Frascati, close to the remains of classical Tusculum in the Alban Hills, became the most fashionable location for the summer residences of the high-ranking members of the ecclesiastical hierarchy.

The location of the second group of villas, near Viterbo, was determined by earlier medieval history. During the Middle Ages ecclesiastical dignitaries escaped the internal conflicts in Rome by taking refuge in the Roman Campagna. In many cases a complete removal of entire residences to a safer region occurred: Viterbo, for example, functioned as the centre of papal power from 1266 to 1281. Moreover, during the 13th century the phenomenon of papal summer residences grew. A number of towns, including Viterbo, Orvieto and Anagni, became the regular abodes of travelling prelates. Their stay was determined by the religious calendar and the weather. As far as the accommodation itself was concerned, the existing facilities, local monasteries, episcopal palaces and castles were mostly adequate.

It was only in the second half of the 15th century, at the beginning of the Renaissance, that political stability in the Roman countryside allowed a greater degree of openness towards the landscape. Many of the country residences were decorated, enlarged and, in many cases, laid out with extensive gardens, and thus transformed into villas.

Bosco, barco, barchetto

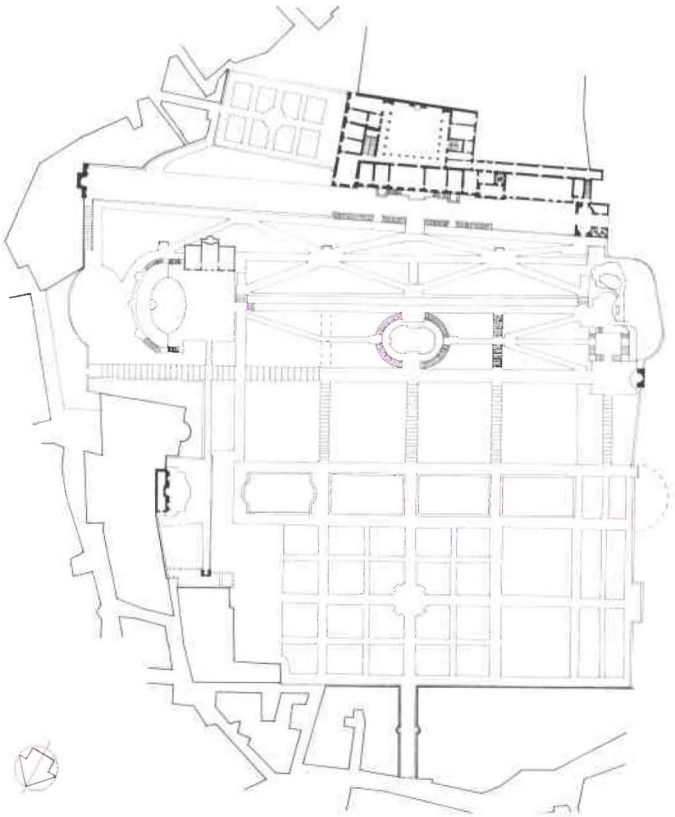
In Mannerist villa designs in and around Rome during the second half of the 16th century, it was not only axiality which evolved into an independent and essential part of the garden, but also the *bosco*, which served to represent untamed nature and which, in its labyrinthine organisation, provided a contrast to the linearity of previous designs. The *bosco* increased in size and significance in relation to the garden. In many cases a piece of natural landscape of considerable size, frequently a former hunting ground (*barco*), was integrated into the design in a slightly formalised manner. The resulting *barchetto* was a wooded garden park which incorporated specific functions. One of these was a casino, a small building used for recreational purposes such as open-air banquets, which was located in the middle of the 'natural' landscape. The earliest examples include the casino for Pius IV (1560) by Ligorio, next to the Cortile del Belvedere in Rome, and the Casino Farnese at Caprarola by del Duca (1586).

The paradise garden

The original approach to Villa d'Este was from below, from the north-west, along the street leading to the Porta Romana. In this street there was an entrance gate on the main axis of the villa. Flanked by fountains and high walls the visitor proceeded to the lower garden terrace and to a cruciform pergola from which the villa could not be seen. At the sides of the lower terrace were four labyrinths. Where the two pergolas in the centre of the terrace used to intersect, a roundel of cypresses was later planted, and from here the villa is now displayed in all its magnificence. Since the slope is now hidden behind high cypresses and pines, the building when seen from the reflecting fishponds seems to be symmetric, with its central part composed of an impressive series of vertical porticoes. The porticoes on the series of garden terraces form, in perspective, a single unity with the double loggia of the building.

Rome and environs: the siting and height of the villas in the 16th and 17th century. The altitudes are given in metres. (After the *Carta d'Italia*, Instituto Geografico Militare)

K M. Mario
L S. Pietro
M Frascati
N Grottaferrata
O Rocca di Papa
P Lago Albano
Q Albano
R Castel Gandolfo
S Lago di Nemi
T Tivoli



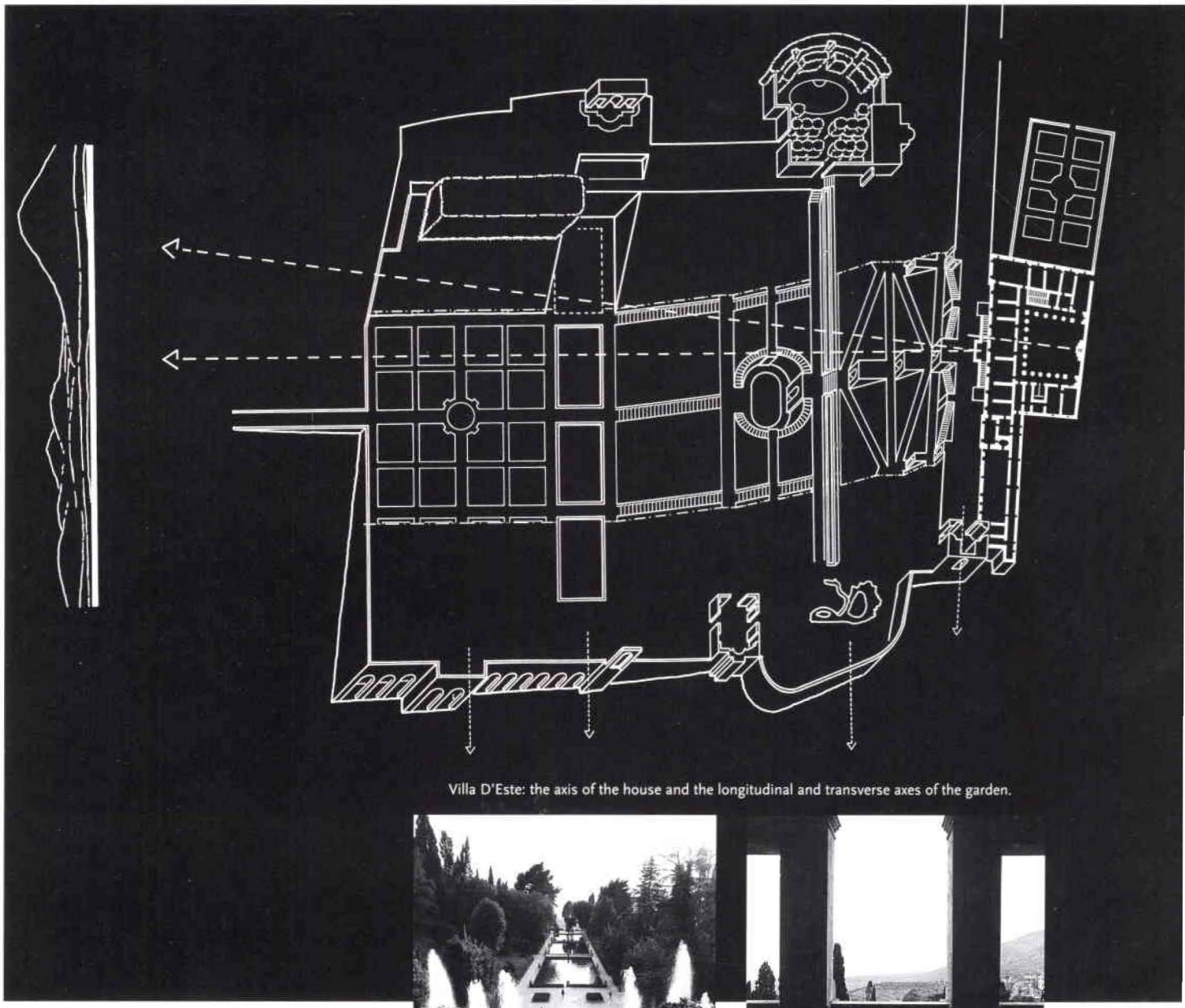
Ground plan.

It also seems as if the path to the house continues along the main axis. On the second terrace, at the Fountain of the Dragon, it is impossible to continue along the axis, however, and the visitor has to take the circular steps around the fountain. These lead to a third terrace, the Avenue of the Hundred Fountains. There the visitor loses sight of the building and must walk along the terrace and diagonal ramps in order to return to the main axis. The main axis is discovered, as if by accident, at the Fountain of Pandora, and you can then proceed via a flight of steps to the fourth level, the terrace in front of the house. The small angle between the garden and the

Villa Hadriana, Tivoli. (Aerial photo P. van Bolhuis/Pandion)

Villa D'Este. The Oval Fountain with the water theatre and the Grotto of Venus.

Villa D'Este. The Avenue of the Hundred Fountains.



Villa D'Este: the axis of the house and the longitudinal and transverse axes of the garden.

house is absorbed invisibly in the *bosco* with the ramps.

Due to the manipulation of visual impressions and the enforced detour in its approach, the villa, which when seen from the lowest level appeared to be a comprehensible axial scheme, is gradually revealed as a confusing and mysterious complex.

Today entrance to the garden is via the former monastery courtyard at the centre of the building on top of the hill. The plan of the house is detached from the axiality of the grounds. To reach the terrace at the foot of the building, the visitor must walk in a south-westerly direction through a succession of rooms and, at the end, descend two floors by means of a spiral staircase. This comes out at an indeterminate point on the terrace, where there is hardly any incentive to enter the main axis. The building and the central axis are linked by the loggia on the *piano nobile*, which is attached asymmetrically to the central salon.

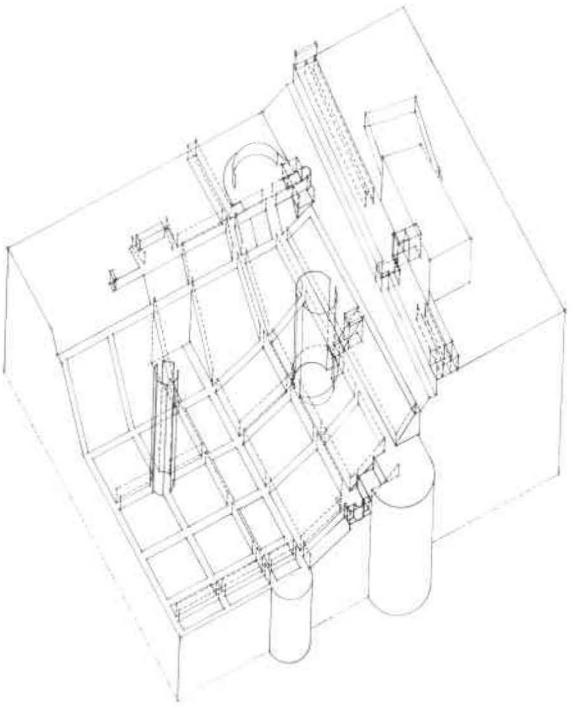
The appearance of the garden axis from the balcony comes as a surprise. Because of the steep slope, this main axis, which

seems so dominant when viewed from the garden below, is only of subordinate importance in the total concept. The garden as a whole is no more than a foreground to a much broader panorama. Moreover, the axis is not placed exactly at right angles to the garden elevation but points, at a slight angle, towards one of the Sabine hilltops on the horizon. In this way the villa is related to the enormous space of the landscape by a single wide gesture over the garden.

The natural slope in the transverse direction of the terrain is formalised throughout the whole garden. It is used to relate the garden and its constituent parts to the outer-lying landscape. On the highest terrace this relationship is architecturally defined by the portico of the dining loggia at the south-west end. This frames the panorama of the landscape near Rome, which can be seen in the distance on a clear day.

The Avenue of the Hundred Fountains forms a second important transverse axis. It is terminated on the Tivoli side by the Oval Fountain with the water theatre and Grotto of Venus. On the city-wall side it is terminated by the Fountain of the Owl and the Rometta, a miniature version of Rome. A third important transverse axis is formed by the series of fish-ponds. Originally these were fed from the cascade of the water organ. The water organ dates from 1568 and its construction was inspired by antique descriptions by Vitruvius and Hero of Alexandria. Its effects are based on water flowing through hollow pipes so that air is forced out of them. The registers are also operated by a water-driven mechanism. The water would have disappeared into a lake outside the city wall by way of the Fountain of Neptune.

Within the garden visual contact with the landscape is not so much brought about via the main axis, which when seen from the garden is closed off, but by means of the transverse axes. These divert attention away from the small town of Tivoli towards Rome. Both edges of the garden are elaborately treated, forming two independent series of attractions. The composition scheme is based on a grid, the middle section of which along the main axis is symmetric, while along the edges the composition is adapted to the situation. The fish ponds mark the horizontal area vis-à-vis the sloping part of the layout. The playful effect was enhanced by the extremely complex use of water elements, such as a waterfall, a curtain of water with rainbows, jets, reflecting surfaces, and the use of water-driven automata and *giochi d'aqua*. The water organ produced the sound of trumpets, the Fountain of the Dragon caused gun and musket shots to ring out, while in the Fountain of the Owl bronze birds twittered until an owl suddenly appeared and began to hoot mournfully.



Composition scheme.

Thus separated from daily reality, visitors could imagine themselves to be in an unearthly paradise and this, in fact, was probably Cardinal d'Este's intention. His coat of arms showed a white eagle with the three golden apples of the Hesperides. The Villa d'Este is an allegorical representation of the Garden of the Hesperides, which, itself, is a mythical interpretation of earthly paradise. Hercules had to perform one of his heroic deeds in this garden: the retrieval of the three golden apples. Visitors can experience Hercules's struggle for the three divine virtues themselves, since the cardinal also expressed moral contradiction in the transverse direction of the garden. Thus the Grotto of Venus (Voluptas) at the Oval Fountain forms the counterpart of the Grotto of Diana (Virtus) below the dining loggia. The passage from Venus to Diana and vice versa is accompanied by a hundred stucco reliefs depicting the *Metamorphoses* of Ovid in the Avenue of the Hundred Fountains. From the side, the scene of the battle is surveyed by the winged Pegasus, high over the Pegasus Fountain (above the Oval Fountain) on the hill of Tivoli, making ready to ascend Mount Parnassus.

This relationship between pagan myth and Christian philosophy completes Cardinal Ippolito d'Este's programme of ambiguously linking the exuberance of the villa ideal with the restraint of a monastery.

Villa Aldobrandini

Around 1560 Pietro Antonio Contigi had a small villa laid out in Frascati, about 15 kilometres south-west of Rome. This was subsequently bought by Pope Clement VIII, who in 1598 gave the villa to his nephew Cardinal Pietro Aldobrandini in gratitude for his part in the recapture of Ferrara. In 1683 the villa passed into the hands of the Pamphili family and later came into the possession of the Borghese family.

After the final land purchases had been carried out, the building of the house started in 1598, in accordance with the designs of Giacomo della Porta. Papal revenues had increased so much as a result of the annexation of Ferrara that the costs of building the villa could satisfactorily be met. Della Porta died while the villa was still under construction and Carlo Maderno and Giovanni Fontana, who were also responsible for the construction of the cascade and water theatre, took over supervision of the work. Maderno designed the cascade and water theatre, while Fontana, aided by Oratio Olivieri, was responsible for the engineering. Fontana was a famous aquatic artist, having made his name at the Villa d'Este, and it was he who designed the hydraulic effects. The water was brought from a spring on Monte Algido. Fontana performed the engineering work that was necessary to transport the water over a distance of more than ten kilometres to the reservoir that lay high above the villa.

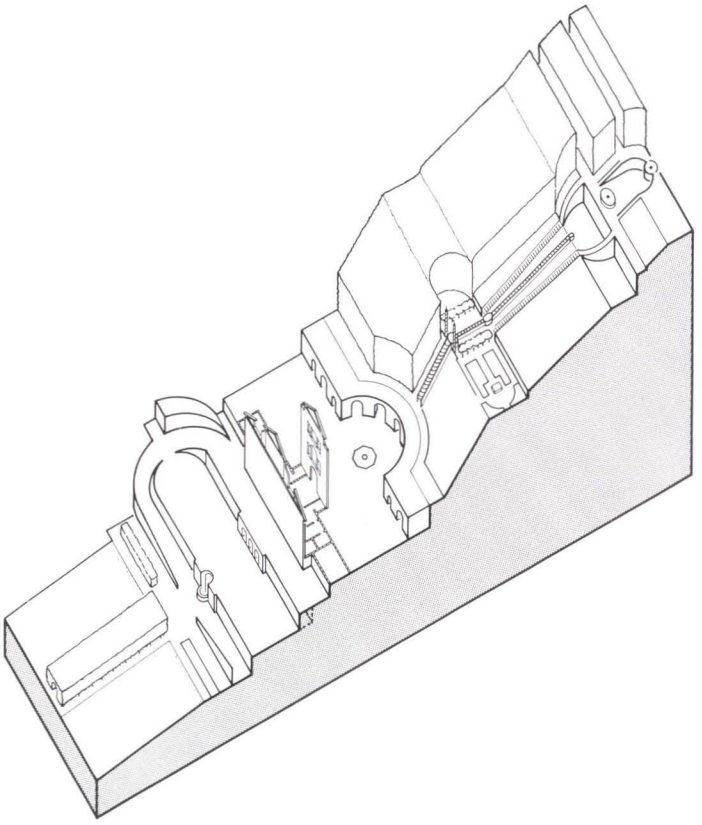
Villa Aldobrandini was embellished with a richness exceptional in those days. The walls of the drawing room, situated in the centre of the main block on the *piano nobile*, are covered with large tapestries and the ceiling is adorned with frescoes ascribed to Zuccari. The southernmost hall on this floor is decorated with Chinese wallpaper and the ceiling was originally painted with scenes from the Old Testament. The most important paintings, however, were in the two small buildings next to the water theatre. In one of them, a chapel dedicated to St. Sebastian, the frescoes were painted by Domenico da Passignano. These were so badly damaged by damp, however, that they were removed and now hang in London's National Gallery. In the other, the Stanza dei Venti, a garden room with an artificial hill and sensational aquatic effects was created.

Front view.

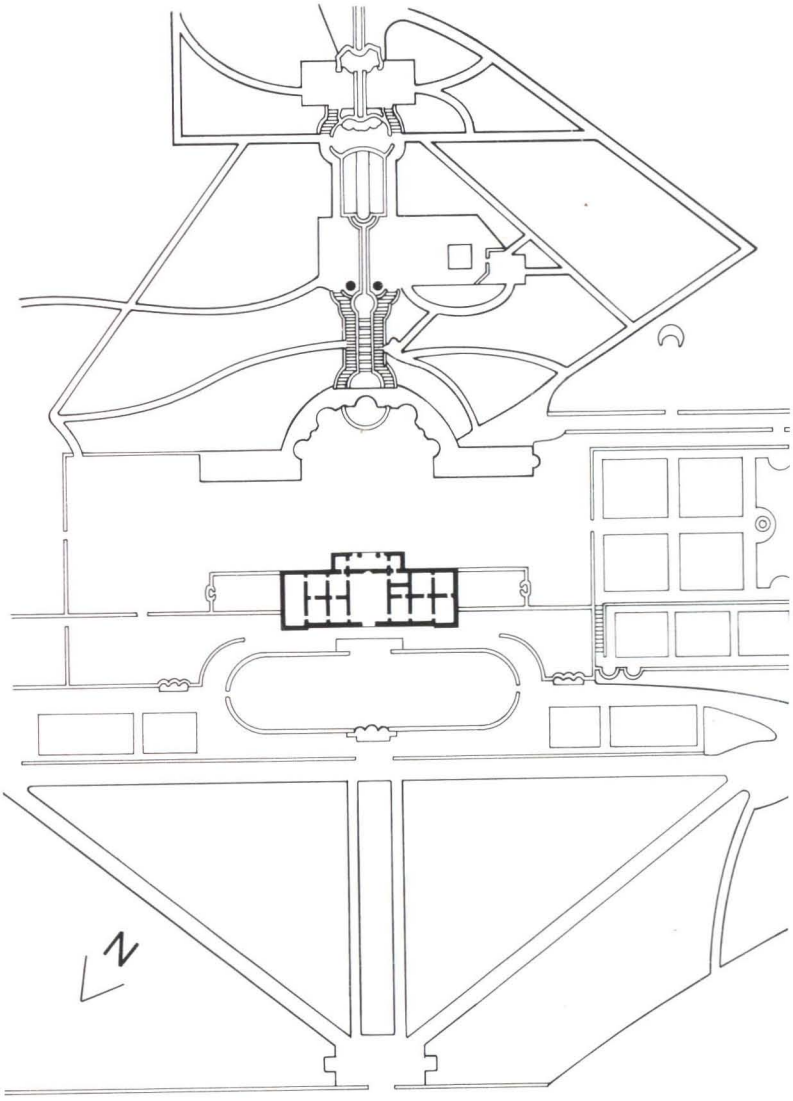
The villa was heavily damaged during the Second World War. Large-scale restoration took place between 1950 and 1960. The villa is presently the residence of Princess Aldobrandini.

Frascati

Villa Aldobrandini belongs to the group of villas draped against the hills around the village of Frascati, situated about 20 kilometres south-east of Rome. Many villas were concentrated in this location, then called Tusculum, even at the time of the Roman emperors. Cato, Lucullus and Cicero all had



Axonometric cross section of the villa against the hill slope.



Ground plan.

their country seats there. The village was destroyed in the Middle Ages and its classical villas laid to ruin. After the election of Alessandro Farnese as Pope Paul III (1534-49) and the establishment of his country retreat in Frascati, there was renewed interest in the area, particularly among the Roman prelates. Between around 1548 and 1598 many cardinals built relatively modest villas there. In a second period of building between 1598 and 1650, associated with the Counter-Reformation which followed the Council of Trent, owners competed with each other in the embellishment and extension of their villas.

Initially, the main point of staying in the countryside had been to enjoy nature; now it came to be seen as a struggle to achieve the perfect Arcadia as a reconfirmation of that religious and secular power which had been questioned by the forces of reformation. The pursuit of this Arcadian ideal was practically executed in a variety of ways.

The stage management and architectural treatment were determined to a large, if not dominating, degree by the need to publicly display the restored social and cultural power of the church. The early type of Tuscan villa, in which the interaction between villa and landscape took place in the garden, was thus adapted to a new function. A type of villa was created in which the situation of the complex against the hills, the

Frascati, villas.

1 Aldobrandini
2 Belpoggio
3 Borghese
4 Falconieri
5 Grazioli
6 Lancelotti
7 Mondragone
8 Muti
9 Torlonia
10 Vecchioa

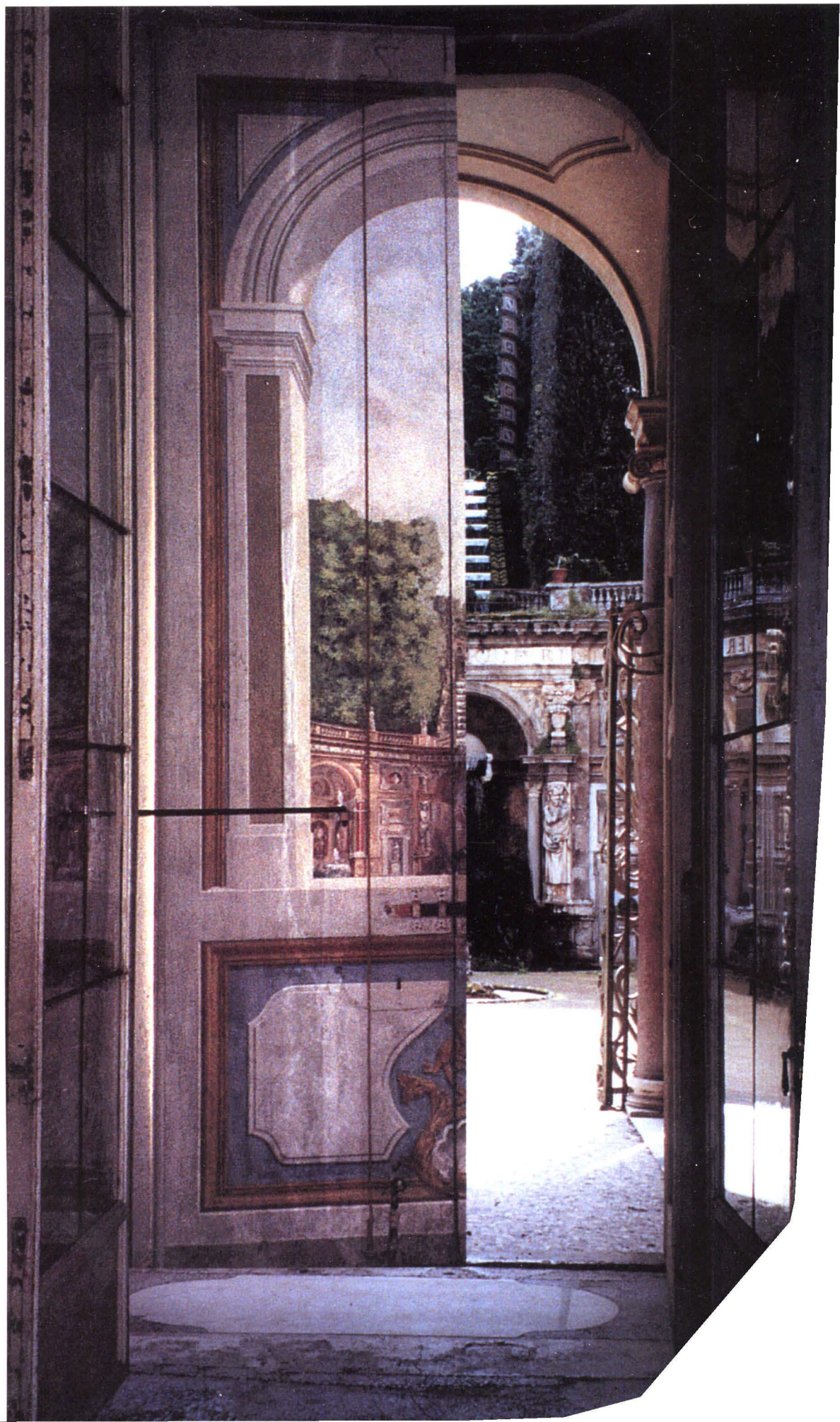
position of the house on the terraces, and the design of the façades were given monumental significance. The garden at the rear was a subordinate private area, while the ceremonial aspect of the house was defined in the execution of its façades and the laying out of the front terraces.

Frascati is situated some 300 metres above the level of the River Tiber. The land slopes away to the north-west, where Rome is visible on the horizon. To the south-east the slope increases steeply, climbing over several kilometres to a height of 670 metres. From the slope the villas have a panoramic view of the sunlit Roman Campagna with the dark forest set against the hills. In general the Frascati villa embraces the difference in height between the north and south sides. The shadowed, flat north façade has a balcony or loggia. Opposite the sunlit south façade the slope of the hill is intercepted by a retaining wall with a nymphaeum. Here, opposite the entrance to the villa, the water which runs off the hills is collected. In a number of places the forestation has been cut back to give a better view. The layout of the villas, as they looked after the extensions and embellishments of the first half of the 17th century, begins to reveal the competing organisational elements: the terrace and the axis.

The terrace is a geometric surface and is used as an architectural foreground, balancing on the edge of the panorama,

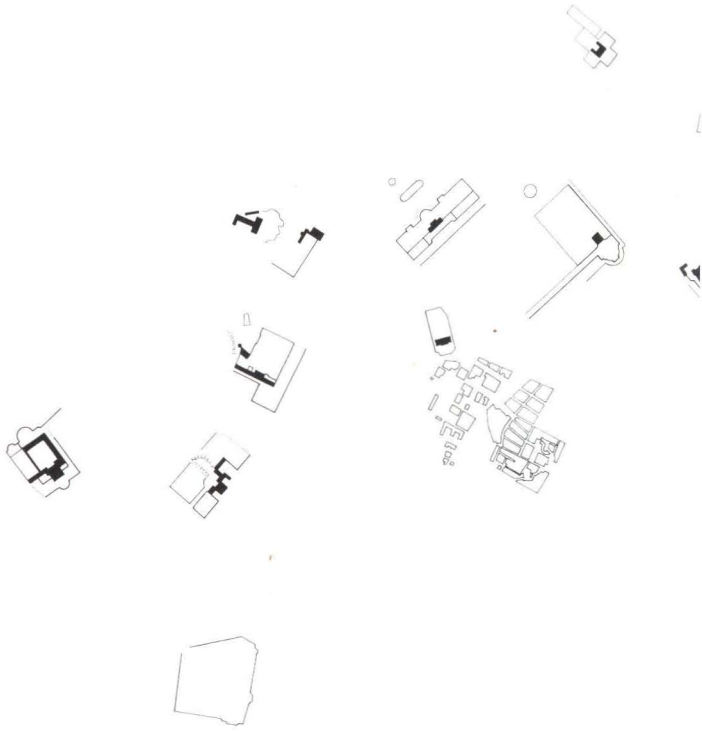
PAGE 96, TOP The wooded hills as shared background for the Frascati villas.
(Aerial photo P. van Bolhuis/Pandion)

PAGE 96, BOTTOM The view of Rome on the horizon as shared panorama from the Frascati villas.
(Aerial photo P. van Bolhuis/Pandion)



View from the house to the water theatre.
Note the door.

The Mouth of Hell, Villa Aldobrandini.



Frascati, villas and terraces.

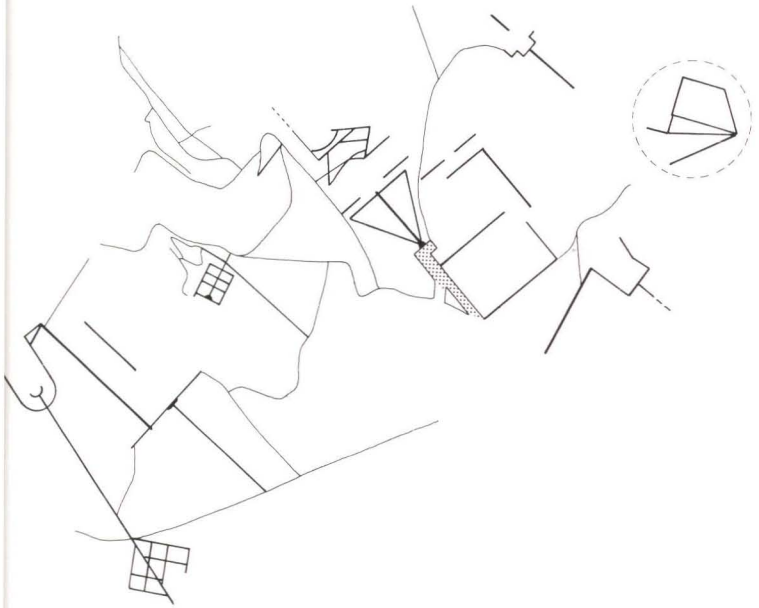
forming an open space and wedding it to the villa. In particular, those villas on the ridges which protrude from the slope and which have a panorama of at least half of the horizon (180 degrees) form a single terrace (e.g. the Mondragone and Aldobrandini villas). Seen from below, the striking proportions of the villa façades form a monumental unity with the terrace walls.

The improved presentation of each of the Frascati villas was augmented by an avenue leading in a totally straight line up the slope. At the end of this line the villa and terrace are arranged symmetrically. When approaching a villa, the driveway ensures a frontal, ceremonial approach to the complex. An interesting detail, supplied by Carlludwig Franck's typological study (1956), is that the avenue ends at the point where the treetops are just below the level of the terrace. Because of this, one looks over the avenue from the terrace. The actual entrance to the villa is not at the front however. The visitor is led around the terrace to the rear of the house and the *piano nobile*. This entrance is usually linked to a more accessible route running parallel to the slope of the hill. The longest axis, at the Villa Mondragone, is 700 metres long.

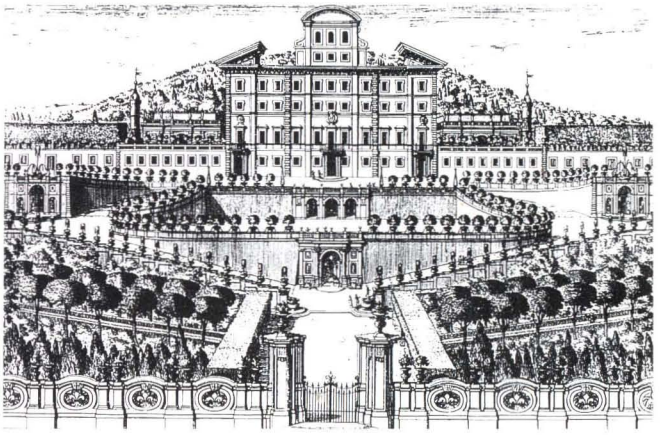
Even though the avenues remain in the foreground and one can look out over them, their layout outside the actual territory of the garden and their placement in the panorama indicate that this is no longer an open space in all directions. The panorama itself has been ordered and given visual direction. In the link between foreground and background the house appears as a set piece against the dark, forested slope. The regular spacing of the individual villas is striking. The axes of symmetry run down the slope virtually parallel to each other into the distance. This arrangement makes it clear that mutual visibility and views of the town of Frascati are of less importance here. These axes have no formal termination, but a virtual one: their reference point is the point on the horizon where the city of Rome stands.

In this orientation towards the panorama all the villas are similar and therefore no longer have different points of view. Unlike Florence or Rome there is no periphery affording changing panoramic views. There is actually only one view and one direction from which to look out over the panorama. In this monothematic concept of space the garden has lost its role as the focus of the stage management. In the Frascati villas the garden has been relegated to the rear, between the house and the slope, and is therefore much more of a component in the confrontation between the monumental and ceremonial side of the complex and the walled and private part of the garden.

Within the typology of the Frascati villa, as advanced by Franck, the axial connection of the villa's elements places the *bosco* against the slope. It unites with the hill to create a com-



Frascati, axes and routes



Villa Aldobrandini. (Alessandro Specchi, 1699)

mon background and binding element in the monumental stage management. Despite competing with each other in terms of the wealth they display, the separate villas hereby preserve their mutual affinity. The Frascati villa evolved within this spatial framework and Villa Aldobrandini is its most refined example.

A baroque decor

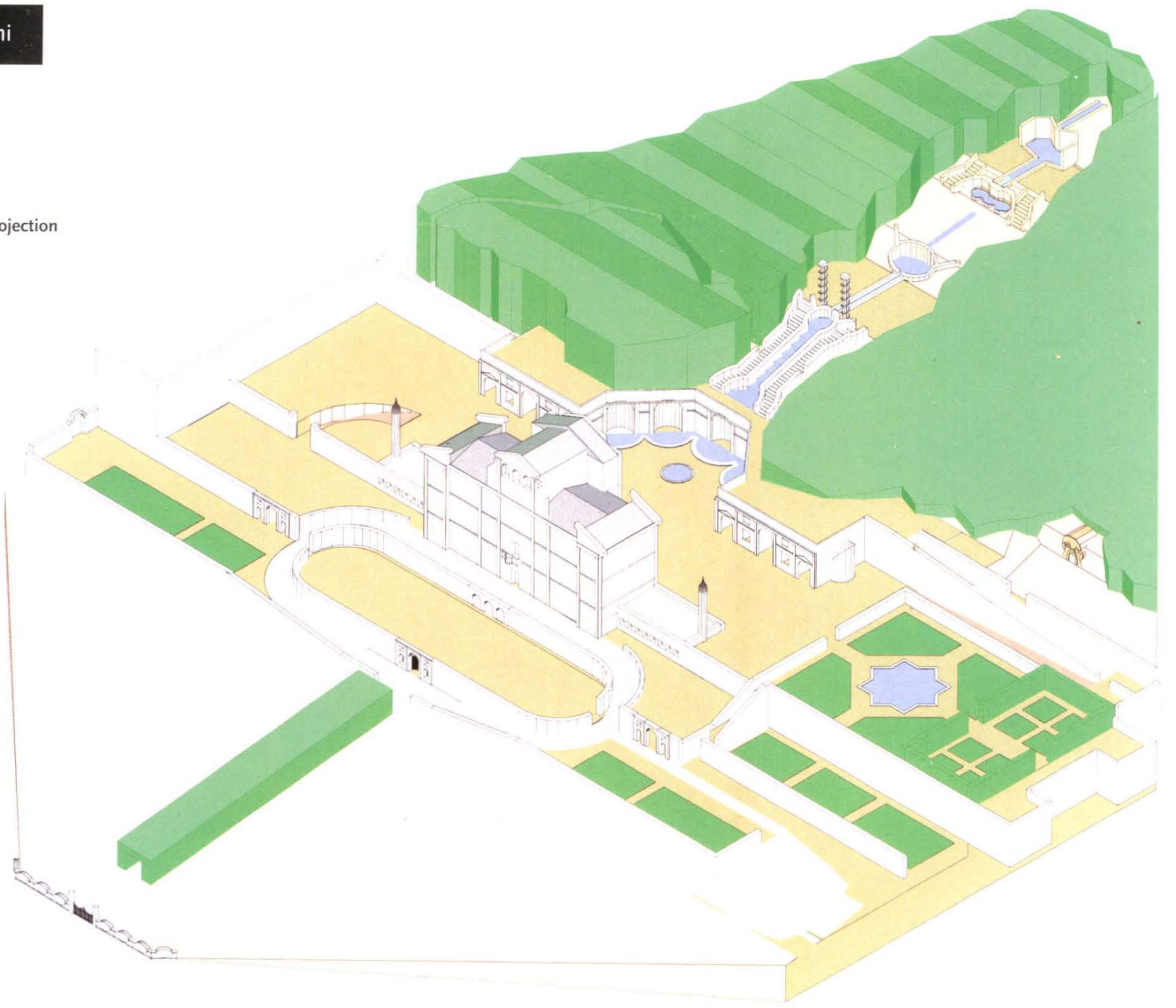
In the layout of Villa Aldobrandini the front and the rear of the building are entirely independent of each other. The building itself acts as a screen between the two, separating culture from nature. The urban front is controlled by means of the view and is itself dominated by the monumental façade of the house. Partly hidden behind the house is the wild overgrown *bosco*, only accessible to the owner and his guests. Engravings by Dom Barrière, Falda and Specchi clearly show how the building protrudes from the hill and how the slope behind the interrupted tympanum continues into the projection of the roof. To the front of the house is a bare slope with the approach avenue symmetrically situated on the axis.

This avenue, flanked by clipped trees (now grown together to form a tunnel), directs the view towards the building, giving the house its monumental backcloth-like significance with regard to the village. The entrance was originally marked by the intersection of two avenues forming two sides of a triangle and their bisector, formed by the main axis. The growth of the village and the construction of a garden wall and entrance gate, designed by Carlo Bizzaccheri, destroyed this triangular configuration.

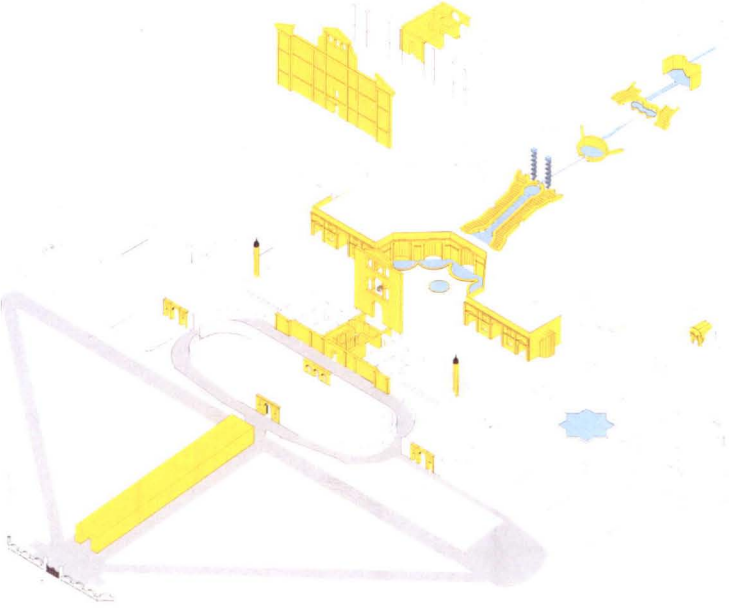
The entrance avenue leads to a niche in the lowest retaining wall of the two-storey front terrace, the lower level of which was a hippodrome. Because of the interrupted tympanum and the recesses in the basement, the foreground and background, the architectonic façade and the rustic decor come together. There is an unexpected combination of images at the highest point of the avenue: the niche and the upper part of the building are visually linked by perspective. This carefully constructed image disintegrates as soon as the axial approach is departed from and one moves towards the sides.

From the highest level of the front terrace there is no direct passage to the terrace at the rear, which is connected to the house one floor higher on the *piano nobile*. In spite of the pronounced axial structure, movement is interrupted for the second time. At the east side of the villa there is a domestic entrance from a narrow side road, which leads straight up the hill. Two *boschi* of plane trees lying on the transverse axes unite the front and rear in a simple manner. The west side terrace, which runs to the edge of the hillside, offers a view of the villas Torlonia, Grazioli, Muti and Belpoggio. On the rear terrace, opposite the south façade of the house, is the spectac-

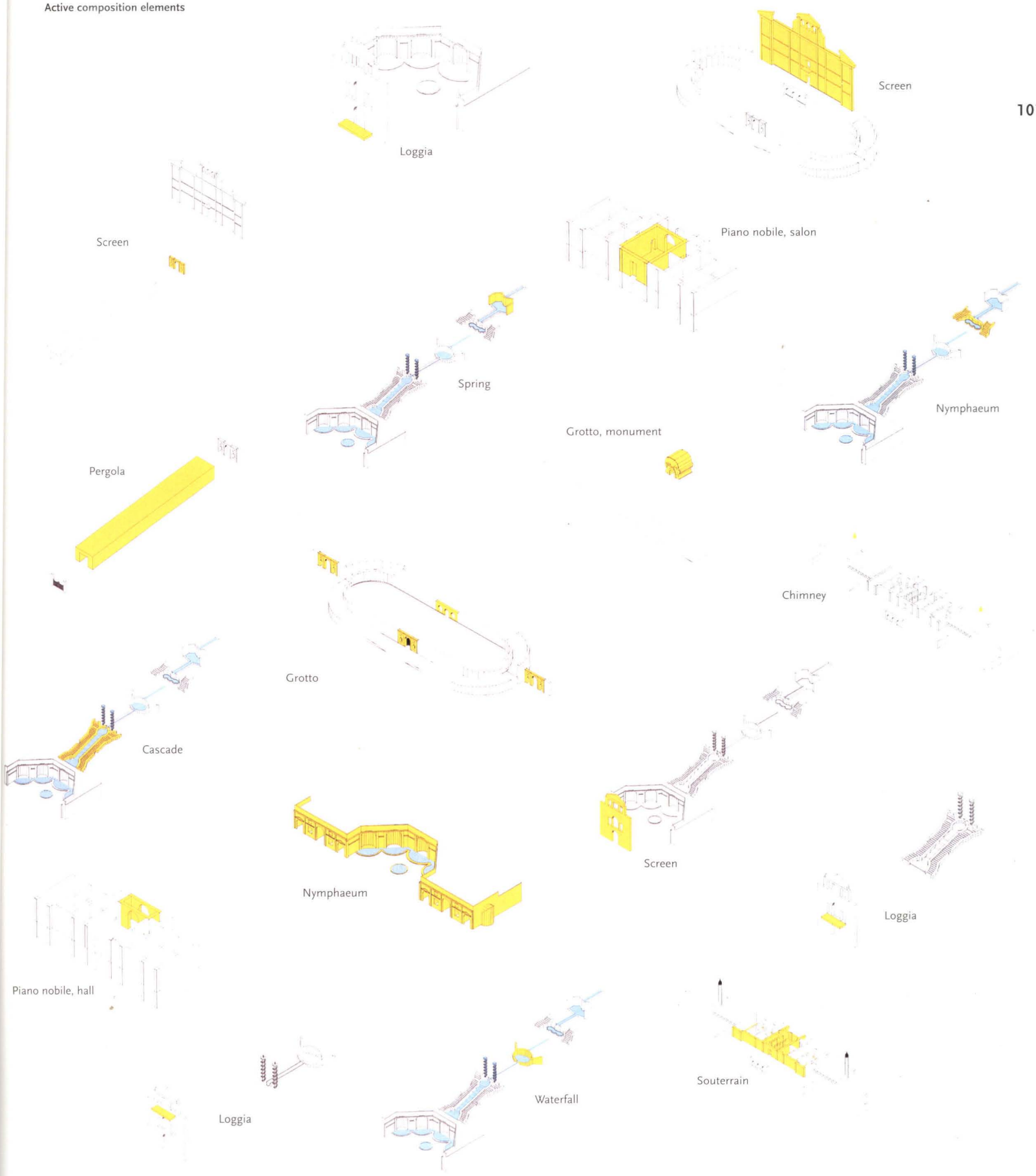
Axonometric projection

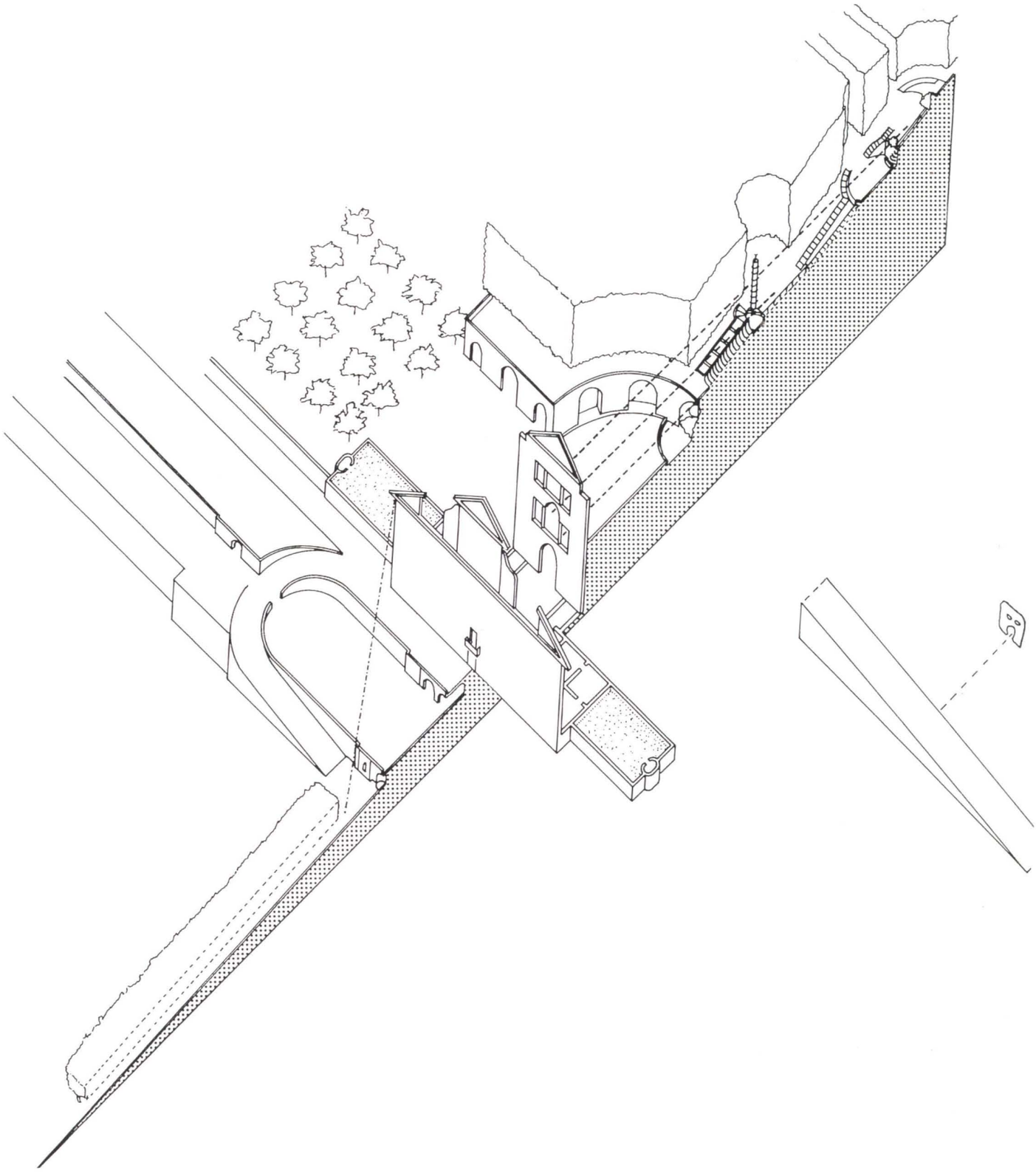


Composition scheme



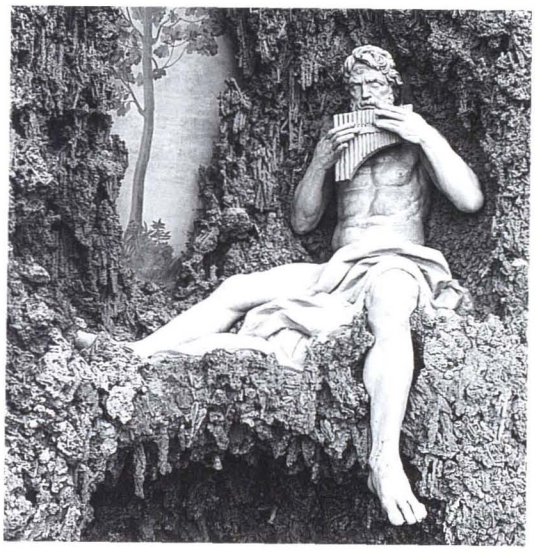
Active composition elements

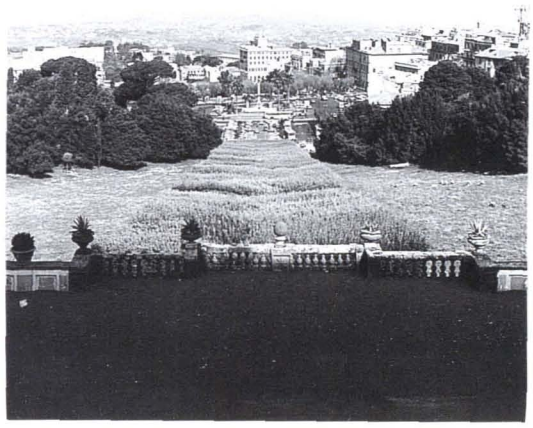




Villa Aldobrandini as architectonic screen. (P. van der Ree, 1992)

Cascade, water columns and rear façade with loggias. Nymphaeum with Pan. Panorama from the front terrace.





ular semicircular water theatre. At the centre of the five niches Atlas shoulders the globe and is submerged in a curtain of water. Only a glimpse of the garden above the nymphaeum can be seen from the terrace. This *bosco*-like garden is connected by means of a ramp on the western side terrace, which again deflects movement sideways, away from the axiality of the villa. (Next to this ramp, hidden in the woods, is a giant head similar to those in the Sacro Bosco at Bomarzo.) The sequence of fountains, cascades and grottoes on the main axis and the two flanking columns are connected to the different levels of the house. The central part of the south façade, which projects slightly, consists of stacked loggias, from which a constantly changing perspective of the water attractions can be seen. Only from the highest loggia can the garden be viewed as a whole. Here, too, the visitor is on the same level as the eternal spring, from which the water flows down the slope, and is in communication with primeval nature. The upper cascade is shaped so as to counteract perspective. It seems to be projected onto a screen between the two water columns and is thus perceived from the house as a flat plane.

The water axis begins at the Fontana Rustica, an imitation of a natural spring with waterfall. The architectonic forms are dissolved in natural rock formations. The water flows from it into the Fontana dei Pastori, a waterfall set between two niches containing figures of shepherds. Through cascades the water then runs down to a basin flanked by two high pillars wound with garlands (the Pillars of Hercules). Water jets shoot from the capitals of the columns, and the water runs and splashes down along the spirals of the column shafts. Finally, the water is carried to the water theatre by a cascade.

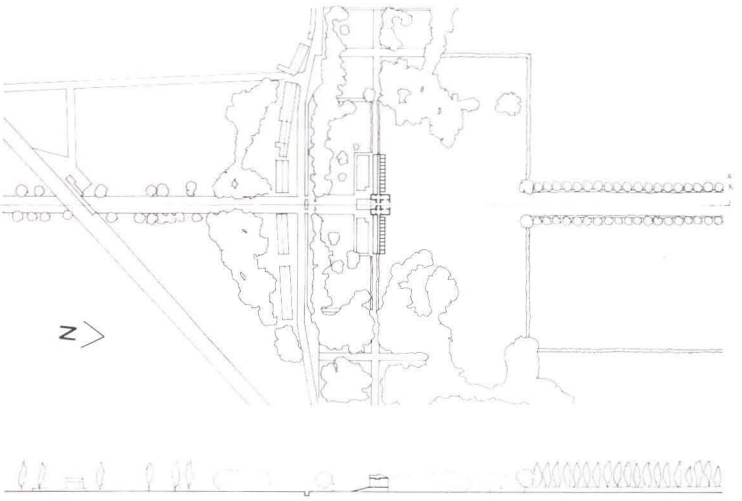
Looking in the opposite direction from the slope, the villa is seen through constantly changing frames. Only the central part with the loggias is visible, as a set piece between the two columnar fountains. The villa seems to control every part of the slope. At the level of the spring, where the horizon of the Roman landscape becomes visible above the house, the contrast between culture and nature is effaced. Even here we are being deceived. The loggias and the eaves are treated in such a way as to play tricks with perspective. Humankind is creating its own mathematical ordering of the world. Rationality is no longer confirmed but challenged in the Aldobrandini perspectives.

Villa Emo

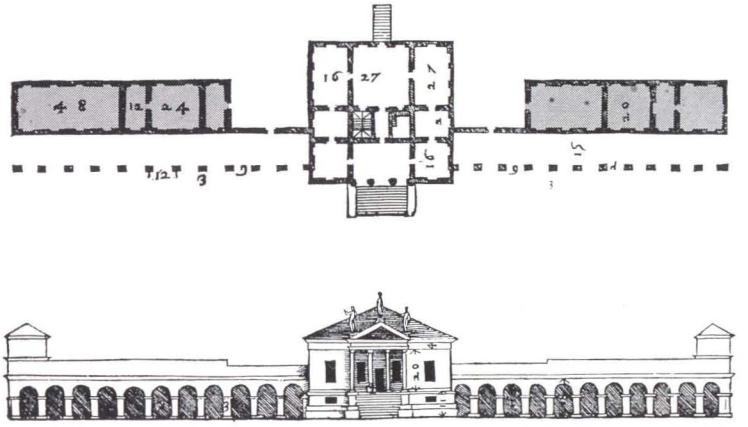
Villa Emo lies on the plains of the Po in Fanzolo, between Bassano and Treviso. In 1539 Leonardo Emo di Alvise inherited a part of his uncle's property in Fanzolo, an estate of about 400 *campi trevigiani* (more than 200 hectares). This land had been obtained by the family as a result of their land redevelopment work in the Po plains. Leonardo was seven years old at the time, but the plans to build a villa in the centre of the estate were already far advanced. The architect Andrea Palladio (1508-80) was commissioned to realise the plans. The building was finished in 1556. The frescoes in the interior of the hall, the loggia and four adjacent rooms were completed between 1560 and 1565 by Giambattista Zelotti. A mixture of heroic Roman deeds, pagan legends and scenes from Christian history were depicted between Corinthian columns painted in perspective. The restrained character of these frescoes certainly reflected the desires of Palladio himself, who did not wish to see architecture dominated by decoration. His description of the villa in the *Quattro libri dell' architettura* (1570) is fairly concise.

The plaster relief in the tympanum of the façade with the arms of the Emo family is by Alessandro Vittoria. The building was restored in 1744; the side wings that until then had served as work space were altered into living accommodations. A family chapel was built near the west wing, and two openings in the arcades on either side of the main building were closed up, so that the view of the fields was lost.

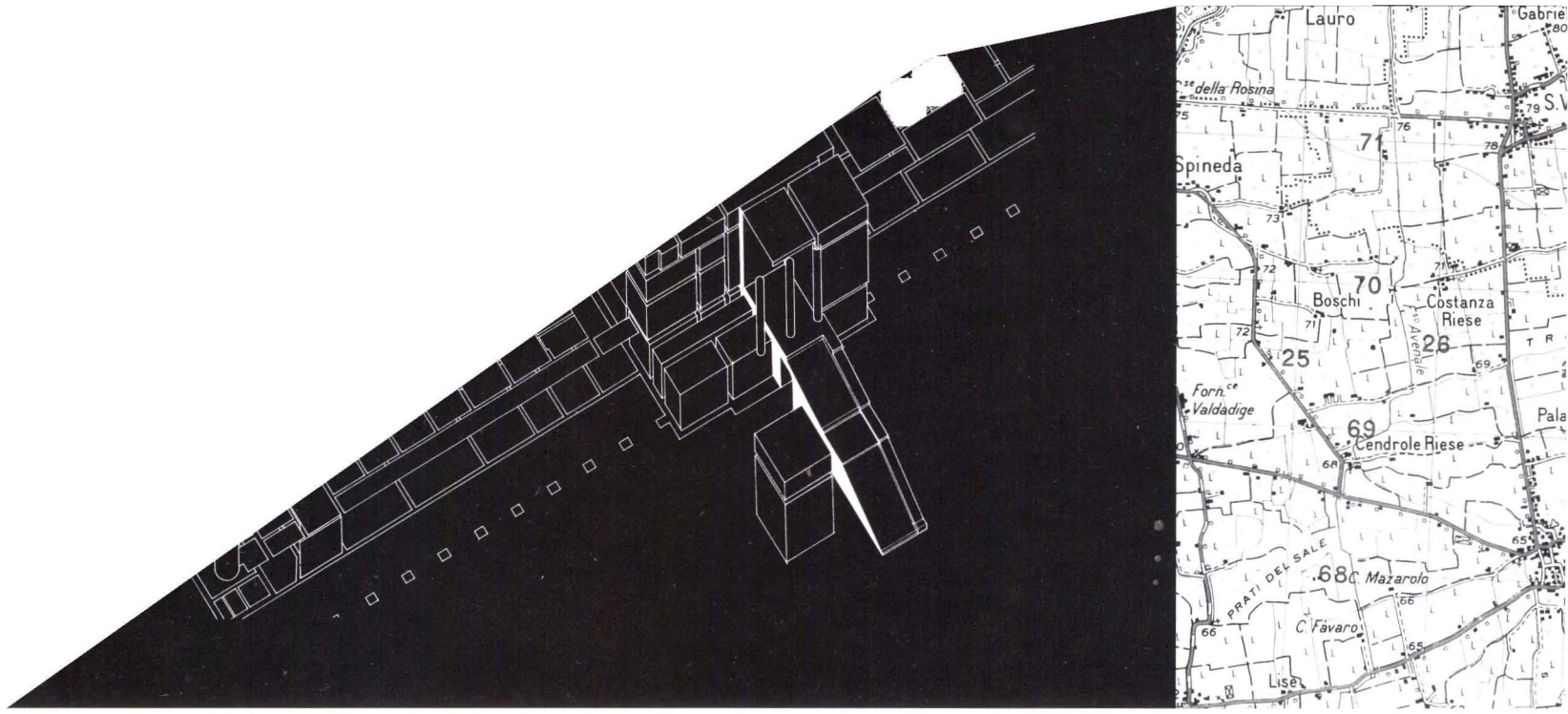
In the 19th century a portion of the garden was ornamented with groups of trees in the 'landscape manner'. A railway line now cuts through the southern axis of the villa. The villa has always remained in the centre of the farm, and is still in the possession of the Emo family.



Plan and cross section.



Ground plan and front elevation (From Andrea Palladio's *Quattro libri*, 1570)



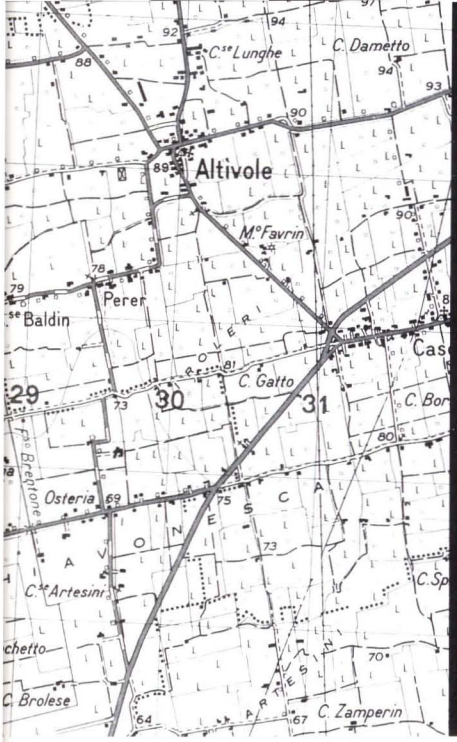
The Veneto villeggiatura

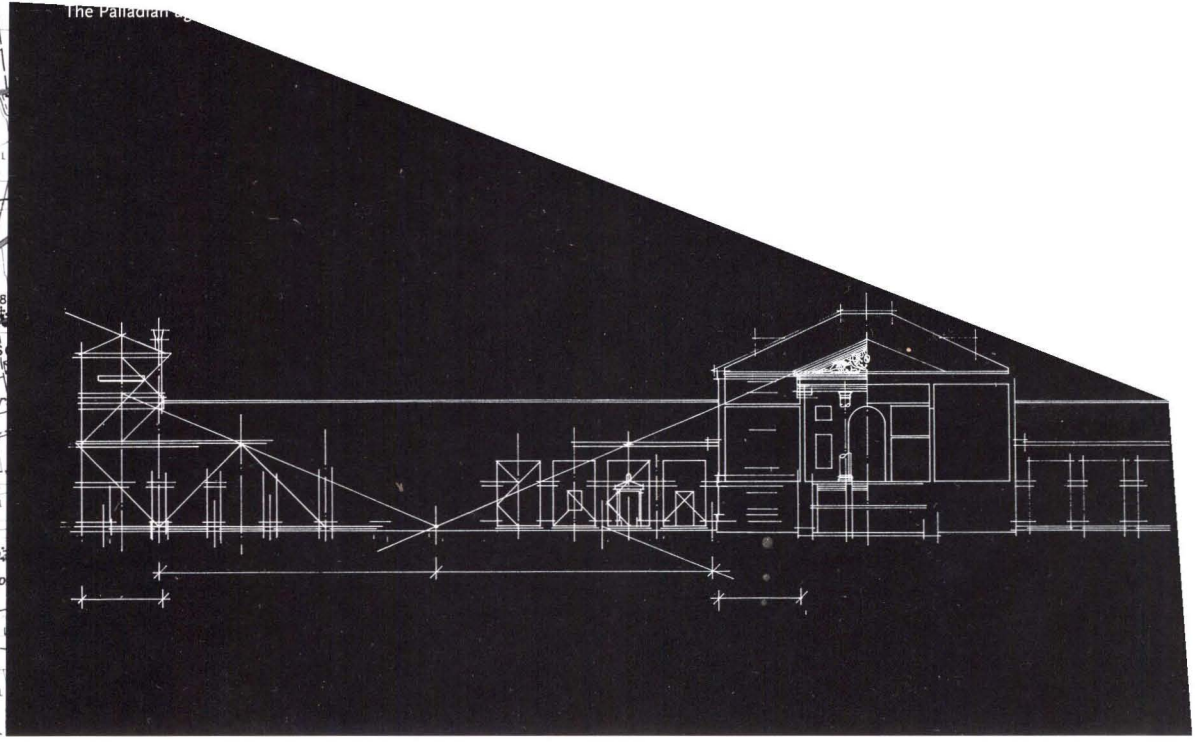
The process in which agrarian land development was ever more emphatically combined with the aestheticisation and enjoyment of nature began in the Tuscan villas of the 15th century, and reached its culmination in the Roman villas of the 16th and 17th century. In the course of the 16th century, however, a contrary development also took place in Northern Italy. In it agrarian production became precisely the most important purpose in planning villas. The origins of this development lay in Venice.

After the collapse of its overseas trade and a series of military defeats towards the end of the quattrocento, Venice had to fall back on its own region, the Veneto. This region extends from Venice in the east to Vicenza in the west, and from the foothills of the Dolomites in the north to Padua in the south. The main thrust of economic policy was directed towards developing agriculture. This offered sufficient opportunity to invest capital gained through overseas trade. Venice pursued a policy aimed at opening up and reclaiming the marshy hinterland, thereby also exploiting the large pool of unemployed labour in the city.

The Veneto villa differs from villas elsewhere in Italy, in part because of the economic circumstances which determined their function. For most of its history the Italian villa had been intended as a refuge from busy town life, a place of peace and relaxation in the midst of nature. The Veneto villa, however, was a working farm. The programme of the villa was influenced by the need to lure the Venetian aristocracy into the countryside. The renewed interest in farming coincided with the publication of a series of treatises on agriculture which extolled the virtues of country and farming life. Halfway through the 16th century the *Discorsi della vita sobria* by Alvise Cornaro, a prominent Venetian landowner, was published. Cornaro advocates the *vita sobria*, the ancient ideal of simple country life. The cultivation of the land was a divine occupation, comparable with the Creation. Agriculture equalled virtue, so it was difficult to conceive of anything more virtuous than money earned by tilling the land.

These treatises laid a sound ideological foundation for farming. With the increased status thus provided, it became worthwhile to settle down in the countryside as a land-owning farmer. We can therefore conclude that the villa was a functional entity which had to meet the demands of farming, the rural idyll and aristocratic status. Palladio's contribution was to develop an architectural scheme in which it was possible to control the agricultural programme by means of rational planning in relationship to the ideological needs of the new land policy. He designed a standard vocabulary in which the articulated components of the villa could be used to produce different combinations according to the individual wishes of the clients.





The Palladian agrarian villa

The external appearance of the villa is sober, in accordance with the ideal of the *vita sobria*. According to Palladio the houses of antiquity were also built without decoration. He dismissed the idea of the villa as a unique object and created a series of objects instead. By so doing, his personality disappeared to a certain extent from the buildings. In this kind of architecture, without autobiographical caprices, the client had to renounce private decoration. Richness, however, showed itself primarily in the interior, with walls decorated with frescoes depicting villa life, the landowner, his possessions and his learning.

The ideal hall is square and was used for feasts, performances, weddings and receptions. Palladio termed the hall, onto which the private rooms of the house opened, a public space, analogous to the town square onto which several streets open. The hall in the villa was the centre of administration and entertainment, similar to the forum of an ancient city. The arrangement is self-evident: the villa is centrally situated in the country estate and the hall is the heart of the villa; the hall and the loggia are the crowning glories of the whole.

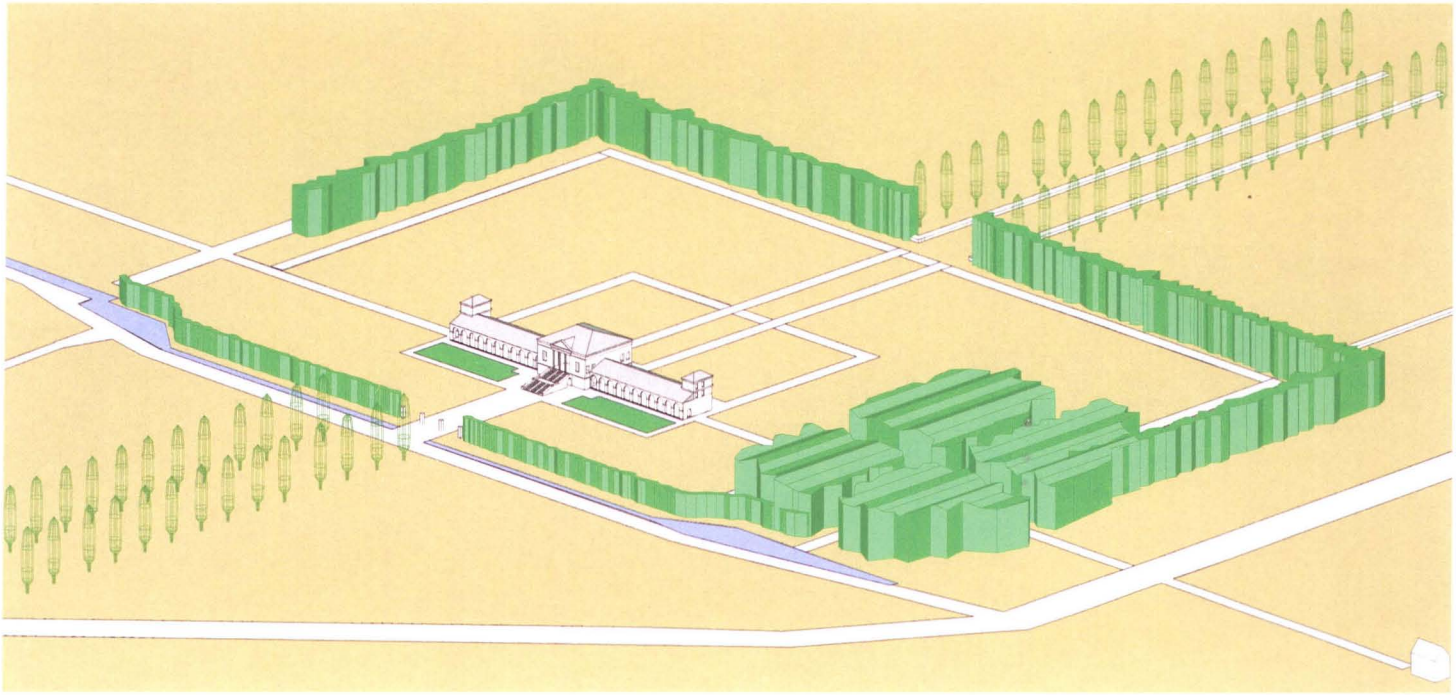
From the loggia the landowner looked out across the forecourt, through which the harvest was brought and in which games were held. It gave access to the living quarters and was used to beautify the house. It served many purposes: it was a place for eating, walking, and leisure activities. The loggia is related to the hall behind it, in height, width and the number of floors. The loggia and the hall are the centre of the composition. If there is only a loggia in the front elevation, the hall is slightly extended at the rear, and opposite the main entrance is a door or window, which serves to frame the view of the landscape.

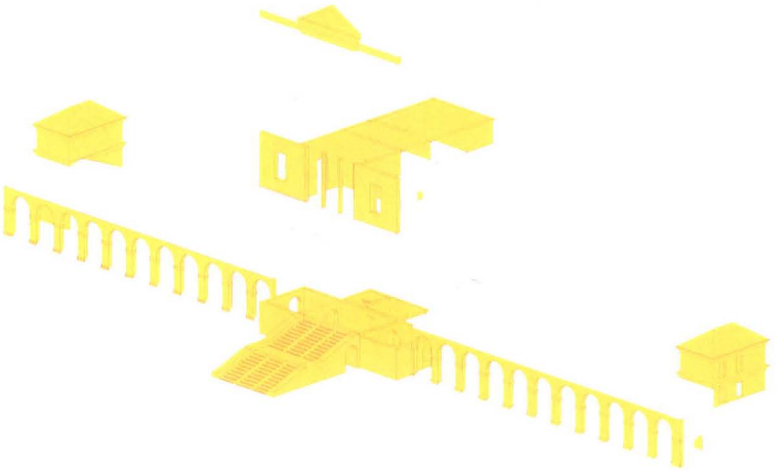
The temple front emphasises the main entrance to the house and adds considerably to the status of the building. The use of a temple front in domestic architecture was intended to suggest the divine status of the landowner.

The steps leading up to the *piano nobile* lend distinction to the house. The introduction of the raised *piano nobile* makes contact with the garden subordinate to the view of the landscape from the loggia. According to Palladio the raised main floor has two advantages. First, it no longer requires any servants' quarters, which are now housed in the basement. Second, it is a more pleasant place to be because the floor is raised above the damp soil, it commands a better view of the farmlands, and can itself be seen to better advantage from the distance. The physical dominance of the villa achieved through its central position and the raised position of the main floor symbolises total control of the landscape.

The original layout of the gardens is unknown. Old engravings suggest that the forecourt was an open space. The low flat ponds, which hardly rise above the grass, and the low

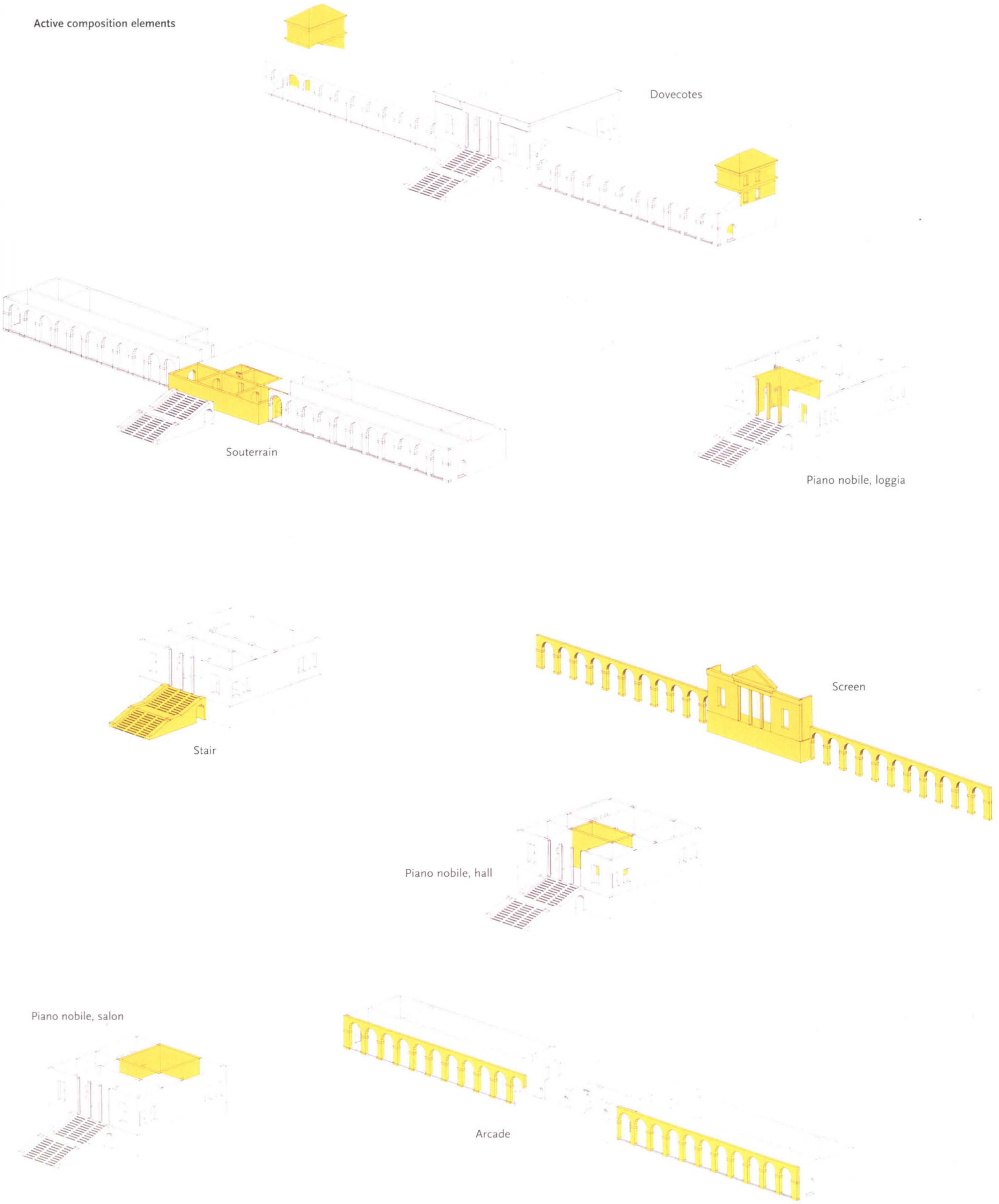
Axonometric projection

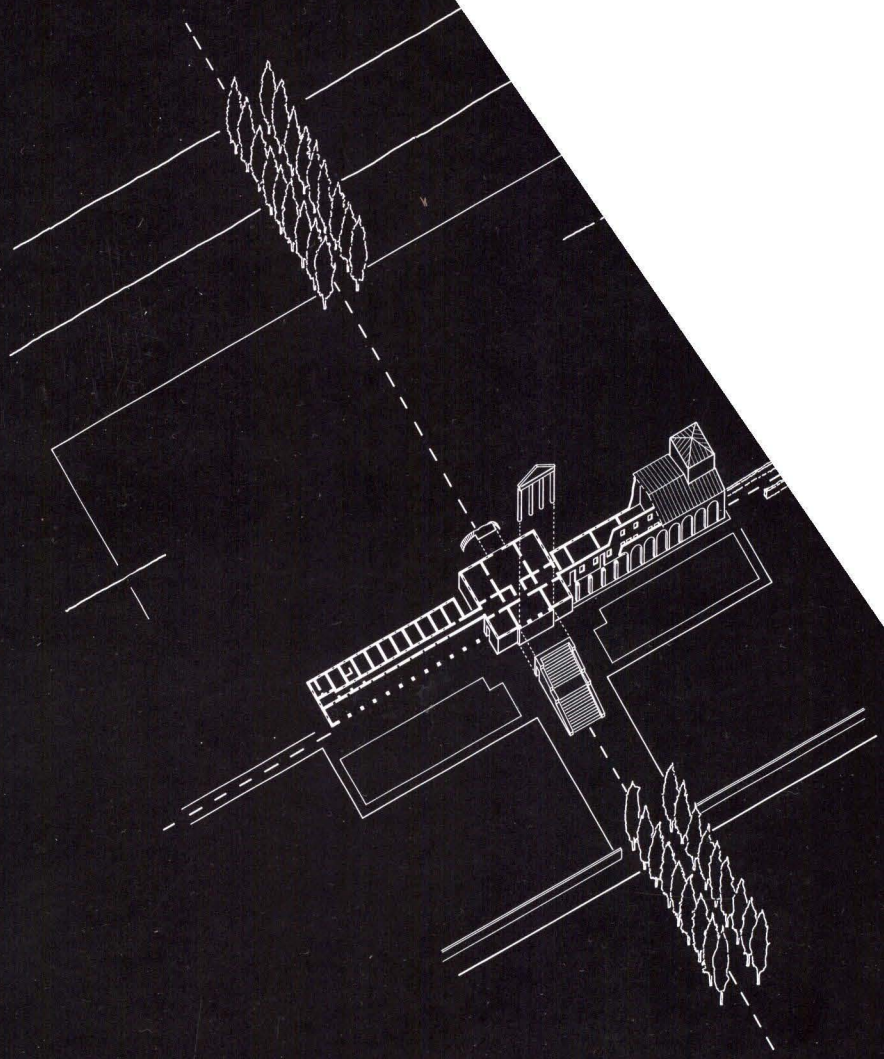




Composition scheme

Active composition elements





Villa Emo, integration into the man-made landscape.

walls around the courtyard suggest the same. An open forecourt ensures that the villa can be seen from afar and that it commands a view of the fields. The forecourt was a public space onto which the barns, the dwellings of the agricultural workers and the stables opened.

Agriculture and Arcadia

The *raison d'être* of the Veneto villa was the reclamation of the countryside, in which the villa owner, in his role of divine *padrone*, occupied a central position. The villa was the centre from which the extensive farmlands were managed. The fields were mainly cultivated according to the Roman *centuriatio* system, which still existed in a rudimentary form. This system consists of square plots of some 625 square metres. The villa sites conform to the pattern of this system.

The way in which the relationship between landscape and villa was created should be considered against the background of ideas on landscape and nature at the time. In Palladio's villas there was no garden as was understood in the 14th and 15th-century Italian villa tradition. In so far as there was a garden it was a ceremonial introduction to the flight of steps leading to the *piano nobile*. The few elements used in this part of the garden – low walls, gates and trees – direct the view towards the horizon. Across the garden, house and landscape are linked to each other in an aesthetic rendering of the view. Vistas from the loggia and the hall are channelled along avenues towards the landscape. Landscape and villa are therefore joined together in a single architectural structure. The separate elements formalising this arrangement are set up along the axes thus formed. To create the *integrazione scenica* various elements can be left out or added. According to Palladio the road is also an element of this *integrazione scenica*; it is an environment in itself, a little higher than the fields it crosses, shaded by trees and offering pleasant views.

The Arcadian idyll, the original motive behind villa life, was subordinate to the tough reality of the agricultural economy. Delight in nature within the enclosed domain of the villa was done away with. What had been lost on the outside could be regained in the interior. In the frescoes covering the walls of the reception rooms the ideal of rural life could be recreated and the landscape restored to its Arcadian significance.

The empty garden

The main axis of Villa Emo follows the direction of the existing *centuriatio* division of the land. From some distance away, the position of the villa in the landscape is clearly marked. From close by, however, the buildings are hidden behind high hedges and the entrance gate. From the front terrace the broad flight of steps leads to the *piano nobile*, and from the loggia there is a view, over the garden and its enclosure, of the landscape that from this position is ordered by the projection of the central axis. The steps to the loggia are considerably wider and less steep than those depicted in the *Quattro libri*. This gives the impression of a forecourt sloping right up to the loggia, reinforcing the central position of the building volume. The development of a transverse axis through the centre of the galleries was fairly exceptional given the general predisposition to monoaxiality. This axis passes through a side entrance of the garden and is terminated by a chapel on the opposite side of the road. The outbuildings also remain programmatically separate, and there is no direct entrance from the central *piano nobile*. The loggia is recessed into the main block and its side walls display murals. This re-emphasises the concentration on the single direction of the main axis and, thus, on the negation of the side wings. It is only in the front elevation that the continuation of the gallery brings house and outbuildings into a unified whole.

The difference in the treatment of the front and the rear elevations is striking. As is the case at Villa Piovene at Lonedo, an absolute separation seems to be suggested between the symbolic significance of the front and the 'rustic' agrarian character of the rear of the buildings. The impression of dignity continues from the front of the house into its interior. This difference between the front and the rear of the villa is continued in the landscape setting. The kitchen gardens are to the rear, from where you look out along the axis imposed on the landscape, across a wide, open stretch of land between rows of trees that seem to merge imperceptibly into the agricultural fields. However, the rows of trees in front of the villa are planted much closer together to form an avenue. Within the rectangular parcel of land on which the villa complex stands, the empty garden creates a distance between its agricultural and ceremonial features.

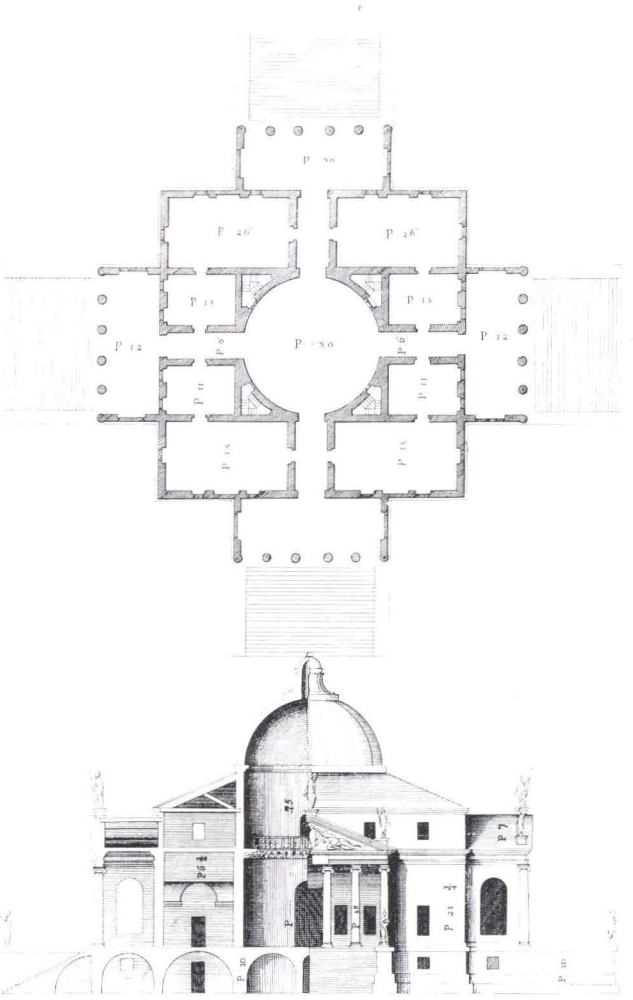
The ideological agrarian programme, which postulated land reclamation in the Veneto, can be seen in what is probably its most complete form at Villa Emo. It is an empty garden, in which the ordinary elements of land development have taken on an objective architectonic form through a minimal formal treatment. In his solution to this programme at Villa Emo, Palladio provides his most complete and advanced example of the agricultural villa. The tension between formal architectural vocabulary and references to traditional Veneto farm elements is here transformed into an almost nonchalant dialogue between the two. That these remain independent and identifiable within the total scheme does not only put matters into perspective but also even leaves room for the suspicion that the maestro might be making a somewhat ironic insinuation about the dignity of his client.

Villa Rotonda

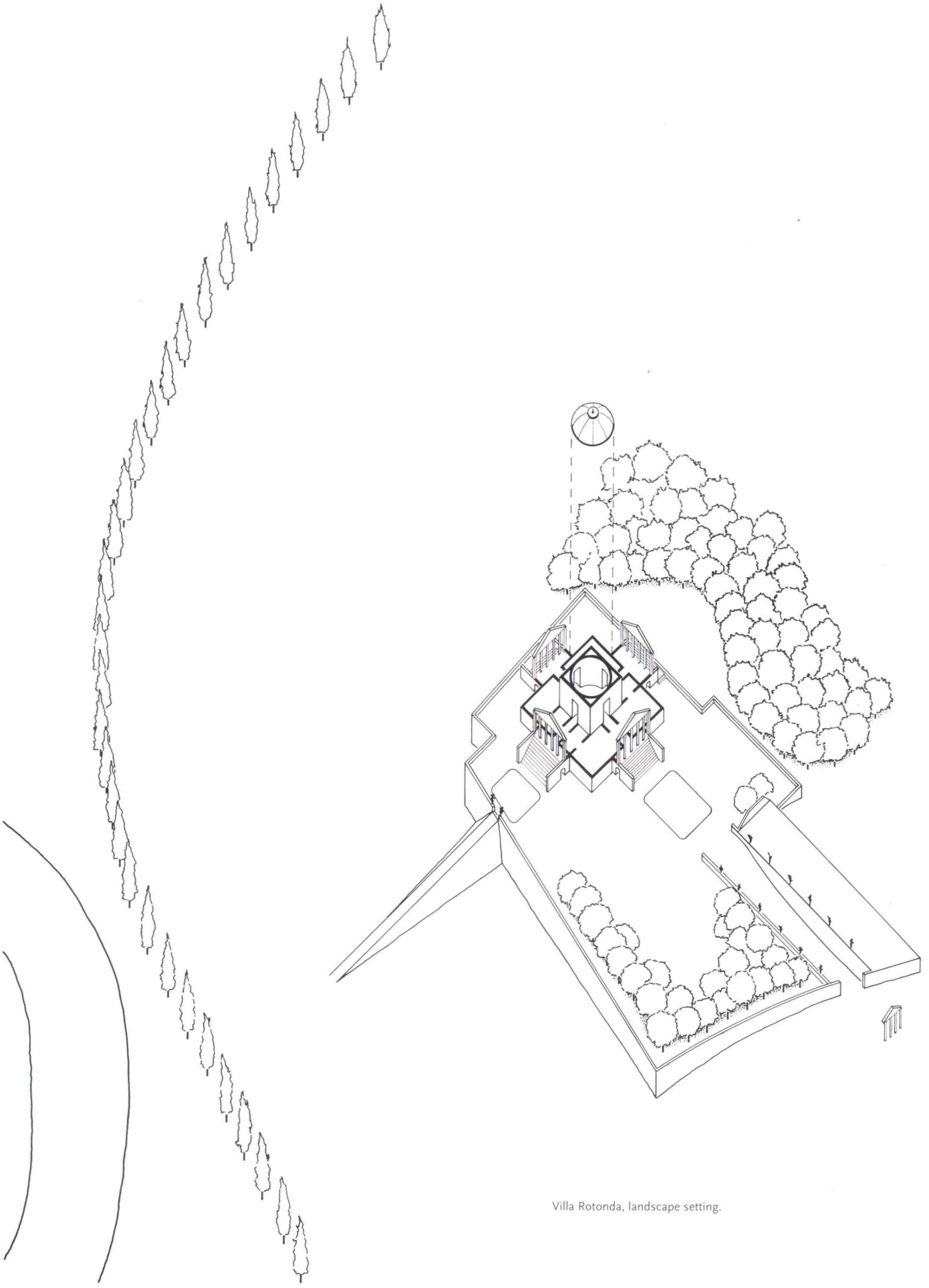
In 1566 the papal prelate Paolo Almerico returned to his native Veneto after having served under a number of successive popes in Rome. He asked Palladio to build a summer residence for him on a hill about 500 metres south-east of Vicenza. In his *Quattro libri* Palladio wrote that 'The site is as pleasant and delightful as can be found, because it is upon a small hill, of very easy access, and is watered on one side by the Bacchiglione, a navigable river; and on the other it is accompanied with most pleasant risings, which look like a very great theatre, and are all cultivated, and abound with most excellent fruits, and most exquisite vines, some of which are limited, some more extended, and others that terminate with the horizon; there are loggias made in all four fronts; under the floor of which, and of the hall, are the rooms for the convenience and use of the family.'

In the *Quattro libri* the villa is included in the chapter on urban villas because it did not have an agricultural function, and – though not situated in the town itself – was, nevertheless, in the immediate vicinity of one.

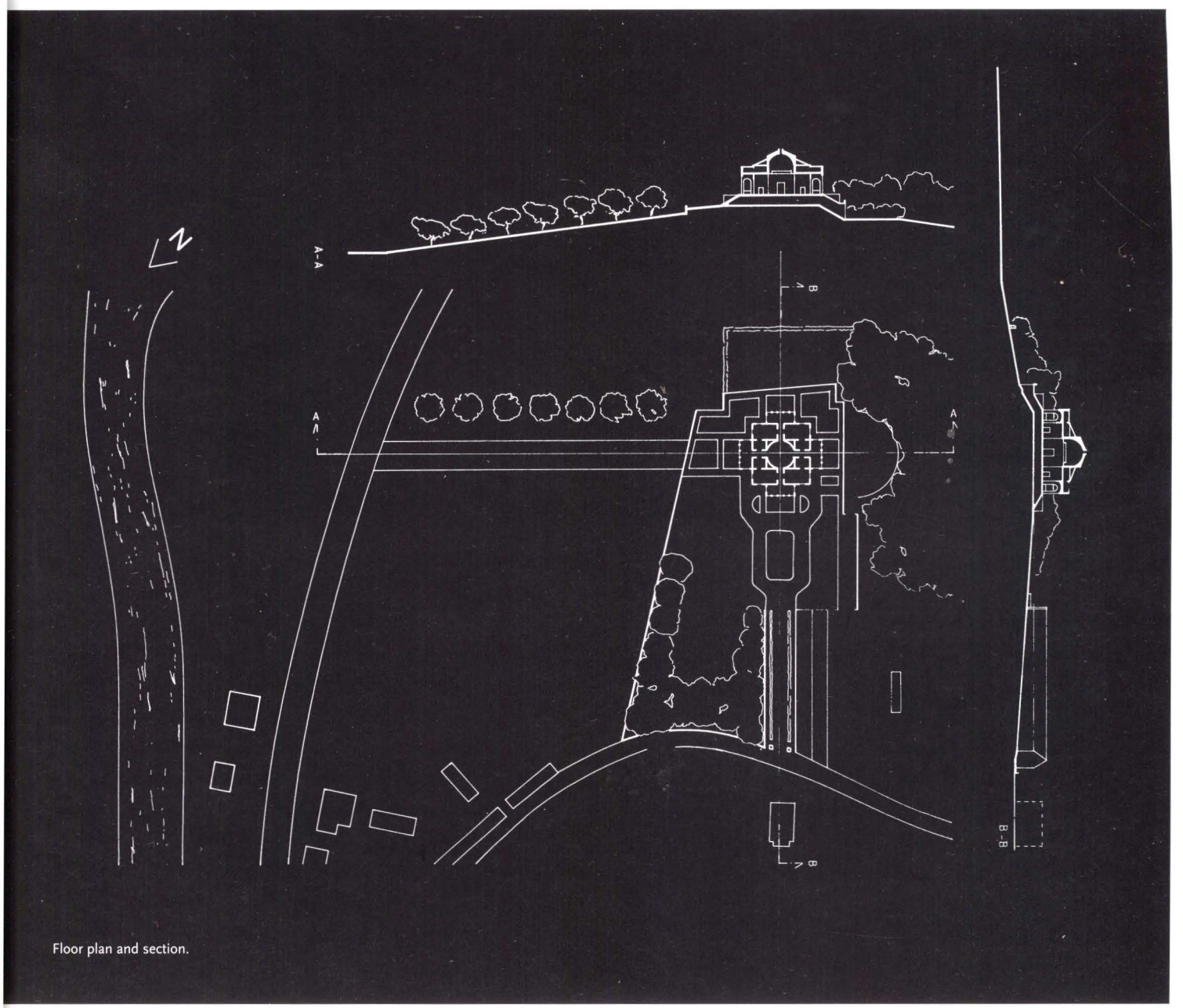
In 1569 the villa was ready for occupation. It was only completed, however, after Palladio's death by the architect Vincenzo Scamozzi who, among other things, replaced the hemispherical dome in Palladio's conception with a less pronounced vault over the central hall. The design of the dome is supposed to be based on that of the Pantheon and was intended as a reference to the owner's status. The oculus on top was originally open (as in Scamozzi's Villa Pisari La Rocca at Lonigo): a water outlet in the floor of the hall leads to a well in the basement. The present main entrance and the buildings flanking both sides of the southern access avenue were also added by Scamozzi around 1620. Of the artists who worked on the decorations, Palladio mentions only Lorenzo Vicentino,



Ground plan and front view. (From Andrea Palladio's *Quattro libri*, 1570)



Villa Rotonda, landscape setting.



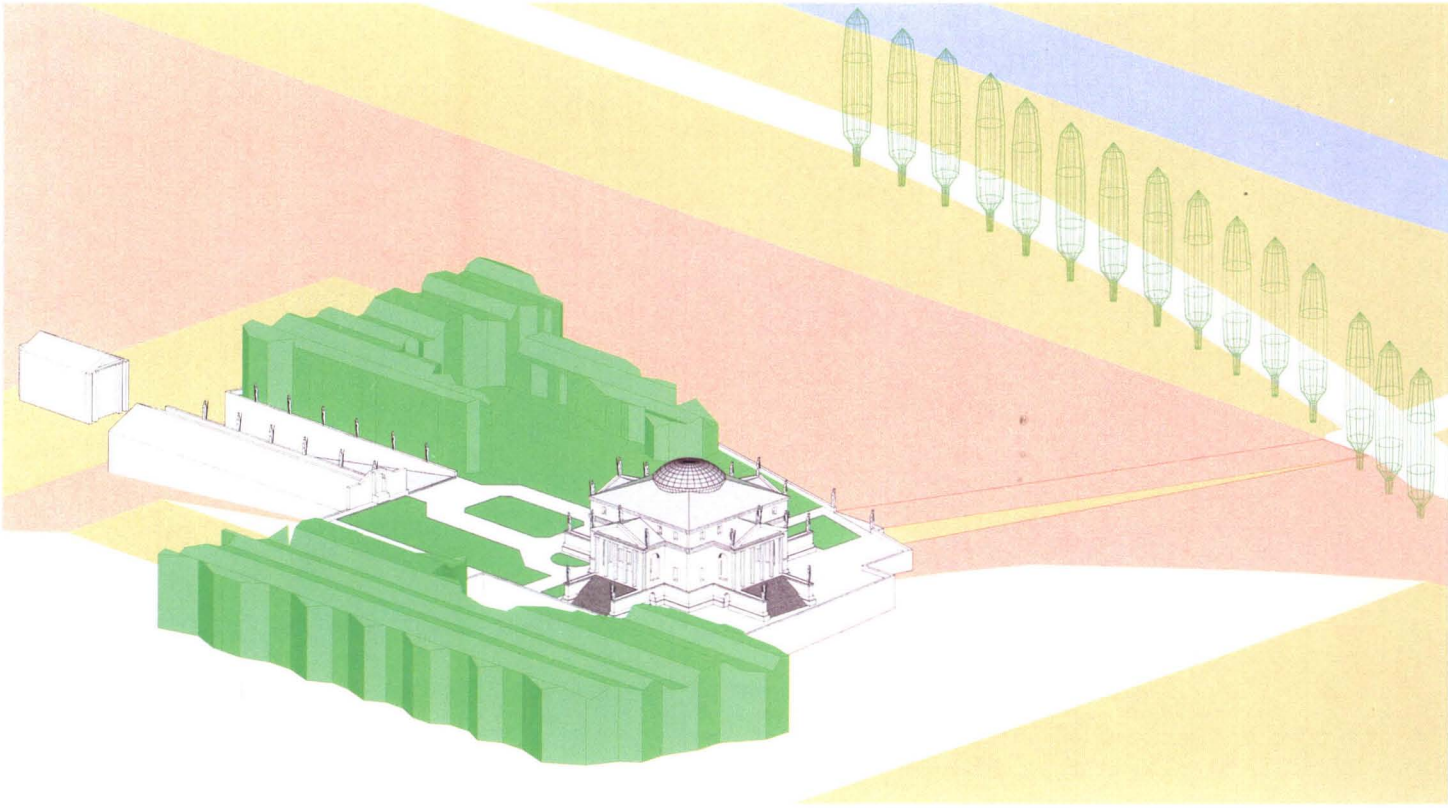
Floor plan and section.

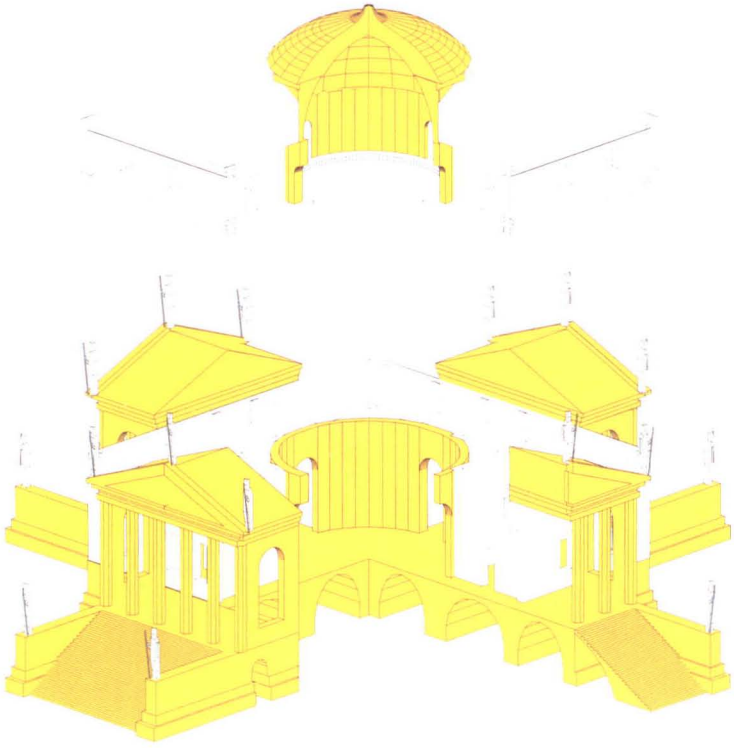
who was responsible for the statues on the pedestals of the loggias. The planting and layout of the surrounding landscape has changed in the course of time.

Theatre and belvedere

The situation of Villa Rotonda was described by Palladio as a large theatre which presented a changing but always beautiful spectacle on all sides. This would explain his decision to provide the villa, designed as a belvedere, with identical loggias on all four sides. In planning the interior of this four-sided symmetrical construction, a round central hall presents a logical solution. As corn lofts were unnecessary because the villa did not have any agricultural function, the hall was continued up to the roof, with a gallery over the *piano nobile*, and later, at the end of the 17th century, painted with illusionist architectural and sculptural elements to look like an open-air *tempietto*. The hemispherical dome would have made the villa a salient feature in the landscape and fixed it in the centre of the

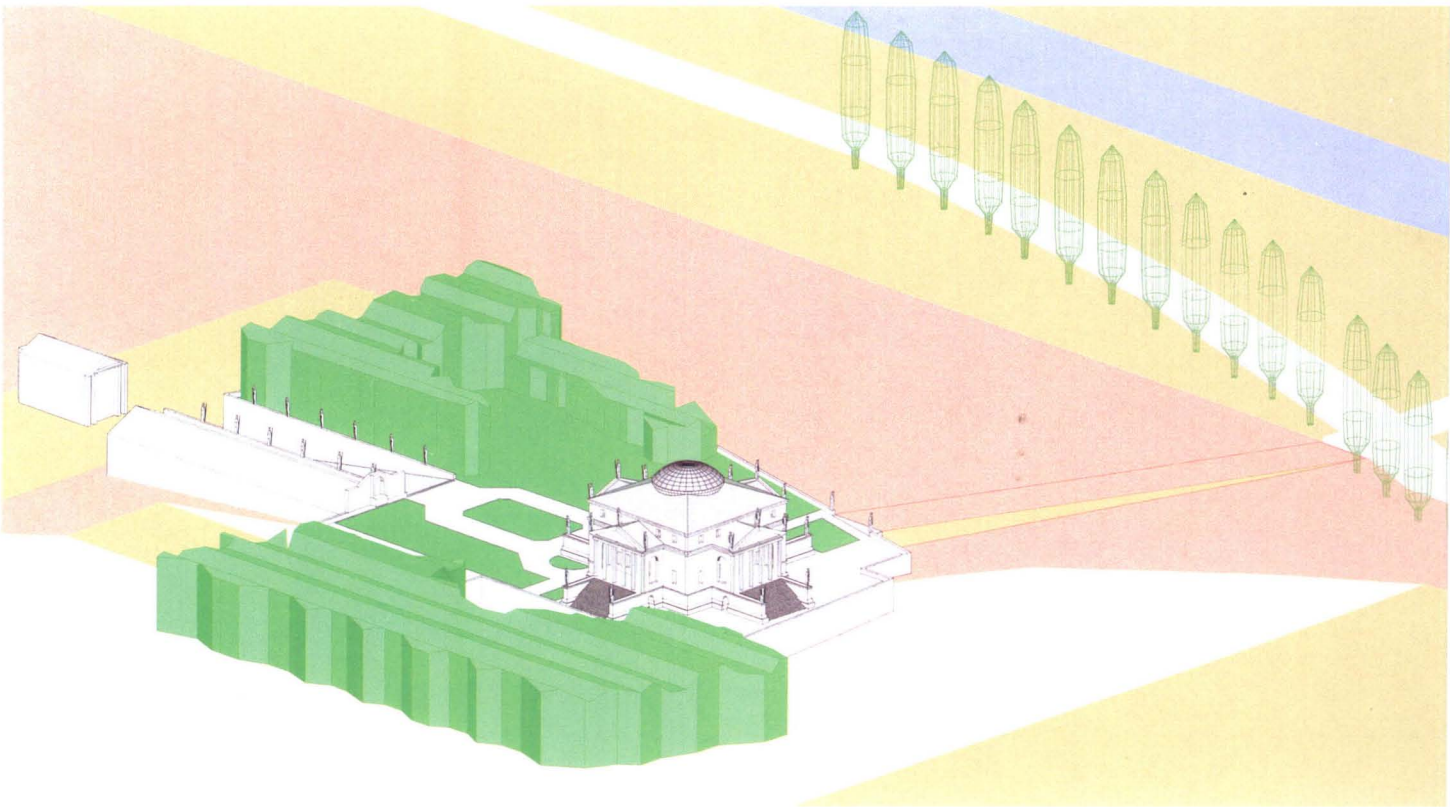
Axonometric projection

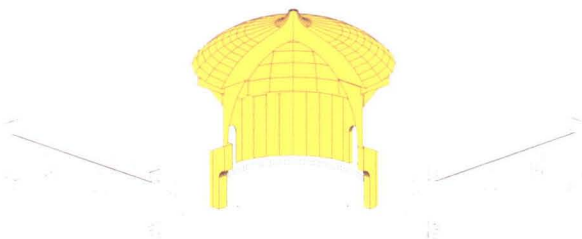




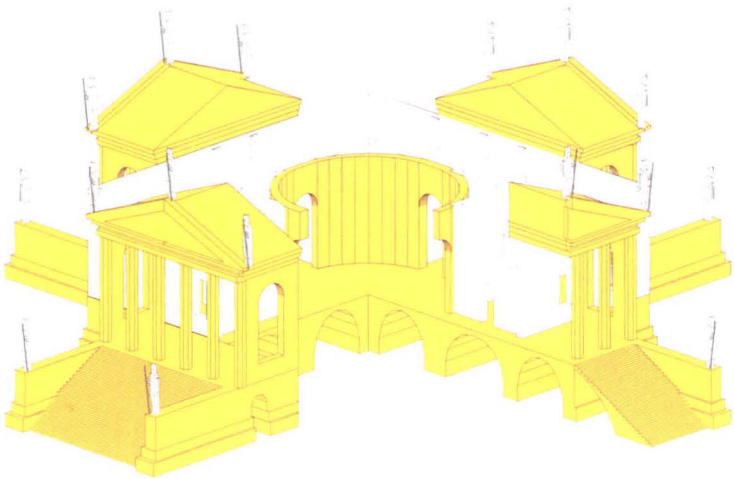
Composition scheme

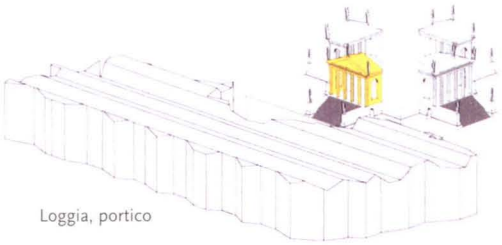
Axonometric projection



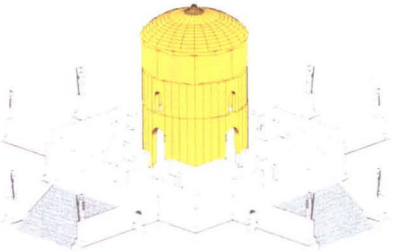


Composition scheme



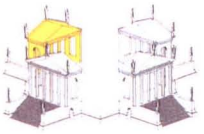


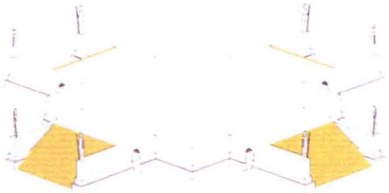
Loggia, portico



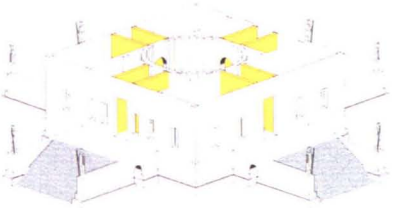
Piano nobile, salon

Loggia, portico

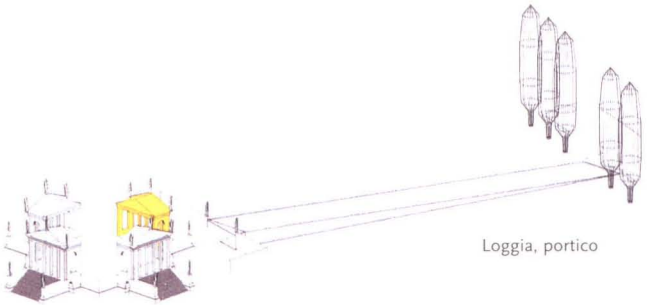




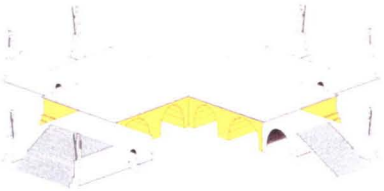
Stair



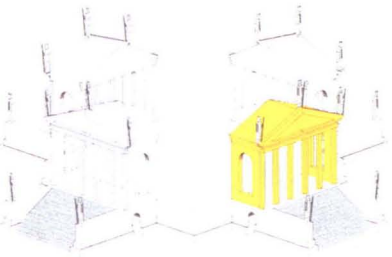
Piano nobile, hall



Loggia, portico



Souterrain



Loggia, portico

panorama that unfolds on all four sides. It is therefore regrettable that Scamozzi did not have the courage and sensibility to construct the dome according to Palladio's design.

Due to its centralised symmetrical shape, descriptions of the villa usually suggest it is situated as an isolated object. The villa does indeed stand out in the landscape because of its location on a plateau and also because it is rotated 45 degrees to the north, independent of the local topography, so that all façades of the house receive sunshine each day. Closer examination, however, reveals that despite its apparent autonomy the villa has been placed in the landscape with the utmost care. When the complex is approached, the villa is gradually revealed. The entrance facing the northwest loggia is recessed into the hill. Looking back beyond the entrance from the loggia, a chapel can be seen on the axis on the opposite side of the road at the edge of the town. This axis, linking the house, the entrance and the chapel, formally establishes the estate's relationship with the town. A walk around the villa reveals how its setting in the landscape is handled differently on each side.

From the Strada della Riviera, below the north-east terrace, the villa is connected to the buildings on the edge of town by the retaining wall of the terrace, although it juts out from the line of the other buildings. It is also linked to the road, and the river running parallel to it, by a grassy raised embankment at right angles to the terrace wall. This raised feature on the north-east side of the villa complements the recessed entrance and, on the edge of the terrace, makes the relationship between the developed land and the open landscape explicit.

Views from the four loggias.

Walking along the Strada della Riviera the landscape rolls on behind the villa, but at no single point does the picture lose touch with the wooded slopes of Monte Berico. Cut out of the woods is the *giardino segreto*, which can only be reached from the basement. It is only on the east side, where the loggia reveals the most unobstructed view of the landscape, that the villa separates itself from the edge of the wood and is elevated in its surroundings. This is, therefore, the only side on which the retaining wall along the edge of the plateau meets the lower part of the site directly, without modifications or additions.

The disappearing garden

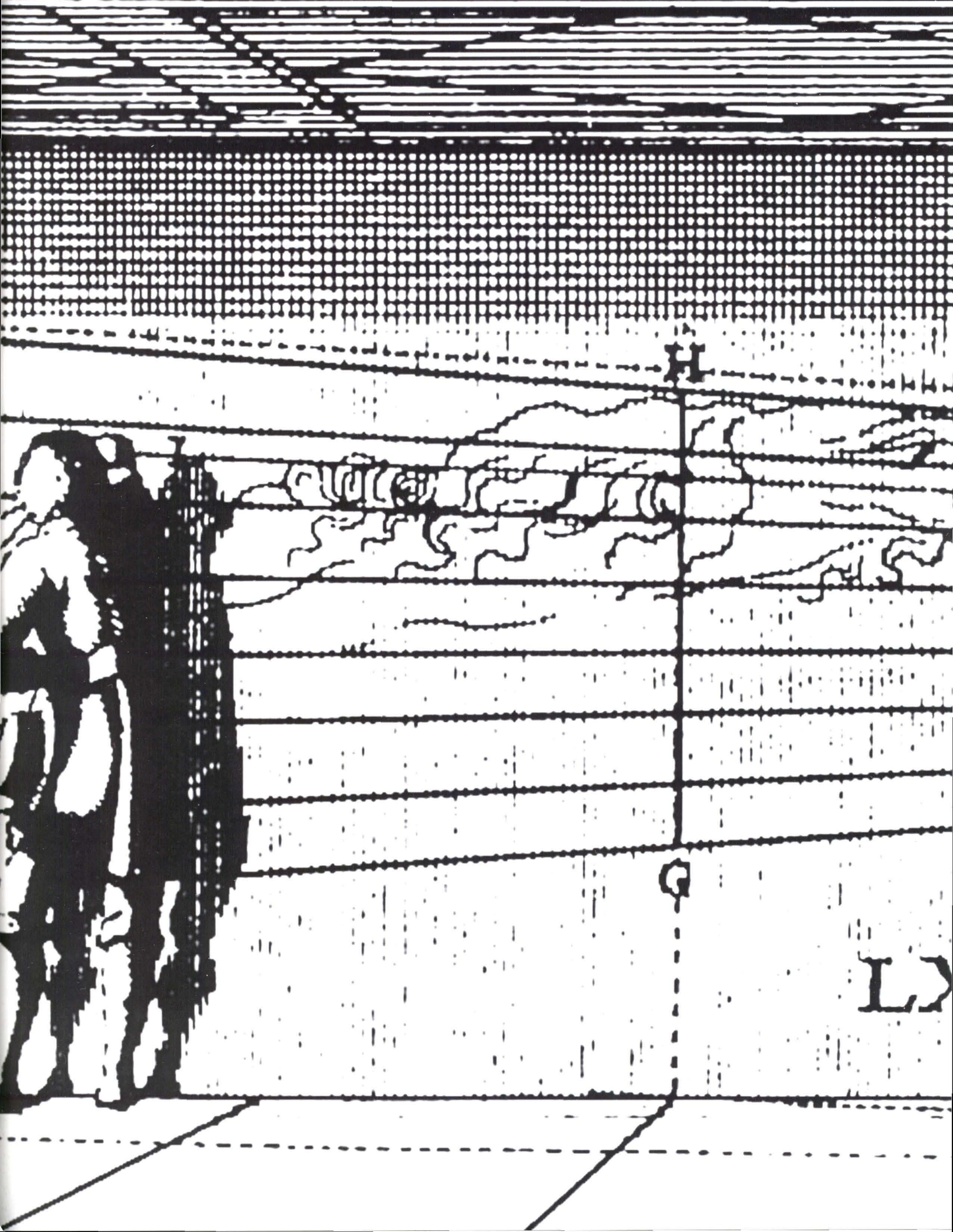
The state of the site around the villa is reflected in the shape of the terrace and the treatment of its edges. Because of the villa's asymmetric location on the terrace, the changing perspective effects, and thereby the different and shifting positions of the background, are projected onto the terrace wall. The entire system of differentiating the landscape setting of the villa would, finally, have been anchored and unified by the hemispheric dome, rising high above the house. This function can now only be observed in the repetition of the loggias on all four sides of the house.

The way in which the all-round symmetrical plan of the house is stage-managed in the landscape, by treating each of the four directions of the plateau differently, and its influence on the terrace walls, confirms the mastery of this last villa project by Palladio. The garden as an autonomous space between the villa and the landscape has disappeared from the *integrazione scenica*. Precisely because there was no agricultural programme the landscape could be integrated, without ideological prejudice, into the composition as an independent component. Palladio here reduced the landscape architectonic design means to a minimum, and concentrated all the active compositional elements of the landscape staging in the building. The natural plasticity of the landscape determines its interaction with the villa. Here, Palladio reached the limits of the possibilities of designing the landscape with an entirely controlled, formal architectural system. This could result in two possible developments. One was a further subordination of the landscape to a central perspective structure, as can be seen in French garden architecture, and the other – and this is anticipated in the setting of Villa Rotonda – is a severing of the cosmic unity between landscape and architecture, which was fundamental to Enlightenment thought, which concerned itself with the contrast between nature and culture.

The architecture of Palladio, especially in this project, stood between two worlds and was to prove of service to both of them.

Entry.

View from the south.


H
G
L

Vaux-le-Vicomte

St. Germain

St. Cloud

Meudon

2 The Magic of the Formal

Sceaux

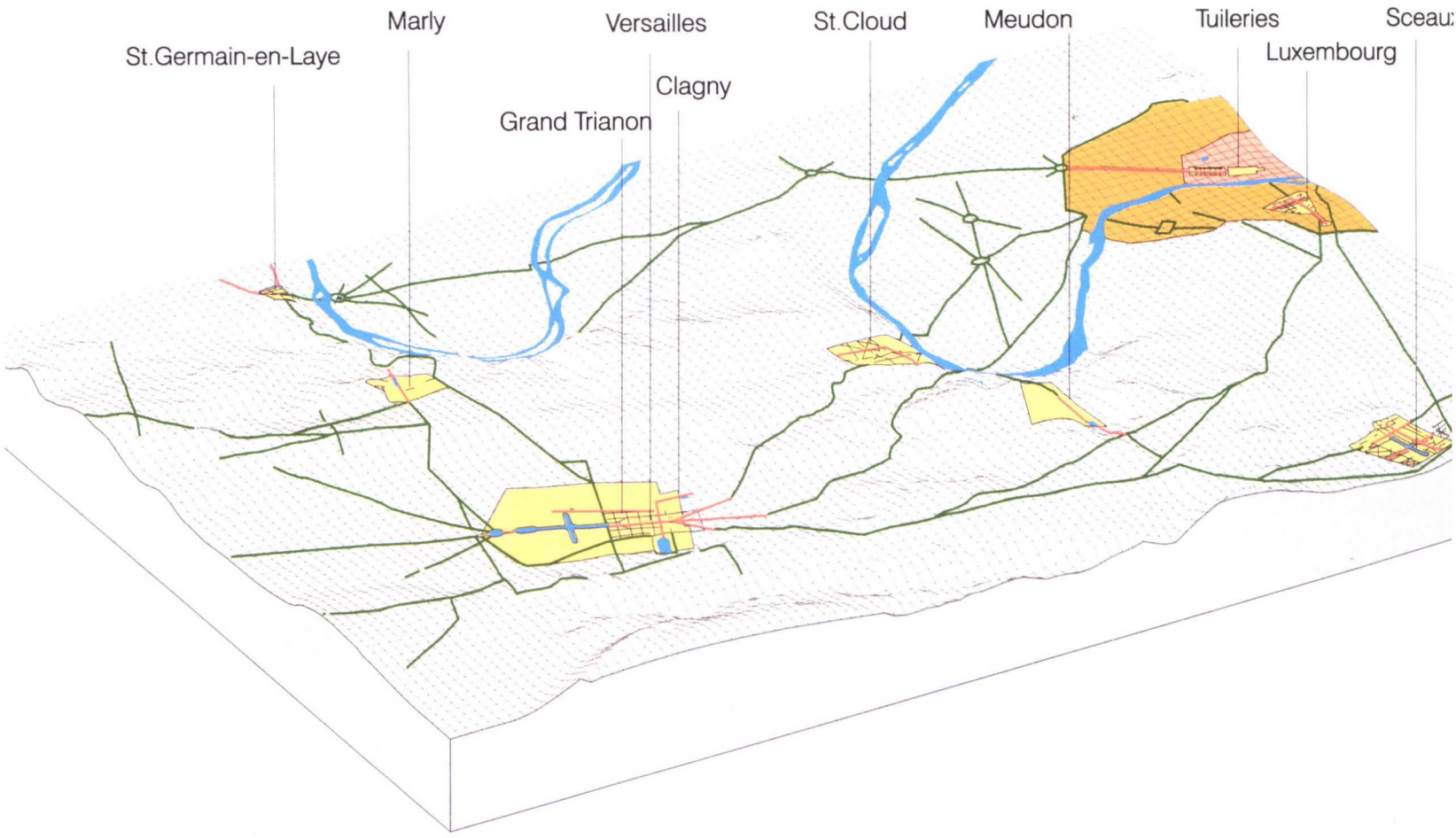
Marly

Trianon

Clagny

Versailles

The Tuileries Gardens



Paris. The 17th-century residences.

The conquest of architectonic space

During the 17th century the scientific concept of nature and space was theoretically established. As well as art, scientific fields such as astronomy, geography, physics and mathematics began to unfold. The extent and complexity of knowledge became so great that all of science could no longer be represented in one person, the *uomo universale*. Voyages of discovery went beyond the horizon of the then-known world to be drawn up later on maps. In abstract thought even mathematics began to overstep the boundaries of what was regarded as conceivable.

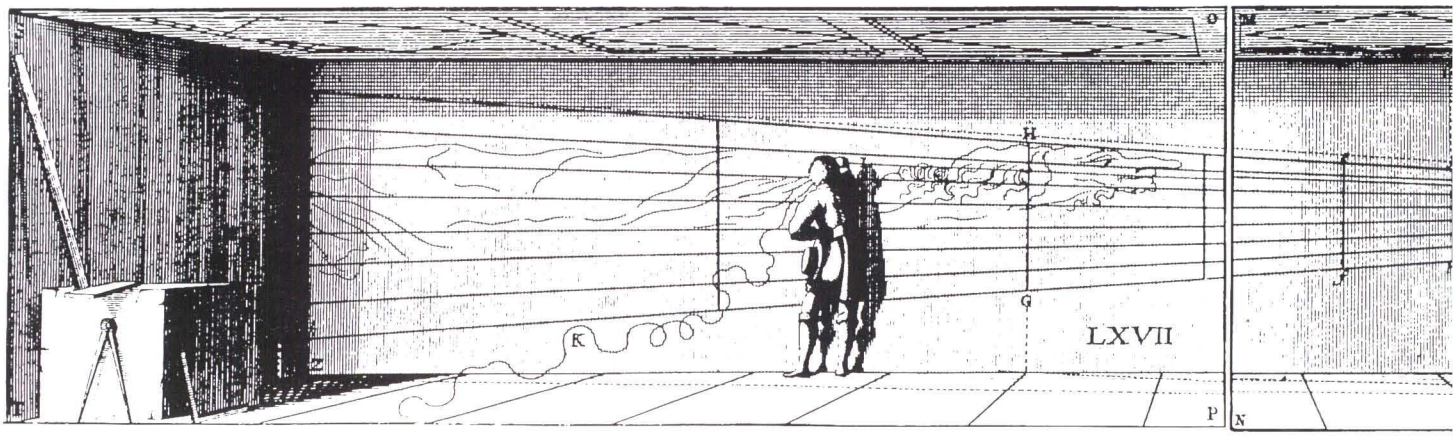
The pushing back of frontiers in science and travel rested on an expansion of political power. As Sun King, Louis XIV was the absolute embodiment of a Roman emperor. Paris was the new Rome, which in the second half of the 17th century acquired an imperial allure.

The residential landscape

During the second half of the 17th century huge changes took place with respect to the number, size and design of country estates around Paris. In the period preceding the general pacification of the land and until the early 17th century, the French kings had sought sanctuary in their fortified châteaux. Many of these, such as Bury, Blois, Chambord and Chenonceaux, were situated in the basin of the river Loire.

Fontainebleau, Chantilly, Anet, Dampierre and Verneuil lay in the basin of the Seine, some 50 kilometres from Paris. These châteaux also had strategically placed waterworks. From around the mid-16th century châteaux began to be built within the Paris area, such as Meudon, St. Cloud, the Palais des Tuileries, St. Germain-en-Laye and the Palais du Luxembourg. In these châteaux the country estate atmosphere was more important than their defensive capabilities. Although Charles VIII, on returning from his campaign in Italy, had already brought back Italian artists in 1495 who worked on Amboise and Blois, among others, the Italian influence on country estates, especially in Paris, was still an important one. This was expressed in both the site and the construction. Here the Italian Medici family, connected to the French royal family by marriage, played a crucial role. Catherine de' Medici (1519-89) was the wife of Henry II, while Maria de' Medici (1573-1642) was married to Henry IV.

One of the first Paris châteaux was Meudon (begun 1520). It lay high on the southern valley wall of the Seine, overlooking the landscape and city of Paris. The Italian Primaticcio built a grotto (1552) on the mountainside next to the château. Catherine de' Medici sold a site, also on a steep southern slope along a bend in the Seine, to the Italian banker Jerome



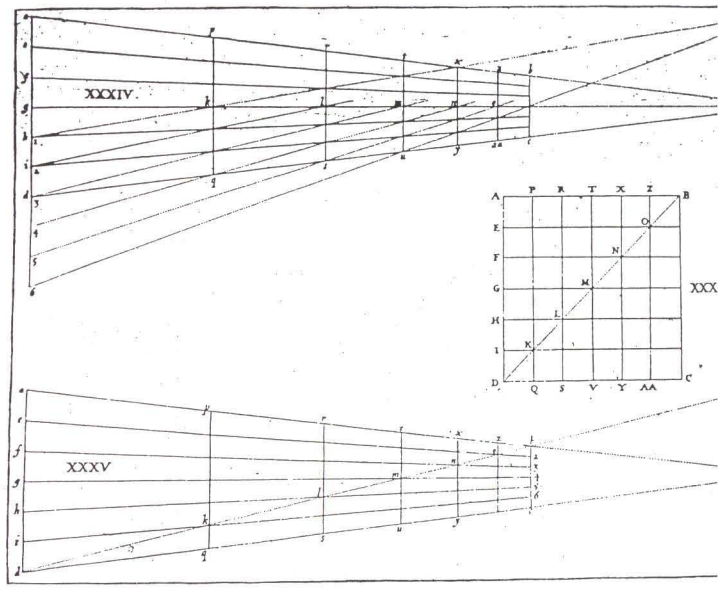
Transformation of an ordinary depiction of 'St. John on Patmos' into an anamorphosis on a wall. The distorted figure is being stretched toward the left. (J.F. Niceron, *Thaumaturgus opticus*, 1646, tab. 33)

de Gondi. He built a château (St. Cloud) halfway up the slope from where there was a panoramic view of the Seine.

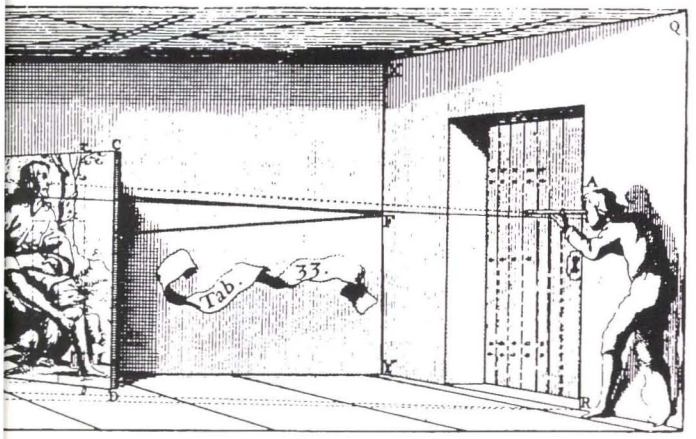
On the city boundary of Paris, Catherine de' Medici built the Palais des Tuileries (1562) with a geometric Renaissance garden. Bernard Palissy also constructed a grotto there, while between 1597 and 1605 the Italian, Alexander Francini, designed for Maria de' Medici a monumental flight of steps, grottoes and terraces on the banks of the Seine for Château Neuf in St. Germain-en-Laye. From the terraces there was a commanding view across the Seine valley. The design was like a monumental version of the slope-designs of Vignola for Horti Farnesiani (Rome) and Villa Lante (Bagnaia). With the series of nymphaea placed one above the other in the principle axis, it is also similar to Villa d'Este in Tivoli. In 1615 Maria de' Medici had the Palais du Luxembourg built after the design of the Palazzo Pitti in Florence. The garden was laid out as far as possible in the manner of the Boboli gardens.

Every early 17th-century château in and around Paris was 'homely' and on a local scale, just as in Italy. The geometric plan was of limited dimensions and served as foreground for the view. The traditional agrarian pattern of the landscape was barely affected by these incidental villa projects. Later in the 17th century, especially in the second half, radical changes took place under the reign of Louis XIV. The population of Paris doubled in size between 1590 and 1637 to more than 400,000 inhabitants. Wars and poor harvests created famines. Due to taxes and debts French peasants were forced to sell their land, while a lack of technical progress created structural failings in agricultural exploitation.

The decline in agrarian activity resulted in rural communities losing their autonomy and in a decrease in the amount of land that was used for agricultural purposes. The traditional medieval agrarian structure had to make way for the free play



Mathematical diagram of the anamorphosis of a square (Niceron, 1638). When the trapezium XXXV is viewed from the height R over P, it appears as if the original square XXXIII has risen above the surface of the paper.



of economic forces. Burghers, the aristocracy and financiers profited from the situation by acquiring as much ground as possible. For these new landowners, agrarian exploitation took second priority: there was no way rural life could be enjoyed by having views of ploughed fields and vineyards. The agrarian landscape was closed off from the field of view. The king, members of parliament, princes, magistrates and the urban aristocracy, by buying up concentrations of land lots, all sought to form as large estates as possible. By being in control of such vast tracts of land, they could also demonstrate their power. Land exploitation that went hand in hand with this was wholesale forestry development, which formed the backcloth to the country houses built during the second half of the 17th century. Paris in general was developed into a formal ideal city and became part of an artificial landscape.

The abstract understanding of nature and space

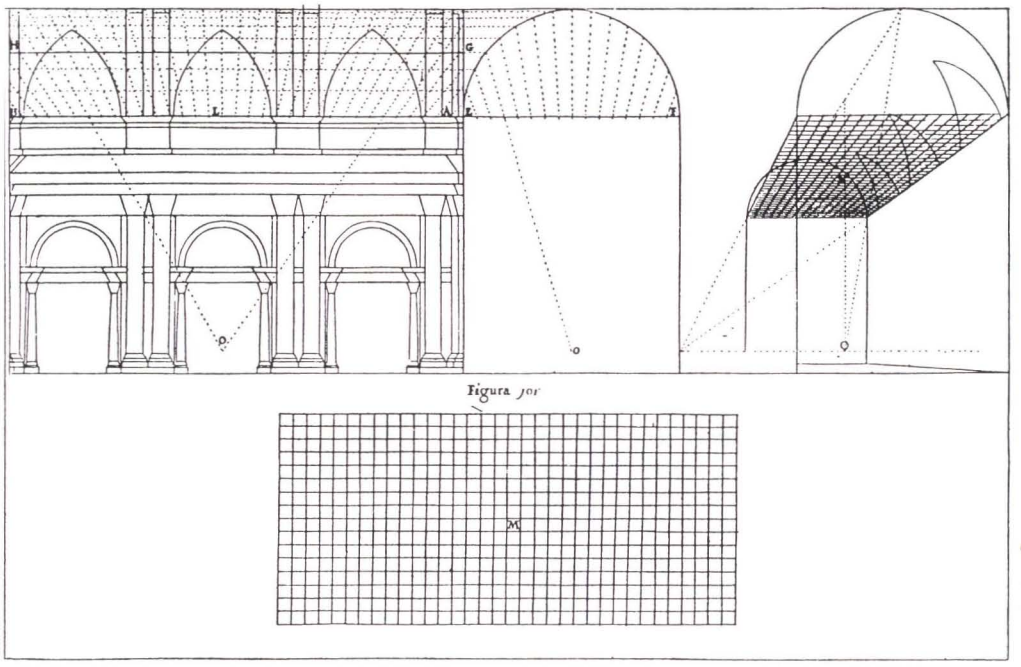
The development of the concept of nature and space in the first half of the 17th century is best illustrated by the theories of the French thinkers René Descartes (1596-1650) and Blaise Pascal (1623-62). Together they laid the foundations for the work of Isaac Newton (1642-1727) in the second half of the 17th century. Descartes isolated the scientific concept of nature from its theological context. During the Renaissance the concept of a natural order was still closely tied to the concept of God. In his statement *Cogito, ergo sum* (I think therefore I am), Descartes postulated the primacy of human reason. For him, natural phenomena could still only be explained according to mathematics.

In his work *Discours de la méthode* (1637), Descartes presented analytical geometry and by so doing put the metric principles of Greek geometry (Euclid) into perspective. Algebraic notations were employed in order to study complicated mathematical theorems. The coordinate system made it not only possible to establish every position and configuration in space, but also the idea of a completely abstract, mathematical space, with an unlimited number of coordinates and dimensions. In theory, Descartes separated geometry from conceivable space. Together with Pierre de Fermat (1601-65), he also contributed greatly to the science of optics.

Blaise Pascal wrestled with the question of how far mathematics made it possible to fully comprehend nature. As opposed to the rational 'cogito, ergo sum', he put forward the philosophical 'La probabilité, est elle probable?' At the age of 31, Pascal did not see science as capable of explaining the first principle of nature. He tried to approach the boundaries which human reasoning set on the concept of nature: mathematics was for him a means with which to approach the inconceivable. In his thinking, infinity played an important role. He thought of the congruence of the mathematical arrangement of the microcosm and macrocosm in terms of mathematical forms. He wrote, 'Reality is an infinite sphere, whereby the centre is situated everywhere and the circumference nowhere. It is ultimately the largest tangible symbol of the almighty gods, that our imagination gets lost in this thought.' And he argued, 'Nature always recommences the same things, the years, the days, the hours; even spaces and numbers follow close on each other's heels. In this way a kind of infinity and eternity exists. Not that all this could be infinite and eternal, but these finite things multiply into the infinite. Thus it seems to me that only the number they multiply is infinite.'

Pascal also used mathematics in terms of existential questions. 'According to the calculus of probability you have to exert yourself to seek the truth, for if you die without venerating the True Principle, you are lost.' Along with Gérard Desargues (1591-1661), Pascal also developed the projective geometry concerned with conics. This was extremely important for the further theoretical development of perspective construction. For Pascal, beauty existed in 'a certain concordance between our nature and the matter that gives us enjoyment'. He went on to define this more precisely, not in terms of measurements or proportions, as Vitruvius did, but through symmetry. 'Symmetry has its basis in the fact that no other reasons exist to do it differently; one also sees this in a person's face. This is the reason why symmetry is only desired in the width and not in the height or depth.'

In the second half of the 17th century, Isaac Newton, supported by the work of Descartes, Pascal, Kepler and Galilei, developed a universal natural theory in his *Principia mathe-*



Construction of illusory architecture on a vaulted ceiling. A network of wires is stretched across the vault at its springing point. This grid is projected onto the vault by a light placed at the point from which the illusion is to be viewed. By viewing the subject through a similar grid, the image can now be scaled up onto the vault section by section. (P. Andrea Pozzo)

Allegory of the mission of the Jesuits. Ceiling painting on the vault of S. Ignazio in Rome. The real space is continued as an illusion with the aid of painted virtual architecture which carries on the perspective of the actual building (design sketch in de Galleria Nazionale d'Arte Antica, Palazzo Barberini; P. Andrea Pozzo)

matica (1687). He formulated not only the universal law of gravitation, but also developed (along with Pascal, Fermat and Leibniz [1646-1716] in particular) a differential and integral calculus. In theory these methods brought a mathematical control of the continuum within reach.

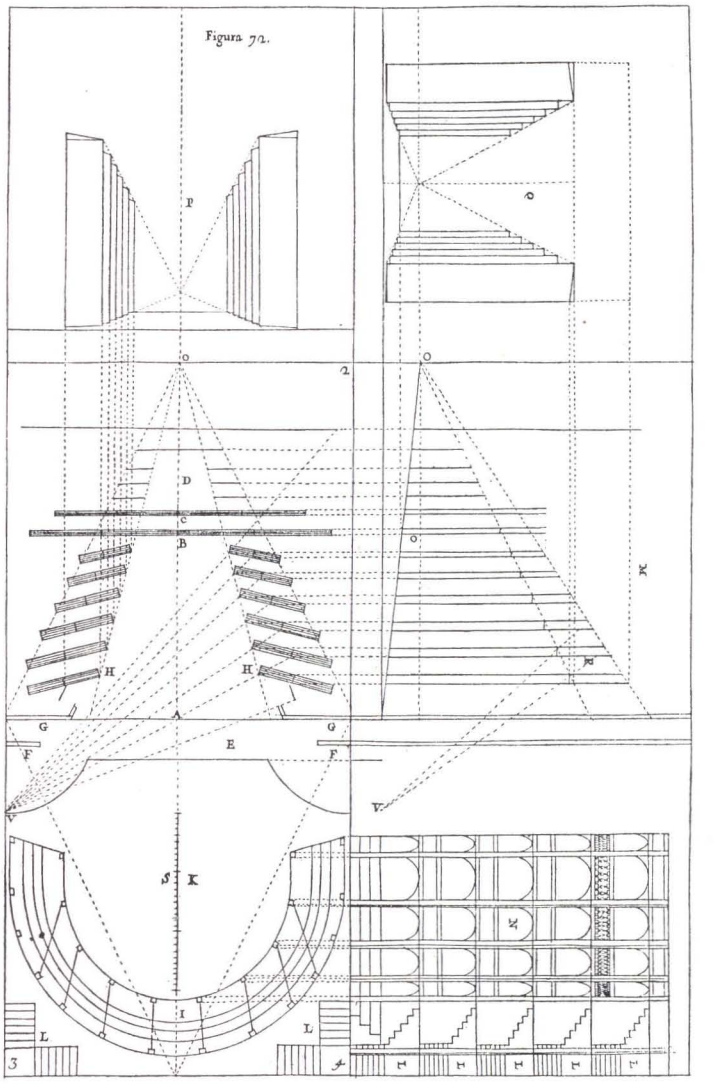
The construction of illusionary space

During the first half of the 17th century perspective construction was mathematically grounded. Well-known perspectivists, who contributed to its development, included Salomon de Caus and Père Niceron. The mathematical control of perspective made both a scientifically accurate perspective construction possible as well as its manipulation.

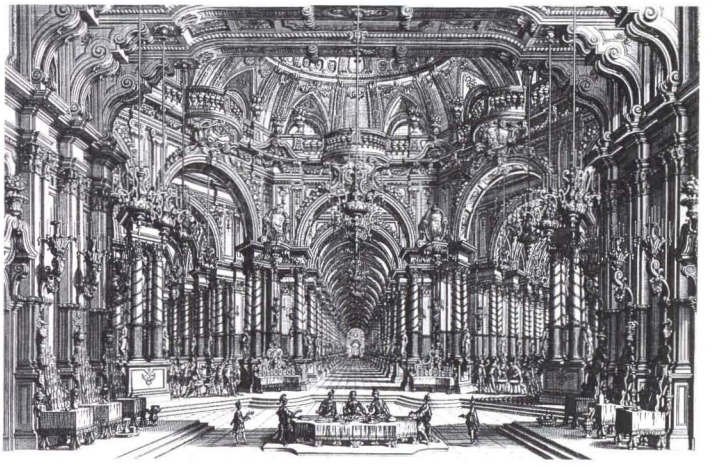
As the rules relating to scientific perspective were not only used to depict an actual space, but also as a means of arranging it, this can be termed perspective manipulation. A standard work in which this was theoretically discussed was *Perspective curieuse ou magie des effets merveilleux* (1638), by the French Franciscan Friar Minor, Jean-François Niceron (1613-46). Niceron knew all the treatises already published before his on perspective, from Alberti (1435) to Du Cerceau (1576), Vignola and Danti (1583), Sirigatti (1596) and Salomon de Caus (1612).

Niceron devoted the entire second book of his treatise to the study of geometric figures, which were so distorted that these only appeared to be properly proportioned when seen from the correct angle or viewpoint. When seen from other viewpoints they were indecipherable. To achieve this effect, Niceron inverted Alberti's straightforward perspective construction as it were. In Alberti's construction a square grid lying horizontally on a vertical picture plane is depicted as a trapezium, with the distance between the horizontal lines increasingly foreshortening the further back they lie.

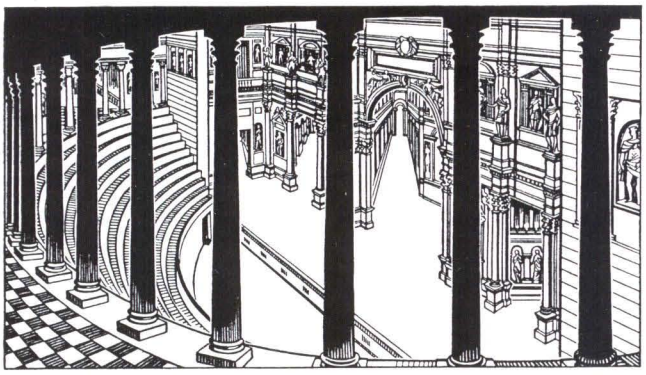
Niceron, on the other hand, studied how an actual square grid could be distorted in order for it to appear as a regular square grid when seen in perspective. To do this, the actual grid was stretched backwards, thereby 'reversing' normal perspective construction. The foreshortening in the perspective picture plane was in fact compensated for by increasing the measurements of the actual plan the further back it went. In this way it appears as a regular square grid in the perspective picture plane. Niceron used the same diagonal construction which can also be used with normal perspective construction to determine the narrowing of distances between lines parallel to the picture plane. This diagonal is formed by the line through the viewing distance and the cluster of lines converging at the vanishing point. On the intersections parallel lines can be drawn.



Construction of a perspectival synthesis between the auditorium and the stage area in a theatre. (P. Andrea Pozzo, circa 1685)



Stage set designed by Giuseppe Galli Bibiena, 1740.



Perspective of the Teatro Olimpico. (G. Becker)

The Loire and the Seine as locations for châteaux.

Niceron's scheme was an extreme example of this same construction: the distance point lies close to the vanishing point. His scheme has to be 'read' from a point lying just above vanishing point. The stretched trapezium then appears in the perspective as a square (apparently tilted upwards). This is called a perspective anamorphosis, whereby the picture plane, in which the figure appears correctly proportioned, is an imaginary one. Because of this, an anamorphosis can be constructed in any position or form of an actual surface. The depiction is separate from the underground, but this is not because the background recedes into the depth of the plane, as in normal perspective, but because in an anamorphosis the image in fact tilts forward from the surface.

During the 17th century, the Jesuit Andrea Pozzo (1642-1709) was so adept at perspective as trompe-l'oeil that by painterly means he was able to transform any background into the desired effect. On the barrel vaulting spanning the nave of Sant'Ignazio in Rome, the walls of the church were continued as illusionary architecture 'as far as the heavens'. The painting on the vaulting was done by stretching a network of lines at the height of where it began and then, it being in a dark church, illuminating this from the viewing point. The shadow from this indicated the precise distortion of the surfaces on the vaulting. Using this grid, the flat perspective drawing of the church walls on the vaulting could be executed. The chosen projection plane is therefore imaginary; it hovers, as it were, in the space under the vaulting. Pozzo's accelerated perspective appears to descend out of the vaulting.

Illusionary space was not only painted but also created using three-dimensional means. Experimentation of this kind was especially carried out in theatres. In the 17th century the background in the theatre was no longer just a painted surface. 'Vistas' were created in order to convey the illusion of infinite, continuous space. These were views framed by a series of architectonically constructed viewing 'windows'. The measurements and the placing of these 'windows' were perspectively manipulated and were in keeping with a painted panorama. An example of this are the five wooden streets executed in accelerated perspective and built by Scamozzi (1552-1616) as views to be placed behind the five portals of the three-dimensional decor in Palladio's Teatro Olimpico in Vicenza (1580-84). In this way perspective trickery enabled city dwellers to bring their city into the theatre.

A further development in 17th-century theatre lay in abandoning three-dimensional props. This was made possible by the invention of the *coulisse* – a mobile screen or interchangeable wall. In this way decors acquired incredible mobility and versatility, which burgeoning opera at the time demanded. Giulio Troili used eight *coulisses* on stage, which he arranged one behind the other at increasingly smaller distances. This narrowing of distances in the regular indentations of the screens was done in keeping with the natural perspective of the space. The use of the coulisse made an unprecedented suggestion of spatial depth possible. The *nec plus ultra* of such illusionist perspective in theatre sets was achieved in the work of Bibiena, an Italian family of set builders. Notwithstanding, the theatre remained dependent on painting for depicting spatial infinity. Accelerated perspective was ultimately directed by painterly means towards the vanishing point.

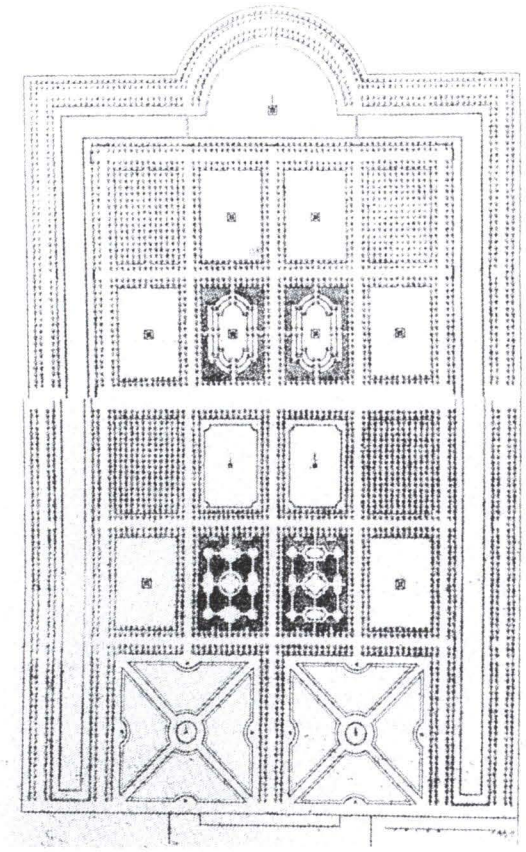
Section from the Carte des Chasses du Roi des Environs de Versailles, 1764-73.

The 'Grand Ensemble'

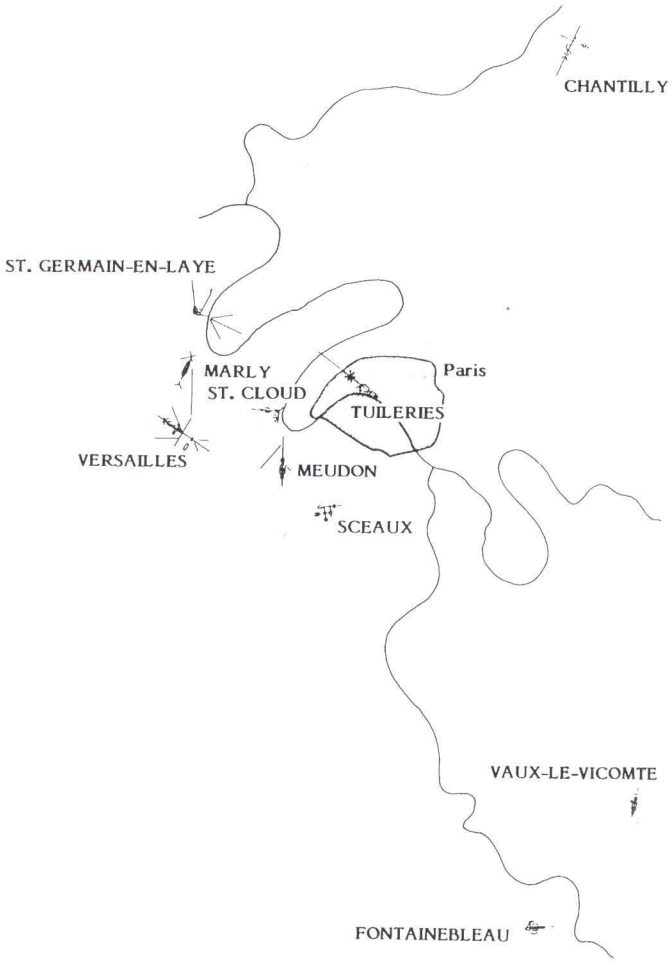
In the mid-17th century two French treatises were published on garden art. *Le jardin de plaisir* (1651) was written by André Mollet. His father Claude Mollet was the head gardener for the French king, and the *Théâtre des plans et jardinages* (published posthumously in 1652 and dedicated to Nicolas Fouquet) was attributed to him. André Mollet offered several interesting suggestions regarding the treatment of a view. He suggested placing a perspective painting at the end of an avenue to create the idea of a continuation of space. He also treated the avenue as if it were a vista enclosed by a set in a theatre.

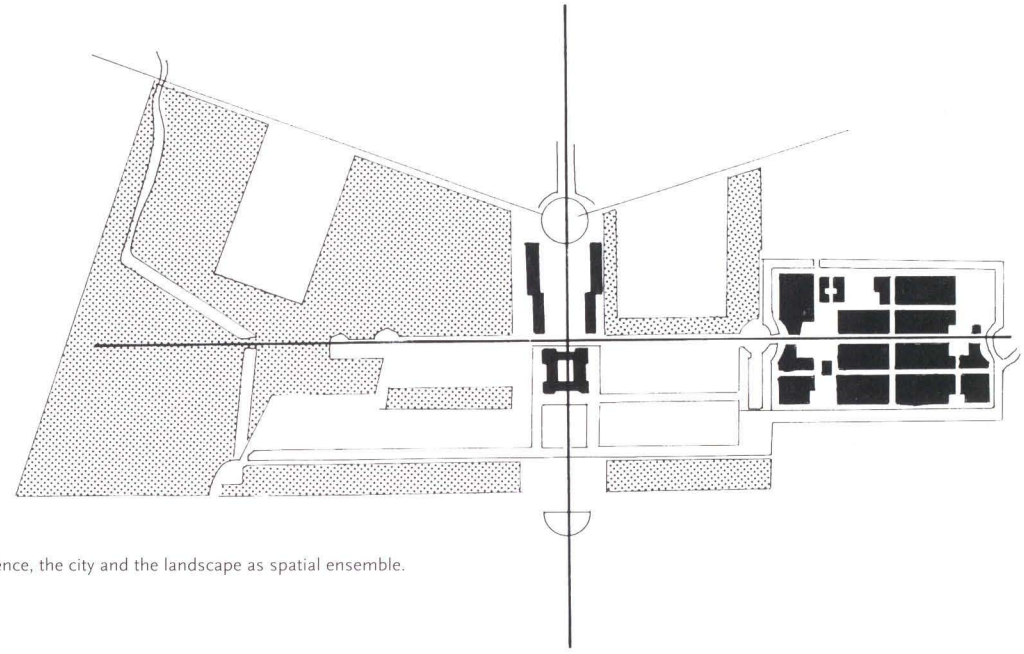
In his work Salomon de Caus (1576-1626) dealt with the 'scénographie ou raccourcissement de la chose visible' and also discussed a perspective painting for an external wall. Seen through a frame, such a painting appeared to be the spatial continuation of the actual garden. The Jesuit Dubreuil, among others, wrote about two painted screens arranged in a garden as *coulisses* with, behind, a painted decor of a garden. To an observer standing at an allotted distance from them, the images on the screens merged into one uninterrupted spatial illusion.

Thus painting was employed in landscape architecture as an artificial device for creating spatial depth. In the first outline plans for the ideal garden, included in André Mollet's treatise and for which the Tuileries Gardens served as a model, the treatment of the view was taken a step further. The plans are bilaterally symmetric on each side of a main axis, which terminates in an exedra or echo – a primitive architectural device used to bring the perspective horizon forward (acceler-



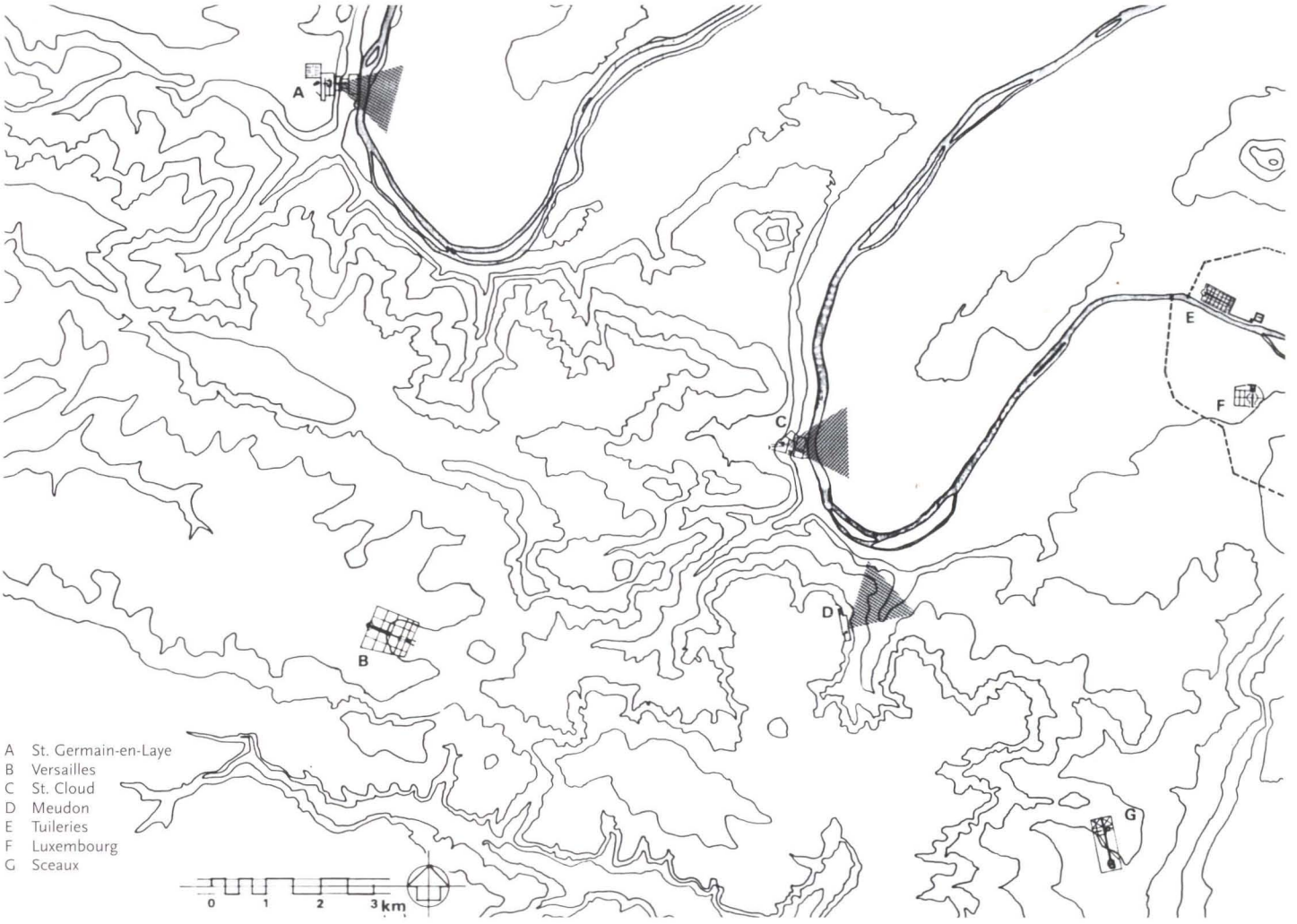
The ideal plan of the French garden. (André Mollet, 1651)





Richelieu. The residence, the city and the landscape as spatial ensemble.

Versailles. Les Cent Marches. The stairs near the Orangerie on the south side of the Grande Terrasse.



The Seine landscape about 1650. The châteaux are scattered through the geomorphology as separate 'villas'.

ated perspective) and to make the space appear deeper. (It is similar to the apsis and the dome in architecture.) The echo represents the natural panorama, in the same way the dome represents the cosmos. The axis with its bilateral symmetry, which meets this, is therefore the most important visual axis.

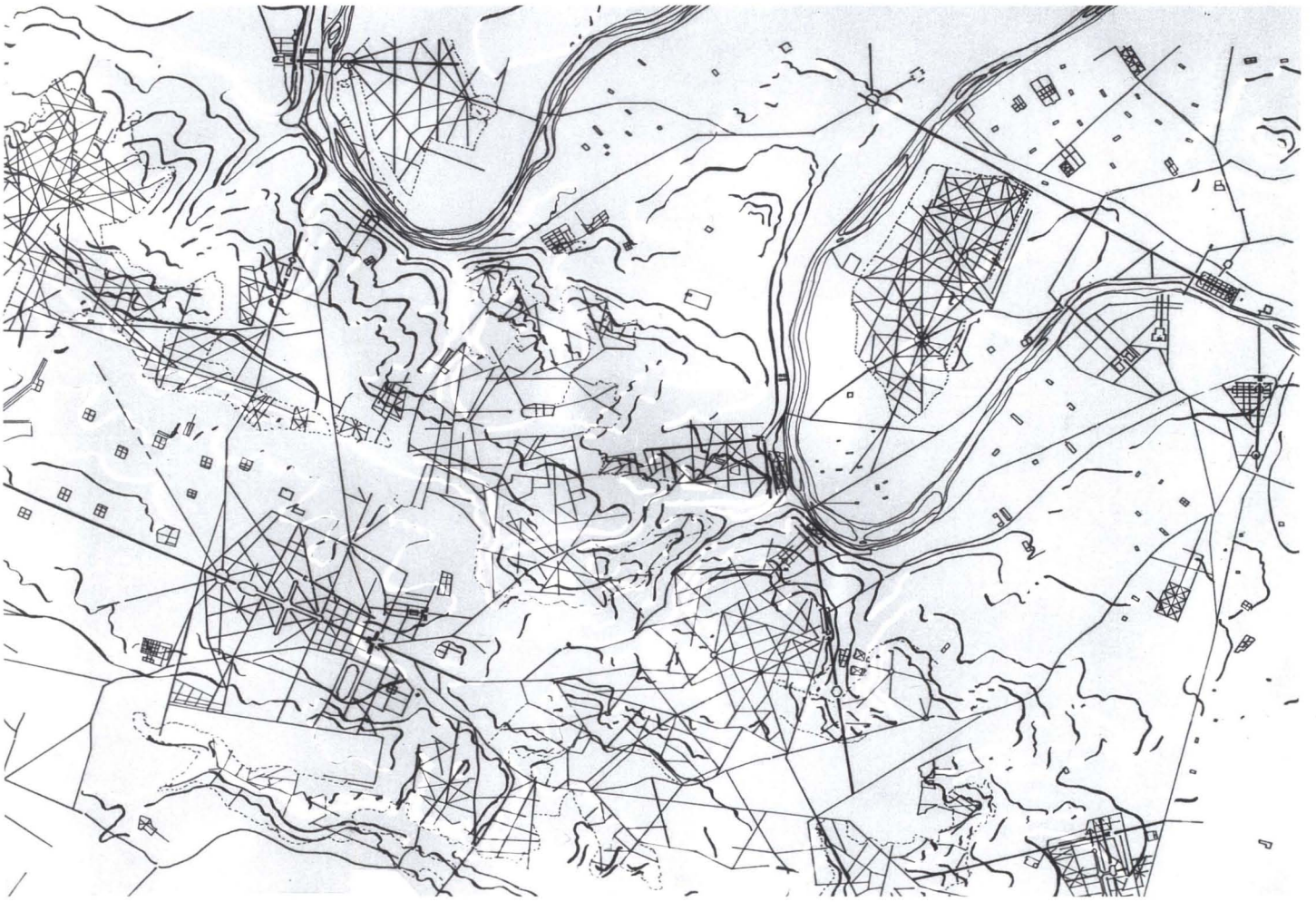
The centralisation of the image of space in illusionistic construction of space, which reflected the centralisation of power, had great influence on the changes in the number, size and design of the residences in the vicinity of Paris in the second half of the 17th century.

The development from the 16th-century French castle (Loire region) to the early 17th-century open château (Seine area) can, morphologically speaking, be summed up from four different aspects. These also illustrate the individual manner in which the French château opened towards the landscape. In the plan of the building the enclosing of the courtyard was broached on one side and the round towers were changed into rectangular pavilions. In the façade, the accent shifted from the corners (defence) to the centre (opening). The façade consisted of five parts: a central pavilion, flanked by other parts of the building and corner pavilions. In the plan for the grounds, the narrow strategic entrance was changed into a drive leading onto a large entrance front. The many enclosed and separately sited parts (buildings, gardens, entrances) were geometrically arranged. As well as a defensive function, the water in the plan also took on an aesthetic importance (pools and canals). In the plan of the garden the neat symmetry changed into a simple bilateral symmetry.

An early example in which the city as well was included in the spatial composition is the ideal city Richelieu, near Tourain. Here Cardinal Richelieu built a new town, begun in 1631 and based on the plans of Jacques Lemercier, part of

which formed the garden and parklands around a château. The River Mable, which was made into a rectangular canal in the park and which bounds the town at right angles, determined the layout of the plan in the topography. The town and the park layouts have their own measurement system, while the château, park, landscape and the town itself are linked by two axes which intersect each other at the château. The axis passing through the château connects the building, park and outside landscape. The other axis, passing through the town, remains within the boundary of the estate and connects the town with the spatial axis of the residency. The town plan has no independent spatial relationship with the landscape: this is brought about via the axis of the château. The axis passing through the city is a transverse axis in the park. The town is a part of the layout connected to the central part of the park and, like the garden plan, it is based on axiality and symmetry.

The abstract concept of nature and illusionistic construction of space formed the theoretical basis for a new spatial composition of building, landscape and city in the residences that were constructed near Paris in the second half of the 17th century. The architectural landscape devices are, in principle, comparable to those used in the rational landscape design of the Italian villa. An important difference, however, is that they have been worked through as far as the boundaries of the rational allow, are presented at an abstract level and reinforce each other's effect. The themes of the landscape's architectonic treatment have been extended to the regional landscape and the city. In the landscape outside the domain the axes connect with avenues, which form direct links between the residences themselves. They also connect with the large-scale hunting forests on the level, elevated plateaus and with the city of Paris. In this way the entire region, although it cannot be seen in its entirety from any point, has been artificially made into one entity. The thinking observer must reconstruct this abstract skeleton, as if in an anatomical lesson, in order to have an idea of the actual form of the natural landscape.



The Seine landscape after the 17th century transformations. The residences form an architectonic network that lies over the geomorphology.

Vaux-le-Vicomte

The most important landscape architect involved with the new residences was André le Nôtre (1613-1700), the son of Pierre, the *Premier Jardinier des Tuileries*. The latter introduced his son to landscape art, who then proceeded to broaden his knowledge among the painters, architects and thinkers of the day.

This was also in keeping with the ideas of the age, such as those expressed by Jacques Boyceau, the *Intendant des Jardins du Roy*, who regarded a knowledge of architecture, drawing, painting and geometry as essential to a landscape architect's training. André le Nôtre became famous for the work he was commissioned to do for Nicolas Fouquet (1615-80), appointed *Surintendant des Finances* by Louis XIV in 1653. He had Vaux-le-Vicomte built (1656-61), the first of a series of large, new country houses outside Paris. Le Nôtre's design for Vaux-le-Vicomte became an important prototype. It complied with the new ideas of the age and gave French landscape art its own identity, the expression of which was in keeping with political aspirations. The most important historical details of the original plan are known. The present layout of Vaux-le-Vicomte is partly a restoration of this, the broad outlines of which remain unchanged.

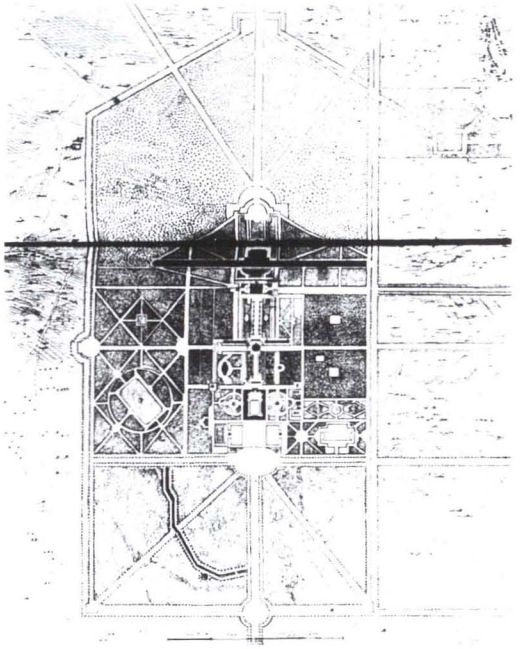
The ceremonial inauguration

On 17 August 1661, King Louis XIV, accompanied by several noblewomen, travelled by coach from Fontainebleau to Vaux-le-Vicomte. Nicolas Fouquet, his young, ambitious finance minister and enlightened patron of many artists, had invited over 6,000 guests to a glittering party to celebrate, along with the king, his new residence at Vaux. Around five years earlier Fouquet had drawn together a highly-gifted trio: architect Louis II Le Vau (1612-70), the landscape architect André le Nôtre and the painter and interior decorator Charles Lebrun (1619-90).

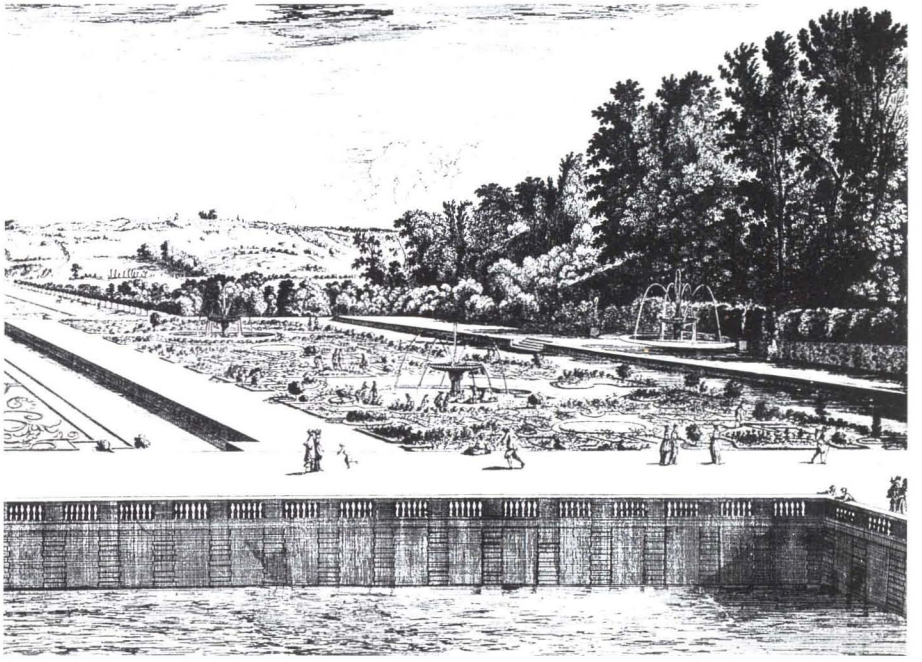
Portrait of André le Nôtre. (Carlo Maratta, ca. 1680)

On a site covering several hundred hectares, containing a few settlements and Vaux village, the three artists were ordered to create a country house for the chief treasurer according to the prevailing ideas of the cultural and intellectual elite. A memorandum, written by Fouquet on 21 November 1660, indicates that a large number of workmen were involved in constructing the house and gardens. The settlements were shifted, hills excavated and rivers repositioned. In nearby Maincy, Fouquet had accommodation and a hospital built for his workers as well as large workshops and a carpet factory to execute Lebrun's colossal designs.

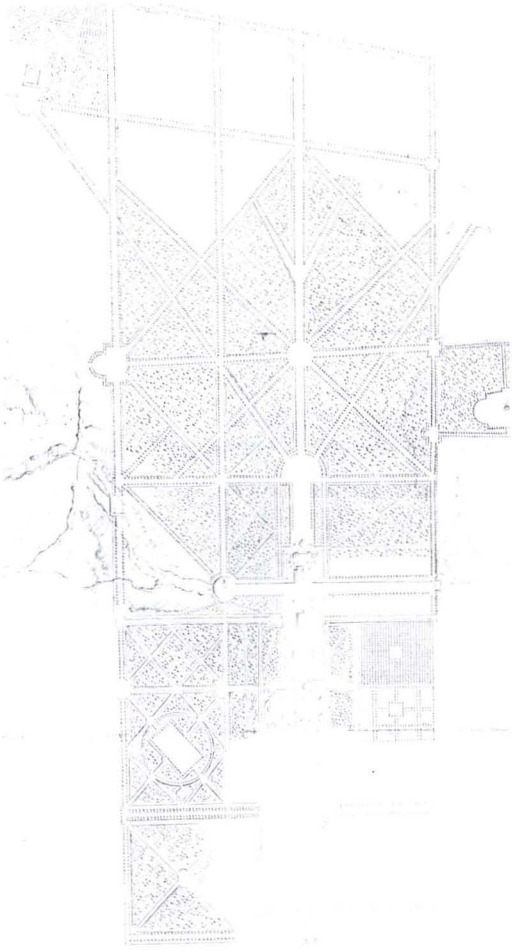
Despite his reckless behaviour, the quick-witted minister nevertheless took certain precautions when he heard that his enemy and arch-rival, Jean Baptiste Colbert, also a minister of



Engraving of the plan of Vaux-le-Vicomte. (Israël Sylvestre, circa 1660)



Vaux-le-Vicomte. The floral parterre as first constructed. (Israël Sylvestre)



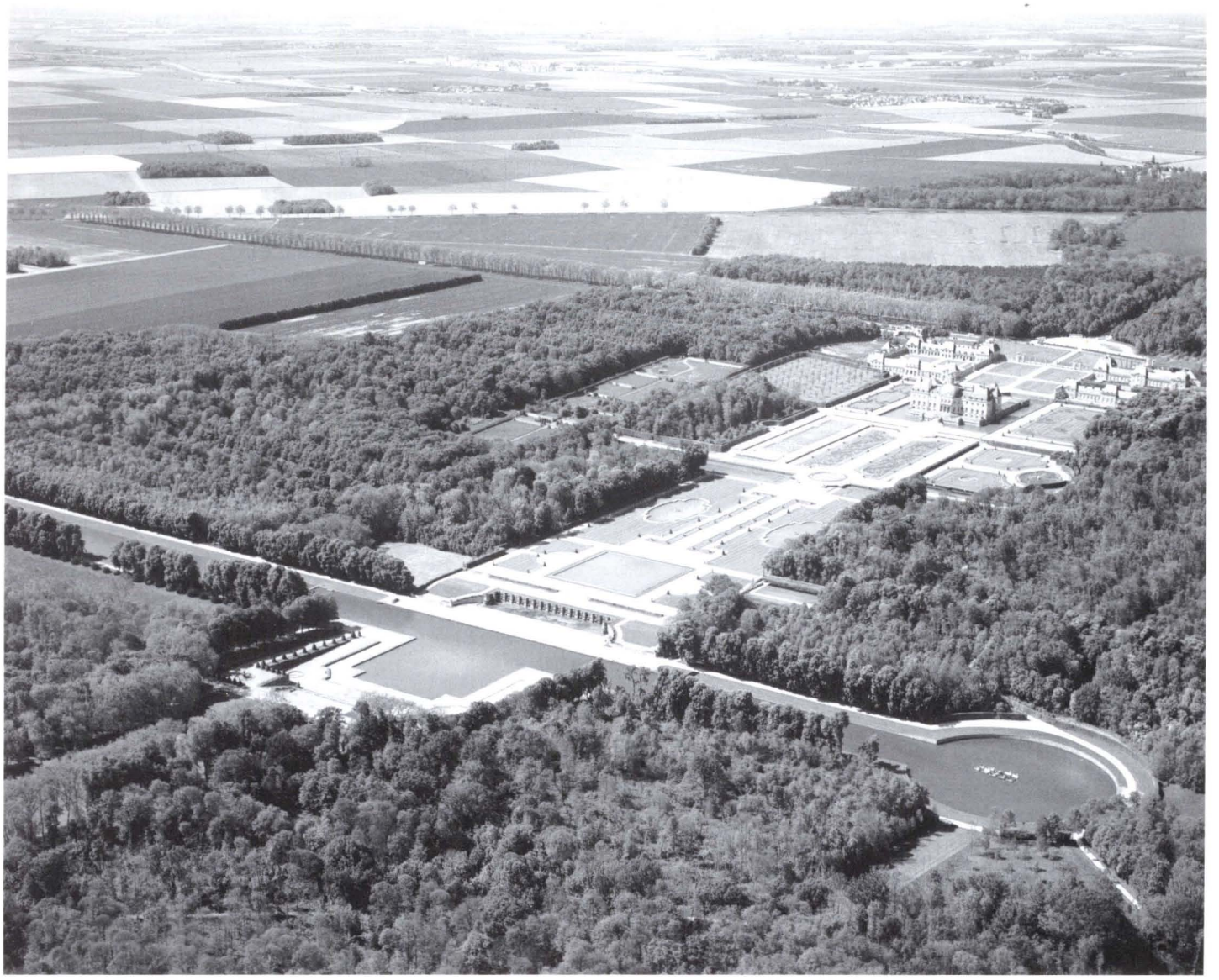
Plan for Vaux-le-Vicomte. (André le Nôtre, circa 1656)

Louis XIV, had been in Vaux, secretly, to spy on the controversial work. 'Dispatch the bricklayers working on the canal for as long as is necessary, so that there are as few workers as possible to be seen.' Perhaps even in his rashness, Colbert's witty response, in his presence, to the king's complaint on visiting the Louvre that he had no money to finish the great building, was not lost on Fouquet. 'Sire, you need be finance minister for only a year to build to your heart's content.'

Fouquet received his royal guests with bold gallantry. The dazzlingly attired throng first went for a walk in the garden where they were entertained by the large waterworks. Jean de la Fontaine, one of Fouquet's most loyal friends, sang to them his *Songe de Vaux*:

Fontaines jaillissez | Herbe tendre, croissez
Le long de ces rivages | Venez petits oiseaux
Accorder vos ramages | Au doux bruit de leurs eaux.

Nymphs in gilded gondolas invited the guests to go boating, while hidden behind trees and thickets musicians enticed them into the labyrinth, grottoes, marble recesses and other hidden places. Then the guests visited the château where Lebrun's decor was admired. The already slightly touchy king was apparently irritated by Fouquet's recurring heraldic inscription: *Quo non ascendam?* (To where can I not rise?).



Vaux-le-Vicomte, Melun. (Aerial photo P. van Bolhuis/Pandion)

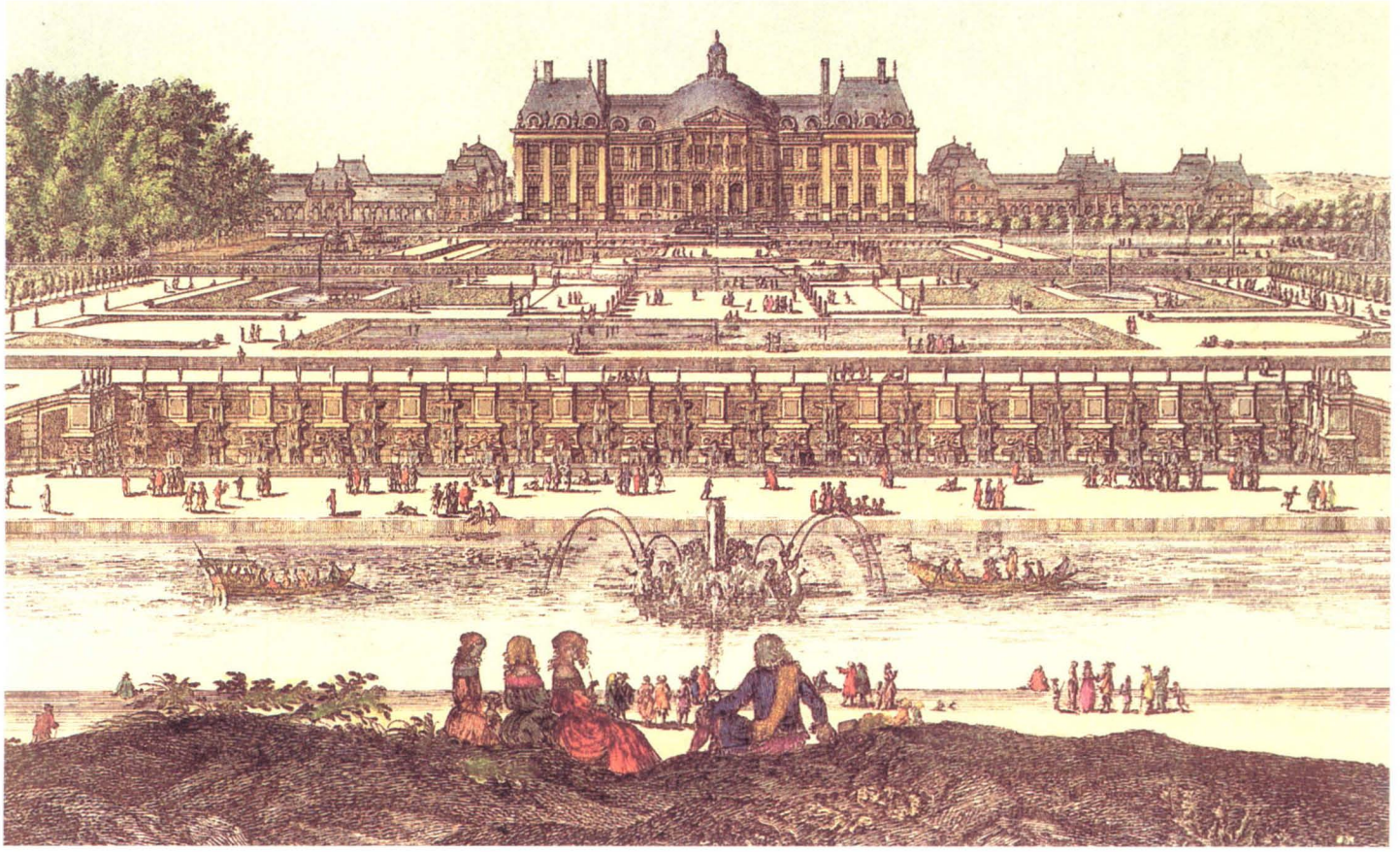
Wagging tongues also maintained that an allegorical painting, in which those who saw it thought they recognised the young queen, had also caused the king's displeasure. A written word of warning by Madame du Plessis-Bellièvre, one of the minister's spies, quickly stuffed into Fouquet's hand, was to no avail.

After the tour there was a lottery with expensive prizes for all those invited; jewels for the ladies and weapons for the gentlemen. Meanwhile the acclaimed gourmet chef, Vatel, had ordered the tables to be laid. The tableware, with more than 36 dozen solid gold plates, must have been an exquisite sight. Says Jean de la Fontaine, 'The delicacy and rarity of the dishes was great, but the witty gracefulness with which his lord the minister and his wife entertained their guests was even greater.'

After supper the assembled guests made their way to the garden again. In the *Allée des Sapins* a theatre set had meanwhile been erected, designed by Lebrun together with 'magician' Torelli.

Deux enchanteurs pleins de savoir firent, tant par leur imposture,
Qu'on crut qu'ils avaient le pouvoir de commander 'la nature'.

A large rock suddenly changed into a shell opening up, out of which stepped the nymph of the fountain who commanded the gods to descend from their marble pedestals and entertain the king. At this point fauna and bacchantes appeared from all manner of ornaments and statues and started to dance a ballet. The ballet was followed by a comedy, *Les Fâcheaux* by Molière,



Vaux-le-Vicomte. The garden and the château seen from the south. (Israël Sylvestre)

especially written for the occasion. By the time it had finished it was dark and guests were making their way to go inside again, when suddenly a shower of fireworks illuminated the château yet again as a monumental stage decor.

The Sun King returned to Fontainebleau. Three weeks later, on 5 September 1661, Nicolas Fouquet was arrested in Nantes and imprisoned on the king's orders. Despite pressure from Colbert and the king also seeking revenge, Fouquet's trial, in which he was accused of embezzling state funds, lasted over three years and took what seemed a favourable turn for the accused. The judges sentenced the defendant to exile. The king, however, quashed this sentence and increased the severity of the punishment to lifelong imprisonment. All of Fouquet's possessions were confiscated and Colbert assumed control of his ministry.

On Colbert's advice, the king himself then set Vaux's three designers to work creating a fitting new residence for him at Versailles. Fouquet remained in prison until his death. Many maintained that he was a thief and had drained an already impoverished country and people of money and gold for his own reckless capers. Others, including many artists, remained loyal to him even in prison. The most loyal of all was Jean de la Fontaine, who for years in his poems pleaded in vain to the king for clemency.

Remplissez l'air de cris en vos grottes profondes
pleurez, nymphes de Vaux, faites croître vos ondes.

The present layout

After Fouquet's arrest, the most beautiful furniture, carpets, paintings, sculptures and even trees were removed from Vaux and used to adorn the Louvre and Versailles. Twelve years later, in 1673, the estate was handed back to Madame Fouquet. When her eldest son died childless, in 1705, she sold the property to Field Marshall Villars. His son proved incapable of managing the estate; among other things he had the water supply system in the garden dismantled in order to sell the lead. In 1764 the

roperty was sold to the Duke of Choiseul-Praslin. His family
owned the estate for six generations and, despite the resolution
of the National Convention to destroy all symbols of monarchy,
the château remained undamaged during the Revolution.

After 1850 the gardens were neglected and in 1875 the
estate was publicly sold. The new owner was a Paris industri-
alist, Alfred Sommier. Together with his son he carried out
numerous restoration projects. Around 1910, the restoration
of the garden, based on the still existing broad layout and
sketches, was virtually completed. The landscape architect
Achille Duchène played a major role in the restoration. One of
Alfred Sommier's great-grandsons, Count Patrice de Vogüè, is
the estate's current owner.

The present layout is broadly in keeping with the original
plan. This is evident from André Le Nôtre's drawing and the
engravings by Israël Sylvestre and Gabriël Pérelle (1665). A
few details have changed: the *Grilles d'Eau* (*les Petites Cascades*)
at the eastern termination of the transverse axis along *les Petits*
Canaux have not been entirely restored, nor has the *goulette*
(the cascading water chain of pools interconnected by small
canals) along the principle axis at the *Parterre de Gazon* (called
the *Allée d'Eau*).

In Le Nôtre's drawing and Sylvestre's engravings the
dimensions of the pond in the *Parterre de la Couronne* seem
larger than those of the ponds in the *Parterre de Gazon* (*Les*
Tritons). However, in Sylvestre and Pérelle's perspective draw-
ing this does not appear to be the case. For this reason it is
difficult to give a definite judgement on the original propor-
tions. Moreover, the two round ponds Sylvestre drew at the
foot of the château, at the beginning of the *Parterre de Broderie*,
are missing from the present layout. There are also no urns
and pedestals in Sylvestre's engraving but herms, placed
around the main round pond and against the forest wall,
along the *Parterre de la Couronne* and the *Parterre de Diane*.

The origins of the present plantings is a separate issue alto-
gether. In Israël Sylvestre's engravings, the rear of the garden,
past the *Grand Canal*, was then still bounded by young, open
forest. The edges of the forest, in the foremost part of the
garden, were less uniform than they are now. The trees (elm,
oak and chestnut) were not clipped, although they were under-
planted with hornbeam. In its present state, the system of
avenues in the forest is partly overgrown.

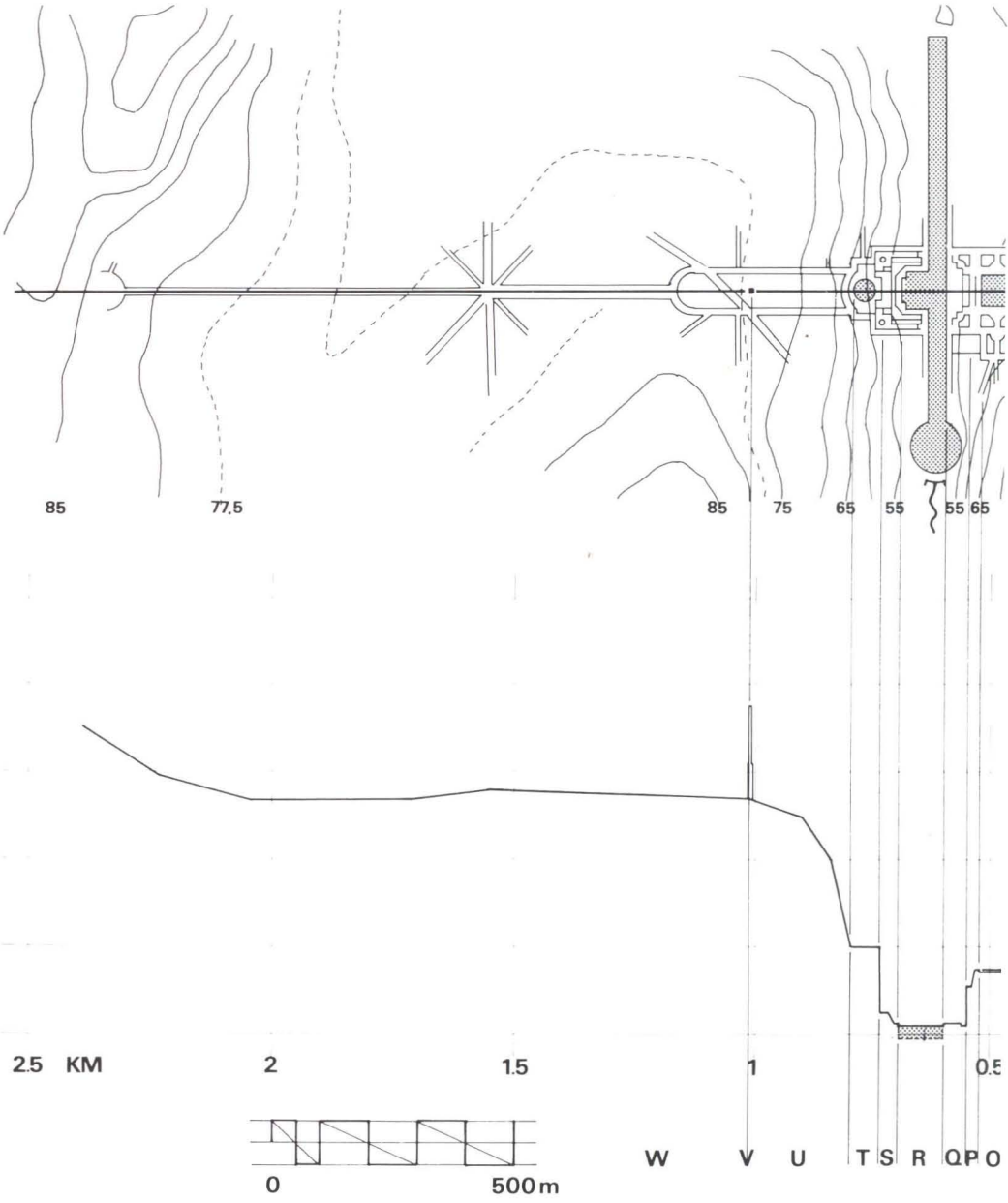
Pérelle and Sylvestre's engravings of the parterres also indi-
cate that the internal configuration of the *Parterre de Broderie*
(buxus with red chippings) was different. Moreover, the *plate-*
bandes (edging borders) of this parterre were empty and did

Hercules.

not include the present topiary forms. These were no
dence along the other parterres either, although there
row of tub plantings along the terrace at the foot of t
château. The *Parterre de Diane* was not a lawn but w
filled with flowers and the occasional pond. Going
ommended varieties of plantings fashionable in ga
the time, there must have been fragrant herbs lik
lavender, mint and marjoram as well as cut flowe
carnations, violets, irises and lilies. Aside from t
parterre, the rest of the garden plantings were c
(grass, buxus, hornbeam and oak).

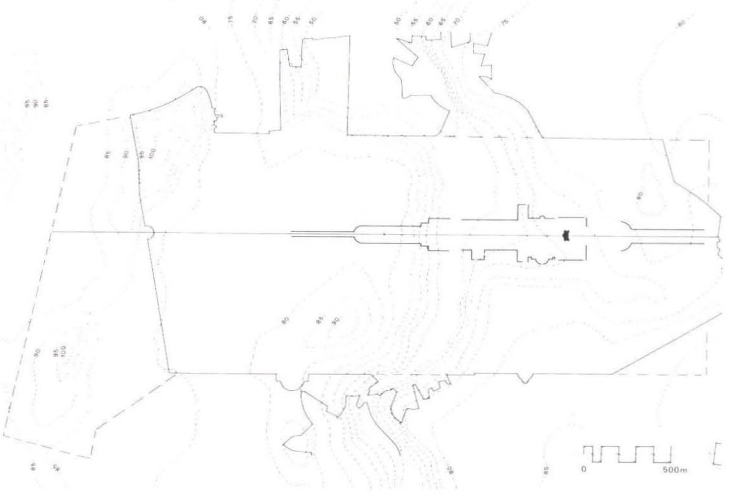
Site

A modern topographical map shows an exte
plex to the north-east of the city of Melun. I
river valley landscape spreads a dense fores
south. Within this lies an elongated open s
and the house. On the edge of this solid fo

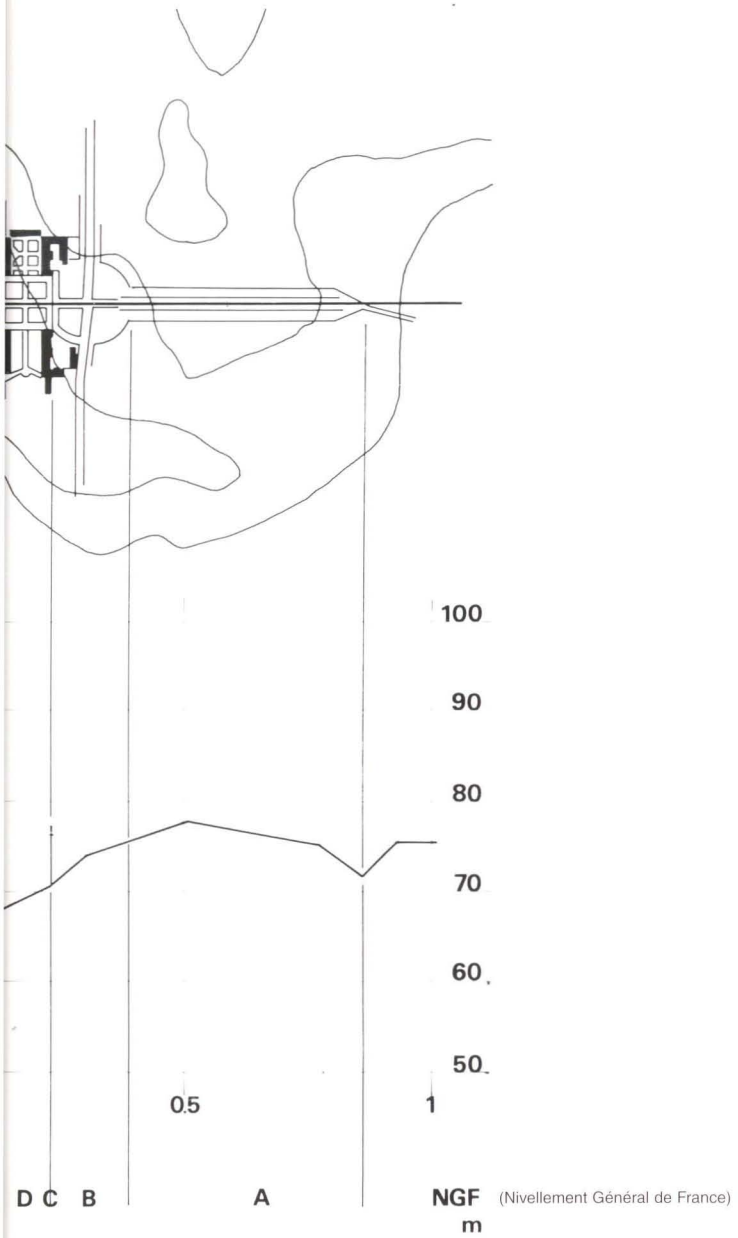


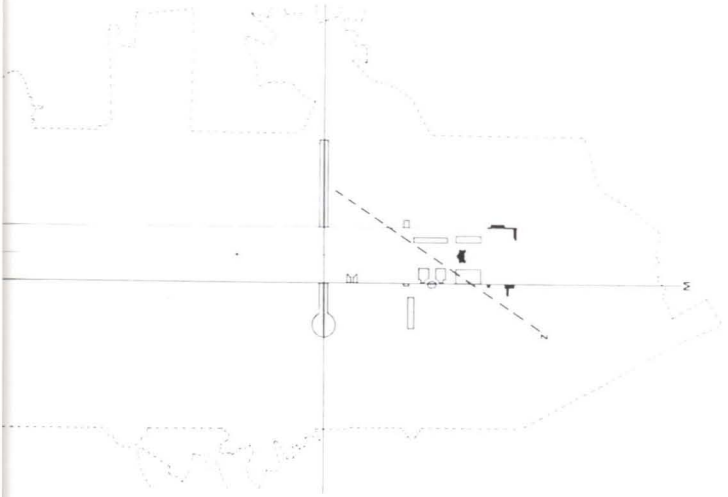
Plan and elevation of the main axis.

A Approach road
B Avant Cour
C Screen with entrance gate
D Grande Cour and service buildings
E Entrance gate and moat
F Cour d'Honneur
G Stair and landing
H Château
I Stair and landing
K Parterre de Broderie, to the west the Parterre de Diane, to the east the Parterre de la Coulonne
L Petites Cascades
M Petits Canaux, on the garden axis the Rond d'Eau
N Parterre de Gazon
O Confessional and reflecting pond
P Grandes Cascades
Q Path
R Grand Canal
S Grotto
T La Gerbe
U Tapis Vert
V Hercules
W Tree-lined avenue



The outline of the estate and the garden projected onto the contour lines.





Moisenay le Monceau and Maincy, situated on the north and south slopes of a river valley running east to west. If we take the solid forest as being a 'wall' between the garden and landscape, then this can be seen as having an 'inside' (garden) and an 'outside' (landscape).

Most lines of the garden, including the principle axis and the other avenues, terminate in the forest wall, while, conversely, the patterns of agricultural landscape run into the outside wall as it were. The patterns of the layout and the landscape interact where a small river, the Anqueil, flows straight through both the forest and the garden, where a smaller tributary, the Bobée, penetrates the forest at the village of St. Germain-Laxis to the north, and at the point where the principle axis to the north continues more or less to this same village.

The most important link with the outside world is the slightly curving route to Melun, which intersects the principle axis at *Avant Cour*. Between Maincy and Moisenay vestiges of the old footpaths also run through the forest. On the landscape side, the forest wall has hardly been styled as an 'outside wall'. Only occasionally can an exedra-like termination of an axis still be seen. As a result the outside forest wall no longer expresses the nature of the internal layout: the forest isolates the garden from the landscape. At the same time it acts as a 'buffer' in which practicalities like a vegetable garden and vineyard can be 'stored' out of the way.

There are certain differences between the existing situation and the plan engraved by Israël Sylvestre, a contemporary of Le Nôtre. The principle axis of Sylvestre's plan ran through the forest wall into the landscape, together with two diagonal side axes. The most important transverse axes continued west in the landscape. The pattern of the layout did not terminate in the wall but was continued in the landscape. The landscape side of the wall was bounded by a tree-lined promenade.

The pattern of the landscape (country roads and streams), especially in the extensive northern and southern parts, continued into the forest wall. The new scheme was laid over the landscape-pattern, as it were, whereby the old routes were retained in the forest. Only in the main part of the garden was the landscape as 'underlay' erased. When compared to the present form, Sylvestre's engraving clearly integrated the layout's patterns into the landscape, especially in the forest area.

The main axis, the mid-line of the estate (M) and the natural axis of the side valley (Z). Together with the asymmetrical elements along the perimeter of the garden these realise a balance between the natural form of the terrain and the symmetry of the main axis.

Le Nôtre's is the most important drawing. In this plan the diagonal system of avenues was better designed than in Sylvestre's engraving. In the radial forest the old agrarian pattern of paths was erased. Outside the forest, the avenues were bounded by open fields. The system of avenues was the most important link between the actual garden and the landscape outside.

To sum up, the present plan comprises a garden which is isolated from the open landscape by a dense forest wall. Orthogonal, diagonal and peripheral avenues form the links between the garden, forest and landscape. The garden's symmetrical axis, piercing the landscape, is the most important internal element, while the Anqueil, piercing the garden, is the most important external one. Together they form a coordinated system that constitutes the framework of the layout. Despite the present spatial isolation of the actual garden, this anchors the complex in the landscape.

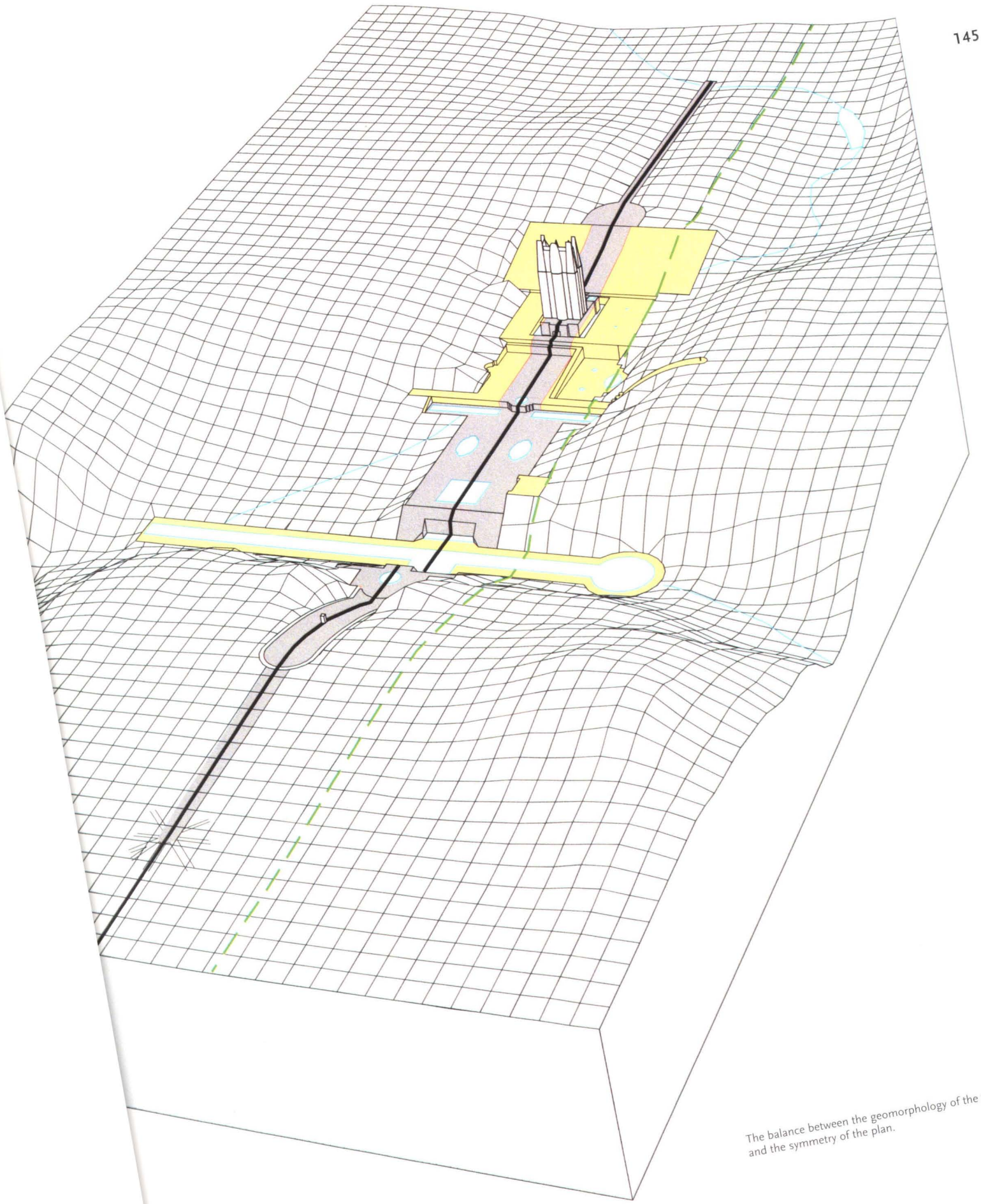
Interaction with the geomorphology

The garden at Vaux-le-Vicomte is a large independent space enclosed by forest. The effect of this seclusion is heightened even more by the local geomorphology. This comprises the Anqueil valley and a side valley (Bobée) flowing into this from the north at an oblique angle. Both river valleys are irregular, with a steep southern and an eastern valley wall, respectively. The axis of the layout lies at right angles to the direction of the main valley. The *Grand Canal* excavated along this forms a 'fold', as it were, in the plan, folding the principle axis into a northern and southern section of roughly equal length. The northern half lies in a side valley, the latter lying at a 20-degree angle from the principle axis.

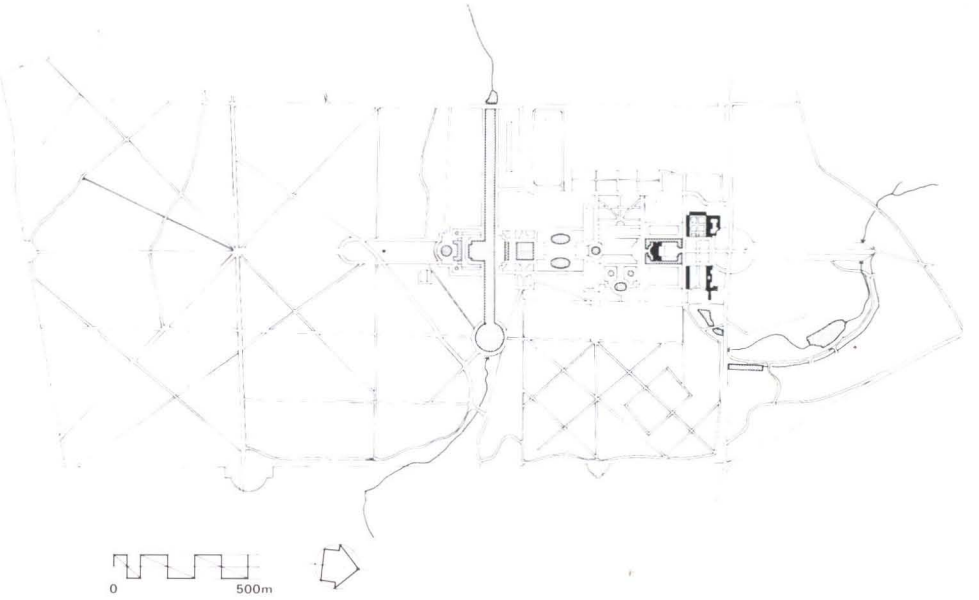
The southern half lies on the elevated plateau. Moreover, the principle axis does not converge with the north-south geometric middle of the forest section, but has been shifted in a westerly direction to the side valley. The garden's eastern boundary partly converges with the geometric middle of the forest section. Thus, the principle axis of the garden has been shifted as much as was necessary from the geometric centre of the forest section in order to project it in the heart of the side valley. Subsequently, the garden's width is determined by the natural width of the side valley. In this way the existing depression of the side valley can be optimally used for the technical and spatial organisation of the axis. By carefully determining the position of the principle axis, excavation work is kept to a minimum. The slope of the valley basin makes it possible to make maximum use of the river water for the garden's waterworks.

Vaux-le-Vicomte. Entrance to the garden on the transverse axis in front of the château. The grounds are level across the width of the axis of bilateral symmetry; other than that they follow the natural slope of the site.

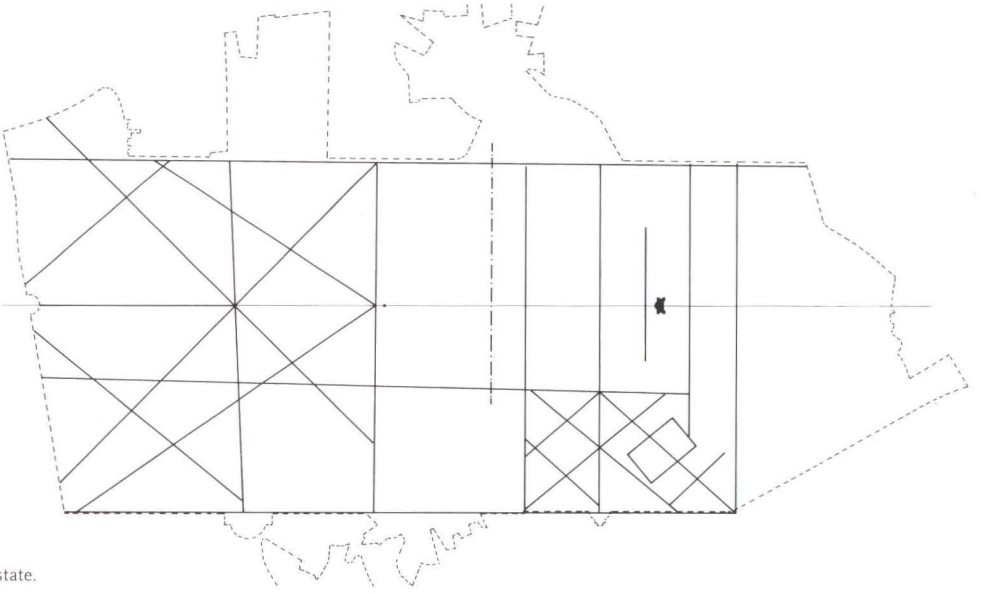
The deviation of the side valley in relation to the principle axis has been visually corrected. The cross-section of the central axial zone has been erased. The *Parterre de Broderie* has been laid out in an artificial bedding with equally high banks on the sides, thereby camouflaging the terrain's natural transverse slope. The plan of the perimeter areas has been adapted to the natural valley form by varying the transverse measurements



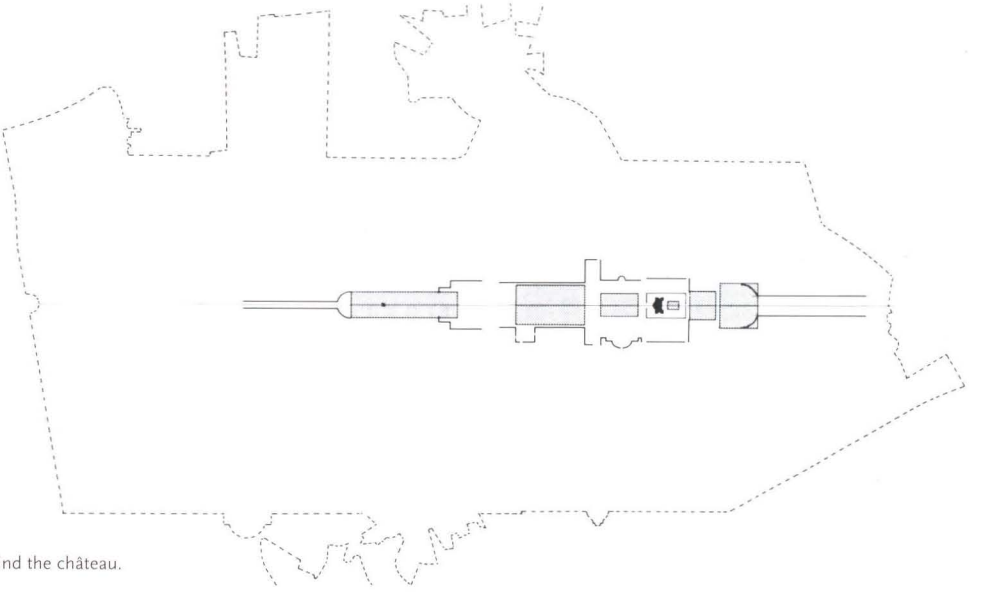
The balance between the geomorphology of the terrain and the symmetry of the plan.



The ensemble of château, garden and estate.



The orthogonal grid and the diagonal axes of the estate.



The series of level areas (terraces) in front of and behind the château.

and creating differences in height of the off-centre parts of the garden. Thus the deviation of the side valley in relation to the principle axis can still be 'read' from the larger transverse dimensions of the north-east parterres (e.g. *Parterre de la Couronne*) and the south-west section of the small and large canals.

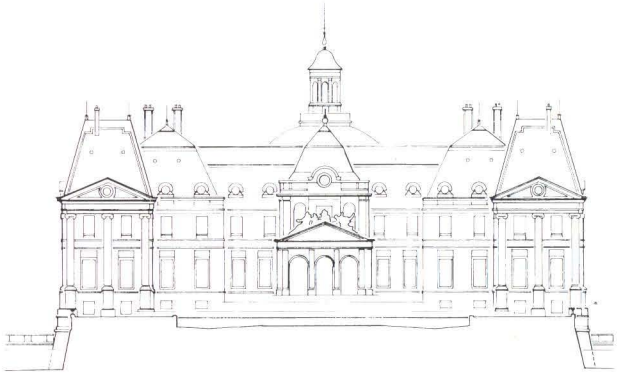
This complex interaction between the garden's axial symmetry, the geometric middle of the forest section and the natural course of the river valleys creates a visual balance between the plan's symmetry and the terrain's natural form. The strict geometric symmetry in the plan is restricted to the central area of axial symmetry, which has an autonomous significance, quite separate from the terrain's natural form.

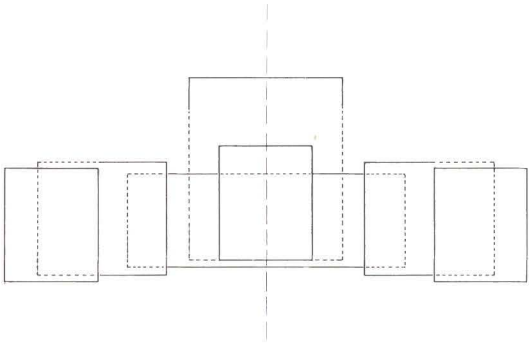
The geometry of the plan

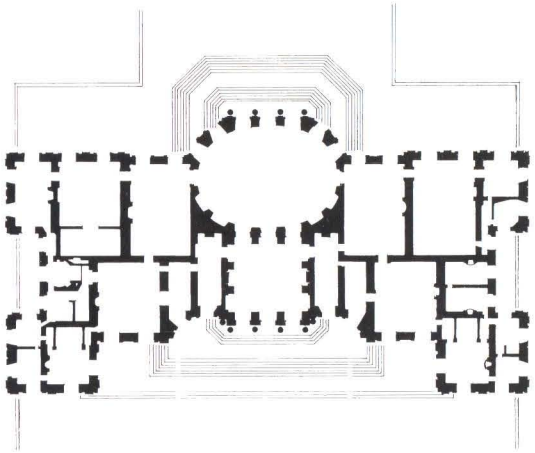
The geometric system is determined by the measurement systems of the building, garden and forest complex. The island, with the château and *cour d'honneur* bordered by raised parterres, is surrounded by a moat and is the most important element on the principle axis. The château's north and south façades (70 metres wide) consist of protruding end pavilions, a recessed *arrièrecorps* and a main (protruding) *avantcorps*. However, the organisation of depth and the proportions of the building parts are different in the two façades. On the north front, the end pavilions protrude more, the central one is smaller and the wall as a whole has a concave form. On the south side, the large domed central pavilion protrudes much more and gives the wall a convex form. This concave-to-convex distortion inclines the building in a southward direction along the principle axis. At a distance the regular indentations in the façades suggest a series of separate building parts, which in the layout, however, have apparently been combined.

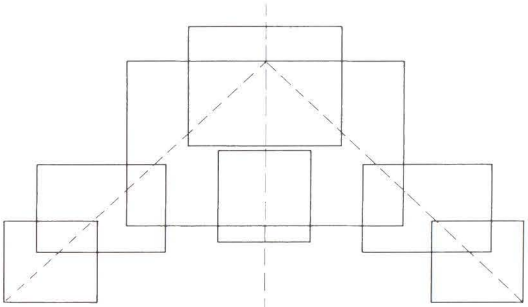
The plan as a whole comprises a series of rectangles that overlap each other diagonally. The château's separate service buildings (*Les Communs*), situated to the north, are included in this scheme as the end pavilions, which have been shifted the furthest across the diagonals to the front. As a result the forefront has a total width of more than 250 metres. The overlapping of the building parts makes it difficult to estimate their true size. The building's actual depth (35 metres) is also manipulated visually by this. The scale of the château varies, as it were, according to the angle and distance from which it is seen.

The northern entrance drive terminates 350 metres before the château in a sequence of three consecutive open spaces: the *Avant Cour*, *Grand Cour* and *Cour d'honneur*. Their respective surface areas (2.4 hectares, 0.8 hectares and 0.2 hectares) rapidly decrease towards the château.





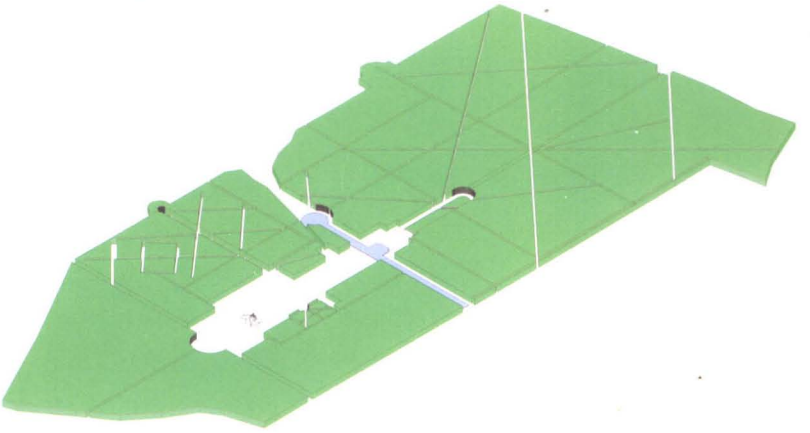


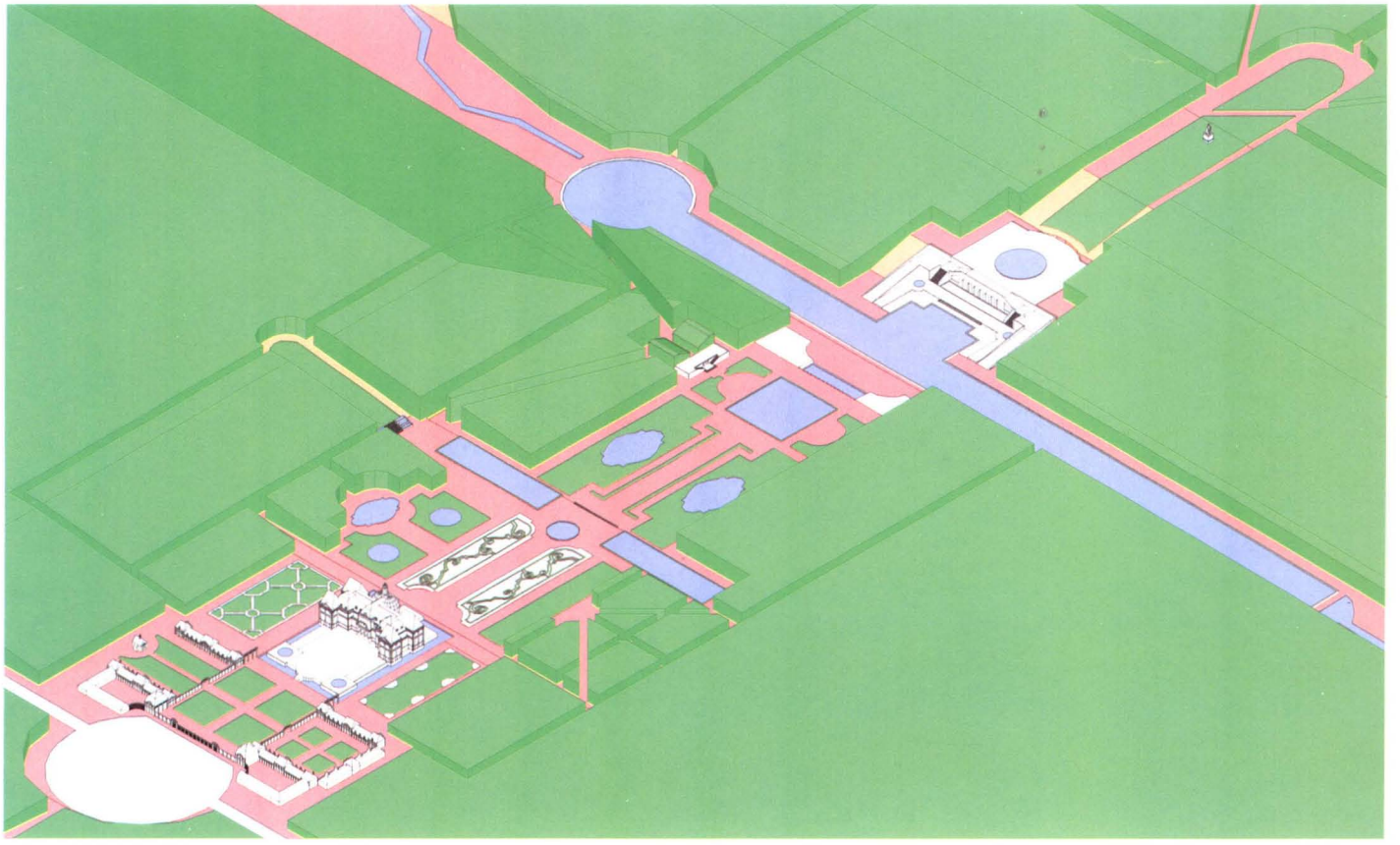


Front view and plan of the château. Both are constructed of rectangles which overlap one another.

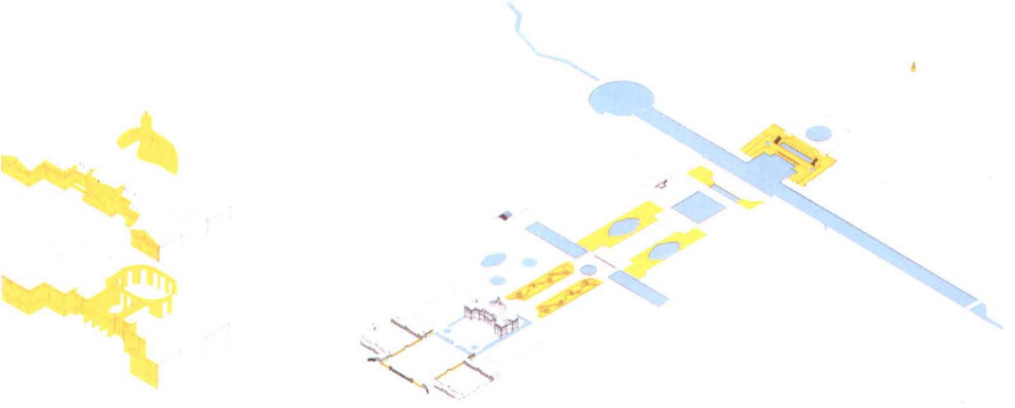
Vaux-le-Vicomte

Axonometric projection

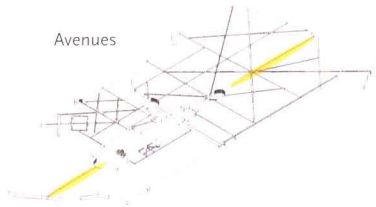


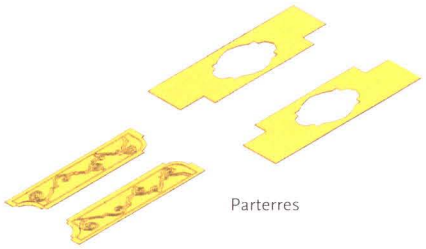


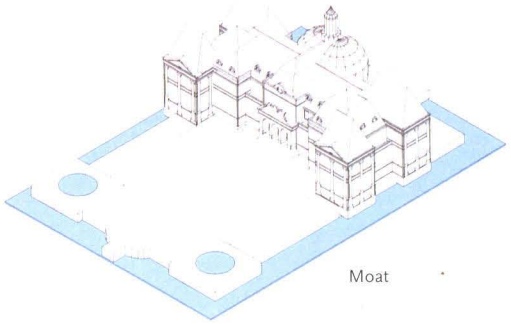
Composition scheme



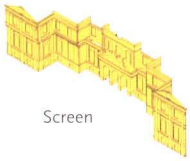
Active composition elements

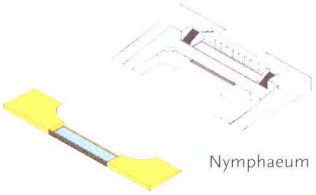

Avenues

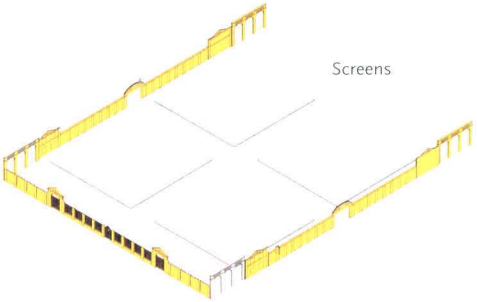

Parterres

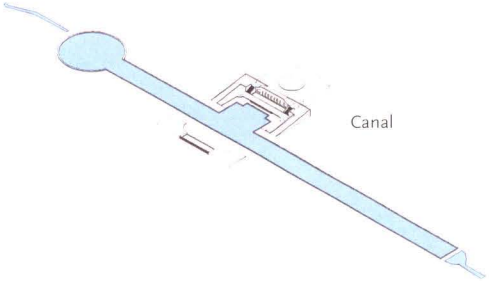

Moat

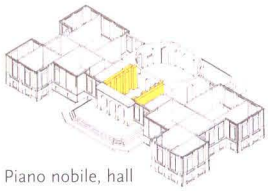
Monument, Hercules

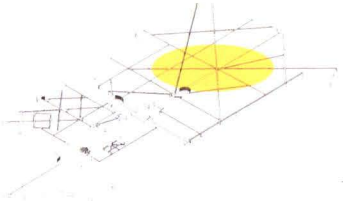

Screen

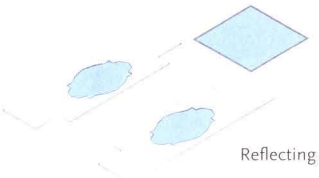

Nymphaeum

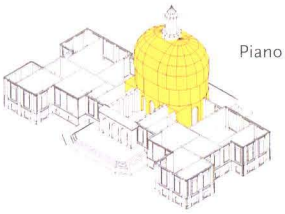

Screens

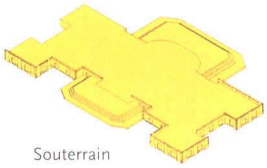

Canal


Piano nobile, hall


Woods with intersecting avenue


Reflecting ponds


Piano nobile, salon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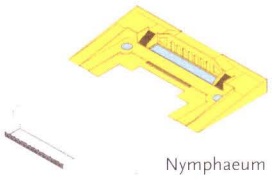
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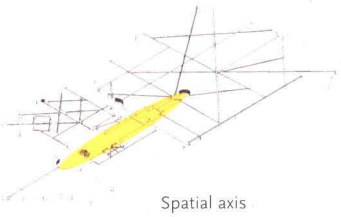
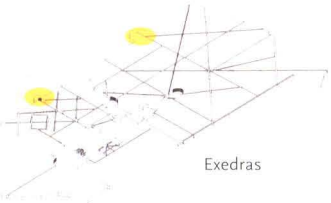
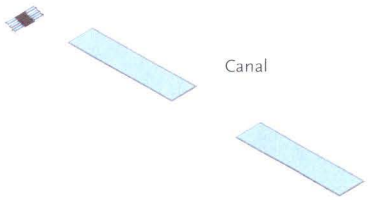

Spatial axis


Exedras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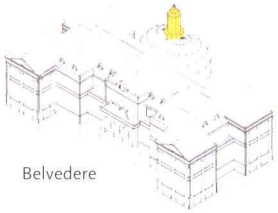
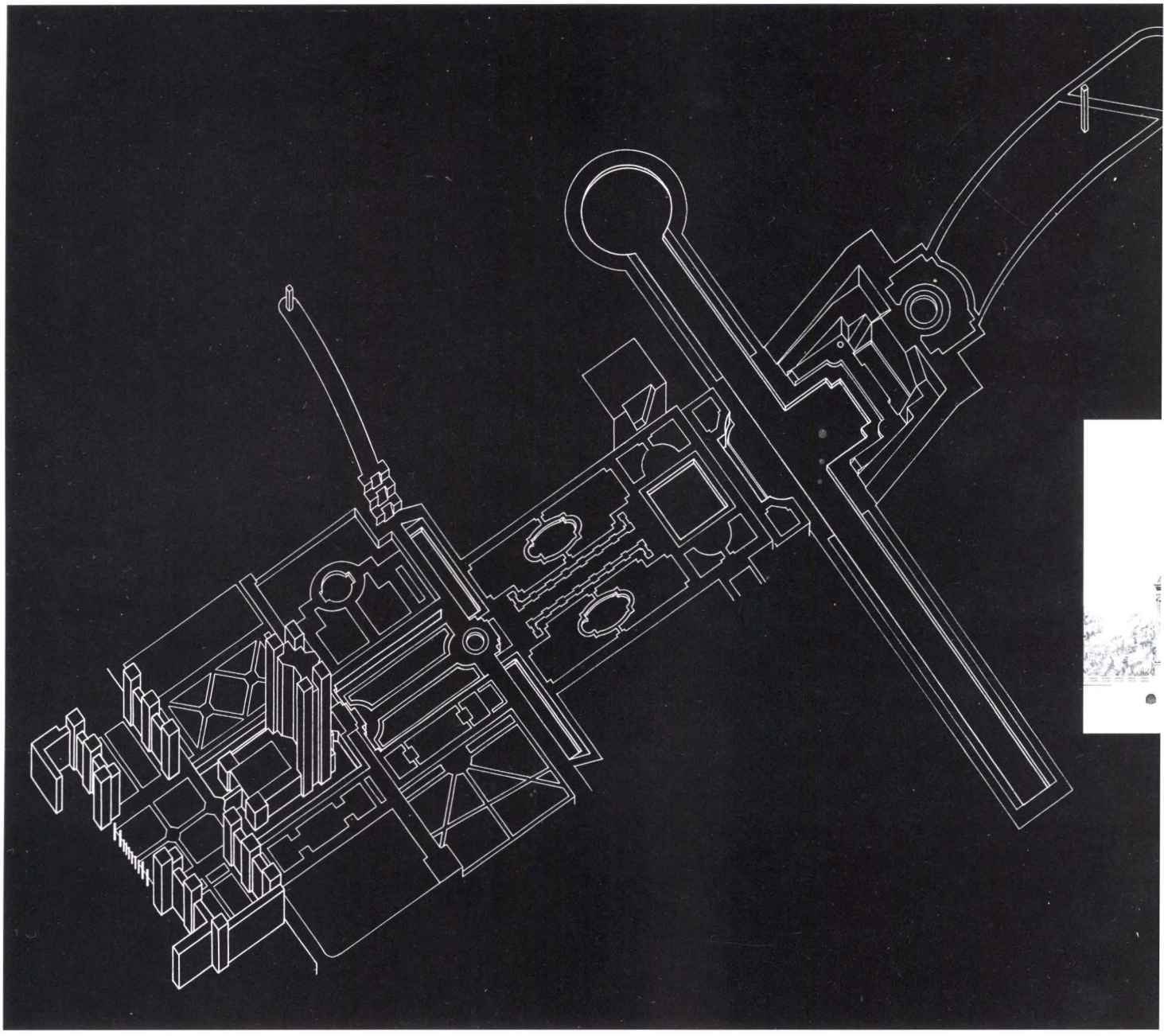
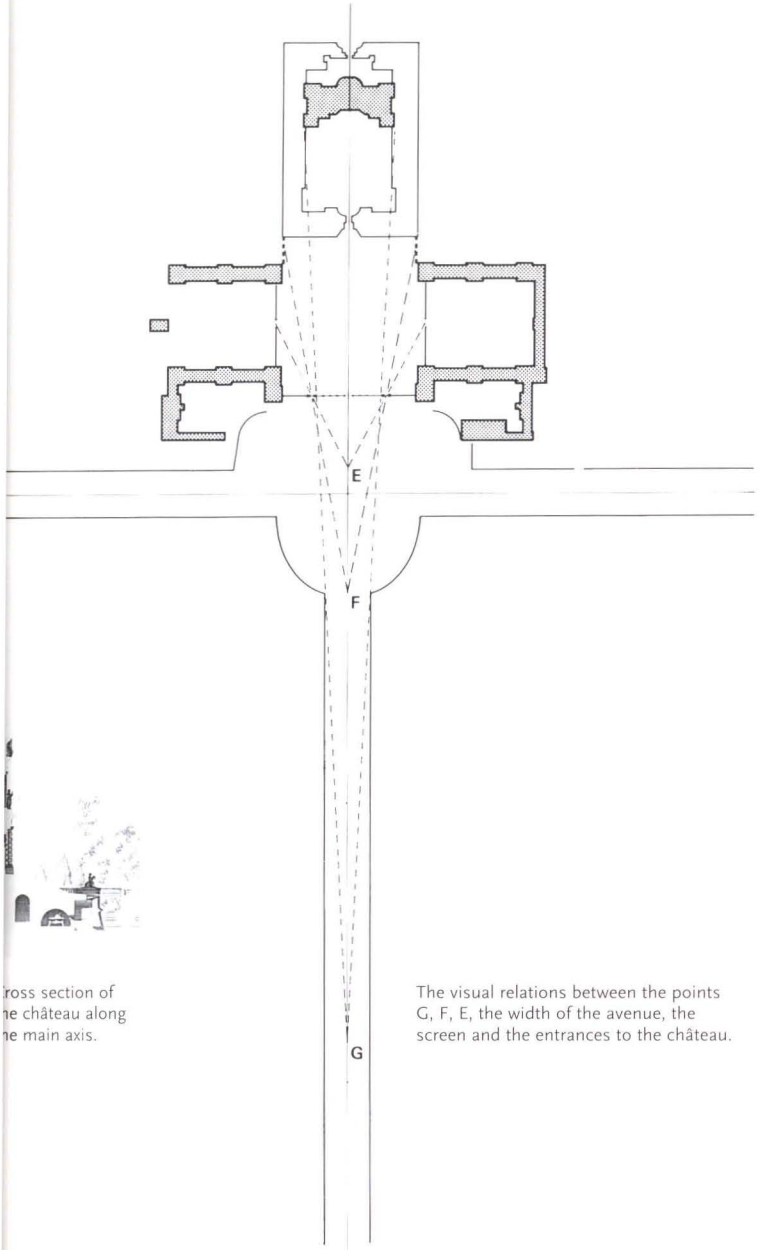

Belvedere



Axonometric projection of the garden (the vertical measurements are exaggerated).

The most important part of the axial symmetry is between the château in the north and the statue of Hercules in the south (1,000 metres). In the width (100-150 metres) the mirror symmetry remains limited to the central zone. As with the north side of the château, the central area of the axis of symmetry is also constructed longitudinally from a series of three spaces on the south side: the terrace with the *Parterre de Broderie*, the terrace with the *Parterre de Gazon* and reflecting pond, and the *tapis vert* past the canal. The surface area of the second terrace is larger than that of the first (4.5 hectares and 1.5 hectares, respectively). The surface area of the *tapis vert* is no bigger than that of the second terrace, though the former is not level and lies exposed against the steep slope of the main valley, making it appear longer than it actually is.

The series of spaces on both the north and south sides overlap each other at the point where the château stands. In this way the château is gradually linked with both the scale of the front terrain as well as that of the garden.



ross section of
e château along
e main axis.

The visual relations between the points G, F, E, the width of the avenue, the screen and the entrances to the château.

The principle axis longitudinally (3,400 metres) comprises a sequence of three separate parts: the northern approach drive to the château (900 metres), the axial symmetry between the château and the statue of Hercules (1,000 metres) and the southern tree-lined avenue (1,500 metres), respectively. The entrance drive lies in the upper reaches of the side valley and is focused on the decor of the building, situated halfway into the valley. In the second section the visual play with water and terrain levels dominates the physical accessibility of the axis.

Once more the background to this, the statue of Hercules, is the beginning of a following stage along the principle axis. It stands on the intersection of the axis with a transverse avenue and two diagonal ones. This *patte d'oie* is the beginning of an extensive radial forest and marks both the depth and width of the complex (1,350 metres).

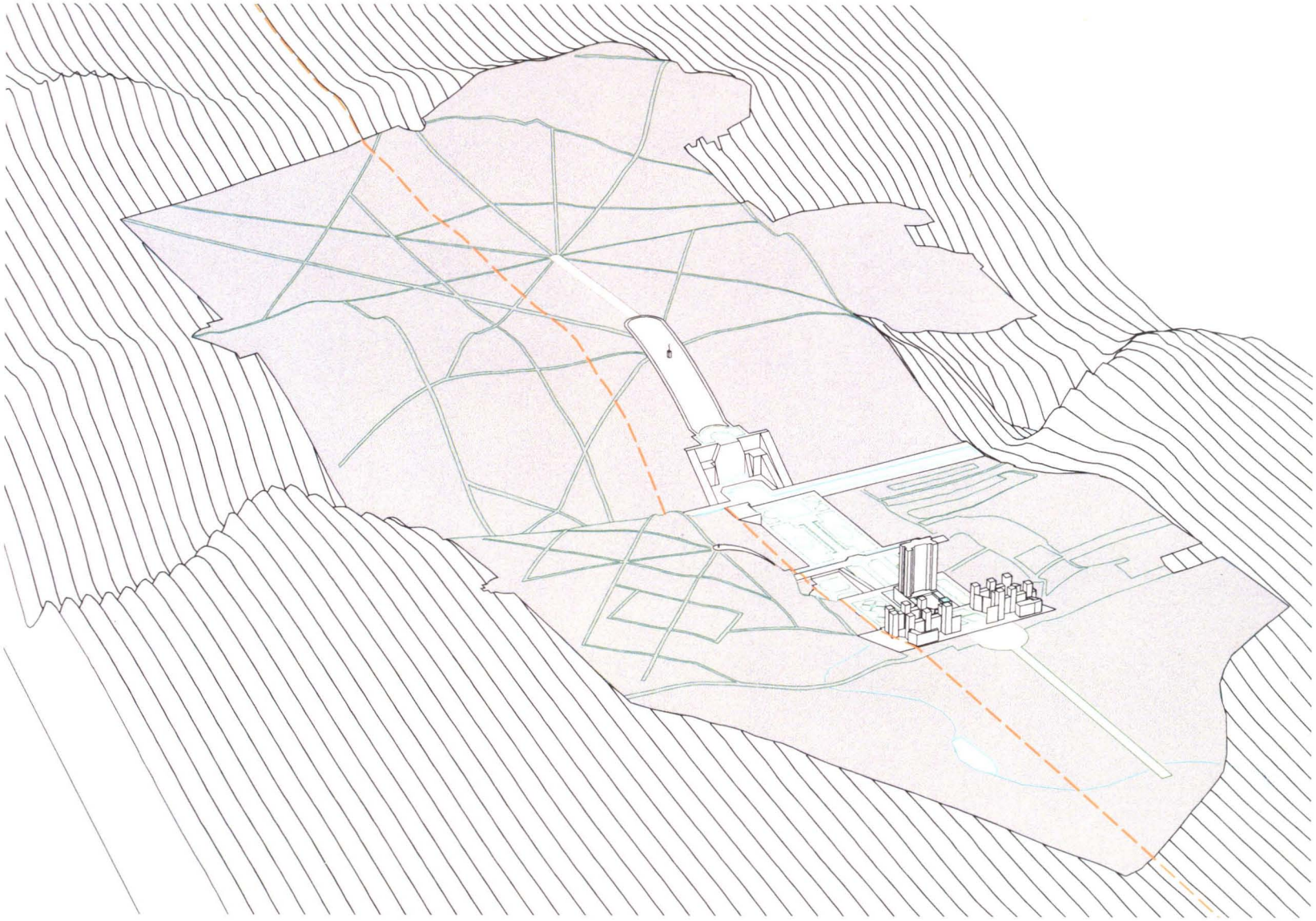
The longitudinal measurements on the axis and the various distances between the transverse axes increase from the central section (the building) in a northerly and southerly direction. Together with the principle axis and the eastern tree-lined avenue running parallel to this, the transverse axes form an orthogonal grid of *carrés* with a module size varying from 4 hectares (in the central zone of the complex) to 40 hectares (in the forest). The increasing size of the *carrés* towards the periphery and the diagonal avenues are the links between the scale of the garden and that of the forest complex as a whole. This third level of scale, embracing the château and the garden, can be referred to as 'the estate', a rectangle covering a total surface area of 455 hectares.

To summarise, the geometric organisation of the plan consists of an orthogonal grid. The axis is the central line in the geometry. The grid module is larger towards the edges of the plan. This expanding measurement system has basically three levels of scale: the house, the garden and the estate. Their measurement schemes also have an internal graded structure of proportions. By laying the schemes over each other, a hierarchical system exists with a continuous series of jumps in scale between the interior and the landscape along the axis.

The scenography of the axis

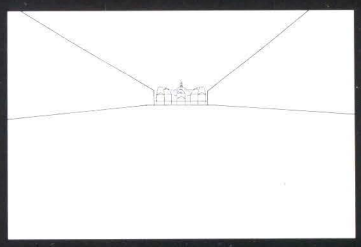
The axis is not only the central line in the geometry but also in the spatial stage management. The wide drive to the château begins in the north on a slight ascent. At first only the tip of the château can be seen, but after a few hundred metres the road descends almost imperceptibly, revealing the lower part of the château with its façade fitting precisely into the frame of trees. At the point where the drive joins the *Avant Cour* the view takes in the entire château, including the service buildings (*Les Communs*), which function as projecting stage wings. Due to the sloping forecourt and the jumps in scale, which appear both in the width and depth measurements towards the château, the spatial depth of the terrain appears particularly impressive. It is, however, impossible to gauge the distance to the château.

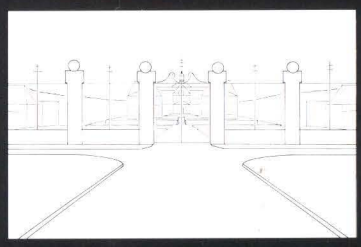
Between the *Avant Cour* and the following *Grand Cour* is a screen. In the central section of the picture plane this screen

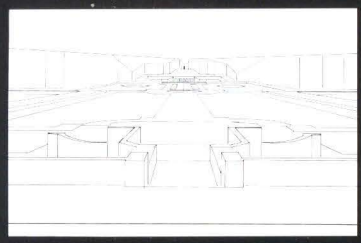


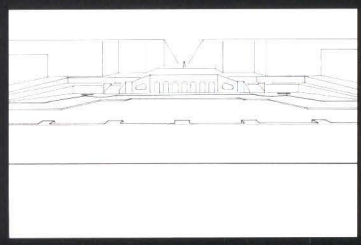
Axonometric projection of the estate.

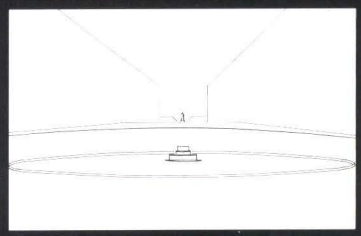
Scenography of the main axis, from north to south.









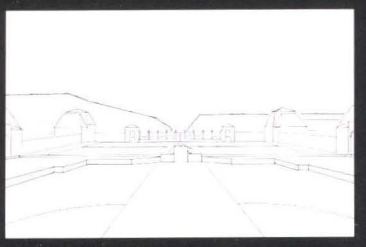


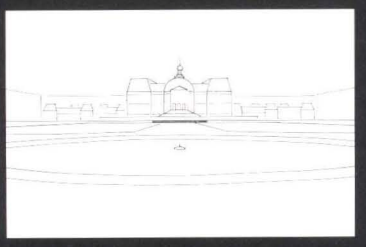
filters out elements of the background. The screen, on either side of a wrought-iron entrance gate, consists of three parts which have a diminishing degree of transparency. The first part comprises four pieces of wrought-iron trellis between herms: imposing square columns, topped by sculptured heads of the Greek god Hermes. The middle part consists of a portal with an iron trellis in the opening. Finally, the screen on the side of the *Communs* is terminated by a wall divided into four sections.

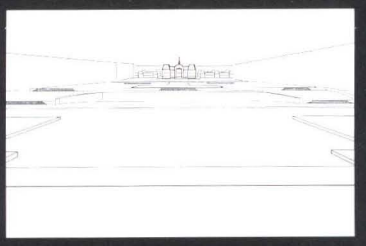
At the point where the drive meets the *Avant Cour* there are vistas through the open portals of the screen to the colonnades, which denote the side entrances to the garden beyond the *Communs*. From the centre of the *Avant Cour*, where the east-west access road crosses the principle axis, the vistas through the portals are directed at the side entrances of the *Communs*. Thus the hierarchy of entrances and connections is precisely defined on the *Avant Cour*. Closer to the entrance gate, the motifs of the railings are partly in keeping with those of the château's façade. Certain of the gate's carved lines correspond with those of the set of steps leading to the château, while the apex of the entrance gate blends visually with the lamp on the dome.

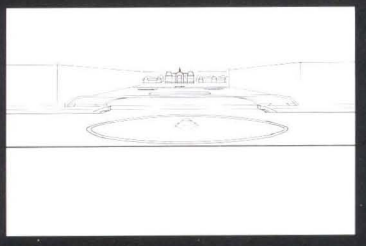
The *Grand Cour* is bounded on both sides by the end pavilions of the *Communs*, connected to each other by walls with the entrance in the middle. The elements and measurements of the *Grand Cour* correspond both diagonally and longitudinally to each other, the two open portals in the screen, for instance, being a projection of the width of the château. Because of the static nature of this four-sided symmetry, the *Grand Cour* forms a noteworthy 'pause' en route to the château. The visitor is still able to exit the theatre via two side arcades.

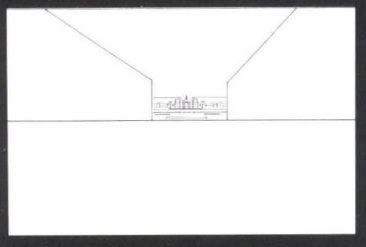
Notwithstanding, everything remains focused on the setting of the château. The *cour d'honneur*, surrounded by a moat, is approached via a second, smaller entrance gate. It is here that the gradual unveiling of the entire château ends. The indentations of the various elements of the façade, shoved one before the other like stage wings, and the tapering width of the stone flight of steps accentuate the entrance hall, which seems to have been pushed back into the heart of the building. The use of a large column order in the end pavilions as well as a smaller one in the entrance part heightens this effect. It also makes it more difficult to measure the proportions and relates the size of the forecourt to that of the interior.











Scenography of the main axis, from south to north.

Due to the *bel-étage* being raised above the souterrain, the building appears to be in an elevated position. Four flights of steps interrupt the slope of the terrain and lead to the entrance hall. Three glass doors give access to a squarish entrance hall with two stairways tucked away behind side walls. The entrance hall terminates the axis and the series of forecourts on the north front of the château. From the hall, in a northerly direction, the entire front terrain can be seen.

Opposite the entrance are three pairs of large, closed doors. When these are opened the massive château is transformed into a sun-orientated, transparent construction. The building, which at first seems to terminate the axis, is in fact the beginning of a new series of spaces. This metamorphosis is spatially made possible in the interior by the low, square entrance hall adjoining the high oval *Grand Salon*. This is three floors high and is crowned by a dome. Lebrun made a design (never carried out) for the painting of this, in which the architecture of the salon is illusorily extended upwards to a painted round opening in the centre. This imaginary opening in the dome was projected onto the floor of the *Grand Salon* in the form of a marble compass. This meeting of heaven and earth is the formal centre of the layout. From here, through the open garden doors, the spatial axis can be seen as far as the southern horizon. Moreover when the entrance hall doors are closed again, the southern spatial axis is projected onto the mirrors fitted into these doors on the side of the *Grand Salon*. In this flat depiction, the space is controlled in the same way as a perspective drawing. The measurements and proportions, however, remain puzzling. It is impossible to estimate the spatial depth of the design. When walking in the garden the integral image you had from the *Grand Salon* disintegrates into separate autonomous structures, both ambiguous as well as unexpected. The *Petit Canal*, for instance, beyond the *Parterre de Broderie* at the foot of the château, is only visible when you are on top of it, while the ponds (*Les Tritons*) situated further along in the *Parterre de Gazon*, which appear round from the château and seem to be the same size as the main *Rond d'Eau*, are oval and much bigger in reality. The site and dimensions of the square reflecting pond have been chosen so that it mirrors the entire château. The grotto, which seems to rest on the edge of the pond, is situated much further back. The deep set *Grand Canal*, despite its broad width on the axis, is only visible when you are suddenly standing in front of it. You immediately discover

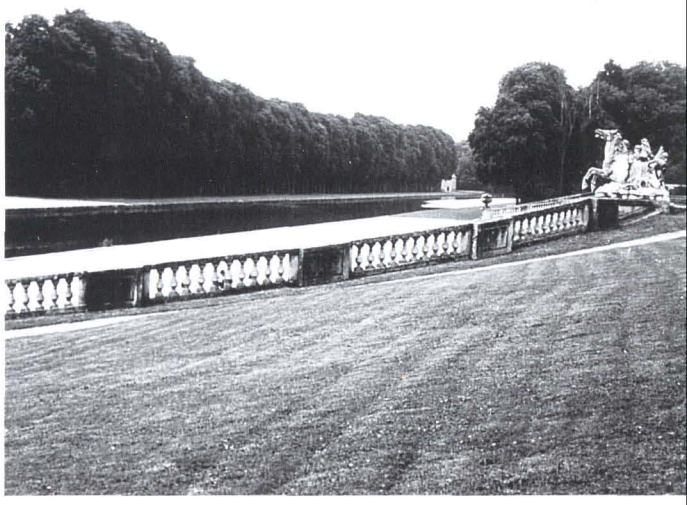
that the sound of falling water, heard in the garden, emanates from the cascades in the canal's north wall. The set of steps framing these *grandes cascades* have a consistent rise (height = 15 centimetres) and an increasing depth, from 35 centimetres to 54 centimetres, which gives them a concave form that seamlessly blends into the terrain. The *Grand Canal* appears as straight as an arrow until you walk around it and come across a large round pond at its far end, hidden behind the smallest possible mound. On the other side of the canal, the two lions, marking each side of the flight of steps along the grotto, appear the same size. In fact, the one is 32 centimetres higher than the other, which stands against the background of the grotto.

On the sloping *tapis vert* is a statue of Hercules which appears to be life-sized, though it is impossible to judge its real dimensions due to the lack of reference points. In fact, the middle section of the plan, with its walking route, is taken over by the *tapis vert*, which extends along the axis beyond the canal. Thus the human figures, which could act as a reference point for Hercules's true size, are kept hidden on the edge of the forest. From close up, the statue, an allegory of Fouquet himself and his work, is immense. The Titan holds one hand behind his back, inviting the observer to look round to see if he is not hiding the three golden apples from the mythical Garden of Hesperides. The statue also refers you to the cultural and perspective centre of the layout. It is only here, by synthesising and summarising the kaleidoscopic experiences, that the essence of the spatial organisation can be understood.

The incorporation and manipulation of the horizon

It is evident from the foregoing descriptions that moving through the layout, for instance walking with the owner of the estate as your host, enables you to discover the secrets and particular elements of the garden. Yet the space, as with 17th-century theatre, was first completely controlled and understood from a static viewing point, where the kaleidoscopic experiences blend into one perfect optical illusion. This is the majestic viewpoint in front of the mirrors of the *Grand Salon*. There are three distinct aspects to the view that unfolds before you: spatial depth, visual control of this spatial depth and the illusion of perfect order.

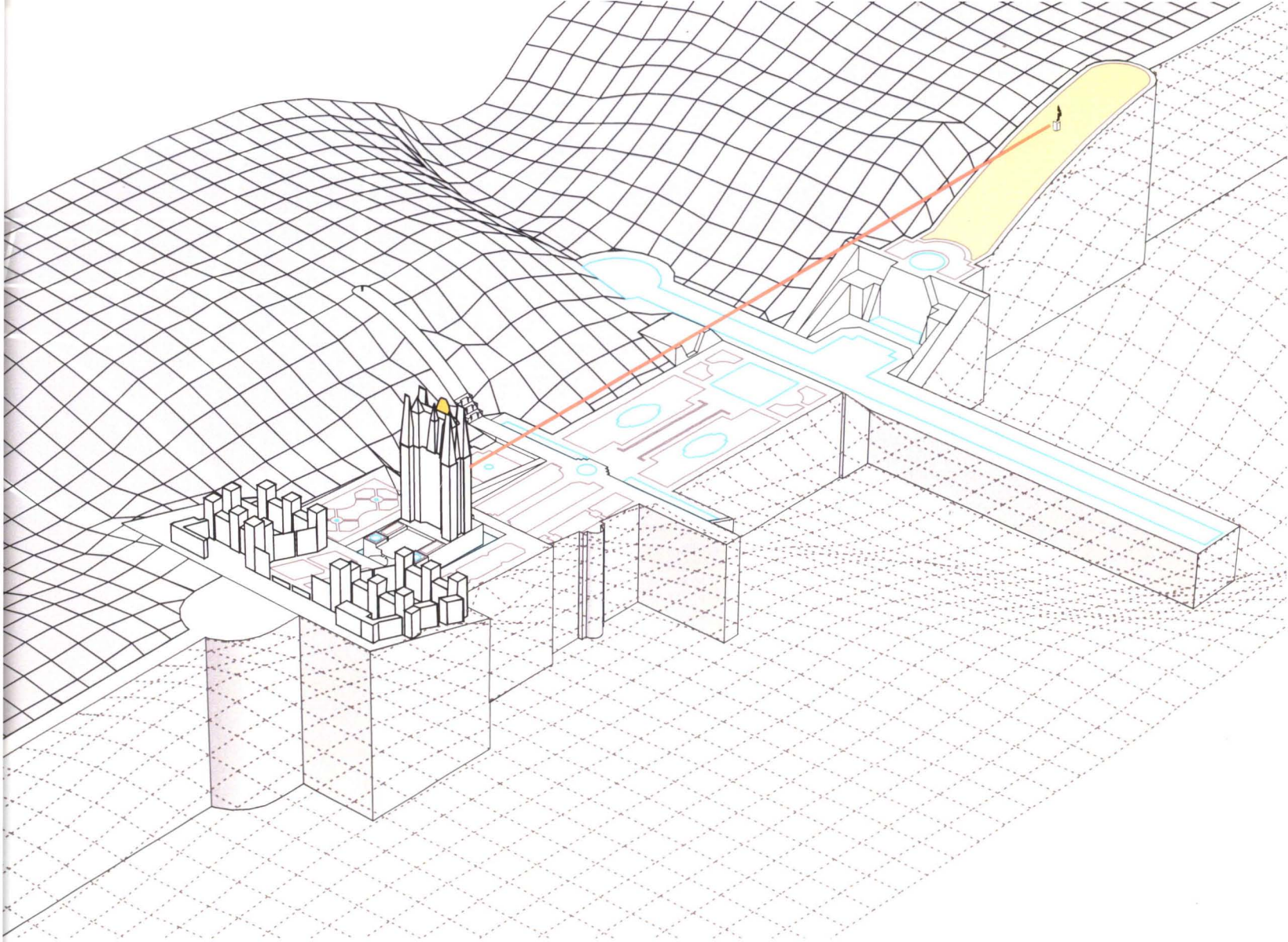
Theoretically, visible spatial depth is determined by the height of the viewpoint and that of the observable objects beyond the horizon. It follows from this that a concave or bowl-shaped surface area is the most suitable to 'compensate'



A smooth transition to the Grand Canal, next to the Grandes Cascades.

Hercules.

View back from the tapis vert.



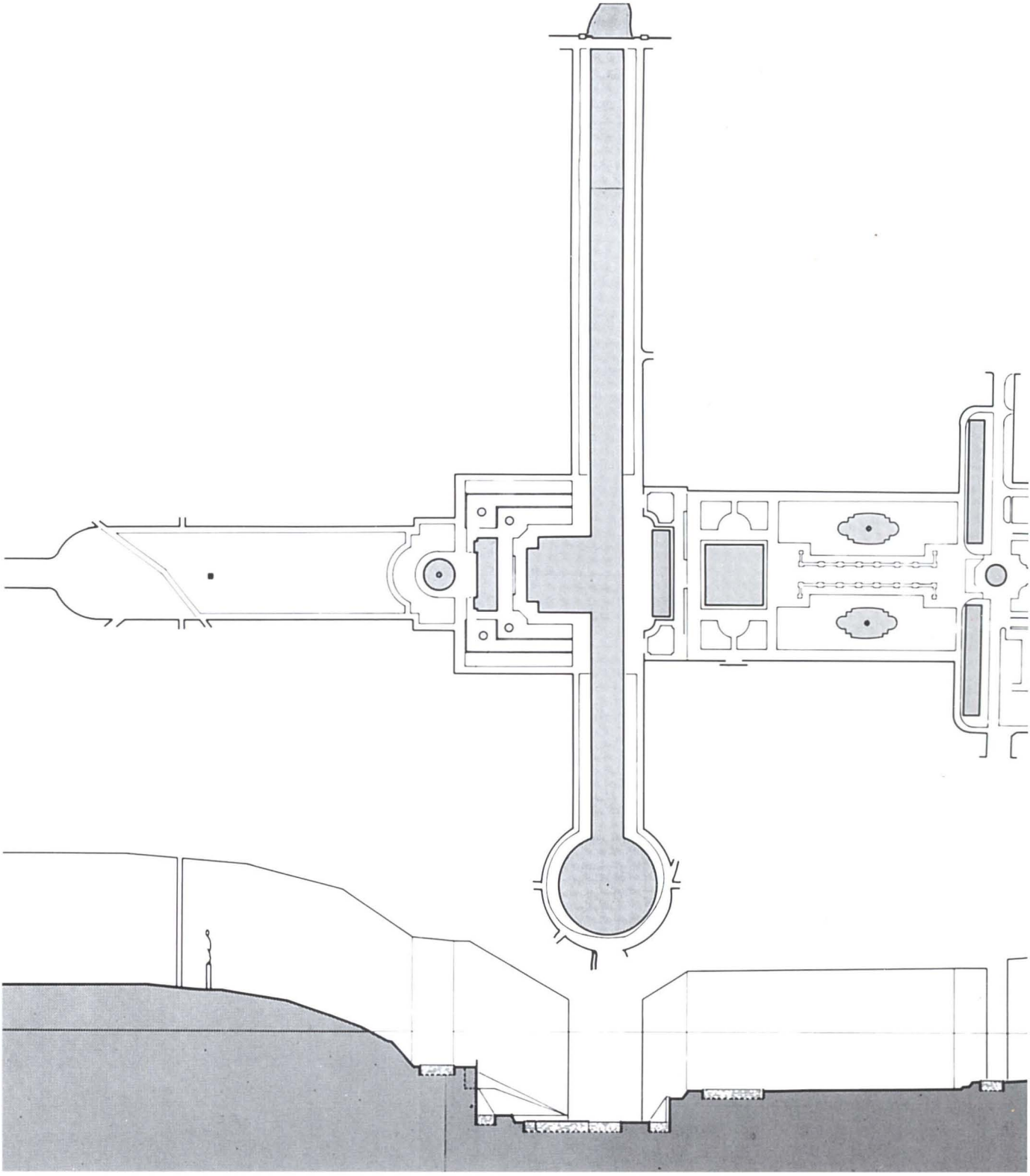
The conquest of the horizon.

for the restricted view which is intrinsic to the spherical shape of the earth. This partly explains the chosen geomorphologic site at Vaux. Here it is extremely difficult to gauge the position of the perspective horizon in the rear terrain with the naked eye. Measuring with a levelling instrument, the intersection of the main axis with an imaginary horizontal surface at eye level, when seen from the *Grand Salon*, lies halfway the *tapis vert*, some 850 metres from the château. Thus, the horizon at Vaux lies within the boundaries of the plan. Beyond the horizon the *tapis vert* continues its ascent to natural infinity. On this line, between land and sky, the statue of Hercules finally determines the total spatial depth of the layout.

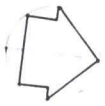
When measured, the actual spatial depth is roughly 1,000 metres, but objective, measured data does not decide subjective interpretation. The objective position of the perspective horizon and the garden's actual spatial depth are manipulated by the way the spatial axis has been architectonically organised.

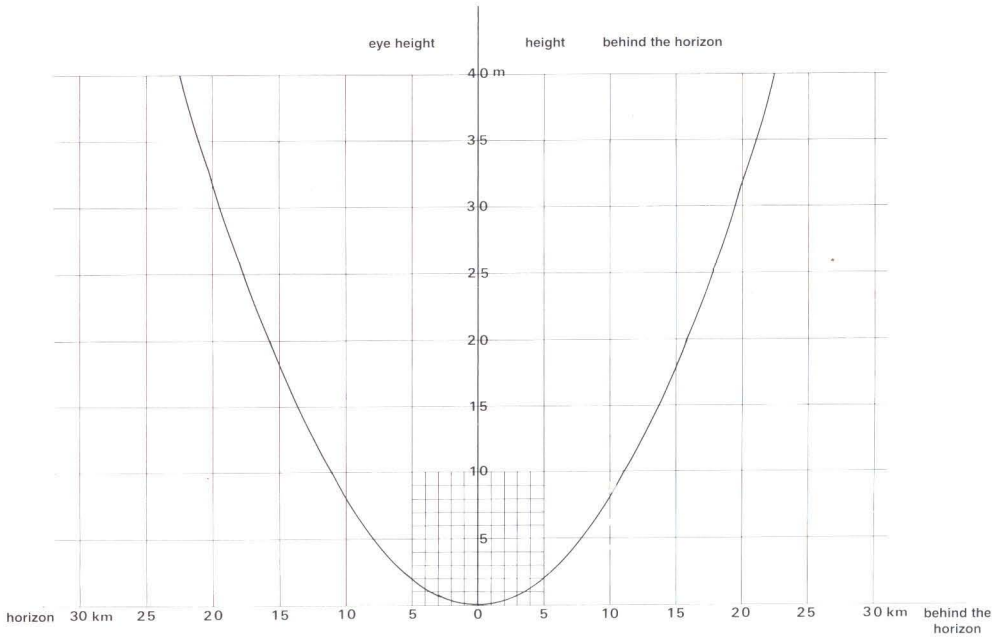
The descent of the ground in front of the *Grand Canal* shifts the perspective horizon forwards (accelerated perspective) so that the space appears deeper. The reverse effect occurs by widening and extending the terraces (*Parterre de Broderie* and *Parterre de Gazon*). The perspective horizon is then shifted backwards and the space appears to have less depth. Behind the *Grand Canal*, the ascent of the ground, the enlargement of the features (grotto and Hercules) and the convergence of the forest walls cause the perspective horizon to shift backwards, so that the space again appears to be less deep. Where the layout narrows at the *tapis vert* the opposite effect is suggested

The garden from the stairs.

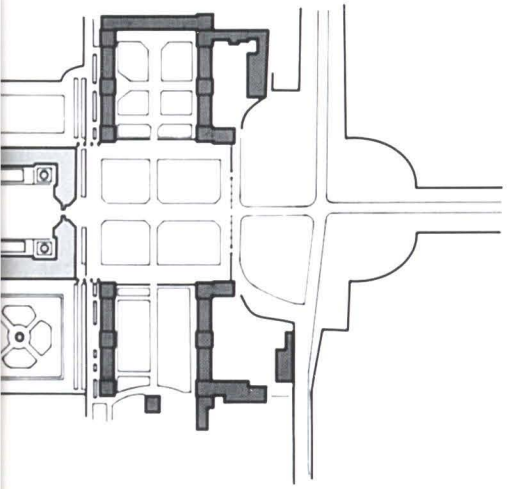


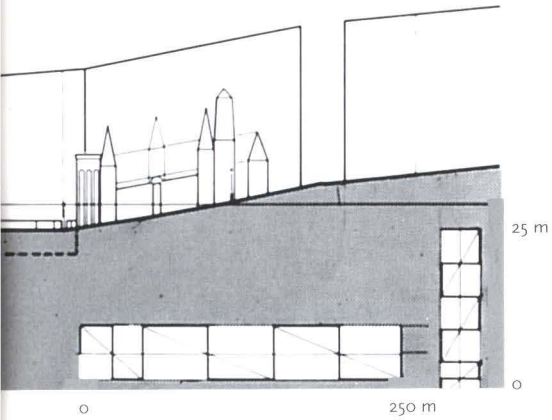
Plan and elevation along the length of the spatial axis.

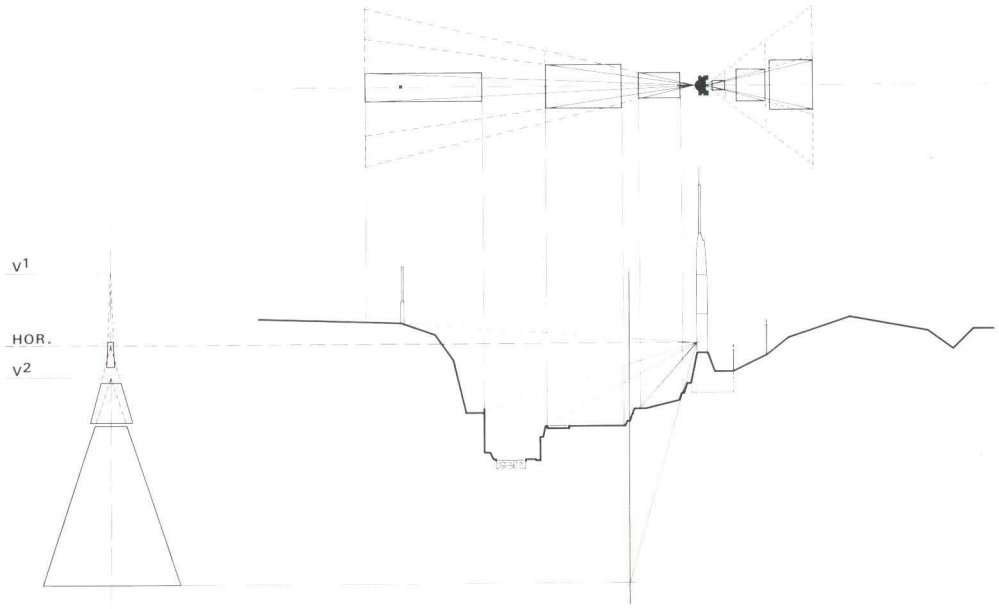




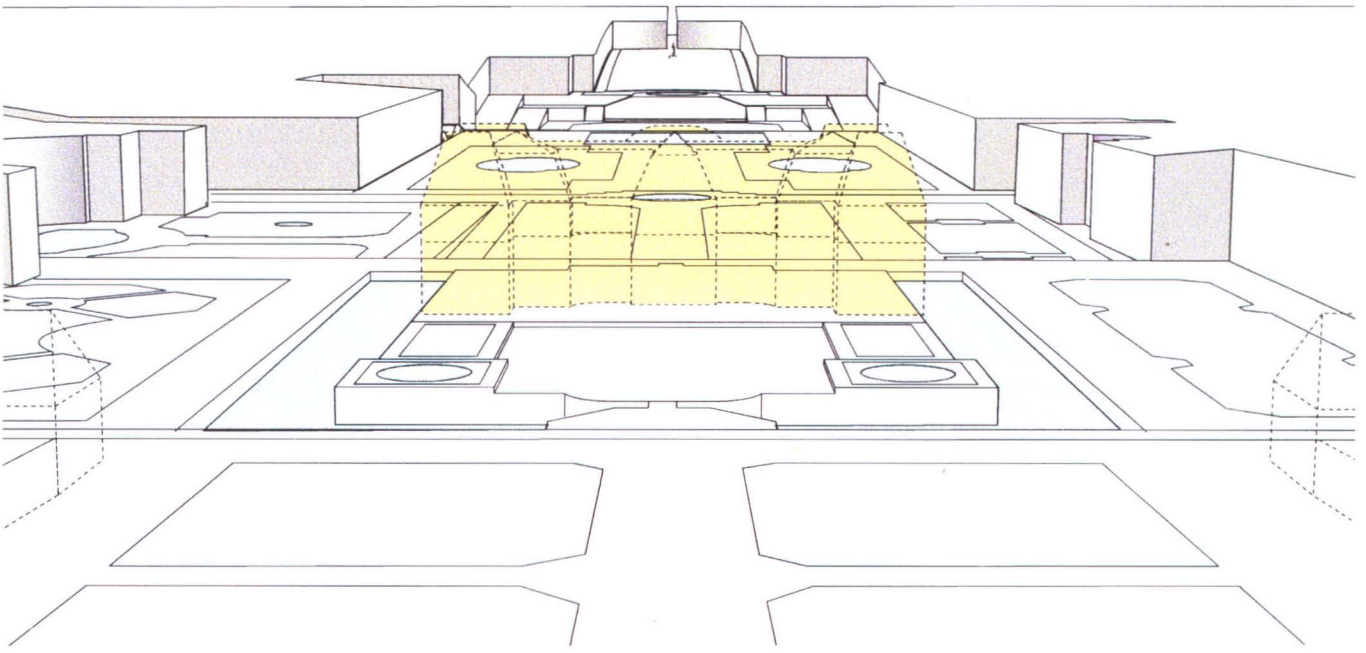
Graph of the relation between eye height, the distance to the horizon and perceptible height behind the horizon.



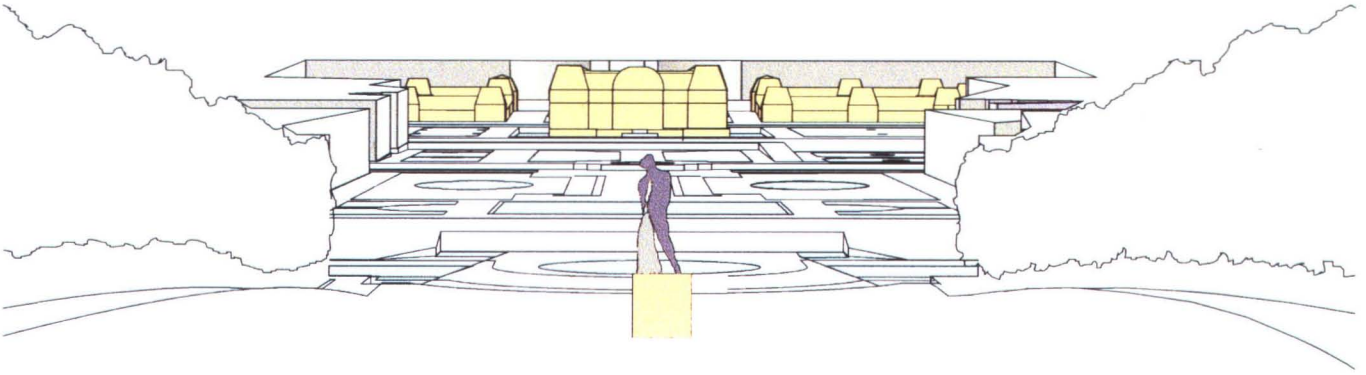




The shifting of the horizon through the various slopes and vanishing points from the terraces.



The illusion of perfect order.



again. The perspective horizon is shifted forwards and the space appears deeper than it actually is. Due to this perspective trickery the actual spatial depth of the axis cannot be determined. In this context, the 'infinity' of the natural panorama has been 'constructed' in the garden by architectonic means.

The visual control of infinity

An increase in scale occurs within the *Parterre de Broderie* and *Parterre de Gazon* sequence. The final size of several parts of the plan increases the further away they are from the château so that perspective foreshortening is 'delayed'. The furthest surface on the axis is the *tapis vert*, which has roughly the same perspective depth as the terrace with the *Parterre de Gazon*. This effect is not created by increasing the scale of the *tapis vert* but by it tilting forwards.

Another increase in scale occurs at the front of the château in the series *cour d'honneur*, *Grand Cour*, *Avant Cour* and the approach drive. Such an increase enables extremely deep spaces still to be kept visually under control as the viewing distance increases. The landowner saw not only 'infinite'

space but also kept it under control. In the château he found himself at the eyepiece of a telescope, as it were, which was made in the landscape and with which he could bring infinite space within the reach of his eye.

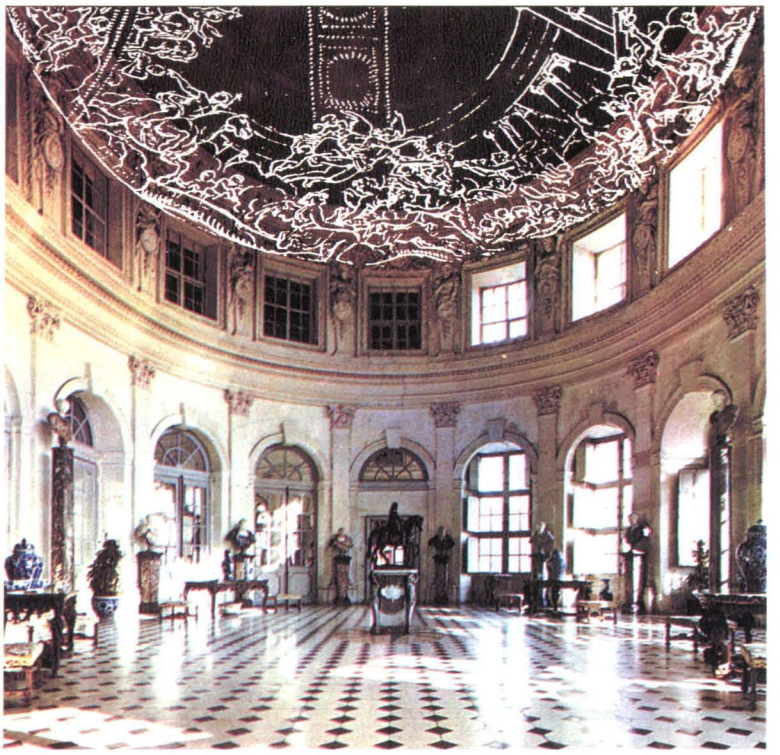
At Vaux-le-Vicomte there were complications because of the different heights of the terrain. Due to the château being built on a rise the view is more extensive. This effect is heightened by the upward slope of the rear terrain.

Nevertheless, at Vaux-le-Vicomte the series of lengthening spaces is in principle determined by the scale of the viewpoint distance (L) and the reference surface (a). When we take the first terrace (*Parterre de Broderie*) as a reference surface, then $L/A < 1$, and a second surface with the same perspective depth is then impossible in the given linear profile of the garden. When the second terrace (*Parterre de Gazon* with reflecting pond) is taken as a reference surface, then $L/A > 1$, thus making the creation of a subsequent surface with the same perspective depth possible. If this were horizontal, the surface would have to be roughly 4,700 metres long, but as the *tapis vert* tilts forwards this could remain considerably shorter. Another surface lying behind the *tapis vert*, again of the same perspective depth, would only be possible if the rear terrain climbed a further 15 to 20 metres. This height is approached with the statue of Hercules. By 'eliminating' the perspective foreshortening and diminution, the spatial axis functions like a telescope. In this way the double illusion is created by depth projecting towards the observer.

The illusion of perfect order

As a result of the perspective foreshortening being made 'neutral' in the main measurements of the plan, visual control of the terrain could be maintained over a maximum distance. Also in the detailing, the mutual relationships of, for instance, the forms and dimensions of the ponds and parterres can be seen as 'correcting' the perspective distortion. For this reason the perspective correction, besides making huge distances controllable, has another effect. The more the perspective distortion is perfectly corrected by amendments in the actual plan, the surfaces and features will no longer be round or square and the same size in this plan, but in the perspective picture plane. This means that the order (and significance) of the layout is no longer in the geometric scheme of the actual plan but in the (imaginary) perspective depiction thereof.

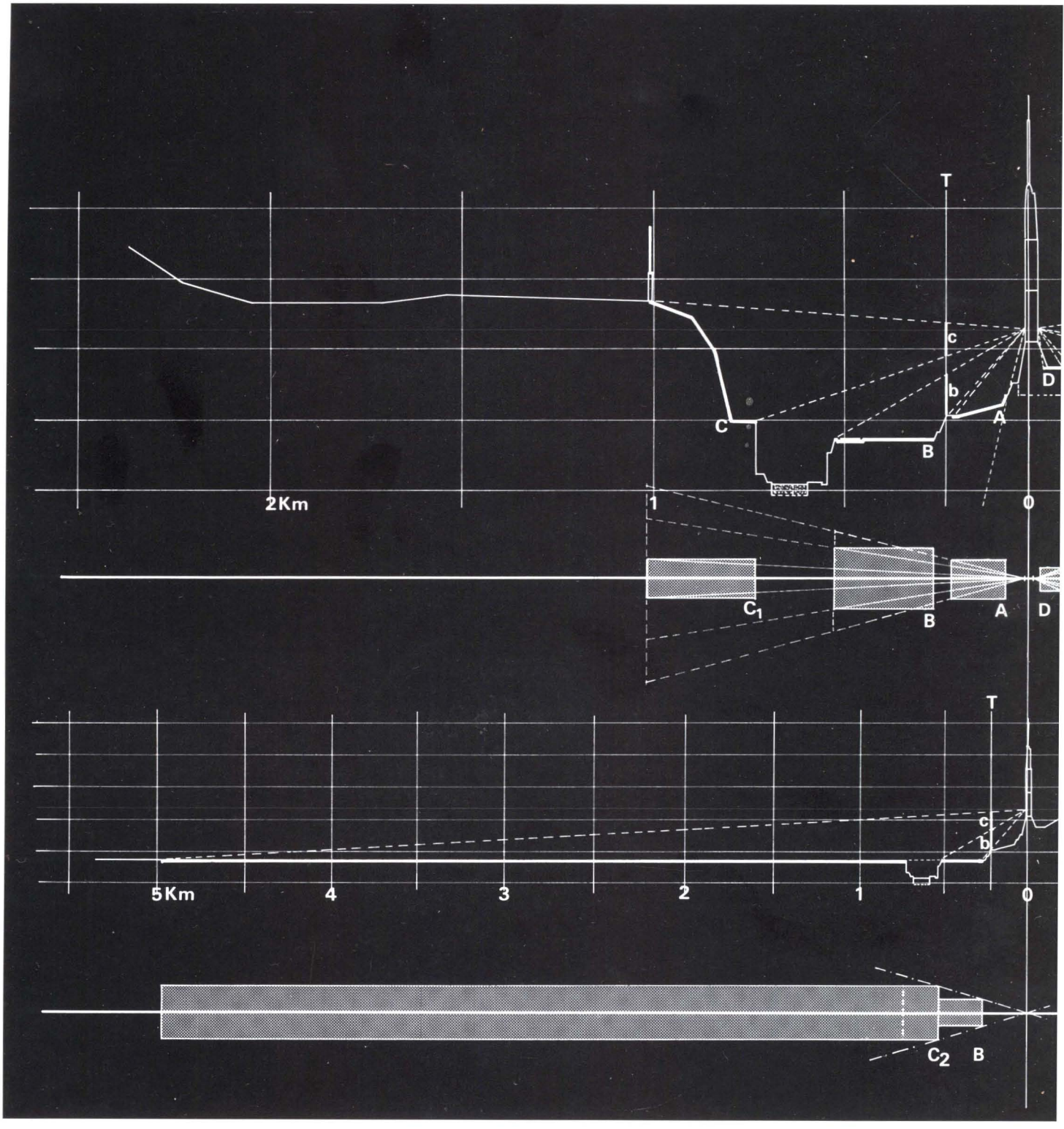
The spatial axis is an anamorphosis constructed in the landscape, the hidden meaning of which can only be discovered from the viewpoint at the centre of the 'stage': i.e. in the flat perspective in the mirrors of the *Grand Salon*. There the illusion of perfect order reveals itself, while confirming the landowner's central position in human society.



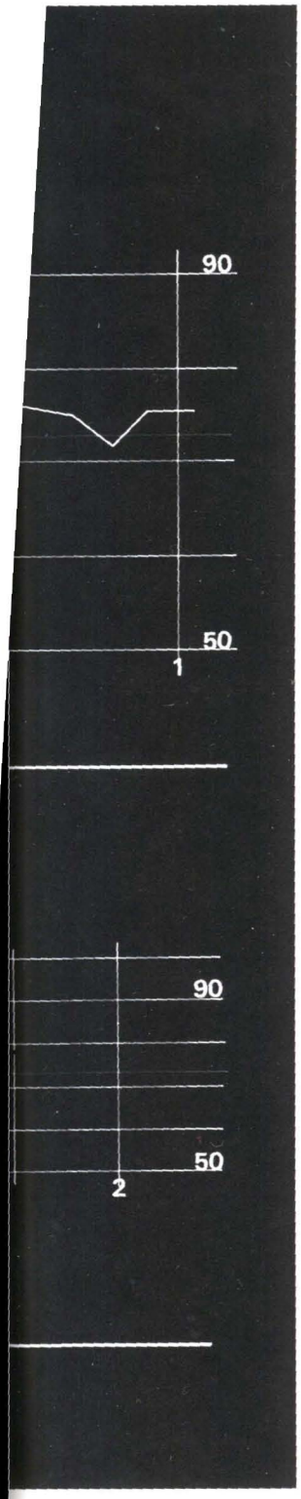
Le Grand Salon with Charles Lebrun's rough sketch for the dome stripped in.

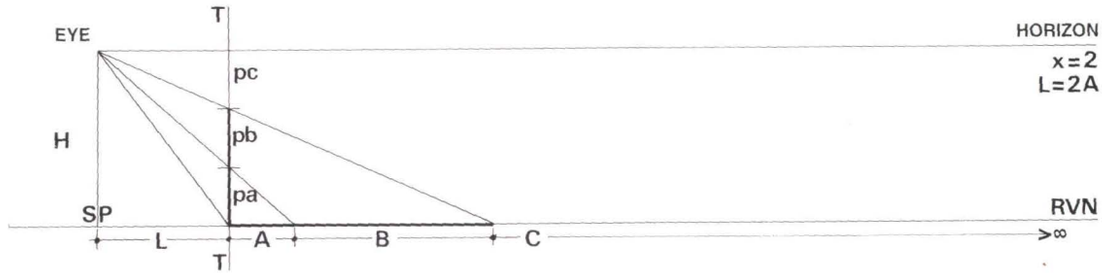
A synthetic Arcadia

Lying along the garden axis are first the *Parterre de Broderie*, then the *Parterre de Gazon* and the *tapis vert*. As in a classified system, these represent gradations of naturalness in the direction of the horizon within which the statues of Ceres, Flora and Pomona emphasise the cultivated aspect and those of Pan, Faunus and Bacchus the pleasurable one. The forest, as a form of uncontrolled growth, can be seen to represent unspoilt nature. This would seem to be the case from the statues of fauns positioned sporadically along the garden perimeter and the statue of Diana, goddess of the hunt, standing in the parterre of the same name. However, its clipped hornbeam perimeters reduce the forest to an architectonic garden wall. The way the forest interior has been laid out according to its various practical functions (kitchen garden and vineyard with a system of avenues) has restricted it too much for it to be seen as representing a natural landscape within the estate boundaries.



The retarded perspective seen from the château and the length (C_2) that the tapis vert would have to have if it was horizontal.

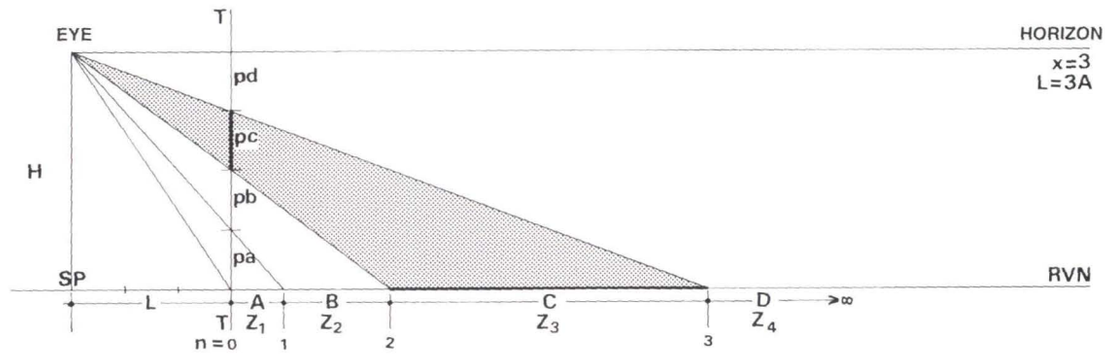




Zn=L*zn
(with a scale of x; where x=L/A)

n^{th} line segment

	z factor	1	2	3	4	5	6	7	8	9	10	enz.
	1	1,00	∞									
	2	0,50	1,50	∞								
x =	3	0,33	0,67	**2,00**	∞							
	4	0,25	0,42	0,83	2,50	∞						
x =	5	0,20	0,30	**0,50**	1,00	3,00	∞					
	6	0,17	0,23	0,35	0,93	1,17	3,50	∞				
	7	0,14	0,19	0,27	0,40	0,67	1,33	4,00	∞			
	8	0,13	0,16	0,21	0,30	0,45	0,75	1,50	4,50	∞		
	9	0,11	0,14	0,18	0,23	0,33	0,50	1,83	1,67	5,00	∞	
	10	0,10	0,12	0,15	0,20	0,26	0,37	0,55	0,92	1,83	5,50	∞
	enz.											



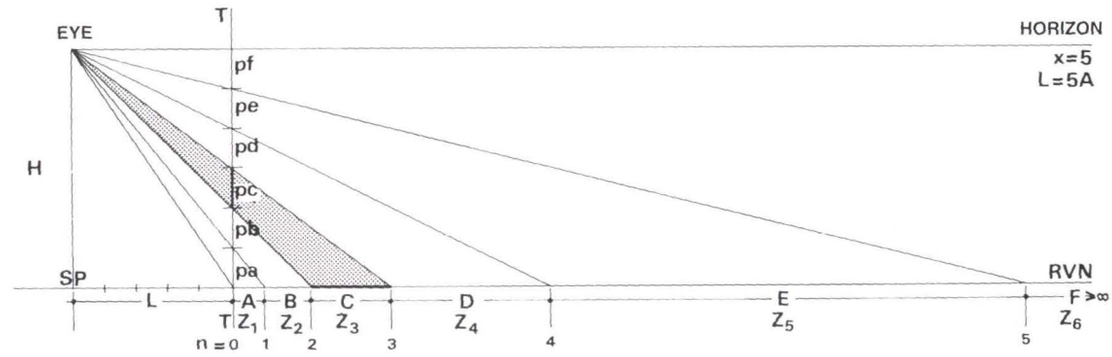
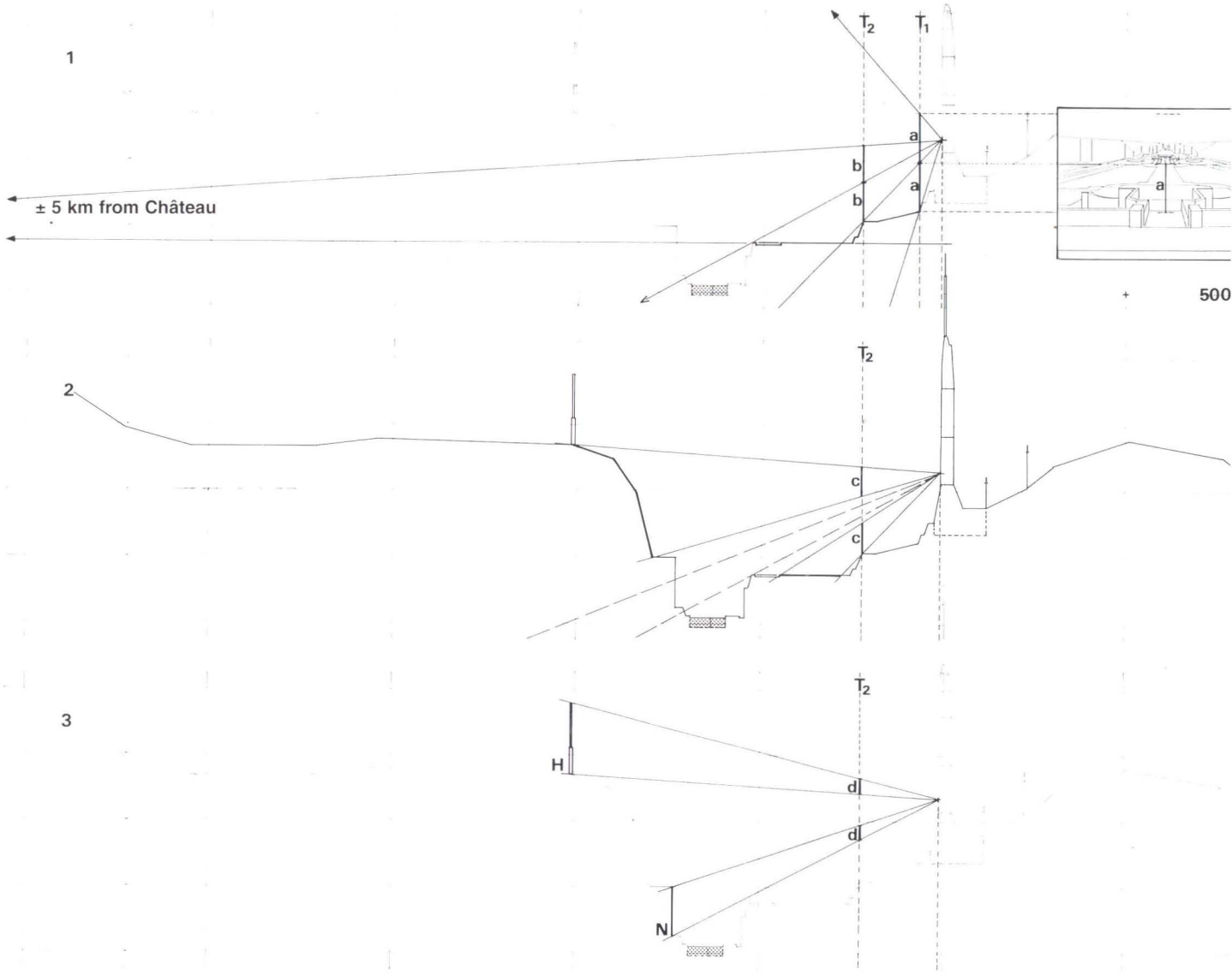


Table giving the factor by which L must be multiplied in order to calculate the length of the nth line segment (Z_n) for the given X (X = L/A = number of fields of equal perspectival depth).



Under the influence of perspective, the human eye sees measurements as the same that are different in the plan.

Water is another important element in exemplifying nature in the garden, and Vaux has four streams. The water flows (partly underground) from north to south (in the direction of the side valley where the garden is laid out), from the Bobée into the château moat and the terrace ponds, including the *Rond d'Eau*, *Les Tritons*, the former *Allée d'Eau*, and the *Arpent d'Eau* (reflecting pond), to the *Grandes Cascades* in the north wall of the *Grand Canal*. A second stream flowing east to west is formed by the *Grilles d'Eau* (*Petites Cascades*), the *Petits Canaux* and the *Rond d'Eau*. This is a higher, smaller and more northerly counterpart of the *Grand Canal*. In the *Grand Canal*, situated east-west, the natural flow of the Anqueil has been channelled and flows on the east side into a round basin. At the point where it intersects the garden axis, the *Grand Canal* has been widened into a large reflecting pond. On the west side, the water flows out of the canal via a dam. A fourth stream has been created along the steep southern slope of the garden, where it flows, via a pond and fountain (*La Gerbe*), into grottoes built into the southern canal wall. These consist of seven high niches placed next to each other, flanked by two

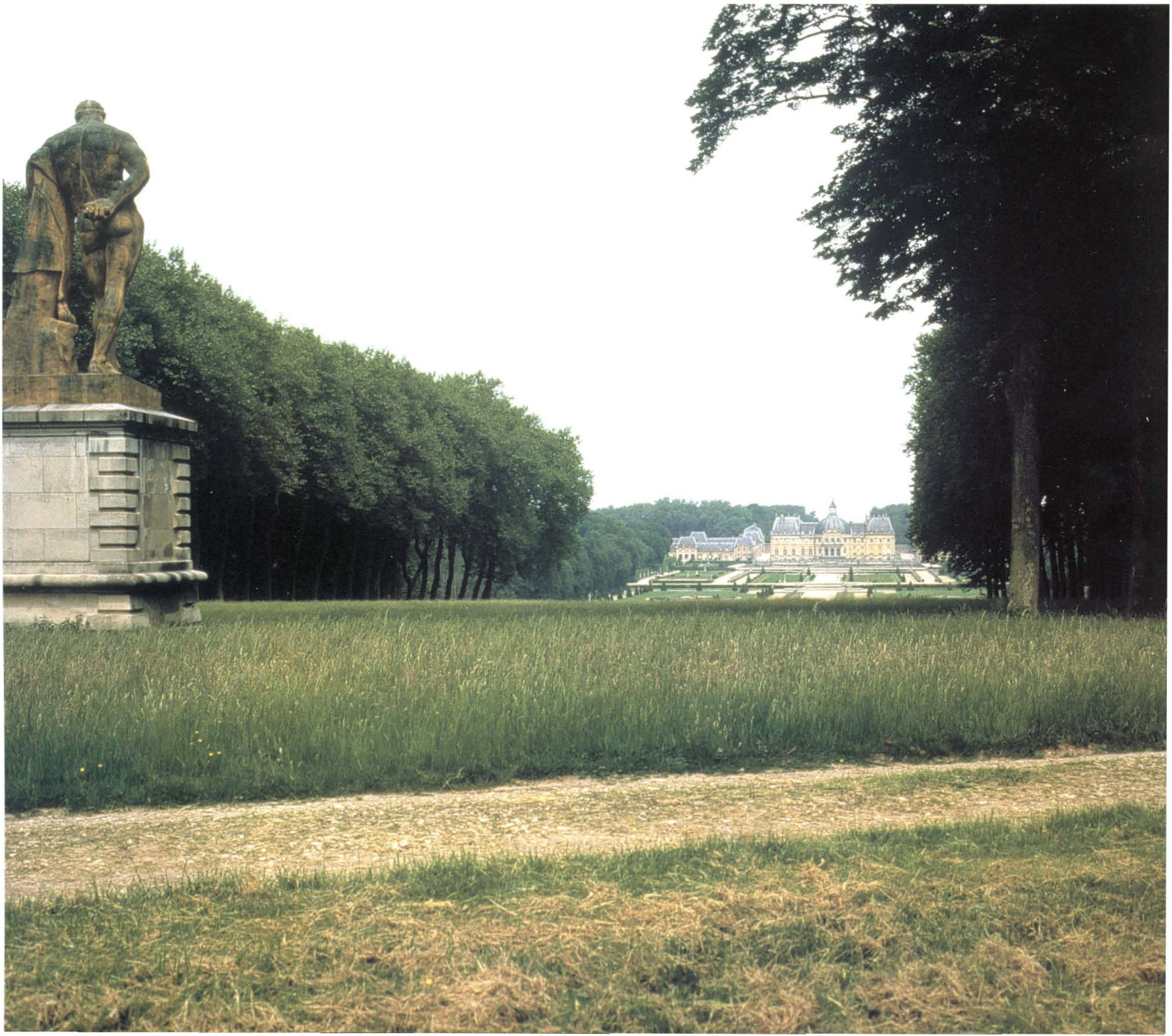
triangular grottoes cut out from under the steps, in which lie the river gods Anqueil (east) and Tiber (west). The water flowing from the grottoes is caught by a basin placed there for the purpose.

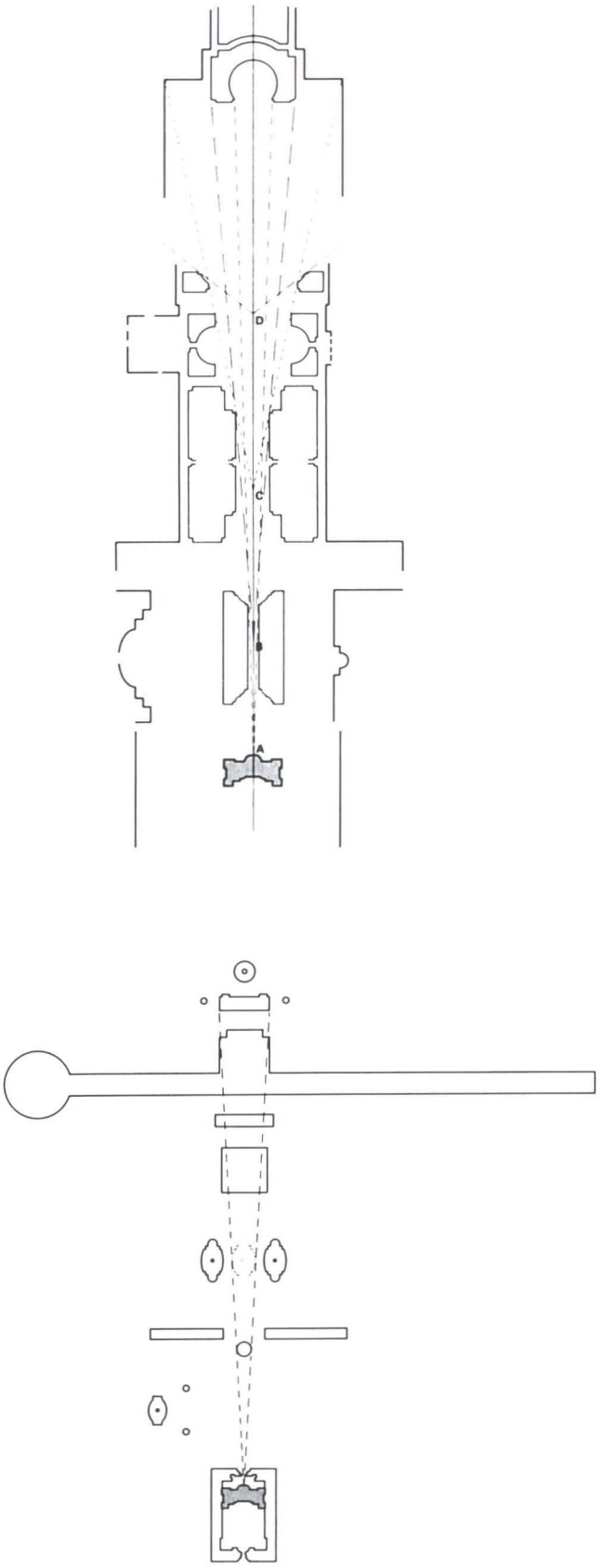
The waterworks mark convergences of the axial scheme and heighten the horizontal and vertical articulation of the garden. At the point where the three main streams converge, the grotto and the cascade have been placed symmetrically across from each other. Between lies reflecting water, an evocative and mythical symbol of a cyclic natural process. Architecturally, the grottoes and the cascade are treated in the same way as the walls of the *Grand Canal*. They enclose an elongated space, autonomous partly due to its deep situation. The reflecting pond in this space is not visible from the château, though this flaw is corrected by another reflecting pond lying further along the garden axis, which when seen from the château appears to be situated at the foot of the grottoes. Thus is the image of a synthetic Arcadia still made perfect.

The composition scheme

The composition scheme is determined by the balance between the mirror symmetry of the main axis and the valley morphology (in the intersecting direction), and between real and illusionistic space (in the longitudinal direction).

View back from Hercules at the southern terminus of the spatial axis.





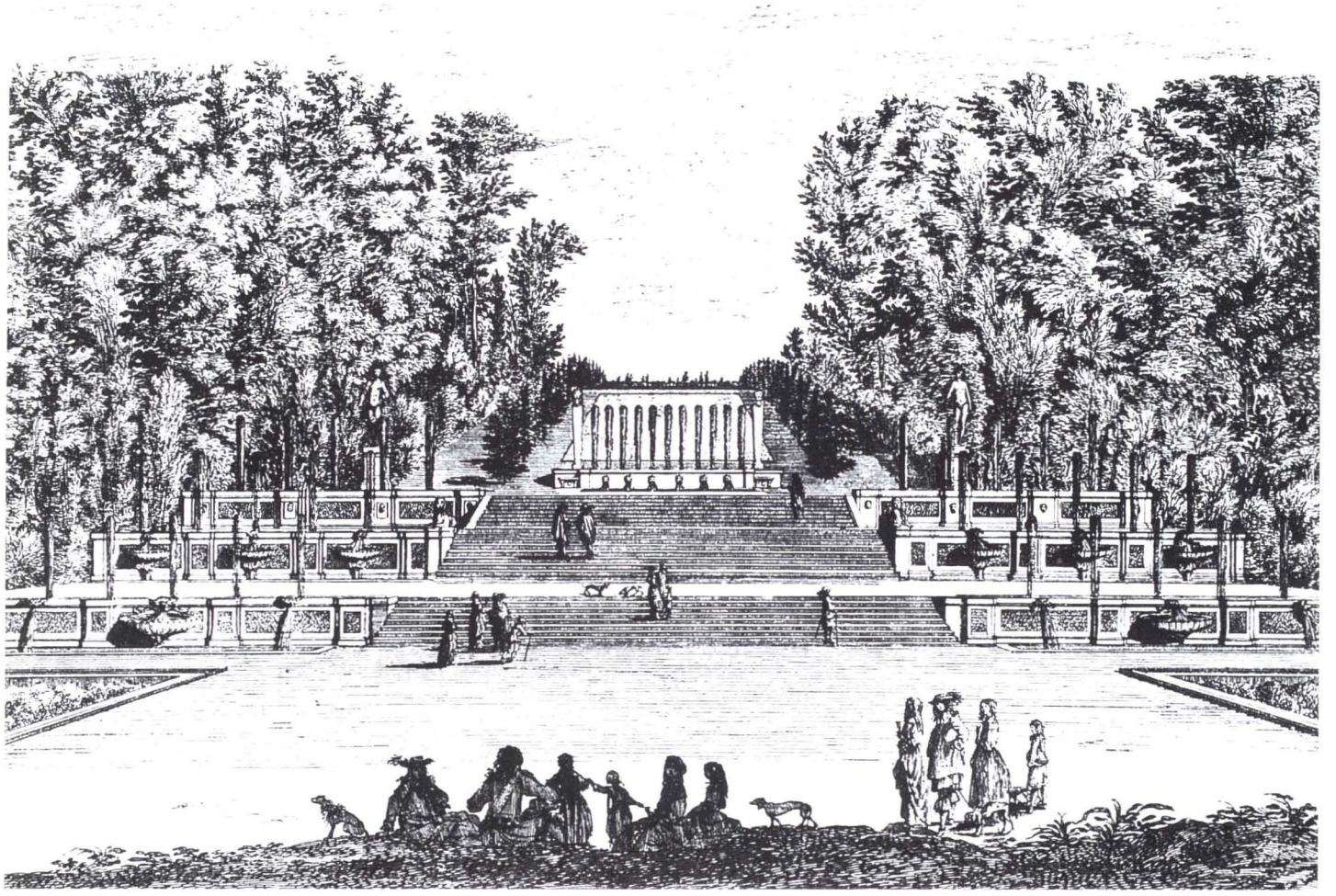
Changes in size and shape for the parterres and the water features as the distance from the château increases.

In principle, the active composition elements on the scale of the house and garden, such as the souterrain, hall, salon, façades, dome, parterres, reflecting ponds, grottoes and Hercules, are comparable with those in the Renaissance villa. But at Vaux-le-Vicomte the elements are arranged axially. The elements themselves are subordinated to the effect of the total image. Through this they take on another form, magnitude and effect. The souterrain is not inserted into a natural slope, but artificially forms a universal platform for the *bel-étage*. The house is symmetrical, is extended in width, receives side wings and cuts the spatial axis in two parts, an area before and behind it. The façade becomes a screen the articulation and development of which is determined by external spatial effects. The salon becomes the *Grand Salon*, the centre from which the whole composition is controlled. The parterres and bodies of water are extended in length. The grotto is extended in breadth and introduced into the side wall of a canal rather than a hillside. At the level of the estate, new composition elements are employed that are only anticipated in the Renaissance villa, such as the avenue, the *patte d'oie* and the canal. These sizeable elements link the estate to the larger scale of the landscape.

The formal prototype

When compared to Villa Medici, Vaux-le-Vicomte has both similarities and differences. The former is situated high up (250 metres above the floor of the Arno valley) with an open view across a large valley (15 kilometres). At Vaux-le-Vicomte the valley is much smaller (1 kilometre) and the house is on a lower site (20 metres above the valley floor). Despite the enormous size of the plan (455 hectares, as compared with the 0.6 hectares of Villa Medici) a reduction of space and scale is created. Instead of it being integrated into the landscape as Villa Medici is, Vaux-le-Vicomte is closed off from the surrounding agrarian context. Here, too, the visual system, which is still rudimentary at Villa Medici, has been treated as a universal (anatomical) depiction of nature. The grid plan has evolved into a hierarchical and symmetrical system. The horizon at Villa Medici lies far outside the boundaries of the plan while at Vaux-le-Vicomte it lies within these. Through perspective manipulation the spatial depth is both suggested as well as visually controlled. The visual order has shifted from the actual plan to an imaginary perspective picture plane.

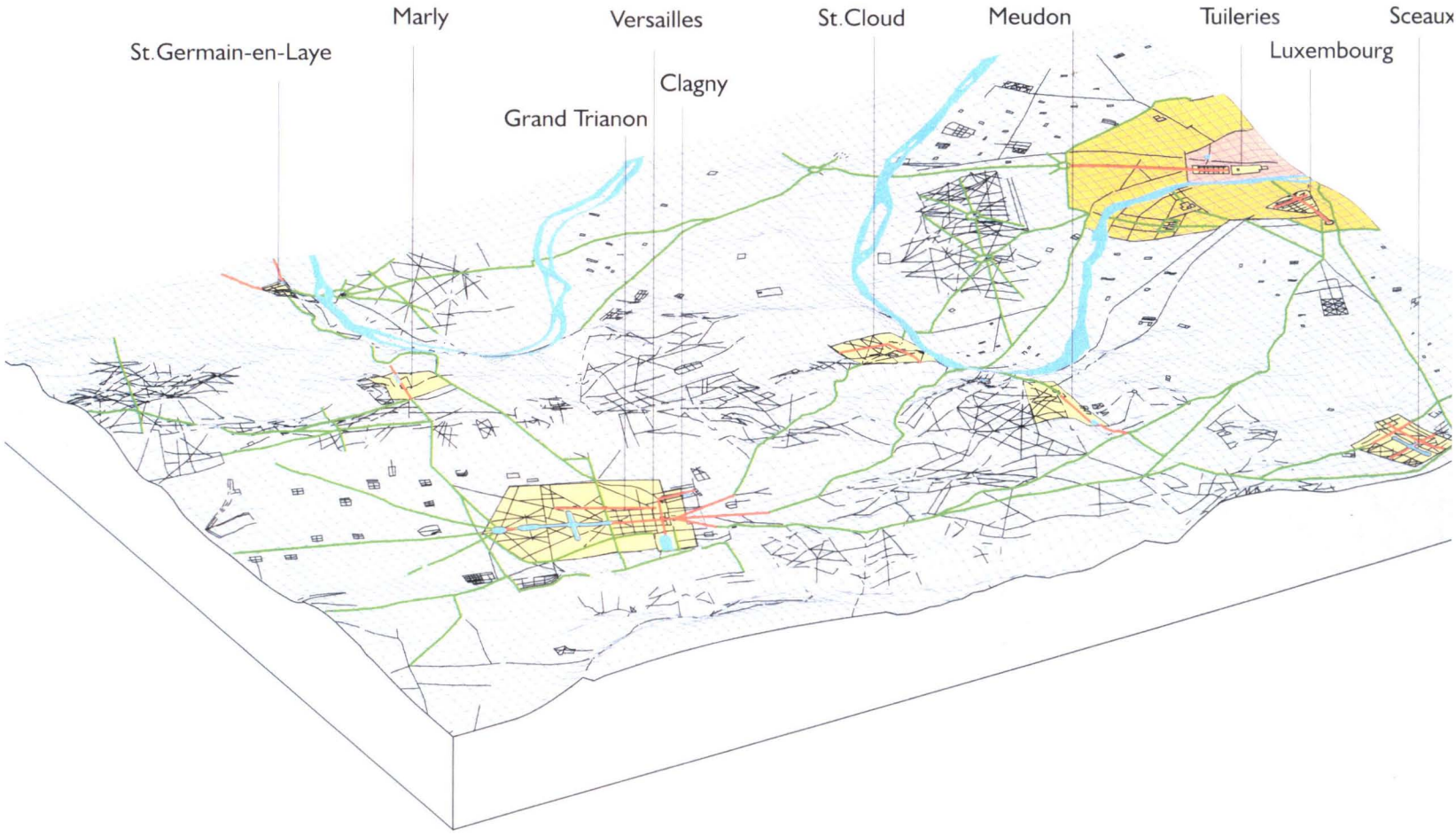
There is also a relationship with other Renaissance villas in terms of landscape architectonics. The low, sloping site in the small valley recalls the setting of Villa Giulia. The play between



Les Petites Cascades in the 17th century. (Israël Sylvestre)

symmetry and the site conditions is also an important theme at Villa d'Este. This is also the case at Palladio's Villa Rotonda, where the dome, as at Vaux, occupies the centre of the space. The incorporation and manipulation of the horizon is similar to Bramante's spatial arrangement at Cortile del Belvedere. The house-parterre-*bosco* sequence is to be seen in its simplest form in the Frascati villas. Palladio, for instance, also used the series entrance hall, forecourt and avenue running through the landscape at Villa Emo. The accentuation of the spatial axis is a central theme of the Boboli Gardens. The trompe-l'oeil on the garden axis and the façades of the building was a means of putting monumentality into perspective at Villa Aldobrandini.

At Vaux-le-Vicomte all these special treatments have been united into one plan and further elaborated upon. In this sense it is an absolute transformation of the rational composition. Vaux-le-Vicomte is however also a prototype, in which the formal staging is worked out for the first time as a new, coherent composition on multiple scales. It is essential that within the unity of the formal prototype, tension is preserved between the site conditions and the geometric plan, between the pictorial representation of nature and its mythological interpretation, and between actual and illusionary space. The manner in which the ambiguity inherent in this plays itself out makes the formal composition a work of art. In the formal prototype the oneness of space is all-embracing (from the interior to the landscape) and entirely constructed, though this can no longer be the work of a single individual. Within the unity of the formal prototype, landscape architecture (in the person of Le Nôtre) has become an independent specialism.



Paris. The landscape of the residences in the 17th century.

St. Germain | St. Cloud | Meudon Sceaux | Marly | Trianon Clagny

During the second half of the 17th century, Vaux-le-Vicomte was used as a model for reconstructing old properties and building new ones. Among those reconstructed in the region south-west of Paris were Versailles, St. Cloud, St. Germain-en-Laye, the Tuileries Gardens, Sceaux and Meudon. The new properties included Trianon (de Porcelaine), Clagny and Marly.

At St. Cloud (1661) Le Nôtre designed a new axis for Philippe d'Orléans, the *Allée de la Balustrade*, located high above the Seine. At right angles to this, in a side valley of the Seine, he created a new spatial axis in which the upper reaches of the side valley, the château and the Paris panorama below were linked by one axial scheme.

In St. Germain-en-Laye, Le Nôtre designed two new spatial axes for Louis XIV. The first (c. 1665) was orientated towards the north wing of Château Vieux and incorporated this irregular structure into a large-scale formal layout. The second, the *Grande Terrasse* (1669), was laid out 60 metres above the Seine. The plan consisted of a 2,400-metre-long (30-metre-wide) promenade. For Le Nôtre this entailed a careful hollowing-out of the elevation in order to transform the monotonous image of the layout (grass and gravel) into something playfully illusionary. The axis was intended to connect Château Neuf at St. Germain with the planned Château du Val. Seen longitudinally, the completed *Grande Terrasse* is suspended above the Seine valley like a gigantic balcony.

Even the thrifty Colbert had his 16th-century château at Sceaux (1670) embellished. In a north-south direction, across from the château, the Avenue de l'Octogone was laid out. This ran through a valley and comprised the avenue, a long cascade, the *Bassin de l'Octogone* and a *tapis vert*. An axis of symmetry, which passed through the château, was extended in a westerly direction. Later, parallel to and west of the avenue the *Grand Canal* (begun 1690) was excavated.

Sceaux. The spatial axis behind the château.

At Meudon, Servien, the finance minister of Louis XIV, began with the building of a large terrace. This measured 253 by 136 metres and was situated on a ridge overlooking the

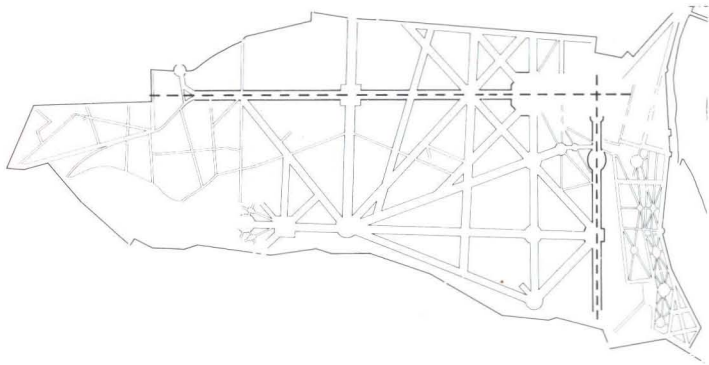
Seine. From the terrace there is a commanding view of the landscape and the city of Paris. This terrace, which partly formed the foundation for the château, was subsequently (1679) incorporated into a kilometre-long spatial axis. This ran from the Seine in the north, across the longitudinal axis of the terrace, straight through a side valley with a lake, to as far as the high southern horizon.

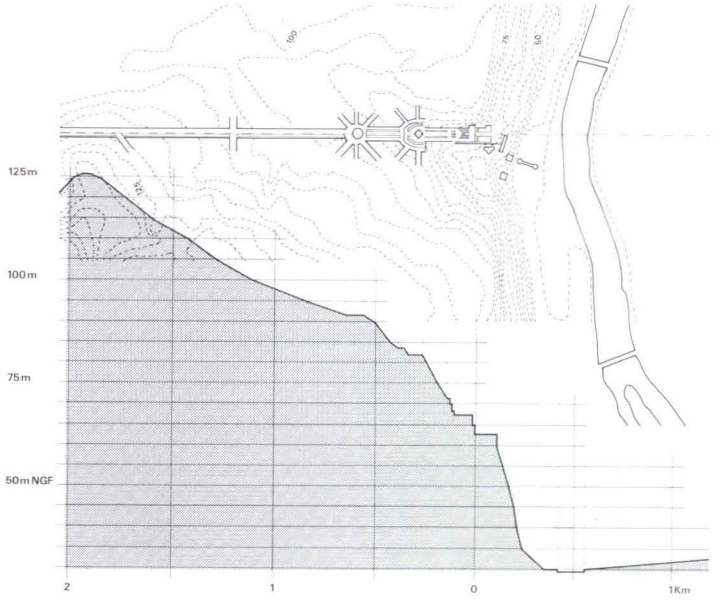
The Trianon de Porcelaine (1670) was an exotic pavilion amidst great floral splendour at the northern end of the *Grand Canal* at Versailles. At the southern termination of the canal was a menagerie. In 1687 the Trianon de Porcelaine was replaced by the Grand Trianon. The axis of the layout passes through the central open colonnade of this building and connects with the *Bassin du Dragon* in a south-easterly direction. This pond, together with the *Bassin de Neptune*, forms the termination of the most important transverse axis at Versailles.

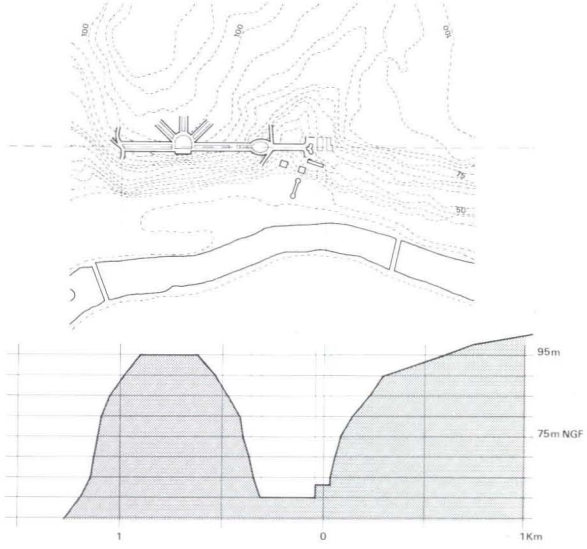
Just to the north-east of Versailles, Louis XIV had the Clagny country house built for Madame de Montespan (begun 1674). To the south-west the château's axis, with its bilateral symmetry, passes through a lake (Etang de Clagny) and links the building to Versailles.

Marly (begun 1679), six kilometres north of Versailles, was an exclusive royal weekend retreat. The house was the final structure in one of the two symmetric rows of six guest pavilions built along an axis. The spatial axis, directed towards the Seine valley and St. Germain, consisted of large terraces with promenades and water elements.

In surveying up the 17th-century residences located south-west of Paris, it appears they shared several features of landscape architecture with one another and also with Vaux-le-Vicomte. Their siting is linked to a natural bedding or basin, which in terms of scale (a few kilometres) is subordinate to a plain or large main valley (several kilometres). The irregularity of the natural site was disguised and brought into balance by artificial axial symmetry. The natural lie of the elevation was used to incorporate the horizon into the garden and to manipulate the spatial depth perspectively.



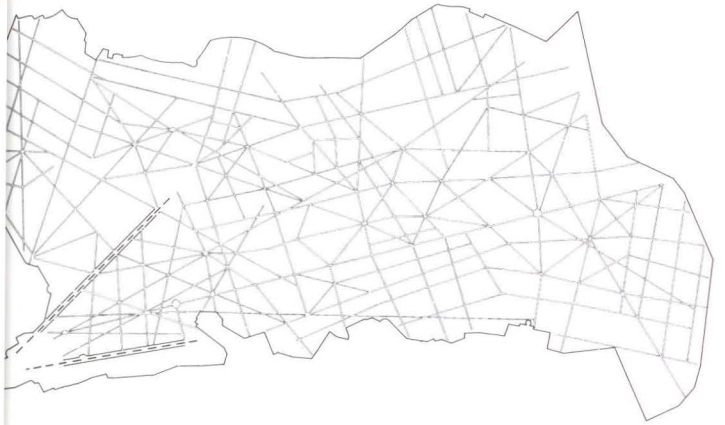


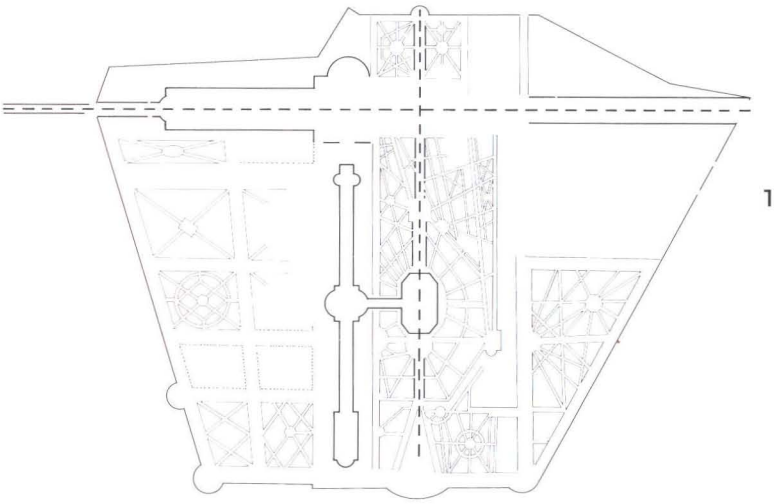


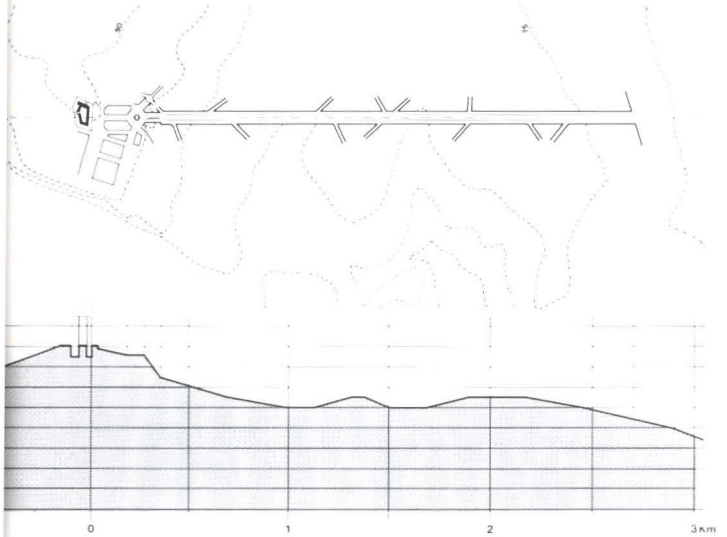
St. Cloud. The system of avenues and the plan and elevation of the spatial axes.

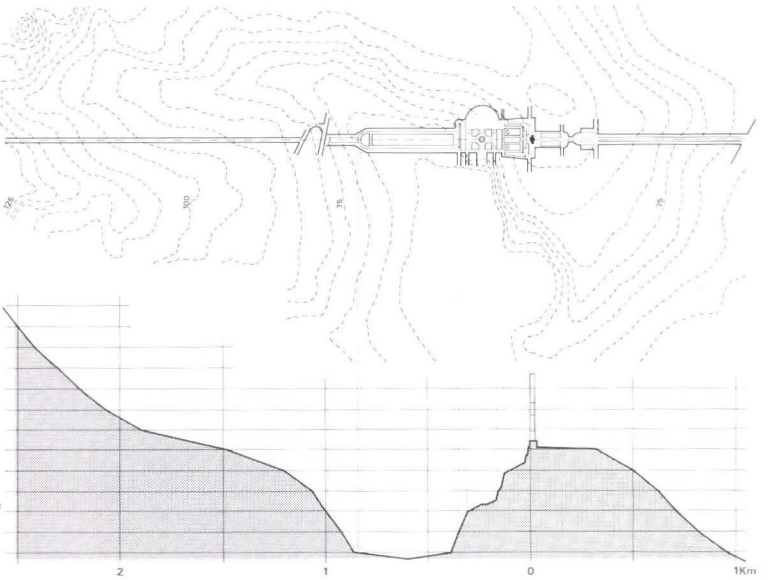
PAGE 172: St. Germain-en-Laye. (Aerial photo P. van Bolhuis/Pandion)

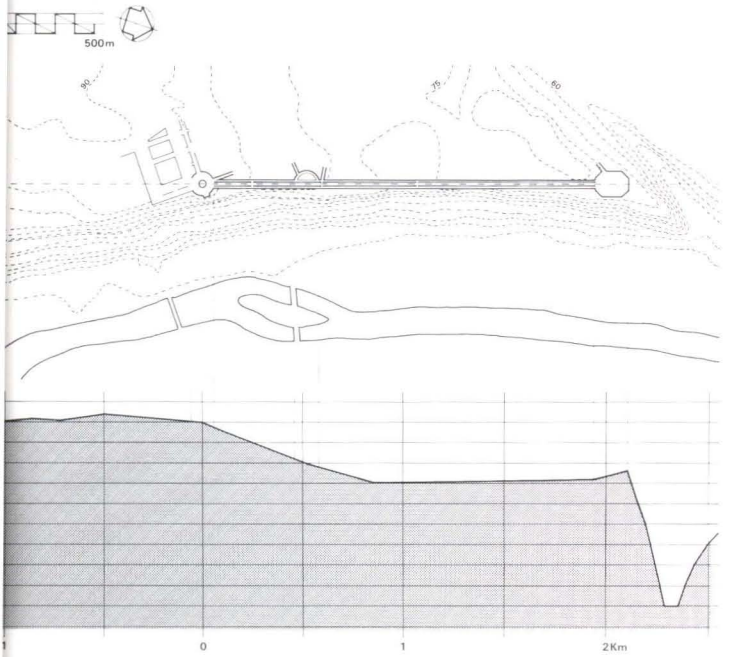
PAGE 173: Marly. (Aerial photo P. van Bolhuis/Pandion)

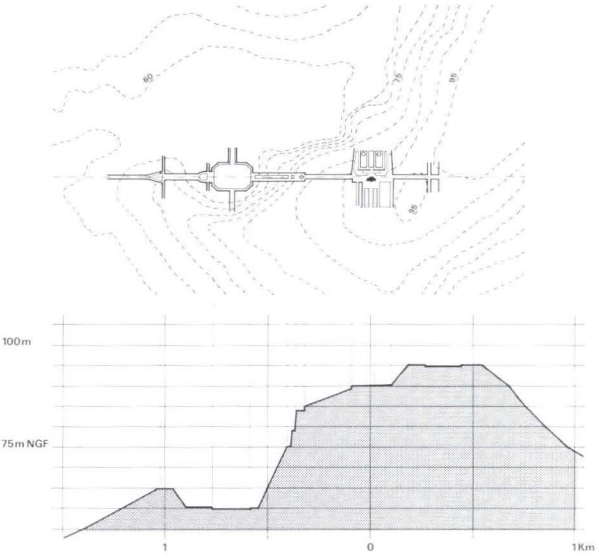






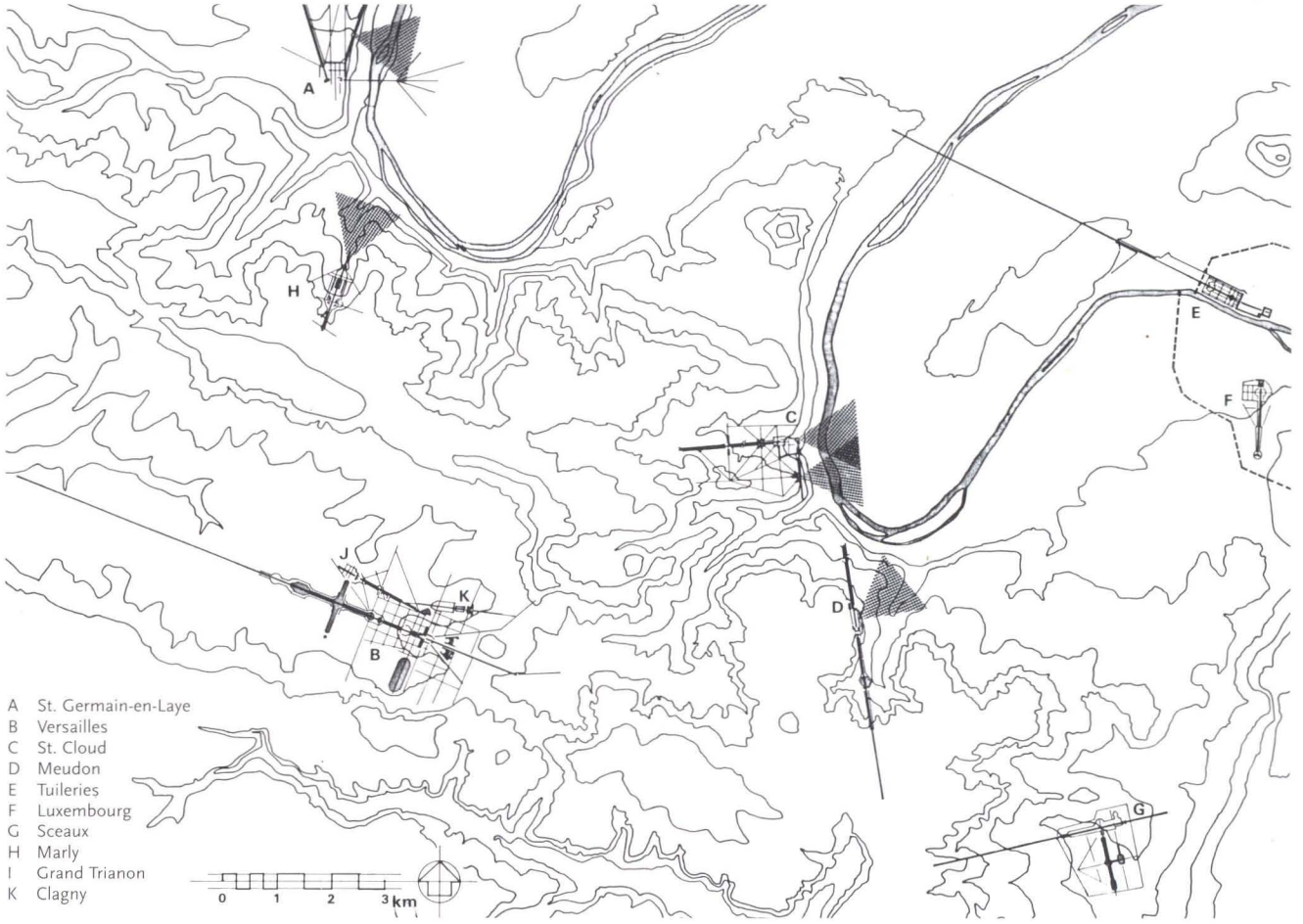


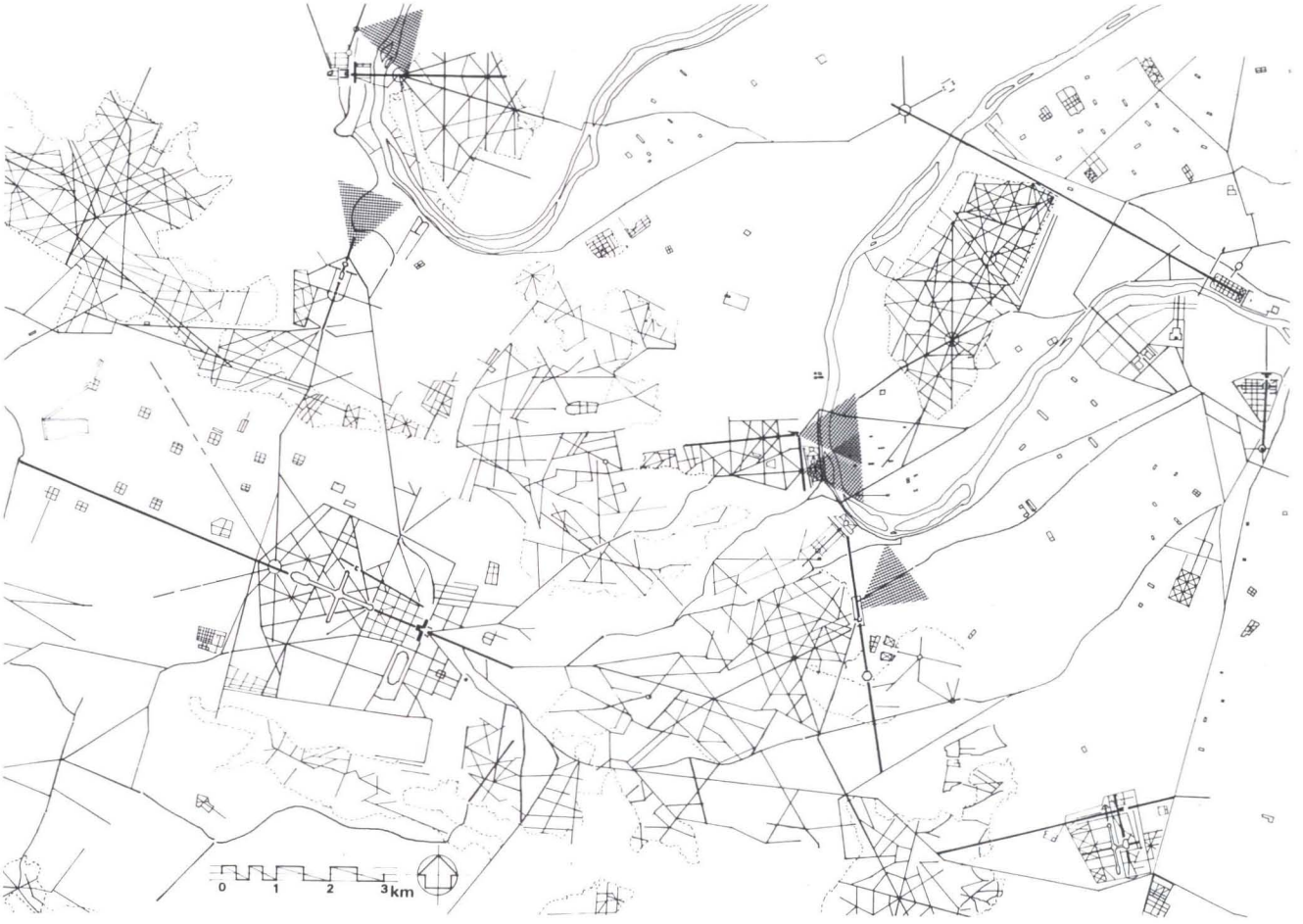




St. Germain-en-Laye. The system of avenues and the plan and elevation of the spatial axes.

Sceaux. The system of avenues and the plan and elevation of the spatial axes.





BELOW Paris, south-west. Geomorphology, spatial axes and connecting avenues. (After the Carte des Chasses du Roi, 1764)
ABOVE Geomorphology and châteaux around 1700.

Aqueduct near Marly. (Aerial photo P. van Bolhuis/Pandion)

The network of axes and avenues

On the *Carte des Chasses du Roi des Environs de Versailles* (1764-73) the effects of 17th-century encroachment on the area lying south-west of Paris is evident. The modest châteaux built in the beginning of the century were still sited on strategic spots, high above the banks of the Seine (for example St. Germain, Meudon, St. Cloud) and on dry tracts in the middle of marshland (such as Louvre, Versailles, Sceaux). In the second half of the century they were drastically enlarged and reorganised. Internally, this redesigning was dominated by the laying of spatial axes. The arrangement and measurements of these axes were dependent on the building and/or the condition of the terrain. The siting of the spatial axis corrected, as it were, the natural, sloping position of the upstream side valley in

Meudon. (Aerial photo P. van Bolhuis/Pandion)

relation to the main valley. The spatial axis was positioned at right angles to the main valley. The importance of the geomorphology is also evident in the choice of location of new residences such as Marly, Trianon and Clagny. The visual effect of the hollow elevation of the spatial axis is similar to the already-mentioned theatre stage rising the further back it recedes. For using water in the formal plan, a longitudinal site in a valley was also of great importance.

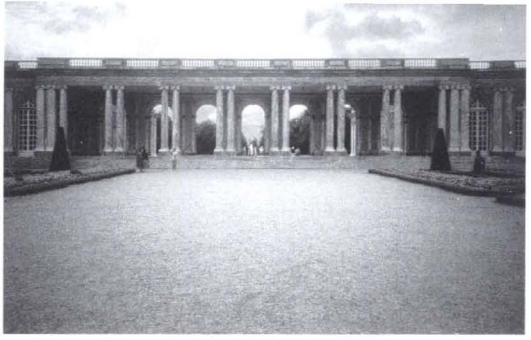
As well as acting like a 'telescope' towards the landscape, the spatial axis, in the plans of some Paris residences, also acts as an 'onlooker' towards the city. At Versailles the landscape and the city face each other, like tableaux on opposite sides of a spatial axis. The axis of bilateral symmetry, with the château in its visual centre, has a vanishing point in the landscape and one in the city. At St. Cloud and Meudon there is an indirect visual relationship to the city. The city appears, as a

St. Cloud. (Aerial photo P. van Bolhuis/Pandion)

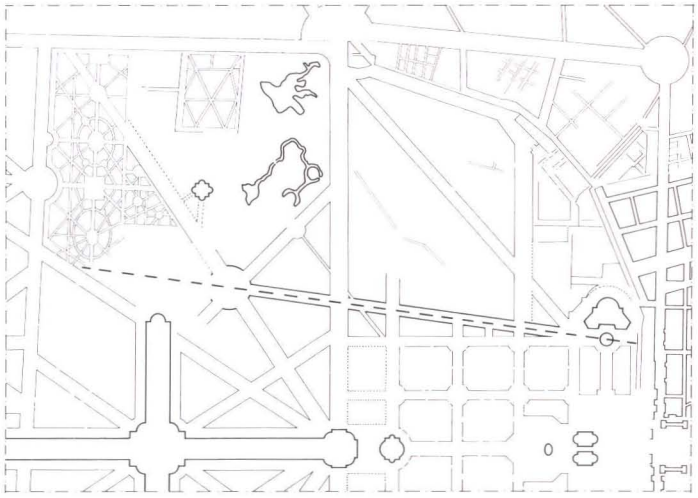
segment of the panorama, on the horizon of the spatial axis. At Versailles, the Tuileries and Luxembourg there is a direct link with the city. The spatial axis also continues into the city.

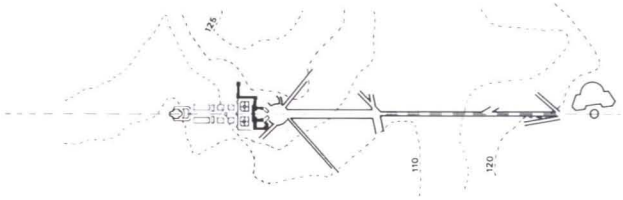
The spatial axes are extremely long, reaching as far as the horizon. Nevertheless, the spatial axis is also of limited scale, its length never exceeding a few kilometres. At the horizon it ceased to be a distinctive formal space and became an avenue: from a visual axis it became an axis of movement or a route. Together with the diagonal and transverse avenues, such an axis formed part of a network that connected the regional residences. The city, too, was linked in this way. When the city wall of Paris was demolished in 1670, the boulevard became a ring road that joined numerous star-shaped, radiating routes.

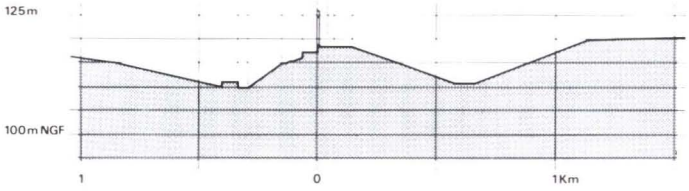
In this manner a formal link at a regional level was created in which two types of axiality played a role. The strategically placed spatial axes were the 'carriers' within the network.

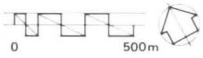


Grand Trianon. Versailles. View along the spatial axis.





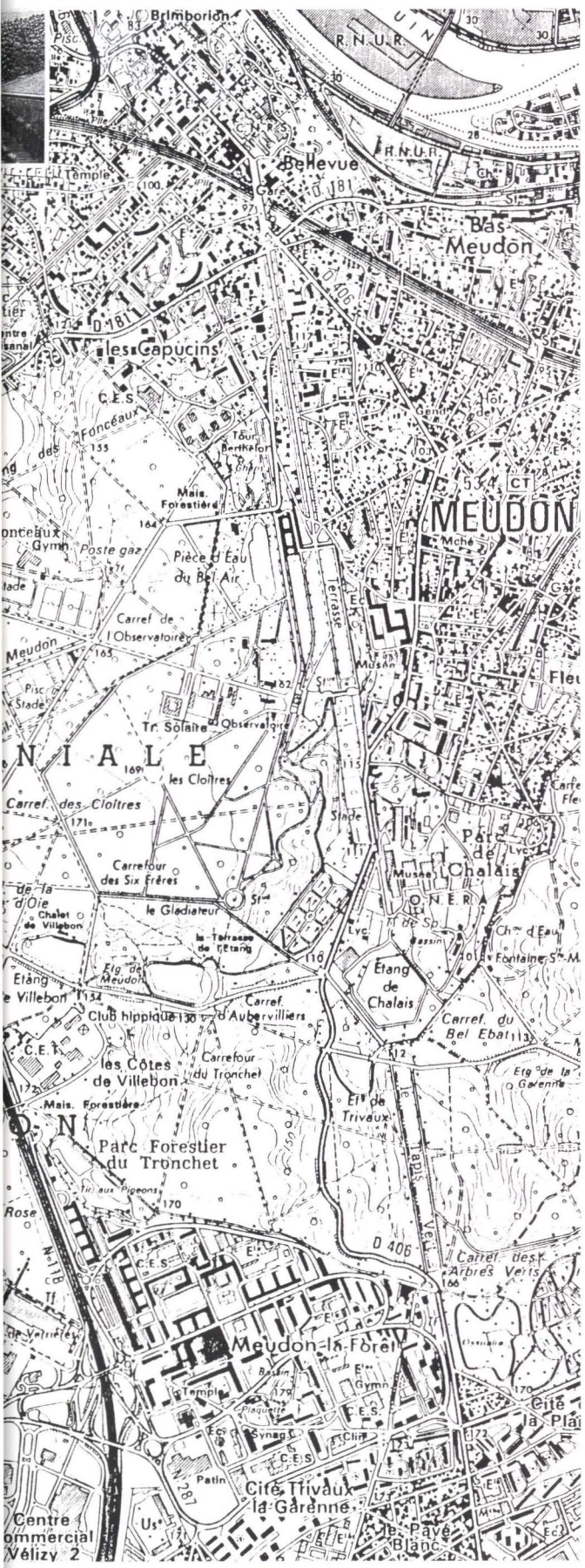




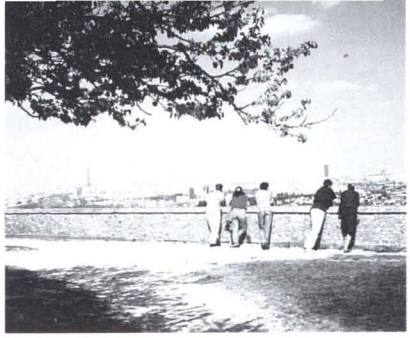
Grand Trianon. Versailles. Plan and elevation of the spatial axis.

Meudon in the 18th century. (Carte des Chasses du Roi, 1764)

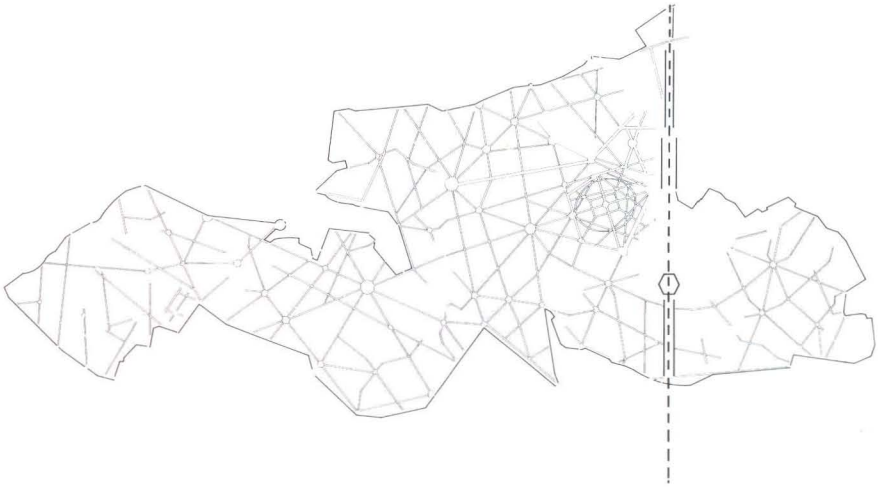
Meudon. Main view along the spatial axis, seen from the terrace. (Israël Sylvestre, 1690)

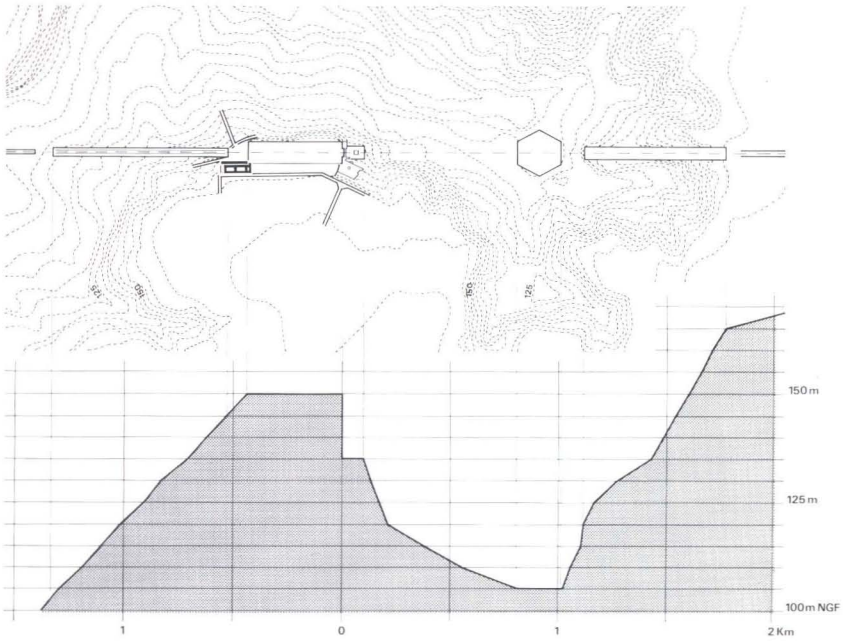


Meudon, as it is today. (Institut Géographique National, Paris)



Meudon. View from the Grande Terrasse to the city in the north-east.



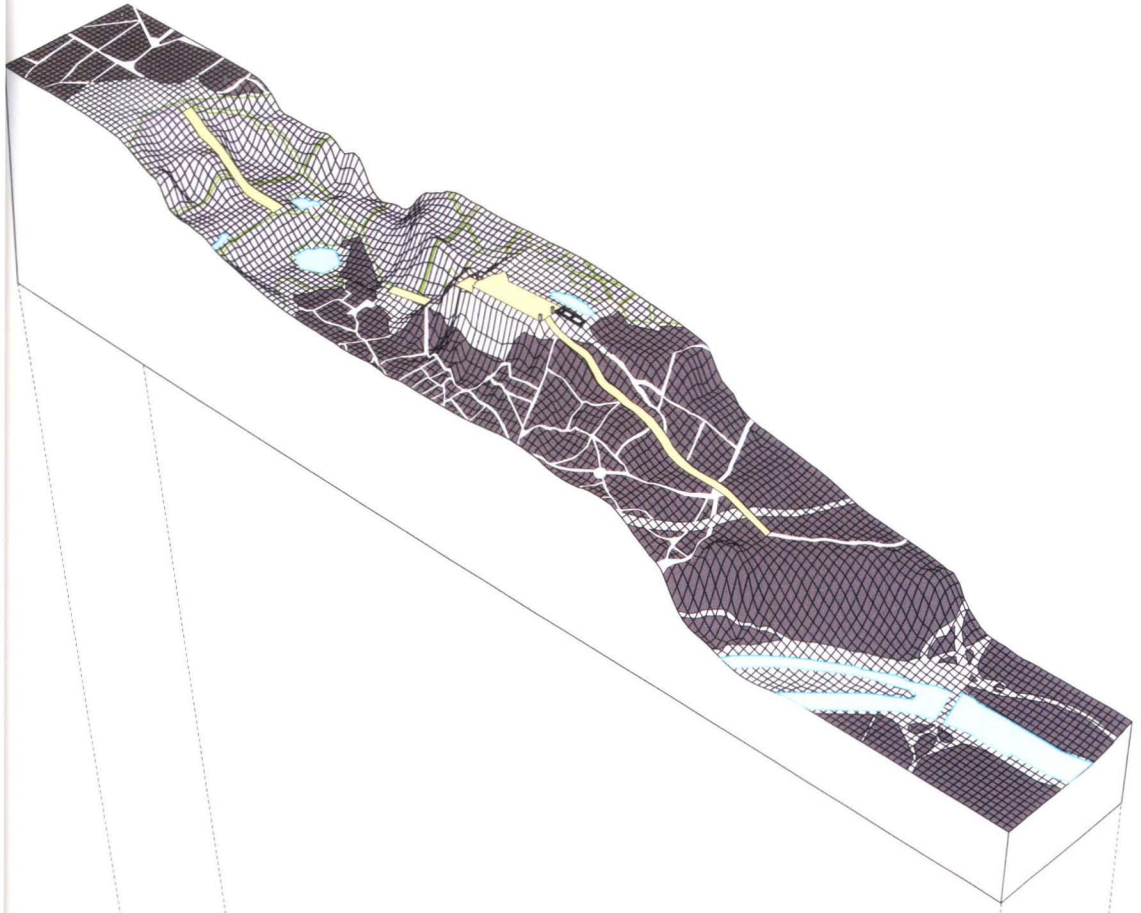


Meudon. The system of avenues and the plan and elevation of the spatial axis.

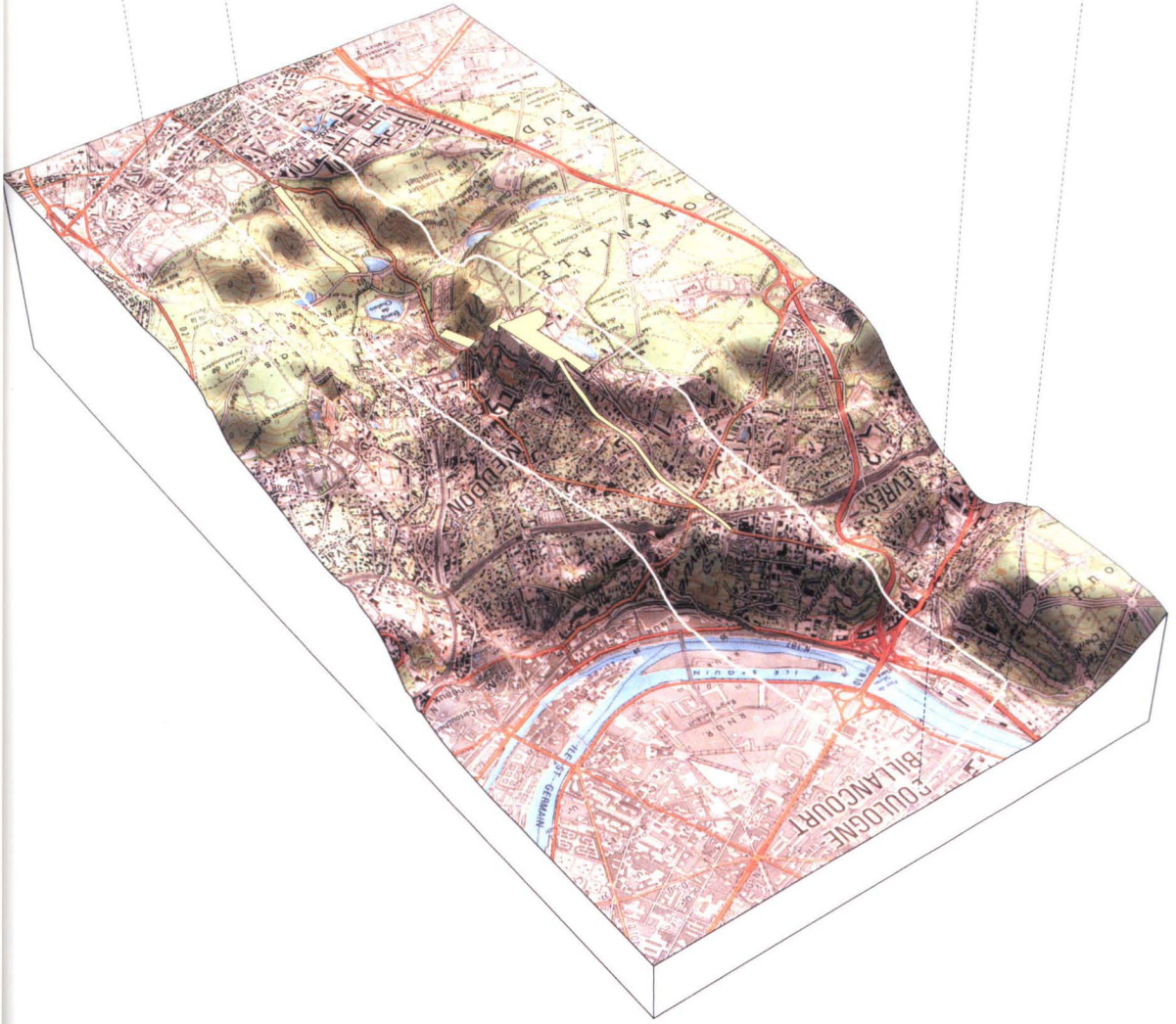
Meudon. View from the Grande Terrasse along the spatial axis.

They were the 'telescopes', the visual axes in which the landscape was 'illuminated' in an abstract manner and on a large scale. Here, landscape and town were united into one spatial construction. Then there were the connections between the residences themselves and the city, the unfashioned spaces or avenues, the earlier-mentioned axes of movement. They formed a functional infrastructure for the entire district; they were the ceremonial routes taken by the royal court when travelling in coaches, hunting parties or parades.

Aqueducts and canals were also elements of the infrastructure. In order to feed the numerous fountains at Versailles (approximately 1,400 in 1680), water was taken from the lakes



Meudon. Axonometric projection of the spatial axis.



Meudon. Axonometric projection of the topography.

Marly. The water pump in the Seine, with St. Germain-en-Laye in the background. (Engraving, ca. 1681)

Aqueduct near Marly.

of Trappes, St. Quentin, Bois d'Arcy and Bois Robert, among others. Every water source was tapped and the entire area was dissected by a network of pipes and canals that carried the water to the royal reservoirs. When it became apparent that this would not produce enough water, the famous hydraulic works near Marly were built, where 14 wheels and 223 pumps transported 5,000 cubic metres water daily out of the Seine. Then in 1684, Vauban, assisted by 22,000 soldiers, began building an enormous aqueduct to convey the water from the River Eure to Versailles.

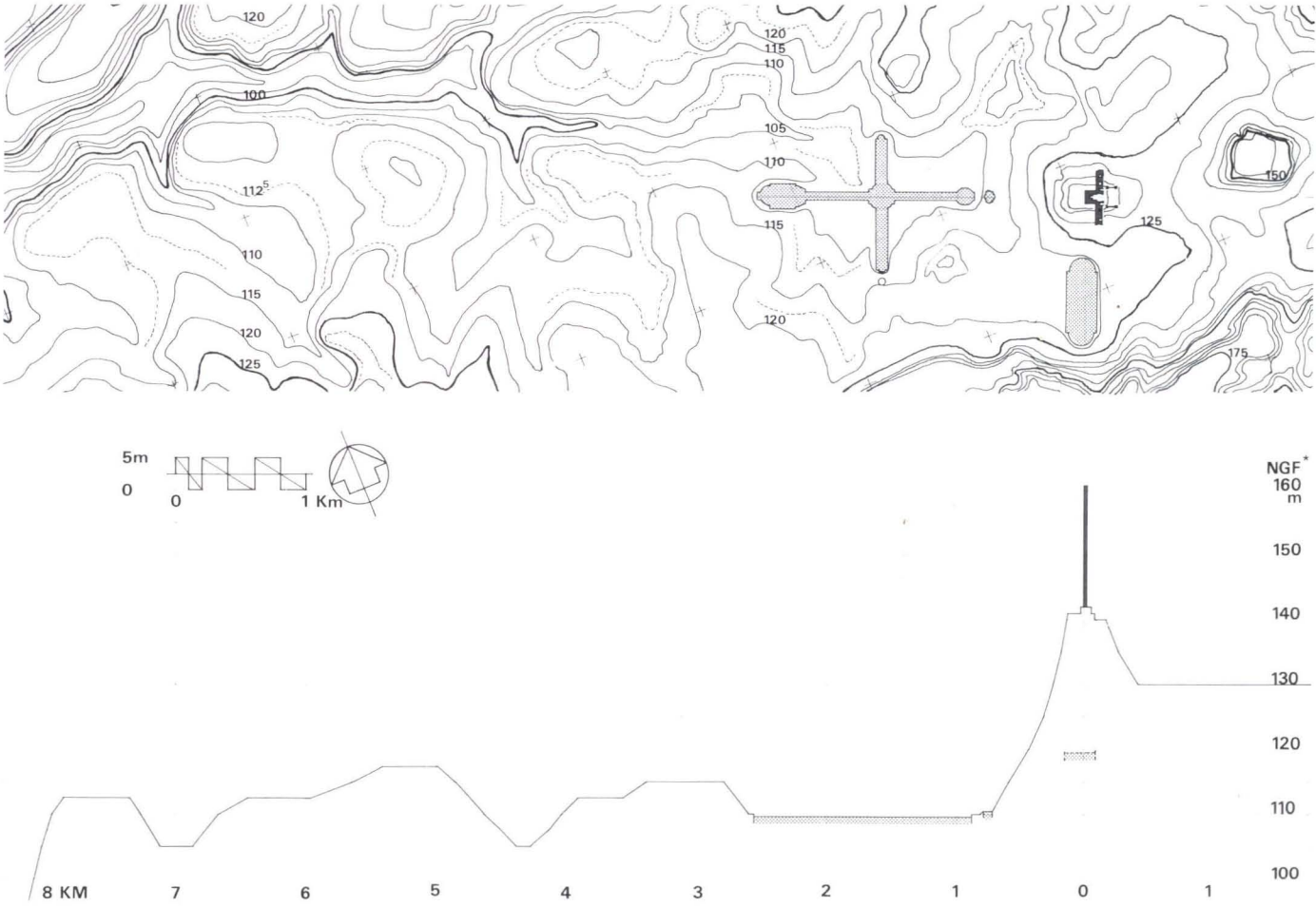
Versailles

In 1630 Louis XIII had a hunting lodge built on a strategic spot in Versailles. It stood on the upper reaches of a large side valley of the Seine, where this valley splits into two and bears to the west towards an elongated marshy plateau high above the Seine. In 1661, after seeing Vaux-le-Vicomte, the king decided to extend and embellish the lodge. As the landscape architect responsible for the layout, Le Nôtre encountered forces in the geomorphology of the site that would defy even his talent for design. Unlike Vaux, the final spatial design was not created with one master stroke within the space of a few years, but was developed in a series of consecutive plans spread over a 25-year period. At the same time, the one plan repeatedly evoked something of the other. The unprecedented scale with which Le Nôtre laid open the landscape meant that, for the balance of the whole ensemble, it had to be continually enlarged by architects Louis le Vau and Jules Hardouin-Mansart, and vice versa. Moreover, Louis XIV saw so many of his own aspirations embodied in Le Nôtre's ideas and proposals, and he was on such intimate footing with him, that Colbert feared the king was hopelessly under the spell of the brilliant designer: 'Your majesty will surely understand that he is in the hands of two men [Le Nôtre and Le Vau], who drag your majesty from the one project into the other.' But Colbert preached to no avail. Under the Sun King's own personal supervision, and with the help of an army of labourers, the marshy, obscure site and the insignificant château were transformed into the *ne plus ultra* of formal spatial art.

The northern half of the transverse axis to the west of the château, from the Bassin du Dragon. (Aueline)

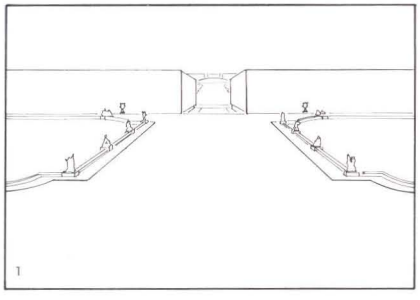
The main axis and the Grand Canal

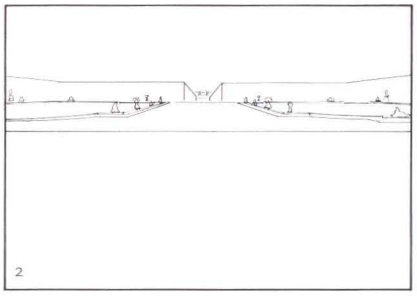
When Le Nôtre began remodelling the Petit Parc, the original Renaissance garden (by Jacques Boyceau) surrounding the lodge, he retained its grid division. The forest quadrants were architectonically redesigned into *bosquets*. For the rest Le Nôtre devoted all his energy to liberating the main axis. At the same time Le Vau revised the front of the château entrance so that here, as at Vaux, a series of progressively smaller spaces served to form a ceremonial approach to the palace. The terrace to the rear was raised, the *jardin bas* dug out behind it, and both were linked by a horseshoe-shaped, semicircular set of steps (*Fer à Cheval*). The end of Petit Parc was still marked by a *patte d'oie*. In 1667 the descending *Allée Royale*, behind the *jardin bas*, was widened and made into a *tapis vert*. However, from the old house, situated more to the fore, the *jardin bas* and the *tapis vert* behind could not be seen due to the difference in height. The vista ran along the foreground, across the terrace and disappeared between the treetops of the *Allée Royale* into the indeterminate, marshy landscape.



Plan and elevation of the main axis.

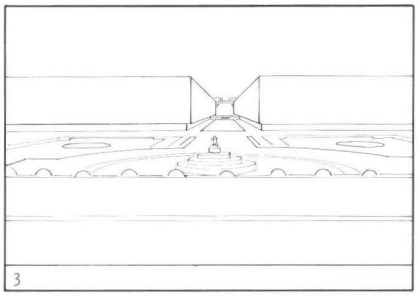
* (Nivellemer Général de France)

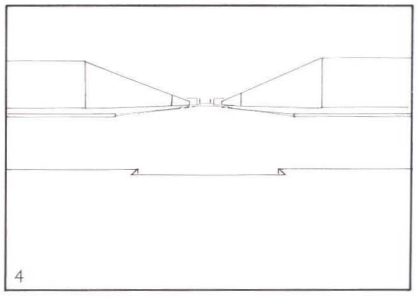


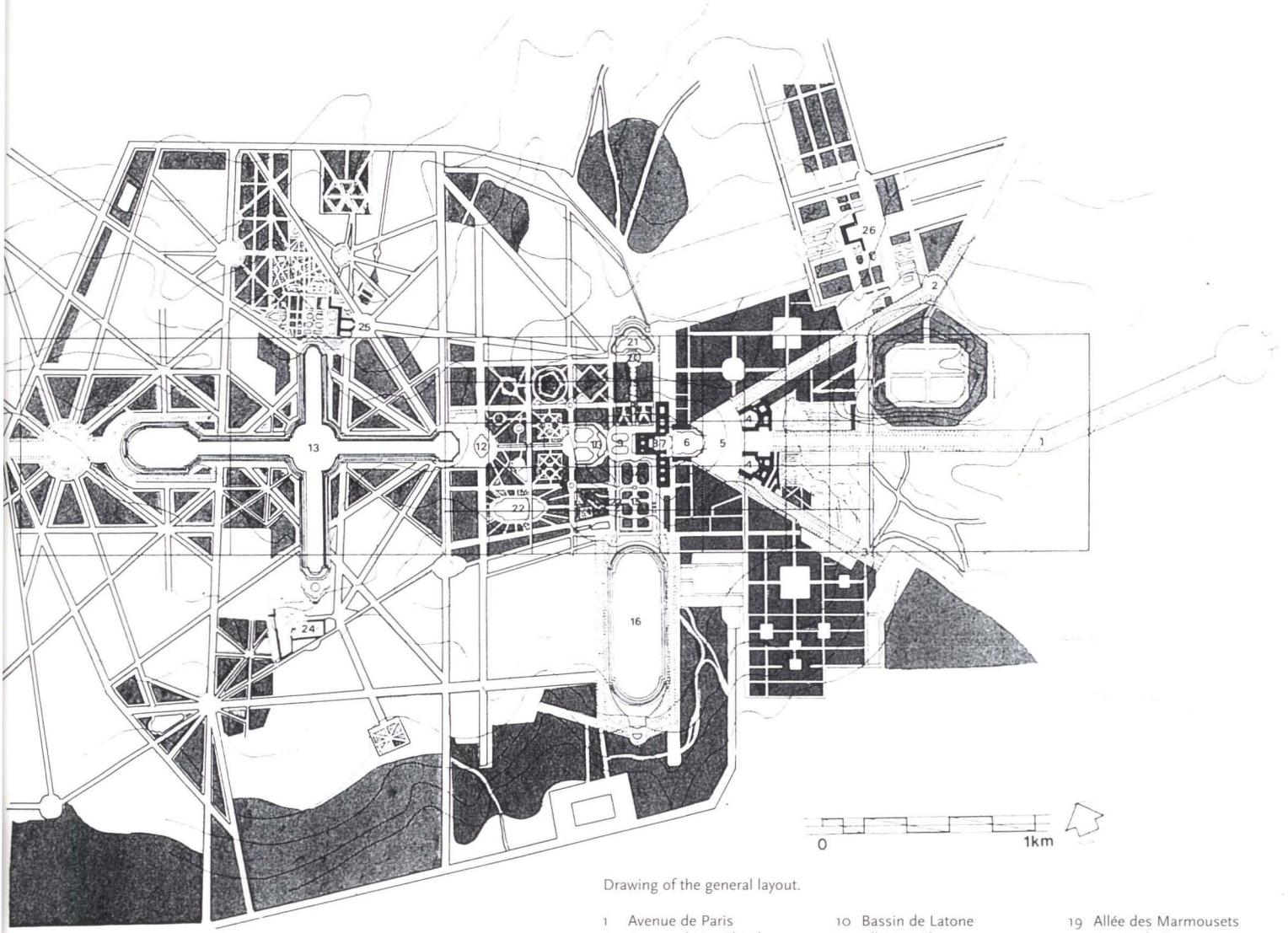


Primary view along the main axis, looking west.

1 From the Hall of Mirrors
2 From the Grande Terrasse
3 From the stairs before the Jardin Bas
4 Before the Grand Canal







Drawing of the general layout.

1 Avenue de Paris
2 Avenue de St. Cloud
3 Avenue de Sceaux
4 Grandes Écuries
5 Places d'Armes
6 Cour des Ministres
7 Cour Royale
8 Cour de Marbre
9 Parterre d'Eau
10 Bassin de Latone
11 Allée Royale
12 Bassin d'Apollon
13 Grand Canal
14 Parterre du Midi
15 Orangerie
16 Pièce d'Eau des Suisses
17 Parterre du Nord
18 Fontaine de la Pyramide
19 Allée des Marmousets
20 Bassin du Dragon
21 Bassin de Neptune
22 Bosquets
23 Les Cent-Marches
24 Menagerie du Roi
25 Grand Trianon
26 Clagny
27 Butte de Montbauron

At the foot of the sloping *Allée Royale*, before the extensive marshland, a crucial point had thus been reached in the layout. At Vaux a further extension of the main vista, at the end of the descending slope, was made possible by the sloping position of the surface behind the *Grand Canal*, whereby the perspective foreshortening was 'lifted'. At Versailles, beyond the end of *Allée Royale*, there was also a hill that restricted a glimpse of the valley, but Le Nôtre must have found this too trivial to allow it to form the termination of a vista. He proposed to the king that the hill be dug out, the valley drained and a large canal built along the length of the principle axis. Even for the king this was such a radical idea that he first consulted specialists at the Academy of Sciences, who judged the project favourably. After three years (1668-71) the canal was completed. Louis le Vau then adapted the old château to the scale of the new layout by building his 'envelope' around it (1671), with a large open balcony on the spot where the later Hall of Mirrors would be built. From this more elevated viewpoint, however, the canal was still too short in perspectival terms. It was therefore made even larger (1671) and then spanned the total length of the natural plateau. In this way the exceptional length of the canal (1,500 metres) accommodated the perspective fore-

shortening as a result of the great distance between the château and the beginning of the canal (900 metres). The reflecting water ensured that it would remain visible as a luminous surface between the avenues of trees of the *Allée Royale*. In order to heighten this light effect, a semicircular mound, or *vertugadin*, was employed as a reflector behind the termination of the canal. The axis continued past this as an avenue, stretching kilometres further to the horizon. The total length of the axis on the west front of the building was eight kilometres.

Upon the execution of the various projects the most important elements of the main vista were completed. From the palace balcony the vista (perspective) now consisted of the following majestic sequence: the *Grande Terrasse* (white), *tapis vert* (green) and the reflecting *Grand Canal* (silver). These three consecutive elements were of increasing length (and breadth) so that they appeared to be proportionally well-balanced in the perspective picture plane. Also in the detailing, such as the increase in size of the three receding *bassins* in the *Grand Canal*, this postponing of the perspective was used. In this way an anamorphosis was created: a perspective with orderly proportions that, as it were, folds out forwards.

The transverse axes

After 1678 Jules Hardouin-Mansart began adding the enormous north and south wings of the palace, the Hall of Mirrors and the new orangerie on the south edge of the *Grande Terrasse* with the large, well-known flight of steps (*Cent Marches*). At the same time the transverse axis, behind the château, was made in accordance with the scale of the new layout. On the southern termination of this axis Le Nôtre designed the *Lac des Suisses* on an area of marshland (1680-82). This formed a reflecting surface, whose dimensions were in keeping with the perspective link with the parterre above the orangerie. On the north side, where Le Nôtre had linked the *Parterre du Nord*, the *Bassin de la Pyramide* and the *Bassin du Dragon* together perspectively, he designed the *Bassin du Dragon* as a final set piece. This brought the total width of the valley (two kilometres) visually under control in a transverse direction. This was also the case with the transverse arm (1.2 kilometres) of the *Grand Canal*, which links the *Ménagerie* (to the south) with the *Trianon de Porcelaine* in the north. Both axes assume the maximum length possible given their geomorphological situation and are not symmetrical in relation to the main axis. They are larger on the south side than on the north side, while the main axis of symmetry is asymmetrically positioned in the terrain of the valley.

A vista of water, air and light

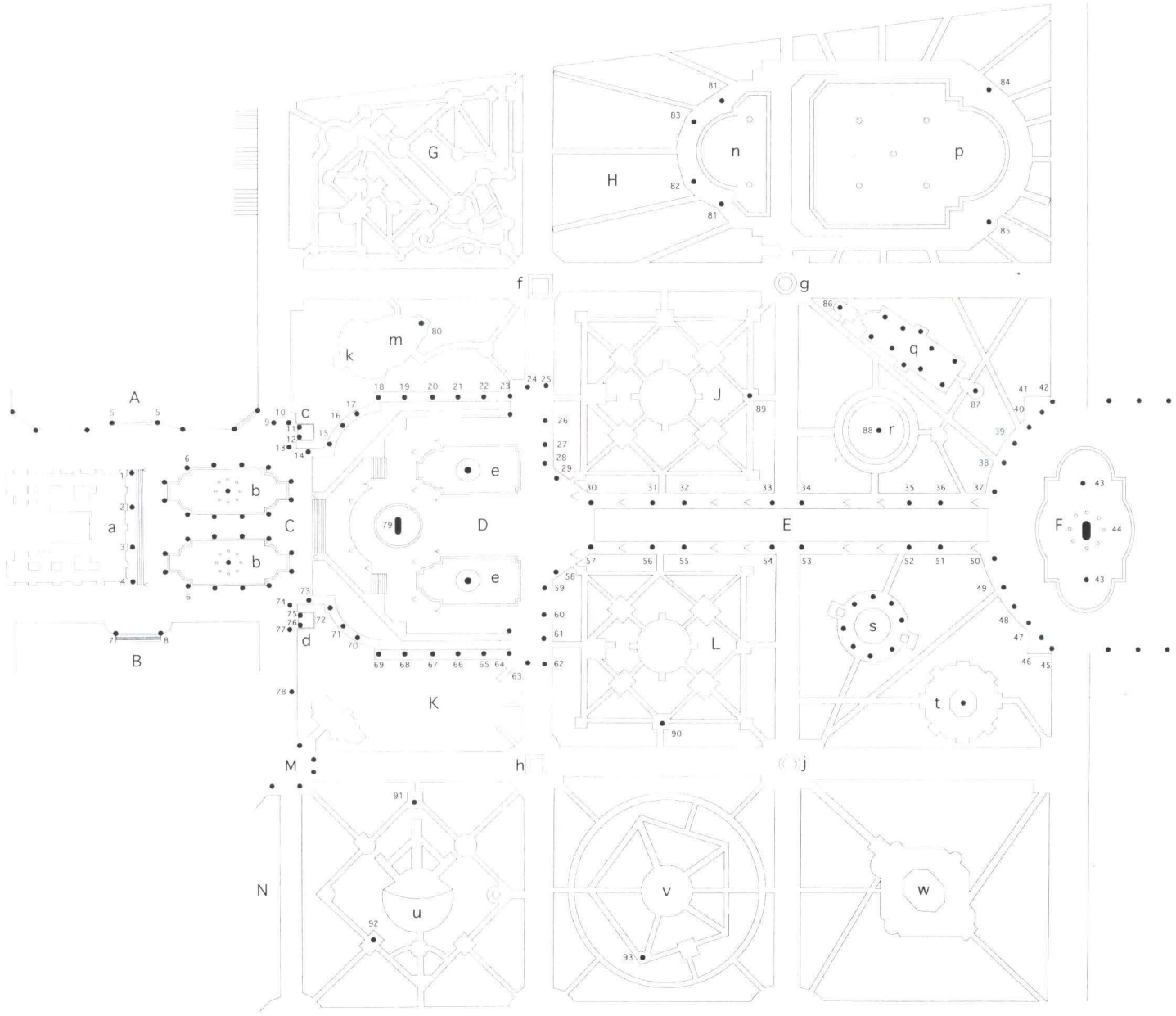
Modifications to the water parterres on the *Grande Terrasse* (*Parterre d'Eau*), directly behind the château, where the transverse axis bisects the main axis, were finally completed. In 1684 the *Parterre d'Eau* from 1674 (with one main round *bassin* and four subsidiary triangular ones) was replaced by two large, rectangular water mirrors or *Miroirs d'Eau*, in which the perspective of the main axis was 'framed'. In an uninterrupted sequence of the Hall of Mirrors, the *Miroirs d'Eau*, the *tapis vert* and the *Grand Canal*, the main vista opens out as far as the horizon. The central axis and the two most important transverse axes 'overpower' the given geomorphological situation, as they occupy the entire length and width of the basin-shaped plateau. Due to the postponing of the perspective along the central axis, the terrain is brought under visual control by means of a maximum optical depth. The horizon lies within the constructed landscape and is brought towards the viewpoint of the observer as if seen through a telescope. Past the *clair-obscure* of the central axis the space dissolves into an atmospheric perspective. Beyond the reach of the eye from this viewpoint, the system of diagonal and transverse avenues links the château to the 1,500-hectare estate and surrounding area.

The city as a reflecting image

In 1671 Louis XIV decided to make Versailles the seat of the government. Much of the neighbouring land, including the old village of Versailles, had already been bought up by the Crown. Thus the reigning monarch gathered not only his court around him but also the entire machinery of government as well as civil servants. His residence became the capital of the country. Mansart was given the task of studying the architectonic and planning problems created by this transition. The terrain in front of the château, like that to the rear of it, was completely reorganised. In 1673, the agrarian pattern, the existing routes and the old village of Versailles (slightly to the south of the palace) were obliterated. Where possible the site was made level and the square in front of the château raised.

The main axis of the residence, which on the rear side varies in width from 50 metres at *Allée Royale* to 150 metres across the *Grand Canal*, was given a uniform width of 100 metres on the front side. It slopes downwards from the forecourt to the upper reaches of a side valley of the Seine. The main *chaussée* is 'on-going', local access is provided by the four *contre-allées* (parallel roads), screened from the main *allée* by rows of trees. About two kilometres from the château the axis bends to the north-east, following the course of the side

The main axis from the Bassin de Latone.



1 Silène
2 Antinoüs
3 Apollon
4 Bacchus
5 Sphynges
6 Groupes d'Enfants
7 Scythe Écorcheur
8 Vénus Pudique
9 Ariane
10 L'Eau
11 Tigre/Ours
12 Limier/Cerf
13 Le Printemps
14 Le Point-du-Jour
15 Le Poème Lyrique
16 Le Feu
17 Tyridate
18 Vénus Callypige
19 Silène
20 Antinoüs
21 Mercure
22 Uranie
23 Apollon
24 Circé
25 Platon
26 Mercure
27 Pandore
28 Achéloüs
29 Castor et Pollux
30 Arria et Poetus
31 La Fidélité
32 Vénus
33 Faune
34 Didon
35 Amazone
36 Achille déguisé en Fille
37 Ino et Mélicerte
38 Pan
39 Printemps
40 Bacchus
41 Pomone
42 L'empereur Brutus
43 Fleurs de Lys
44 Apollon
45 Sénateur Romain
46 Vertumne
47 Junon
48 Jupiter
49 Syrinx
50 Aristée et Protée
51 Artémise
52 Cyparisse
53 Vénus
54 Hercule et Télèphe
55 Junon
56 La Fourberie
57 Laocoon et ses Fils
58 Papirius et sa Mère
59 Hercule
60 Bacchante
61 Faune
62 Diogène
63 Cérès
64 Ganymède
65 Euterpe
66 Hercule
67 Bérénice
68 Bacchus
69 Faune
70 Tigrane
71 Antinoüs
72 L'Indifférent
73 L'Air
74 Diane
75 Lion/Sanglier
76 Lion/Loupe
77 Midi
78 La Nuit
79 Latone
80 Prétextat et sa Mère
81 Vestales
82 Jupiter Stator
83 Vénus
84 Flore
85 Hercule
86 Nymphe
87 Dame Romaine
88 L'Enlèvement de Proserpine
89 Priape
90 Isis
91 Ganymède
92 Jupiter
93 La Comédie

A Parterres Sud
B Parterres Nord
C Les Parterres d'Eau
D Parterres de Latone
E L'Allée Royale/Tapis Vert
F Bassin d'Apollon
G Le Labyrinthe
H Bosquet sans nom
J Quinconce Sud
K Le Marais
L Quinconce Nord
M Le Carrefour des Philosophes
N Bosquet des Trois-Fontaines

a Le Palais
b Miroirs d'Eau
c Fontaine du Point-du-Jour
d Fontaine du soir
e Bassins des Lézards
f Le Bassin de l'Automne
g Le Bassin de l'Hiver
h Le Bassin de l'Été
j Le Bassin du Printemps
k Cascades
m La Salle de Bal
n Le Miroir du Roi
p L'Île Royale
q Allée des Maronniers
r La Colonnade
s Les Domes
t L'Encelade
u Le Théatre d'Eau
v La Montagne d'Eau
w L'Obélisque

valley and the road which descends to Paris from the plateau. There the line was absorbed by the regional system of avenues. Unlike the axis on the rear side which, by almost exceeding the boundaries of what is geomorphologically and optically possible, brings the landscape visually under control via perspective manipulation, the main axis on the front side, past the *Place d'Armes*, is not perspectively manipulated. In the plan of the new city this axis is determined by two parallel lines. Nevertheless, the geomorphology offers the possibility of a much greater, optically controllable vista on this axis, namely over the 'hollow' of the upper reaches of the side valley of the Seine. Not making use of this possibility could indicate that the main axis of the layout on the front side should be 'read' in the reverse direction: the direction towards the château. The length of the axis is then not so much determined by a maximisation of the visually controllable vista from the château but, conversely, by the distance at which the château becomes 'readable'. It is largely an axis which enables the free flow of traffic and a route which leads to the château, upon which – due to a connection between the profile of the axis and the dimensions of the château – a gradual revealing of the floors and wings is stage-managed. Past the approach drive, on the squares in front of the palace (*Place d'Armes, Cour des Ministres, Cour Royale* and *Cour de Marbre*), the unveiling of this decor culminates in a hierarchical series of spaces. Due to the accelerated perspective, conveyed by this, the space appears to deepen and the relatively modest proportions of the old château are integrated into the scale of the new layout. It is the last act in the ceremonial route to the perspective centre of a world empire.

The patte d'oie as urban panorama

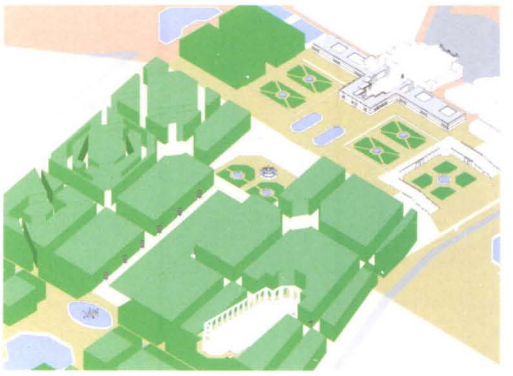
Diagonal axes are projected to the north and south of the main axis. Together they form a *patte d'oie* (three-pronged road), whereby the imaginary shared intersection lies in the *Cour de Marbre*. Seen from the château, the diagonals form a triangle. The top angle of this measures approximately 60 degrees: the lateral extent of human vision. In this way the width of the front terrain, which at the base of the triangle equals some 500 metres, can be absorbed at a glance. The angle, at which the diagonal axes diverge from the main axis, is partly determined by the geomorphology of the site. Butte Montbauron (on which large water reservoirs are situated), as a natural obstacle, determines the angle between the northern axis (Avenue de St. Cloud) and the main one (Avenue de Paris). Fourteen hundred metres from the château, the Avenue de St. Cloud (75 metres wide) curves to the north, climbing the slope

Bassin d'Apollon.

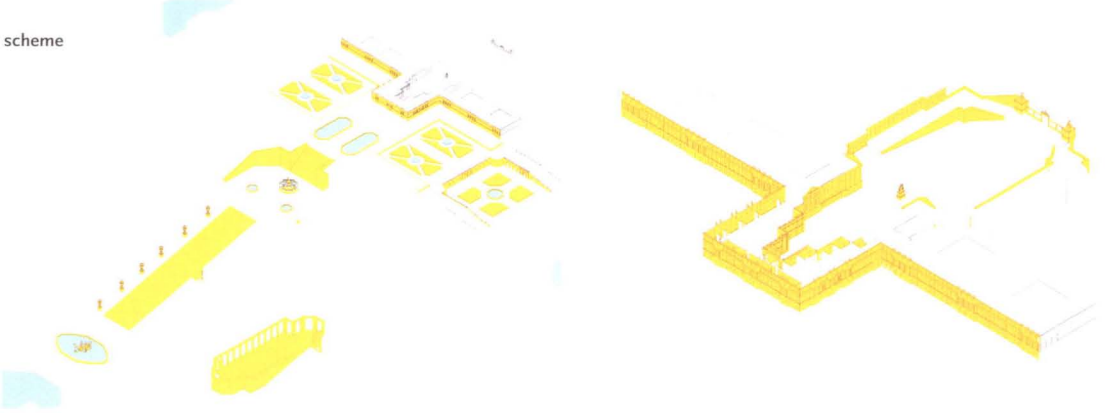
of the side valley to St. Cloud. The southern, shortest axis (Avenue de Sceaux; 70 metres wide) is symmetrical in relation to the northern diagonal and runs in the direction of Sceaux, terminating at Butte Gobert. Because of the wings built by Le Vau and Mansart along the *Avant Cour*, the field of view from *Cour de Marbre* is restricted to the main triangle. Further along the avenues are mansions for the nobility and important government officials, which, from the time the town layout was begun, were built according to strict regulations and models and disguised the still unordered landscape. In 1679, Mansart built the *Grandes Écuries* (royal stables) facing the château, in the angles of the three axes. These formed the final set piece in the view from the château. The area between the horizon and the *Grandes Écuries* has not been designed, neither in the axes which continue as roads, nor in the panorama which is visible as a stripe above the *Grandes Écuries*. The latter have been shifted in front of the horizon, as it were, completing the layout and forming its decor. The depth is emphasised by the slight angle in the arrangement of the two buildings and by the depth of the horseshoe-shaped squares behind. By placing the curved *Grandes Écuries* and the linear indented château opposite each other, the *patte d'oie* has taken on an urban form. The ceremonial entrance and the grand view are united in one complex.

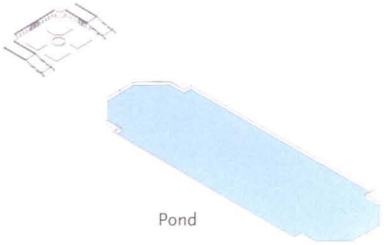
After 1671, after the *patte d'oie* was laid out, work began on extending the new city behind the façades of the mansions bordering the sides of the triangle. This was built in two parts and in two periods: the Quartier Nôtre Dame, to the north of the Avenue de St. Cloud (begun 1671), and the Quartier Saint

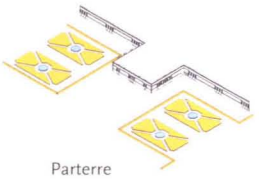
Axonometric projection

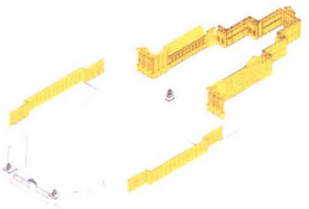


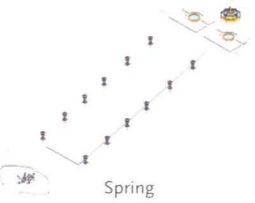
Composition scheme




Pond


Parterre

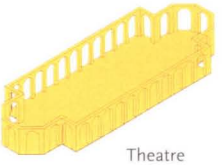

Screen


Spring

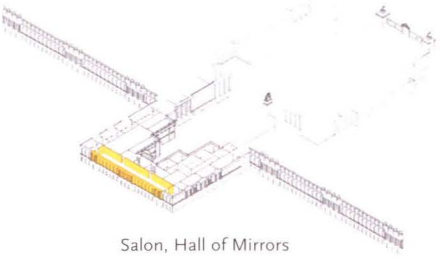
Woods with intersecting avenues

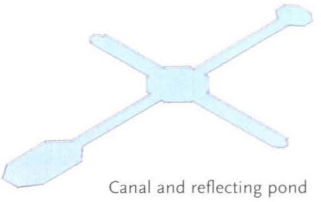
Patte d'oie

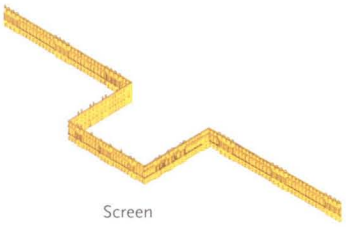
Tapis vert

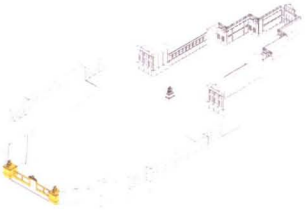

Theatre

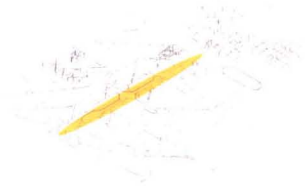
Orangerie


Salon, Hall of Mirrors


Canal and reflecting pond

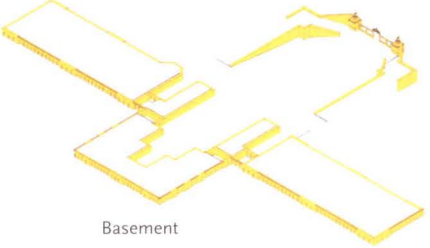

Screen


Gate

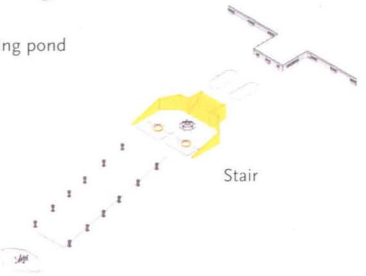

Spatial axis

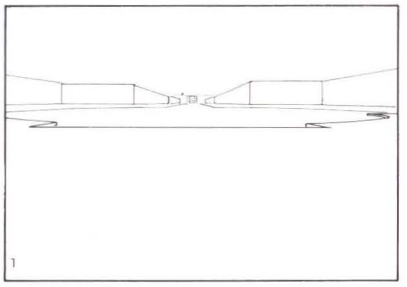
Reflecting pond

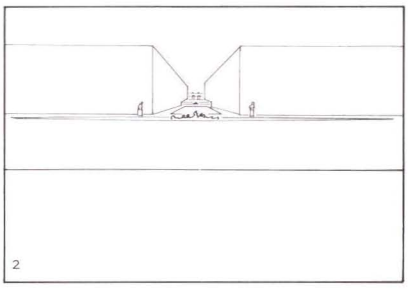
Monument, Louis XIV

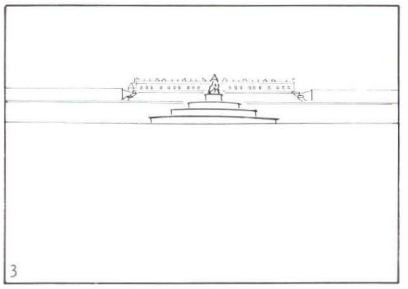

Basement

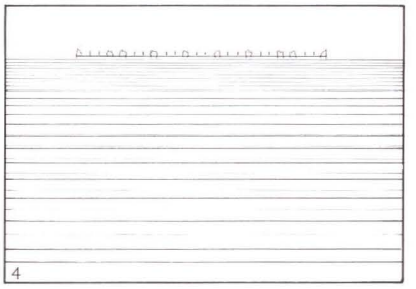
Reflecting pond

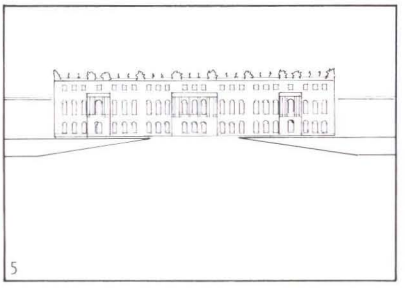

Stair

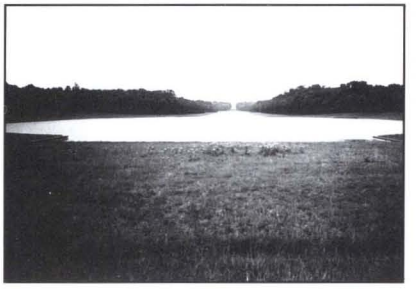








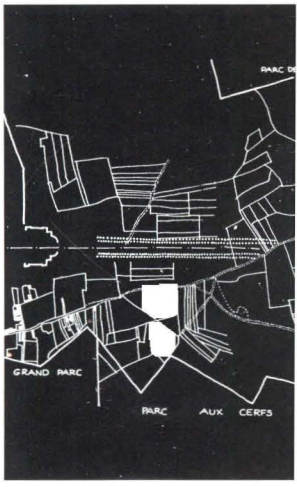




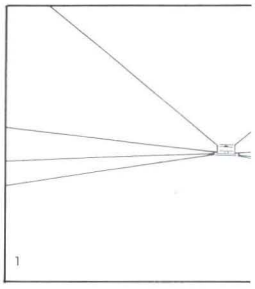
Views along the main axis to the château.

1 From the far side of the Grand Canal
2 At the foot of the Allée Royale
3 Before the Jardin Bas
4 At the foot of the stairs before the Parterre d'Eau
5 From the Parterre d'Eau

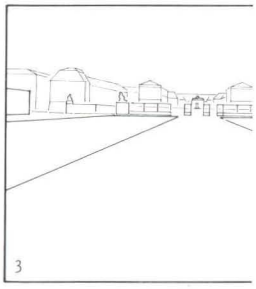
The Grand Canal, from the terminus of the main axis.



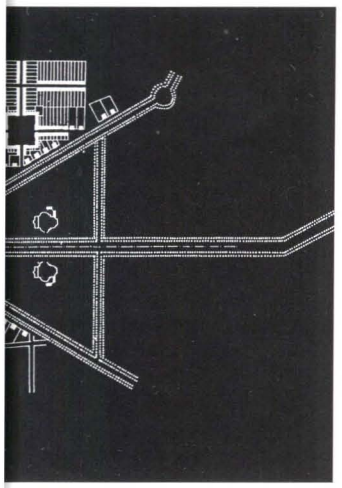
The 1673 transformation of the landscape on the city side of the château. (Jean Castex)

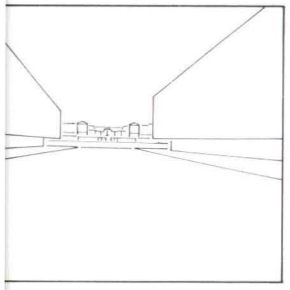


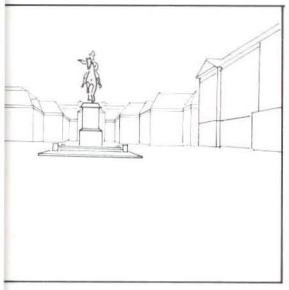
Ceremonial entrance from the Avenue de Paris.



Louis, to the south of the Avenue de Sceaux (begun 1680). In Quartier Nôtre Dame the king leased building plots, tied to privileges and building regulations, to burghers and merchants. In the Quartier St. Louis the king placed free building plots at the disposal of court personnel and servants who, after 1680, when the entire government moved to Versailles, came to live in the new city. Both quarters are situated next to the *patte d'oie*, behind the mansions, and outside of the monarch's field of view. The central triangle between the diagonal axes interrupted the continuity of the town plan. This was strengthened in that all the administrative services were concentrated in this main sector. Nevertheless, at the end of the 18th century, one still had to bypass the main triangle to get from one quarter to the other. The *patte d'oie* split the town plan into two parts. The central triangle was aligned with the château, while the palace, with its elongated wings, screened off the landscape behind. Only the monarch had an overview of the entire layout.







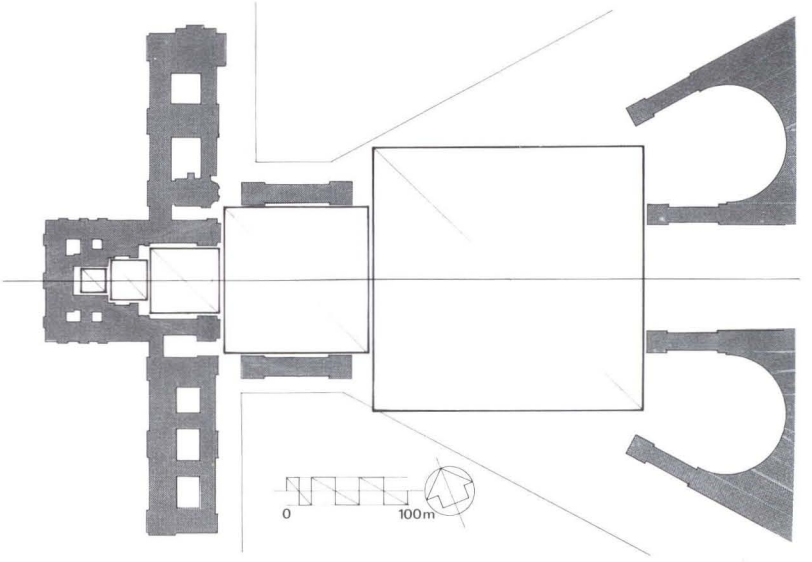
A 1624, Salomon de Brosse (?)

B 1661-1671, Louis le Vau

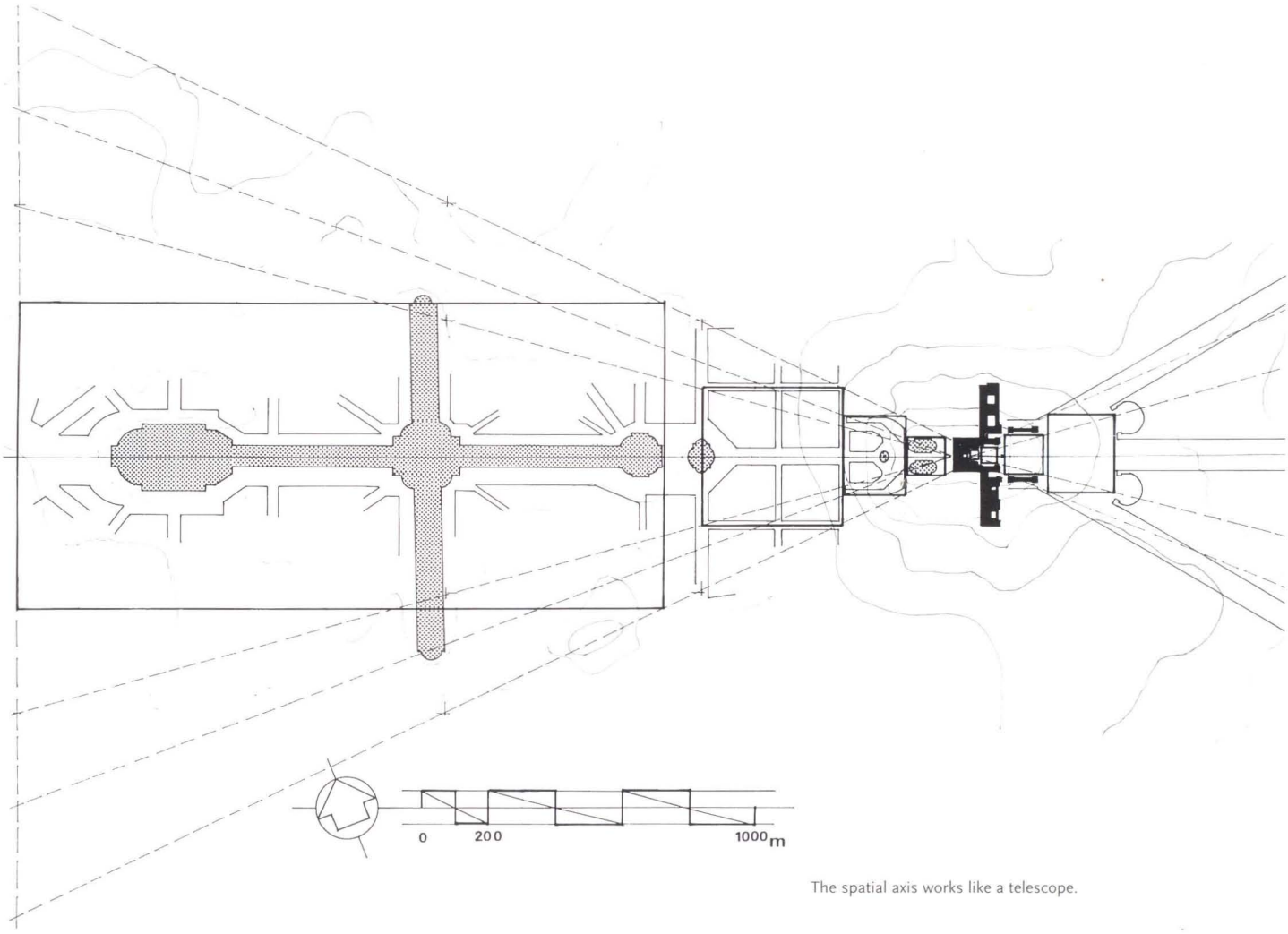
C 1678-1710, Jules Hardouin-Mansart

D circa 1756, Jacques-Ange Gabriël

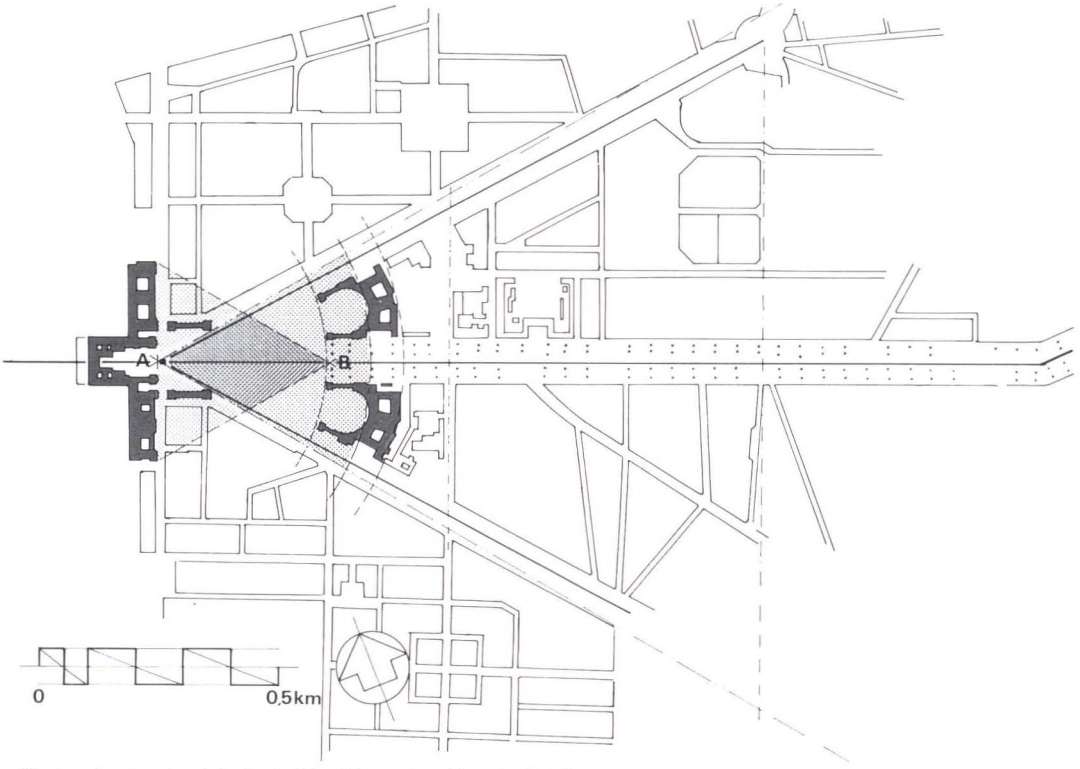
Expansions of the original hunting lodge of Louis XIII.



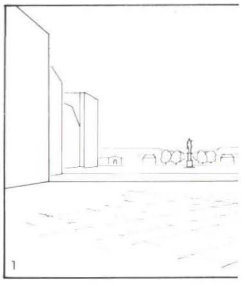
The hierarchical sequence of spaces on the city side of the château.



The spatial axis works like a telescope.



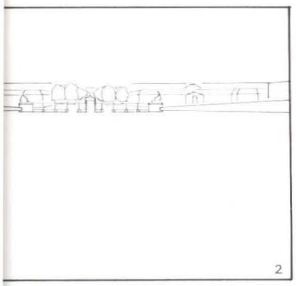
The two visual angles at the front of the château. A and B are both 60°.



The width of the view is screen off on the city side of the châte

1 From the Cour de Marbre
2 From the Cour des Ministres

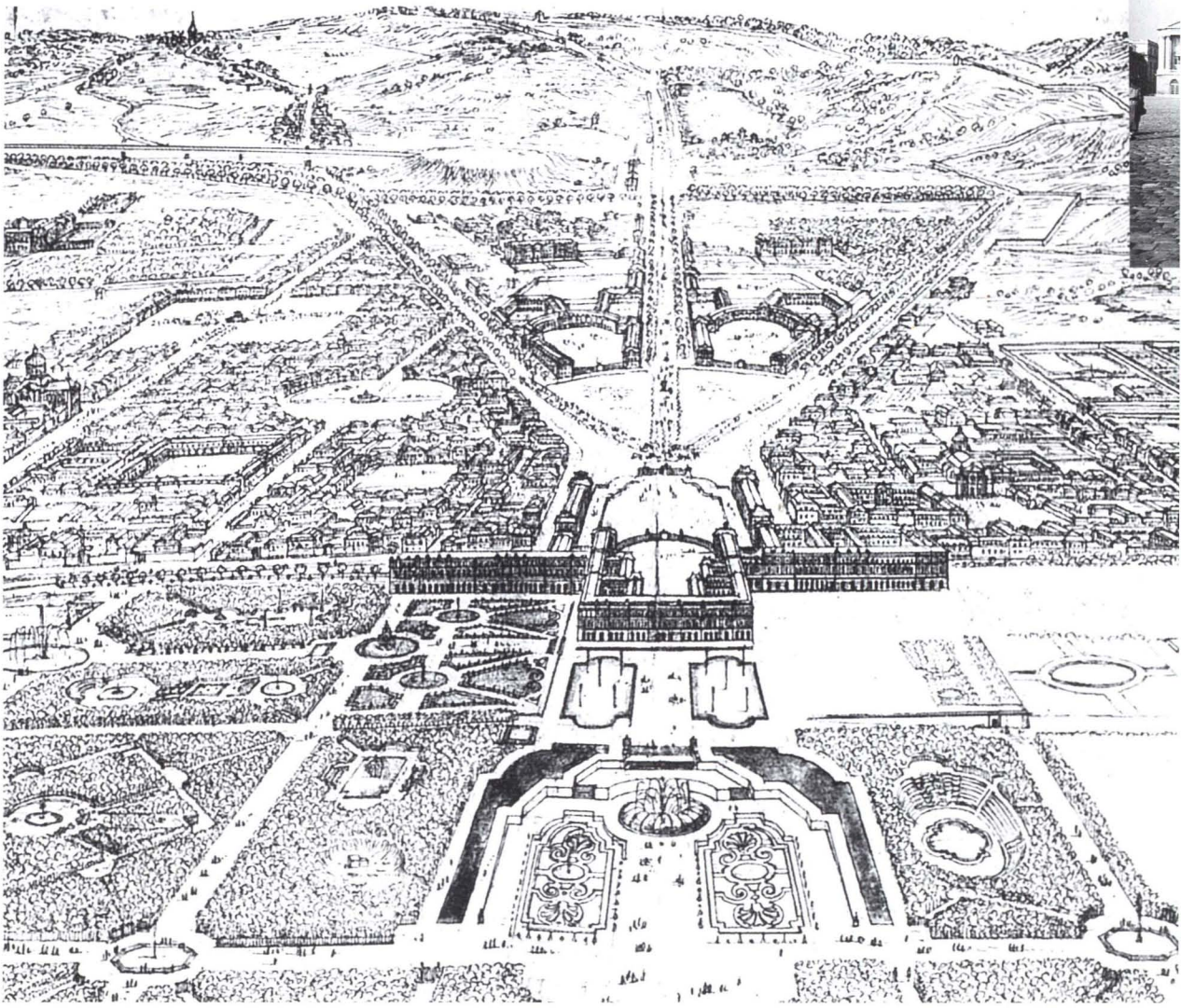
The series of forecourts.



2

The composition of the Grand Ensemble

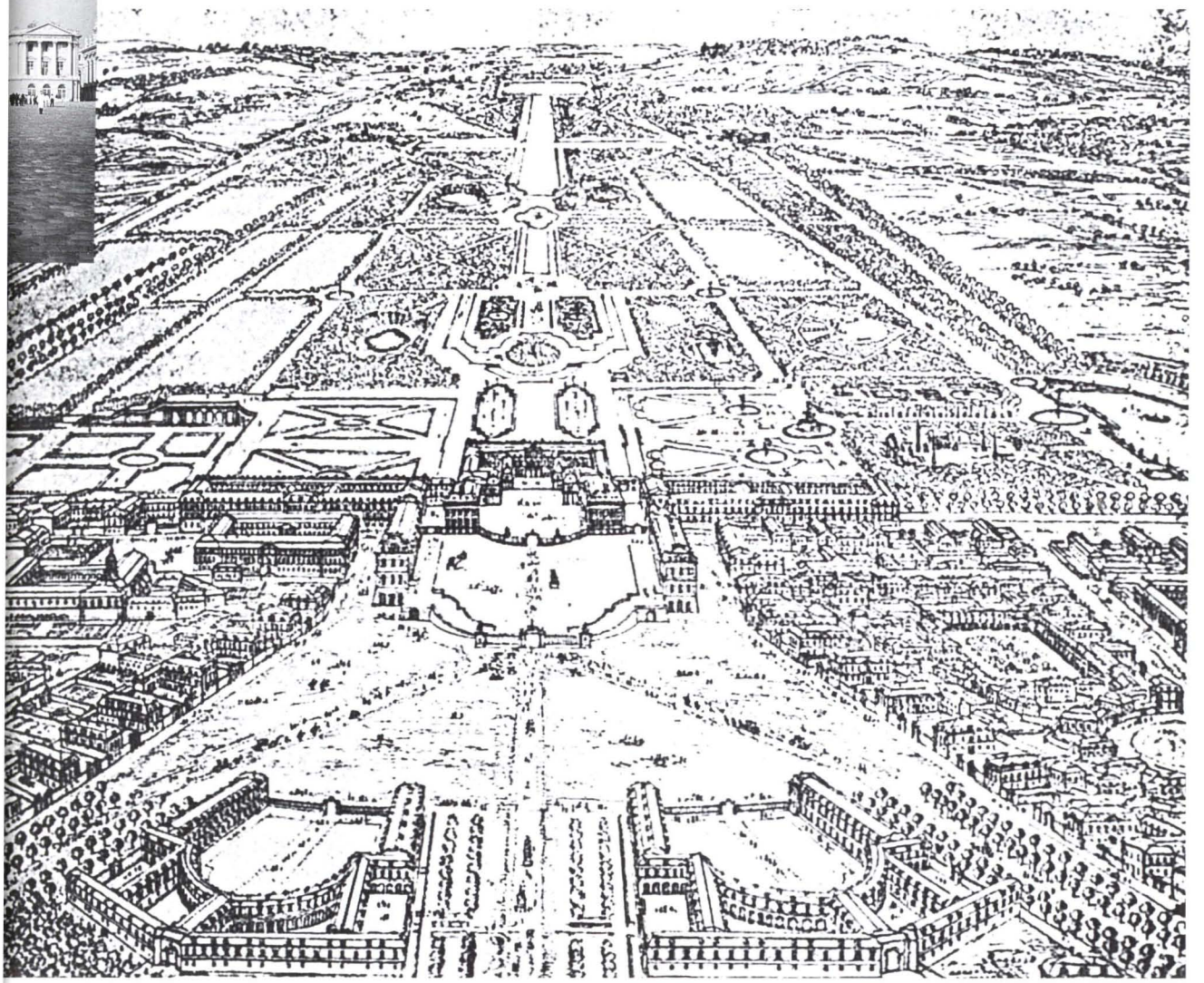
From the foregoing it appears that the architectonic devices found at Vaux-le-Vicomte have also been employed at Versailles. Yet, one may also sense an evolution. At Versailles the spatial axis is more clearly articulated. As in a theatre, the foreground and background are separated by *coulisses* (in the form of a forest). Internally, the forest *coulisses* form elaborately designed *bosquets*. At Vaux the most important viewpoint is in the *Grand Salon*, with its mirrors on the ground floor of the château. At Versailles this is the Hall of Mirrors on the first floor. At Vaux, due to the sloping position of the final surface of the hierarchical sequence, the main vista could be terminated by a relatively small longitudinal measurement. At Versailles, due to the level, horizontal rear terrain, an enormous extension, stretching as far as the extreme boundary of the plateau, was needed and reflecting water was used to bring this last segment of the



The Grand Ensemble. (Israël Sylvestre, 1687)

main vista visually under control. Unlike Vaux, it is not Hercules that terminates the vista and 'lifts' the horizon like a vertical giant. At Versailles the *Grand Canal* appears to stretch to the horizon and touch the sky. Depending on the position of the sun, it is still just visibly separated from the horizon by the amphitheatre-like slope (*vertugadin*), rising behind the end of the canal, and the continuation of the main axis as an avenue behind this. Here the geometric perspective dissolves into an atmospheric haze. At Versailles the spatial depth of the natural panorama is artificially represented. It is brought into the garden as an optical construction. Due to the sheer magnitude of the final dimensions, the construction, unlike at Vaux, does not work in the opposite direction. Looking back from the termination of the central axis, the palace no longer plays a role in the view. Now the layout works as a telescope in reverse. Only at the *Bassin d'Apollon*, where the middle section, wings and floors of the building are visible, by traversing the axis, is the palace an interesting component.

The *Bassin d'Apollon* also plays a key role in the mythological interpretation of the main axis. This converges more obviously than at Vaux in the spatial sequence of the axis. Starting at the source where the water appears (a symbol of birth and earthly origin), via the fountains (representing effervescent life), the series leads to the water surface of the *Grand Canal* – a symbol of infinity. Originally the *Parterre d'Eau* represented an ancient cosmogony, or creation story, with the four elements, fire (Pluto), air (Boreas), earth (Saturn) and water (Neptune). Later, a more geographical allegory represented the French rivers. The



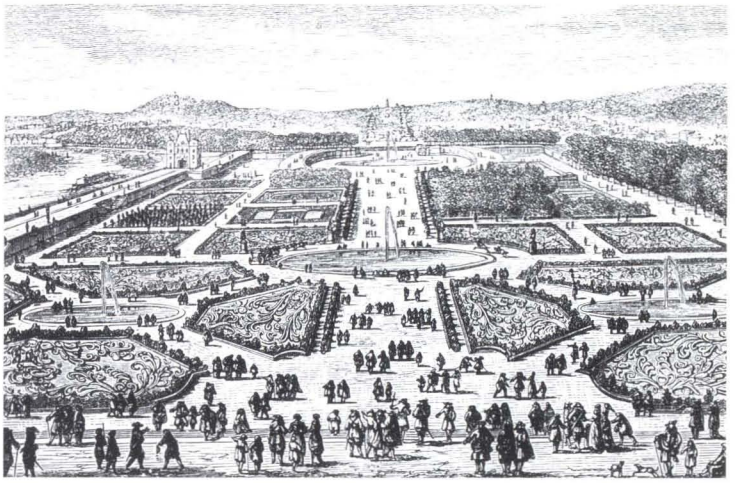
The Grand Ensemble. (Gabriël Pérelle, 1690)

Latone in the *bassin* of the *jardin bas*, which cannot be seen from the château, can be associated with the birth of Apollo. Via the sloping *Allée Royale* this image is linked to the *Bassin d'Apollon*, the sun god, placed at the centre of the field of view. Finally, the *Grand Canal* reflects cosmic space. In its entirety the east-west axis represents the path of the sun and is a symbol of the benevolent rule of the Sun King.

In its totality, the longitudinal axis at Versailles is roughly as wide, but three times longer (10 kilometres) than that at Vaux-le-Vicomte, while the estate as a whole is about twice as broad (3 kilometres) and the surface area of the entire plan is three times as large (1,500 hectares). Despite its greater size, the plan's unity, as at Vaux, is controlled by the gradually increasing scale and by the axes or avenues radiating out into the periphery of the estate. Active composition elements in the main axis, such as the façade, parterre, *tapis vert* and reflective water features, are enlarged to such a degree in Versailles that they control the scale of the estate entirely. Their number is reduced; the composition elements at the scale of the garden play a role as a smaller unit out of sight of the main axis, accommodated in smaller side axes and *bosquets*. Another important distinction is that at Versailles the town has become a part of the spatial construction: the landscape and the town face each other on a reflecting axis. Although the composition elements differ, in principle both are organised with the same spatial structures: the (measurement) grid, axis and symmetry. The result is that the landscape and the town layouts are united in one artificial Grand Ensemble.

The Tuileries Gardens

After indicating the four cardinal points, the priest, with his face turned south, proclaimed, 'This is the front and this is the back, this is left and this is right'. He then solemnly drew the *cardo* and the *decumanus* with his staff. It is quite likely that in 52 BC the town plan for Lutetia (Paris), like that of Florence, became part of the universal order in the same mystical way. Whatever the case may have been, the original plan of this Roman city documents two main roads: one extending in a north-south direction across the Seine at the Ile de la Cité and the other at right angles to this, running parallel to the river.

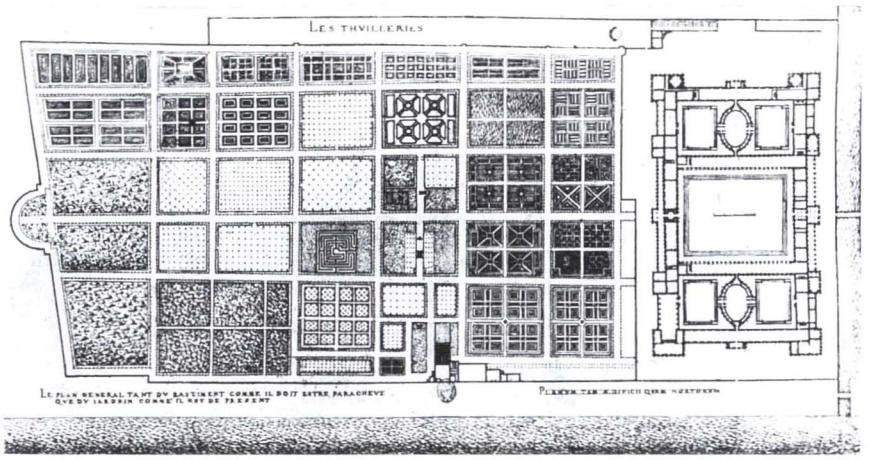


Jardin des Tuileries. (Gabriël Pérelle, 1680)

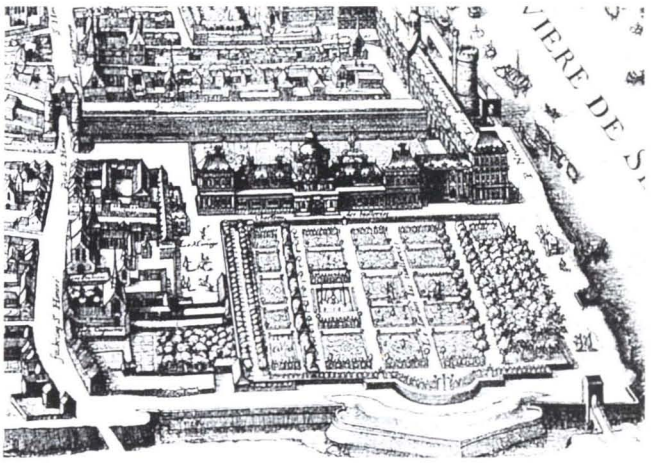
A race between city and landscape

In 1180 Philippe Auguste began building a city wall which was fortified at its weakest points where it intersected with the Seine. One of these fortresses built outside the city was the old Louvre. When Charles V built a new wall at the end of the 14th century, the Louvre became part of the city and lost its strategic importance. After 1546, François I had a new castle built by Pierre Lescot on the square foundation of the old fortress, running parallel to the Seine. However, for Catherine de' Medici, queen of Henry II, it proved to be unsatisfactory. She deemed it to be too dark and confining, as she desired to command magnificent views of the landscape. To this end, work started on a new country residence in 1563, 500 metres from the Louvre, outside the city wall, on the site of an old tile making yard (*tuileries*). This was orthogonal to the next stretch of the Seine so that the gentle bend in the river was visible as a kink between the axes of symmetry of the Louvre and that of the new plan. Along the banks of the Seine, the Palais des Tuileries was linked to the Louvre by a covered gallery. At the same time a geometric garden was laid out at the new palace, parallel to the river and stretching as far as its next bend. In Philibert Delorme's design the garden was an irregular rectangle measuring 70 by 270 metres. It was an independent space, situated to the west of the palace, and enclosed on four sides by walls. The squares in the plan were filled with a colourful mix of Italian-inspired elements. Though the garden was autonomous in relation to the palace (like a medieval *hortus conclusus*), the geometric unity between the two can be seen in an engraving by Androuet du Cerceau of the original plan. Both the plan of the garden and the palace appear to have been organised on a grid.

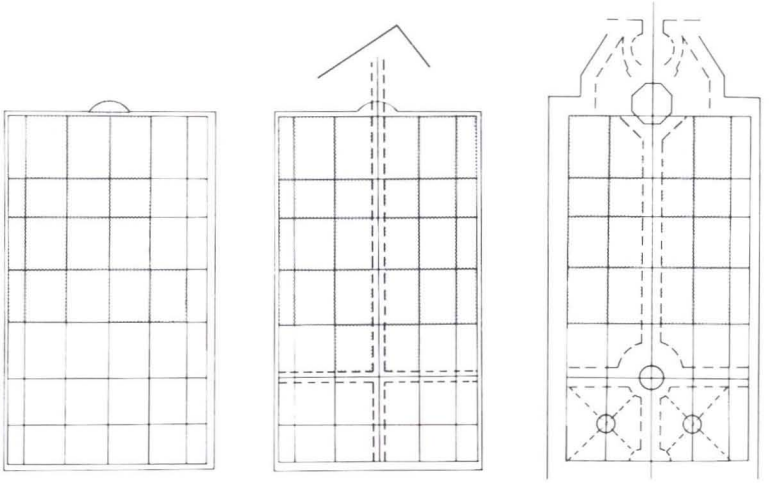
As a result of the building of a new city wall by Louis XIII in the early 17th century, the Tuileries also became enclosed within the city. It was now Maria de' Medici, widow of Henry IV, who was looking for a way to escape the urban straitjacket. A solution was found by turning to the Italian example of the



The Renaissance plan of the Jardin des Tuileries. (Androuet du Cerceau, 1578)



Bird's-eye view of the Jardin des Tuileries. (Mathieu Merian, 1613)

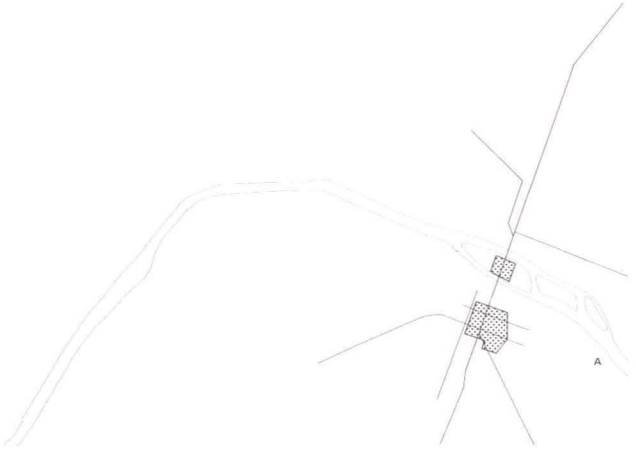


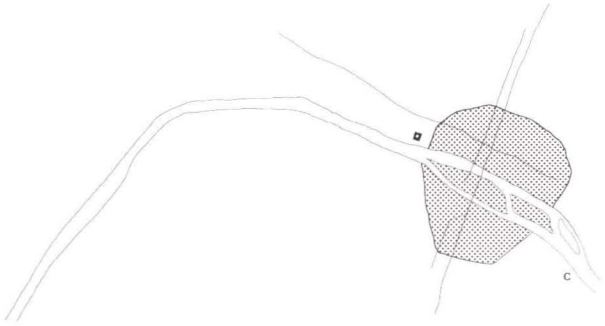
The transformation of the Renaissance plan by Le Nôtre.

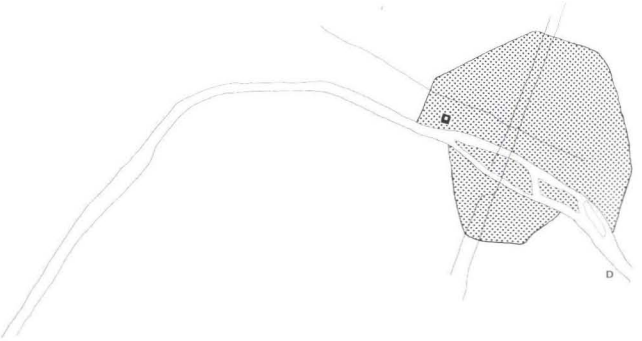
cacine, the Florentine promenade along the Arno. Outside the fortified wall, she had a similar tree-lined walk laid out along the Seine in 1616. This *Cours-la-Reine*, which quickly filled up with carriages, was laid out in a straight line along the next section of the river. The promenade lies as an autonomous, classical stoa in the riparian landscape.

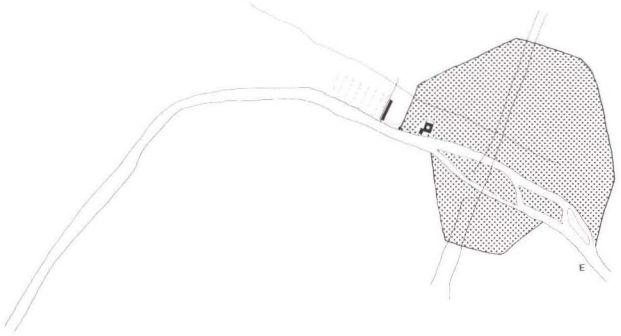
A telescope to the open landscape of the Seine

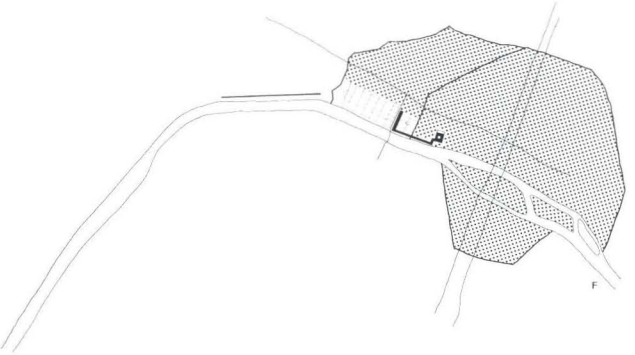
In 1664, architect Le Vau was commissioned to design new plans for the Louvre and to complete the Tuileries. At the time Le Nôtre was also brought in to lend spatial balance to the whole construction. As a basis for his new plan he used the measurement grid of the Renaissance garden. The surrounding walls were pulled down and a large terrace was laid out in front of the palace façade. The axis of symmetry, which in the Renaissance garden was still only a grid line, was transformed into a spatial axis. Geometric differences in the original measurement grid, which created anomalies in the bilateral symmetry, were 'corrected'. The site sloped towards the Seine and both sides of the axis had different measurements. Le Nôtre made the plan appear level and symmetrical by, among other means, laying out new raised side terraces along the Seine. Lengthways the plan was perspectively manipulated. One of the ways this was accomplished was by increasing the size of the water *bassins* as they receded so that the garden, as far as its boundaries, was brought visually under control when viewed from the palace. Beyond the large open terrace, behind the palace, the old grid was filled in with *bosquets* which bordered





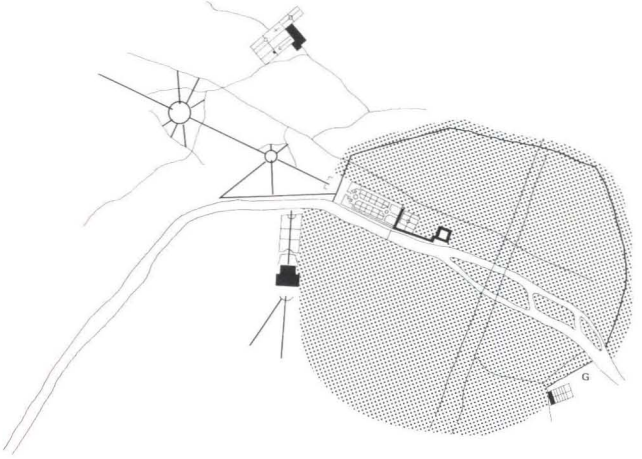






The Louvre and the Tuileries as Paris expanded.

A From 52 B.C. (the Roman city)
B 1180 (the medieval city)
C 1210 (the old Louvre as a fortress outside the city)
D 1400 (the remodelled Louvre inside the city walls)
E 1560 (the Tuileries outside the city)
F 1620 (the Tuileries within the city walls, the Cours-la-Reine outside)
G 1700 (Le Nôtre's spatial axis)



Spatial axis.

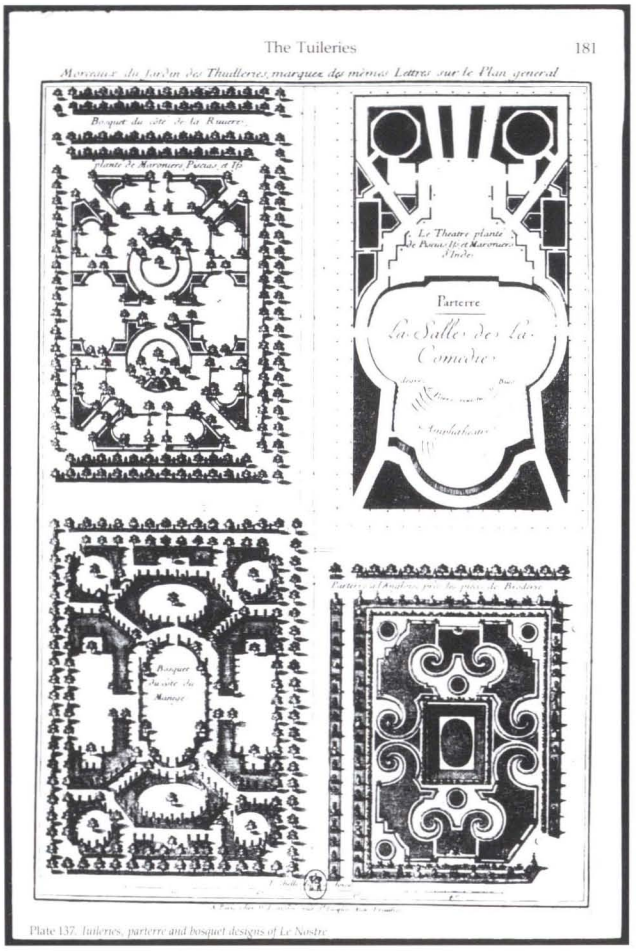


Plate 137. Tuileries, parterre and bosquet designs of Le Nostre.

Bosquets along the spatial axis.

the new spatial axis as *coulisses*. Together with the new, raised terraces along the sides of the garden, which visually opened up the town and the river, these *bosquets* ensured that the whole plan was spatially focused on one point. This was where the city wall was breached and the two side terraces terminated in a horseshoe-shaped form to frame a vista of the landscape across the city moat.

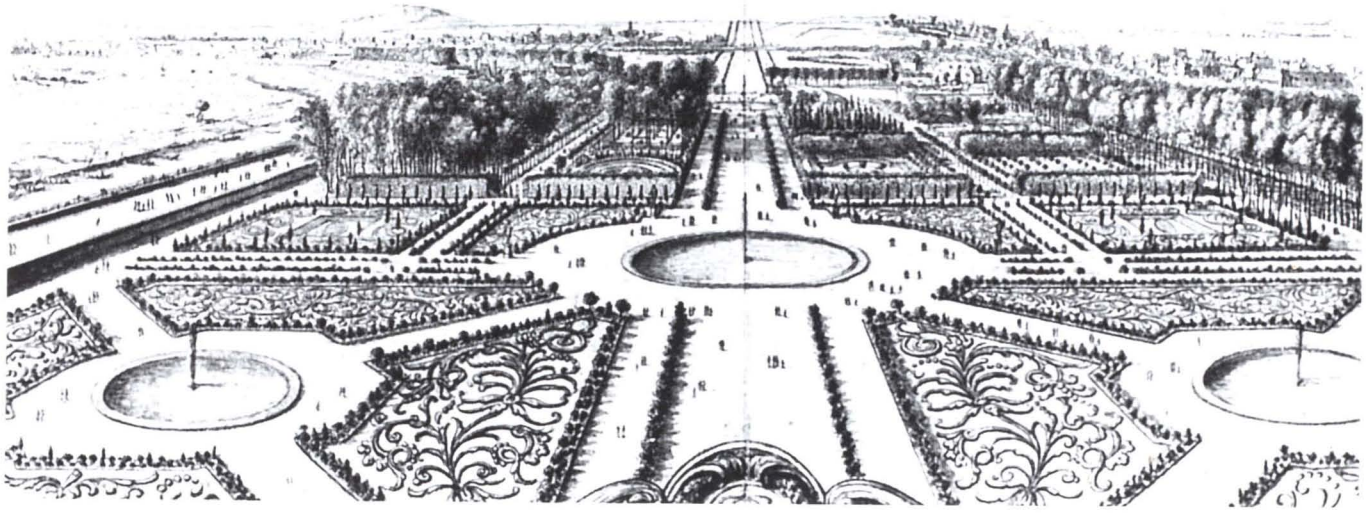
In the Renaissance plan the axis of symmetry ended here in an echo (apsis), which may be seen as a primitive form of 'accelerated' perspective. In the given situation more was not possible. In 1670, the city wall was pulled down so that the garden axis could be extended past the garden boundary. The spatial axis was continued in the (levelled) landscape as a broad, ascending tree-lined *Grand Cours* (1667), which, on the top of the Butte de Chaillot, three kilometres from the palace, dissolved into an atmospheric vista. Due to the sheer size of the *Grand Cours* (over two kilometres) in relation to the foreground and its upward slope, the horizon, as a tangent between heaven and earth, was brought into the Tuileries as if with a telescope. Beyond the horizon the axis became part of the regional infrastructure of residences, forming a direct link with St. Germain-en-Laye.

In order to better structure the terrain, it was planned to create a new northern diagonal axis which would be placed symmetrically to the *Cours-la-Reine* along the Seine. This would have created a *patte d'oie* at the point where the fortifications were breached. By placing the *Grand Cours* by two diverging avenues, the eastern city was, in principle, brought under visual control both in depth and width.

The Place de la Concorde and the obscuring of the vista

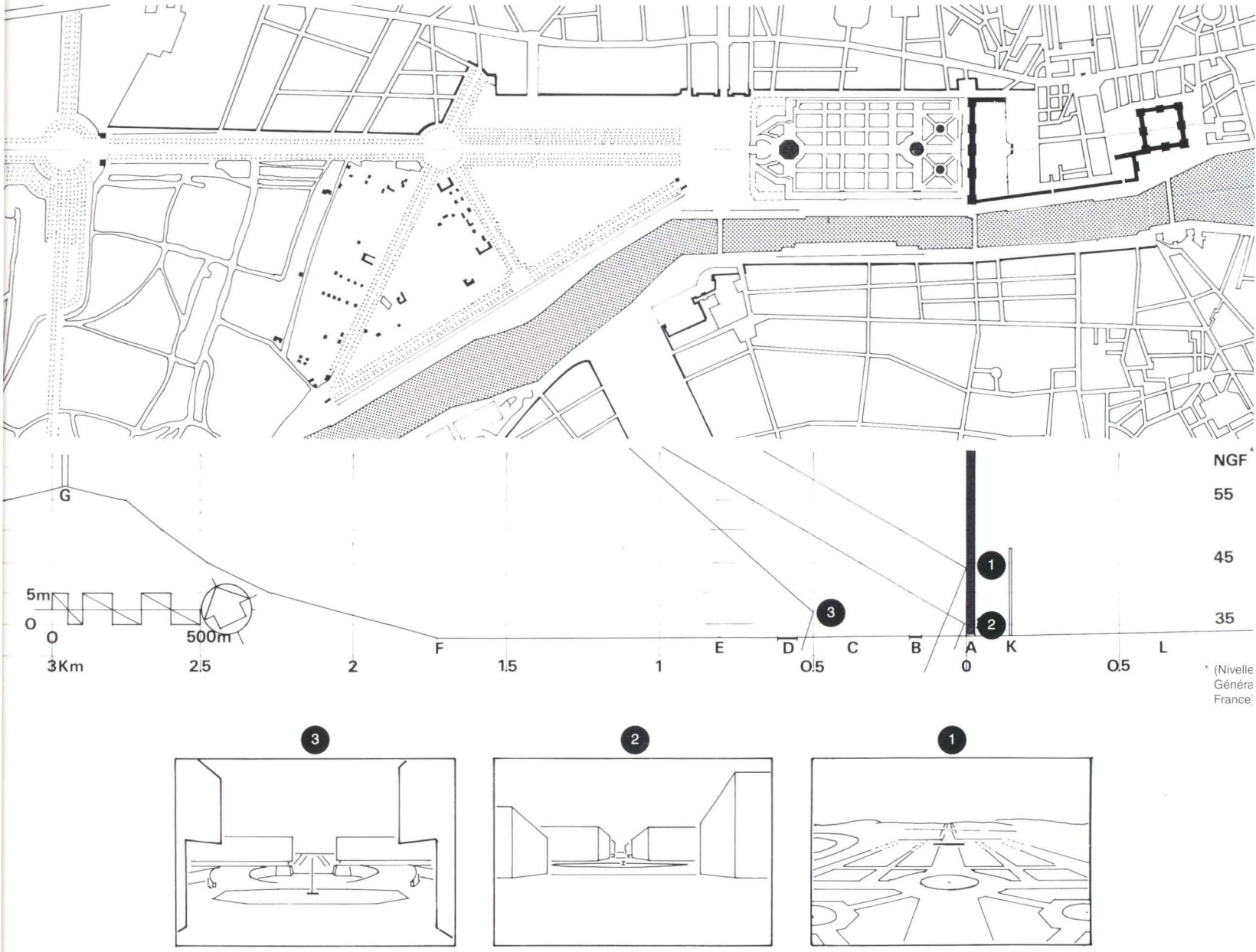
The new axis was aimed at the landscape. The urban plan developed in the same westerly direction as the spatial axis, that is, towards the landscape. As a result, the landscape design and the city did not face each other (as at Versailles) but overlapped and ran alongside each other. The spaces on the axis were transformed, one by one, into urban areas of the city, until the total length of the axis itself was incorporated into the urban morphology. This urbanisation has evolved over a period of more than 300 years and the process of expansion still continues today.

During the construction of the Tuileries Gardens the urban fortifications along the western edge of the park lost their military significance (1670). A new role was found for its *tracé*: Louis XIV had 36-metre wide boulevards laid out, which as



Jardin des Tuileries near the Place de la Concorde.

ABOVE: Jardin des Tuileries. View of the garden and horizon from the palace. (Israël Sylvestre, ca. 1680)



Plan, elevation and views of the Jardin des Tuileries from the time of Le Nôtre.

stately tree-lined promenades virtually formed a network of green throughout the entire city. Triumphal arches were erected at the junctions of these boulevards and the most important arteries. The latter were made arrow-straight and, as radiating axes, linked the city with its environs creating a formal whole.

The *patte d'oie*, where the boulevard intersected the spatial axis, became a chaotic traffic junction. The idea behind designing the Place de la Concorde was to provide the junction with an architectonic accent and to control the flow of traffic. After several competitions the design for the square was executed by the architect Jacques-Ange Gabriël (1755-63). Along the square's short northern edge he composed a vista through to the Madeleine Church which was 'framed' as a backdrop between two symmetrical palaces. The design of the Place de la Concorde was in fact restricted to this one architectonic 'screen'; on the south side it remained open towards the Seine and on the east and west sides there were no buildings. At the time, some Parisians, used to the façades of the old *Places Royales*, considered the new space too large and empty. Perhaps, though, leaving it open on three sides was a passive means of bringing

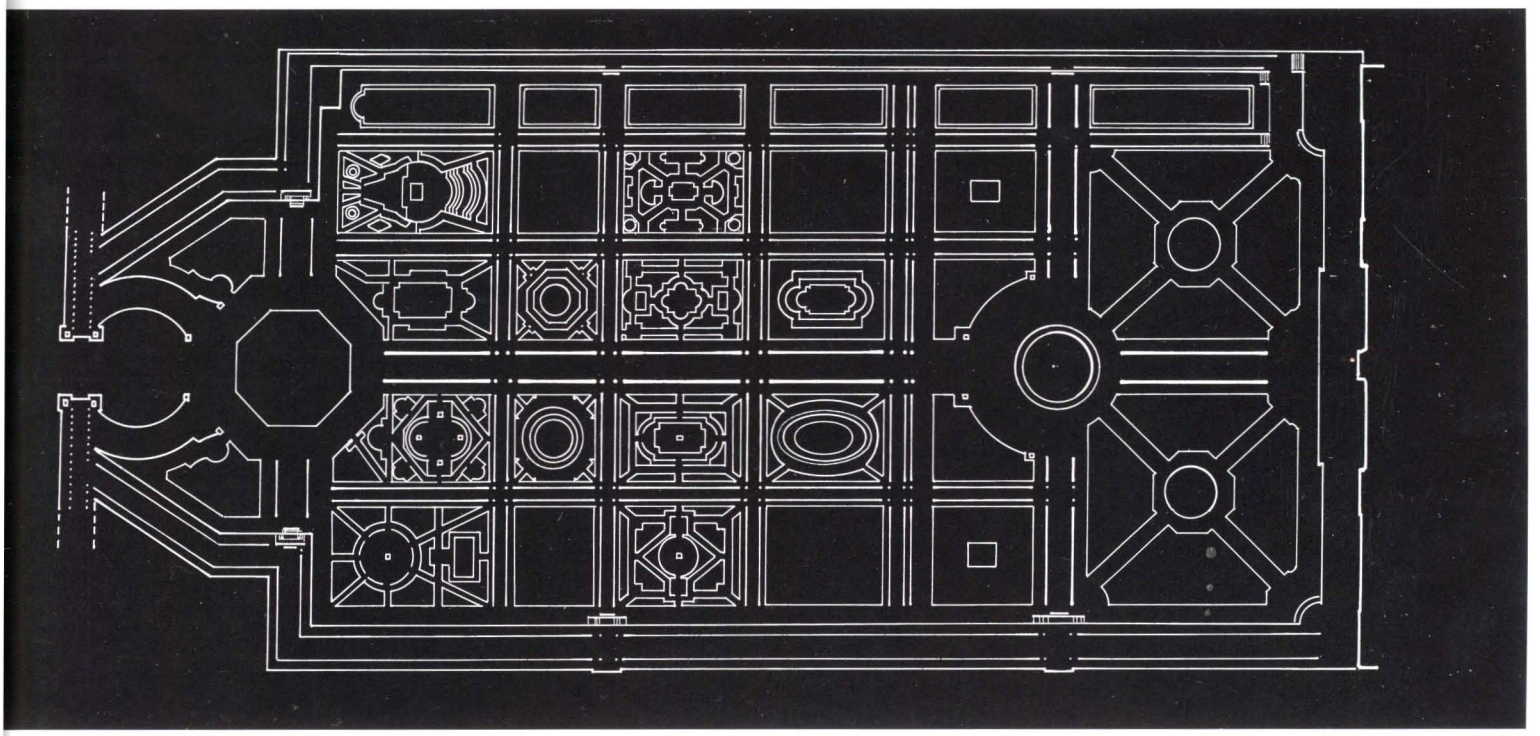
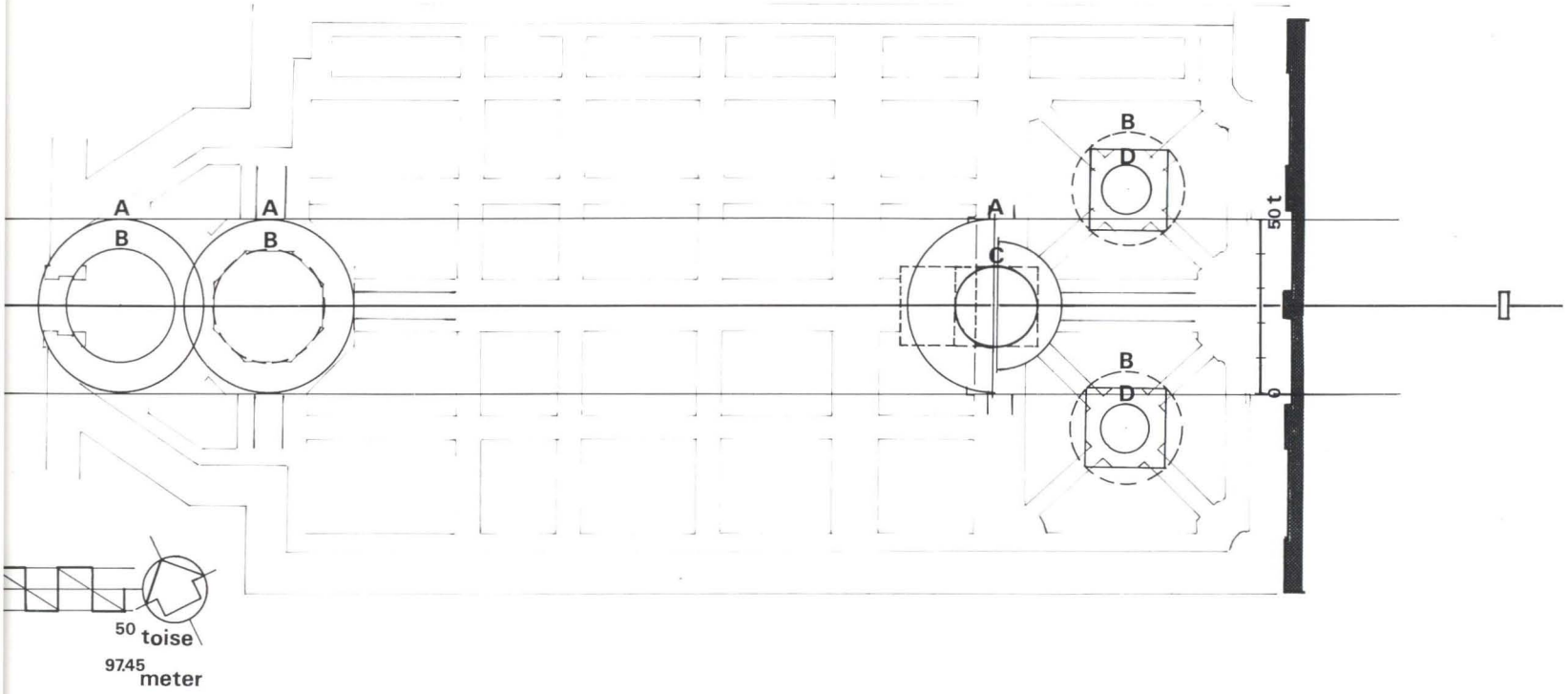
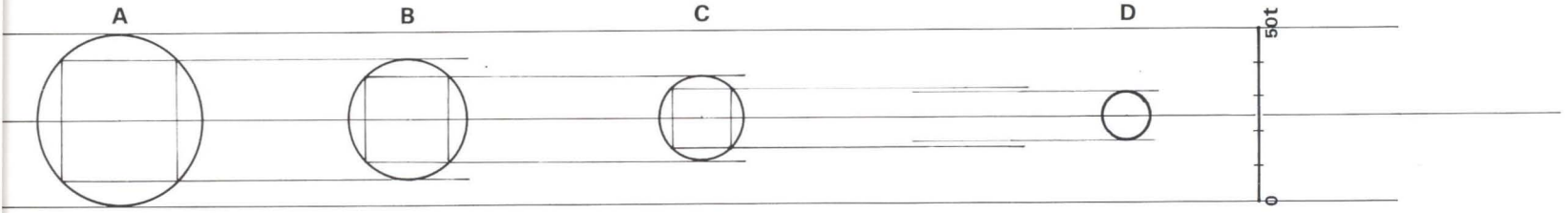


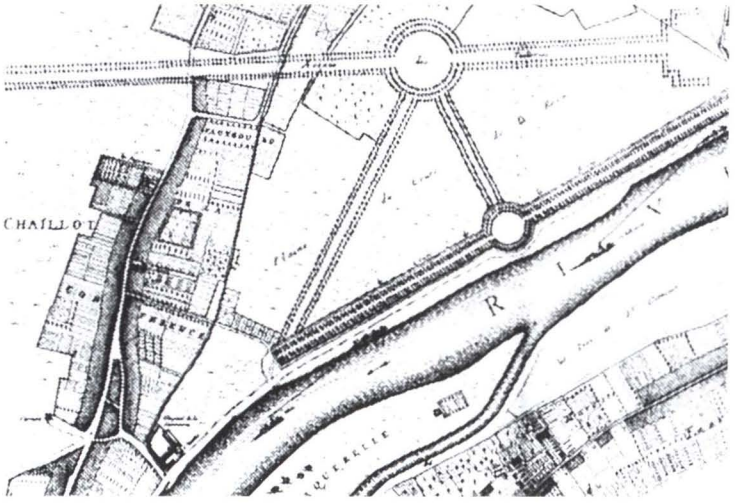
Diagram of Le Nôtre's plan for the Jardin des Tuileries.





Analysis of the dimensions of the circles in Le Nôtre's plan for the Jardin des Tuileries.

the expanse of the landscape into the square. In Gabriël's design, however, there is a recognisable, active attempt to make the square into a spatial centre. The longitudinal axis of the square, with the vista to the Madeleine, was positioned orthogonally on Le Nôtre's spatial axis. The rectangular surface was framed and made autonomous by surrounding moats. The square's shape also cut through the triangular *patte d'oie*. By erecting a monument on the spatial axis at the point where it intersects with the axis leading to the Madeleine, Le Nôtre's vista to infinity was interrupted. The horizontal view was also impeded by monuments erected on the junctions of the Madeleine axis with the two diagonals of the *patte d'oie*. In fact, the most important viewpoints on the square have been taken up by monuments. As a result Le Nôtre's vista becomes fixed on the square.

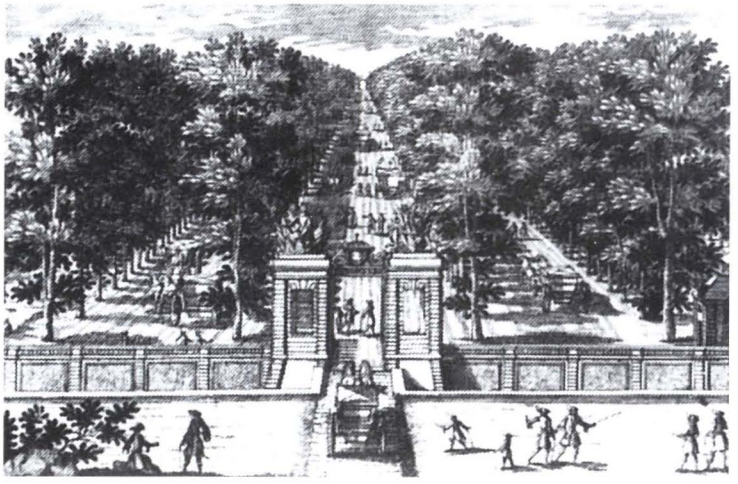


The continuation of Le Nôtre's spatial axis as an avenue in the landscape outside the city. (Jouvin de Rochefort, 1675)

The Arc de Triomphe and the materialisation of the vanishing point

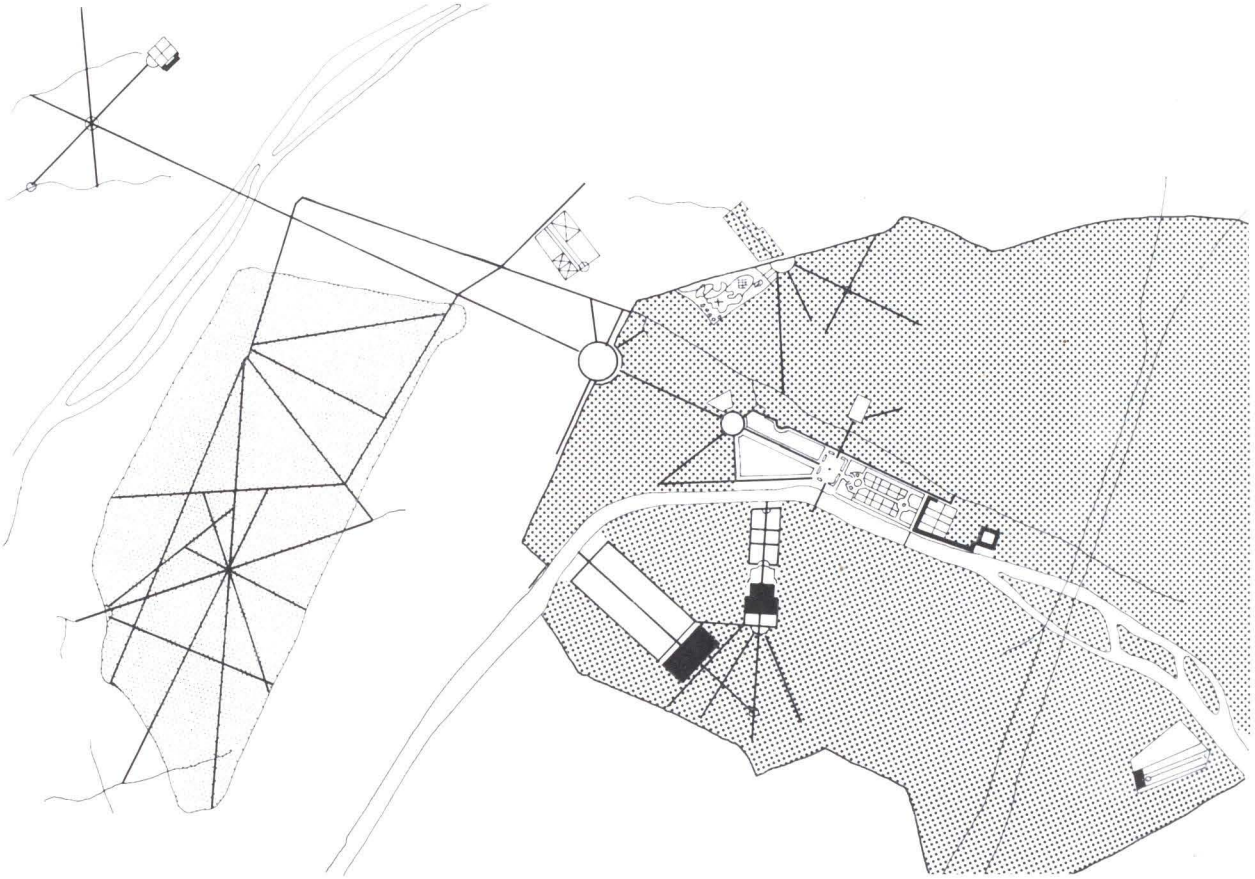
The *Grand Cours*, lined with elm trees, originally lay outside the city and ran across farmland and vegetable fields to the *rond-point* (a star-shaped intersection of avenues). Later the entire area along this, which was then known as Champs-Élysées, was planted with trees (from 1709 onwards). At the same time as the Place de la Concorde was laid out, the 150-metre axis through the Champs-Élysées was again planted with elm and lime trees (1758-67). The drier situated north side was especially used for ball games, parties and parades. In 1770, Jean Perronet, the director of the École des Ponts-et-Chaussées, extended the axis past the Butte de Chaillot in a straight line to the Seine, where the Pont de Neuilly was built. In order to have a uniform slope along the entire route, the Butte de Chaillot was made five metres lower (1768-74). The octagonal square on this hill, dating from the time of Louis XIV, was changed into a circular plan with five routes radiating from it (Place de l'Étoile).

During the 18th century numerous suggestions were put forward for erecting a monument on the Place de l'Étoile. After his return from Austerlitz, Napoleon finally decreed the erecting of two triumphal arches, one symbolising peace, the other war (1806). Both had to be positioned on the axis of the Palais des Tuileries. On the landscape side of the palace the Arc de Triomphe, as a city gateway, was part of the toll boundary of 1784, while the Arc du Carrousel served as a gateway to the Tuileries on the east side. The size of the arches is in keeping with their distance from the palace. In the original layout this could be seen from the emperor's residence, the Palais des Tuileries.



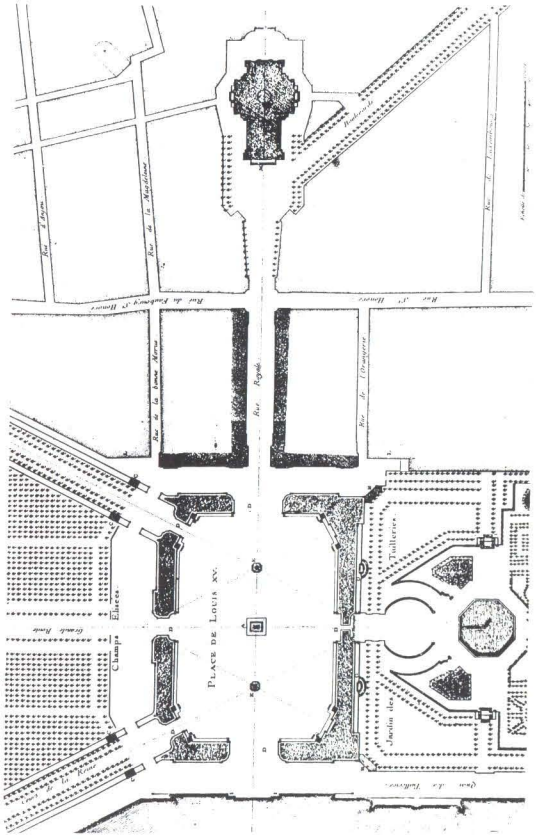
The Cours-la-Reine. (Israël Sylvestre)

Arc du Carrousel, between the Louvre and the Jardin des Tuileries.



The Louvre and the Jardin des Tuileries in the urban plan for Paris, 1800 (axis across the Seine, Place de la Concorde, Rue de Rivoli).

The Arc du Carrousel was built in a relatively short period of time according to the plans of the architects Charles Percier and Pierre F.L. Fontaine (1808), but the Arc de Triomphe on the Place de l'Étoile took from 1806 to 1836 to build. Jean F.T. Chalgrin's design (1806-09) shows three interesting variations of the Arc du Carrousel. The latter was inspired by the classic Roman triumphal Arch of Constantine, which had three openings. The Paris monument is of modest size (height: 14.62 metres, breadth: 17.87 metres, depth: 6.54 metres), is richly detailed and displays a colonnade of pilasters resting on high socles. The Arc de Triomphe, on the other hand, consisted of only one arch (25 metres high), open on all four sides, and is a colossal, massive block measuring 50 metres high, 45 metres wide and 22 metres deep. The relief is sober and there is no colonnade of pilasters – as decreed by the court architect Fontaine, who maintained that 'a colonnade of pilasters is unnecessary for an arch which can be seen from far away and whose spatial beauty is formed by its mass and size'. Since a colonnade enables one to read the proportions more easily, the absence of one gives the structure a total lack of scale.



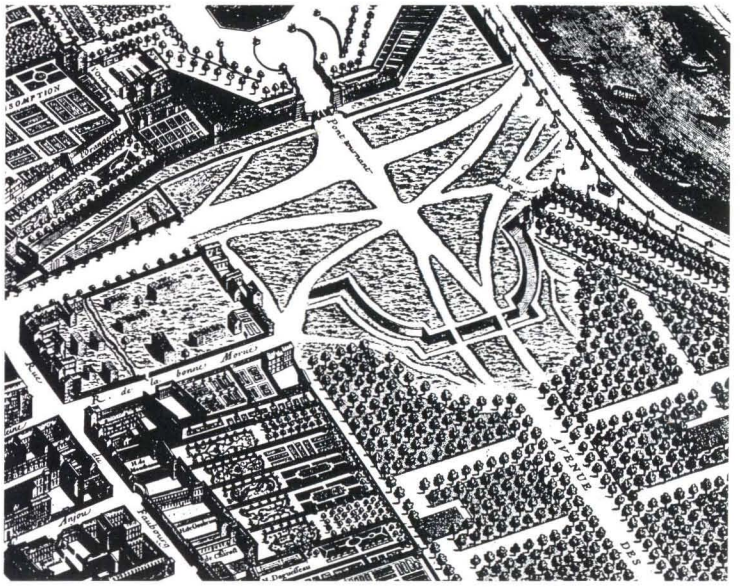
Place de la Concorde. (Jacques-Ange Gabriël's plan, 1755)

In its lack of scale, the arch resembles the huge statue of Hercules at Vaux-le-Vicomte. There, in the experimental garden of the formal design, this statue connects the natural horizon with the sky above. On the spatial axis of the Tuileries the *Grand Cours*, which leads up to the top of Butte de Chaillot, touches the natural horizon and, because of its length (two kilometres) and slope, brings the horizon forward. This optical effect was endangered, however, by the levelling off of the hill. Notwithstanding, the hill forms the parameters of the field of vision. There the main vista dissolves into the atmosphere. Positioning an object (in this case an arch) – even if it has no scale – on the natural horizon, shifts the accent from the space to the object. The arch delineates one point on the natural horizon. The shape of the arch prevents the sky and the earth from meeting. At the same time the opening in the arch suggests a horizontal continuation of the space in the depth, yet Perronet's extension of the axis remains invisible from the viewpoint before the arch.

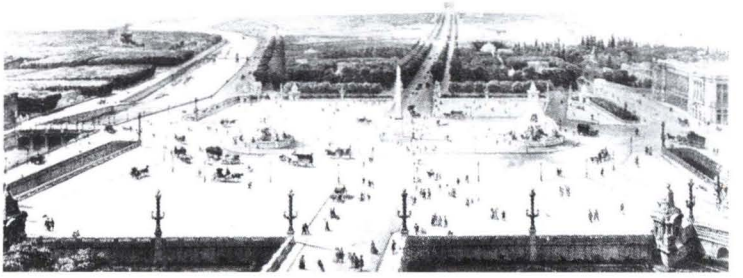
The Champs-Élysées and the dismantling of the scenography

Napoleon's Arc de Triomphe on the horizon of the Champs-Élysées also served as a gateway linking the old city with the new one. On the hills to the west, reaching as far as the Seine, a new imperial city was planned. Napoleon's downfall meant a setback in the realisation of these plans. During the second empire (1852-70), Napoleon III, together with his prefect Georges-Eugène Haussmann, began a gigantic operation to modernise the city, which now had more than one million inhabitants. With his colleagues, Barillet Deschamps (surveyor) and Jean Alphand (engineer and landscape architect), Haussmann revamped the urban plan by creating traffic breakthroughs, improving technical facilities for the network of streets, reorganising public transport and systematically creating green spaces in the form of parks and squares throughout the city.

Up until then, traffic running from east to west followed the original higher route north of the Louvre and the Tuileries. To resolve traffic congestion in the heart of Paris, Napoleon III extended the new Rue de Rivoli, begun by Percier and Fontaine, along the north wing of the Louvre to the east and the Place de la Bastille, Place de la Nation and Bois de Vincennes (1854-55). The part of the city between the Tuileries and the Louvre was demolished so that the northern wing connecting the two palaces could finally be built. When the Rue de Rivoli was completed, the Tuileries Garden, which on the north side originally

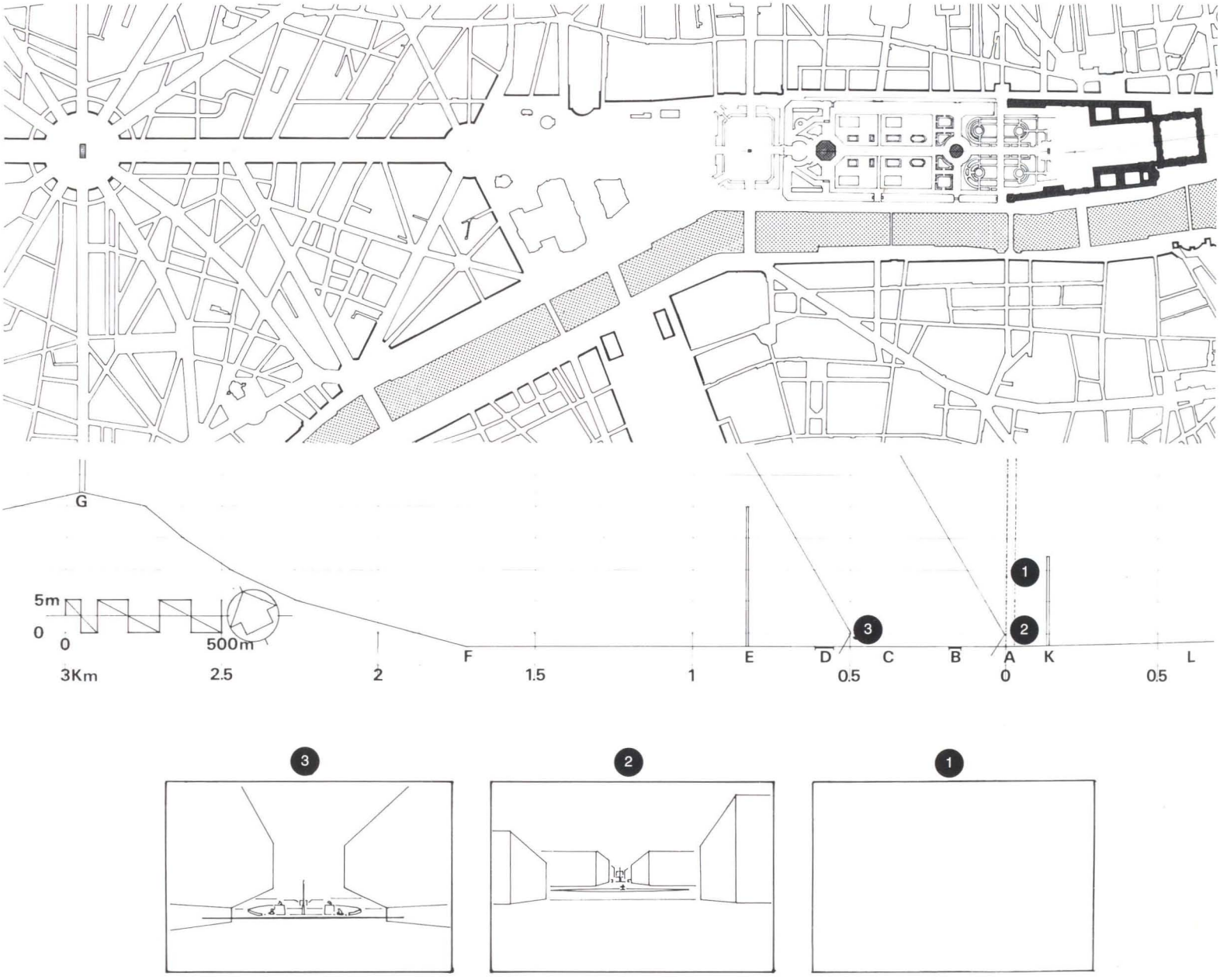


Intersection on the site of the later Place de la Concorde. (Turgot, 1735)

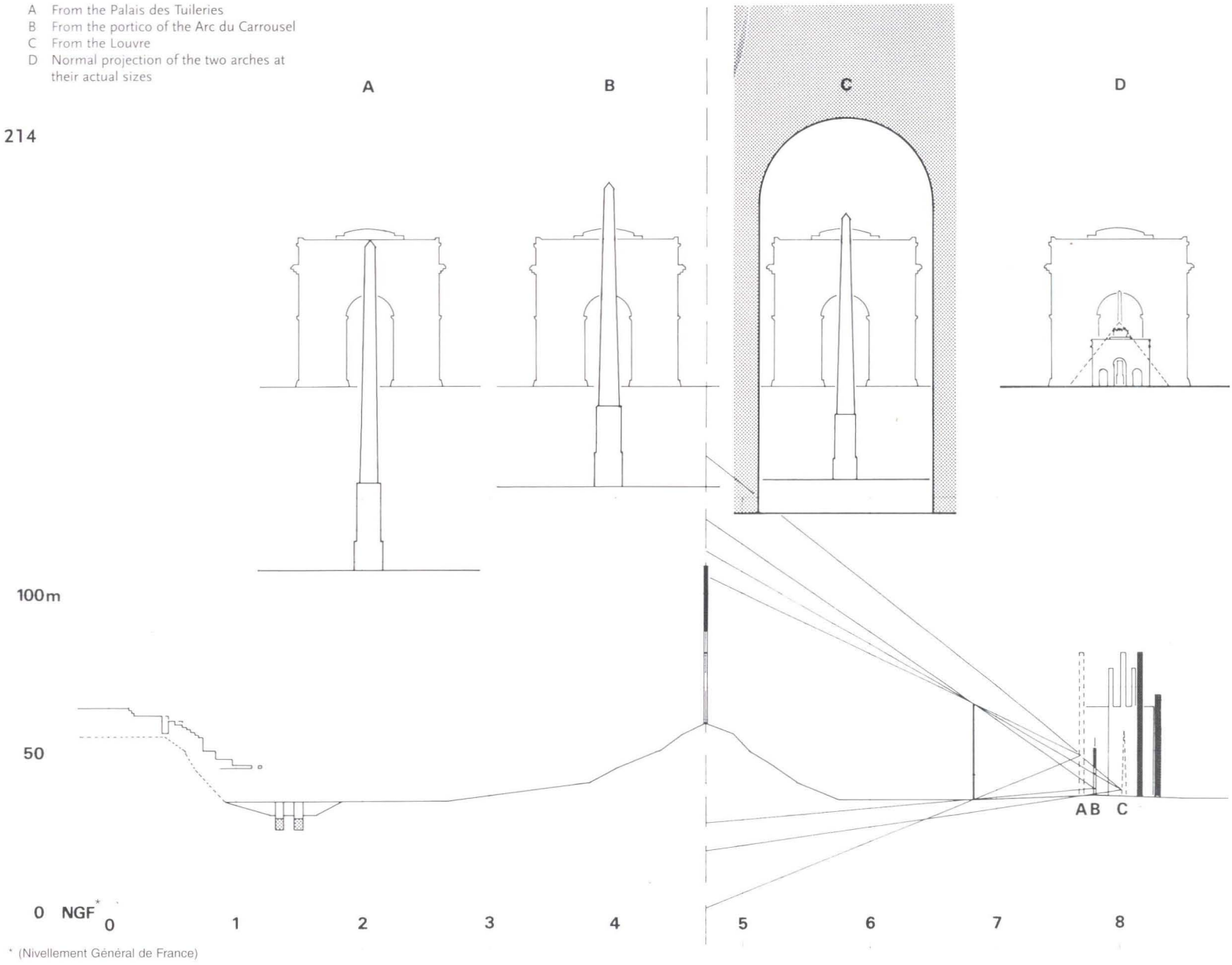


Place de la Concorde, 1843. (Paris, Bibliothèque National)

Above right: Champs-Élysées.
Below right: The Grande Axe from the Arc de Triomphe in the direction of La Défense.



Plan and views with the obelisk on the Place de la Concorde and the Arc de Triomphe on the Place de l'Étoile.



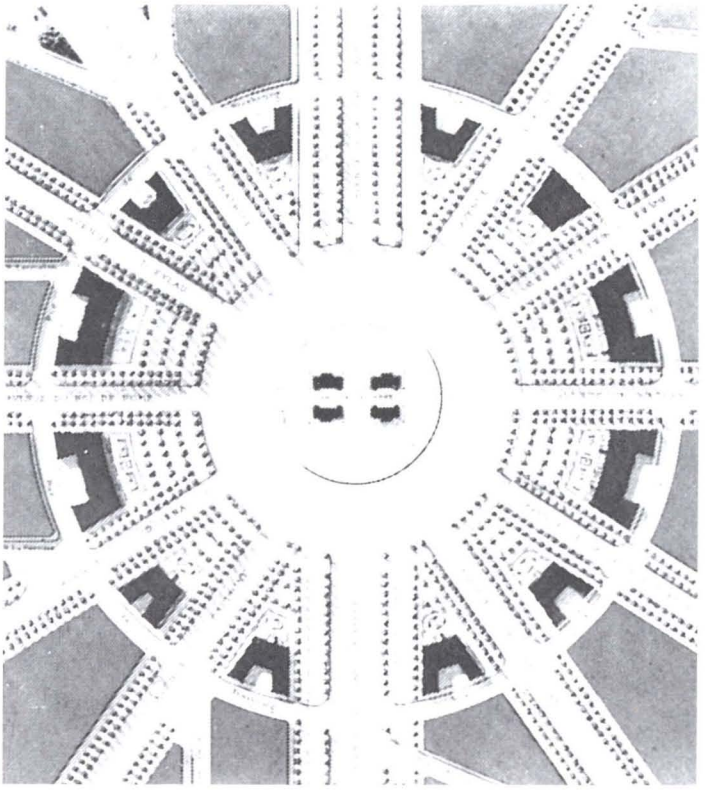
Jardin des Tuileries. Perspectival relationships in the size of the Arc du Carrousel, the obelisk and the Arc de Triomphe, viewed along the axis.

bordered the backs of buildings, was provided with new access to the city. The Champs-Élysées, which became the property of the city council in 1828, was provided with pavement and gaslights, and was the most popular promenade in Paris. Strollers, equestrians, carriages and ball games all contributed to the lively bustle. Cafés began to appear as did restaurants, winter gardens, circuses, puppet theatres and, finally, international exhibitions.

Further to the west, the Place de l'Étoile became the hub of a new district. Similar to the Place de la Concorde, the square is located at the intersection of Le Nôtre's spatial axis and a boulevard. The latter was laid out at the former toll border of 1784. With seven new avenues, which as a framework for a new city were extended as far as the Passy fields, the round square (diameter: 240 metres) was enlarged and transformed into a star with 12 'arms' (1857). The German architect Jakob Ignaz Hittorf built 12 buildings with uniform façades around the square, which are small when compared to the Arc de Triomphe. It was said that Haussmann planted three double rows of trees around the square in order to redress the scale.

The Champs-Élysées with the Arc de Triomphe on the horizon, 19th century.

Arc de Triomphe.



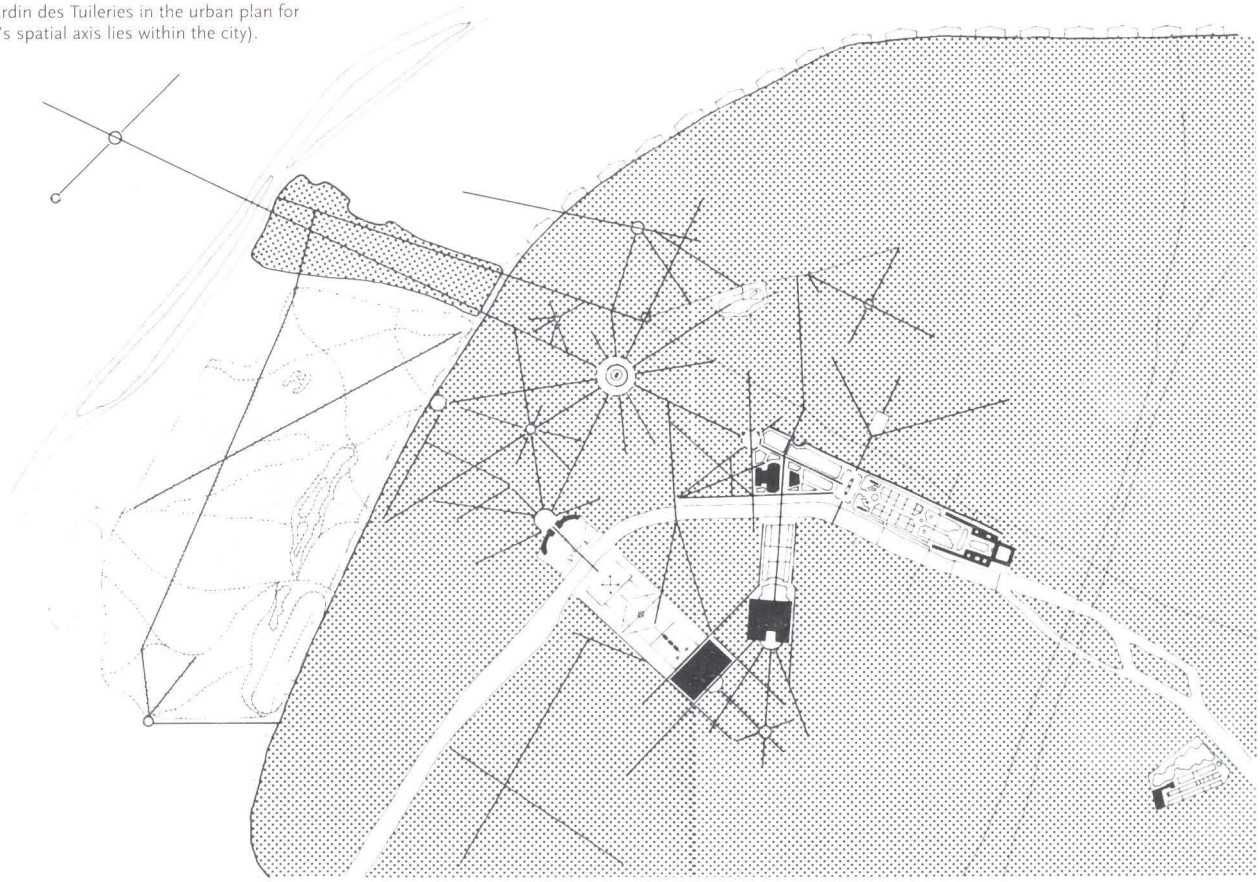
Place de l'Étoile. (Jean Alphand, 1867-73)

The large urban developments that went up along the new avenues coupled the Paris axis to the reorganised Bois de Boulogne (1852) and the Place du Trocadéro (opposite the Champ-de-Mars) in the south, and to the villas around the new Parc Monceau (1860) in the north. This accompanied a drift of the aristocracy and the prosperous bourgeoisie to the western part of the city.

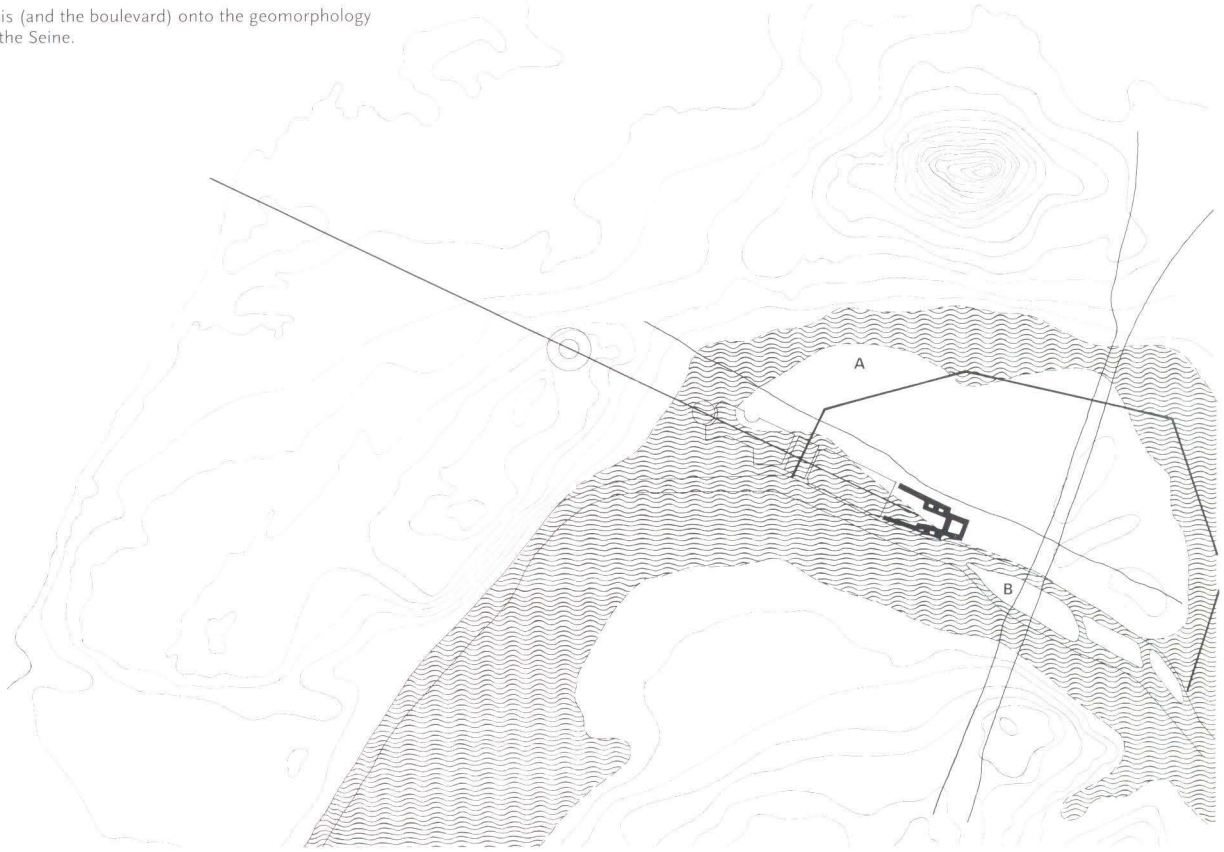
Haussmann's reorganisation of the city resembled a later, urban version of the 17th-century rearranging of the crumbling medieval landscape around Paris. The *rond-point* of the 17th-century radial forest made it possible to range over hunting territory and to survey every direction from strategic points. Haussmann's Place de l'Étoile is a *rond-point* in the city and plays a significant role in the infrastructure. Similar to the new avenues, over 30 metres wide with uniformly straight façades, it is primarily a space which allows for a more efficient flow of traffic. The Champs-Élysées, which joins the Place de l'Étoile, was no longer a *tapis vert* surrounded by trees in the open landscape. The traffic route was laid out on this axis so that it became a metropolitan traffic artery, which, hemmed in by uniform building façades, formed the backbone of an entire city sector. It became a 'parkway' which brought the landscape, in the form of the Bois de Boulogne, into the reach of Paris.

In the 19th century the entire 3,800-metre axis became part of the city. Even the natural horizon, which through optical manipulation had to be brought forward to remain visible in the old city, lay within the urban fabric at the time. At the

The Louvre and the Jardin des Tuileries in the urban plan for Paris, 1900 (Le Nôtre's spatial axis lies within the city).



Projection of Le Nôtre's axis (and the boulevard) onto the geomorphology and the original course of the Seine.



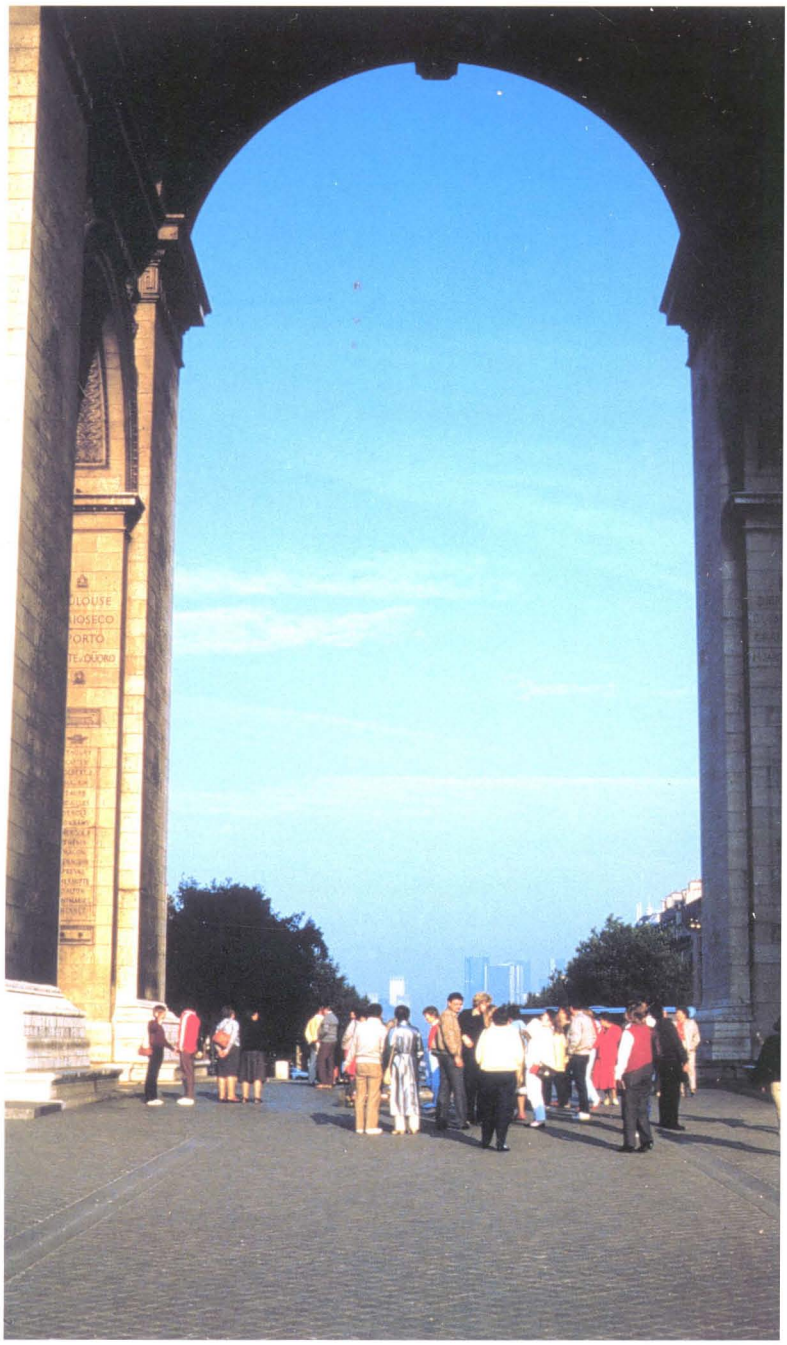
same time the scenography of nature on the viewing axis was destroyed when the tree-lined country avenue became a main traffic artery.

La Défense and the shifting of the skyline

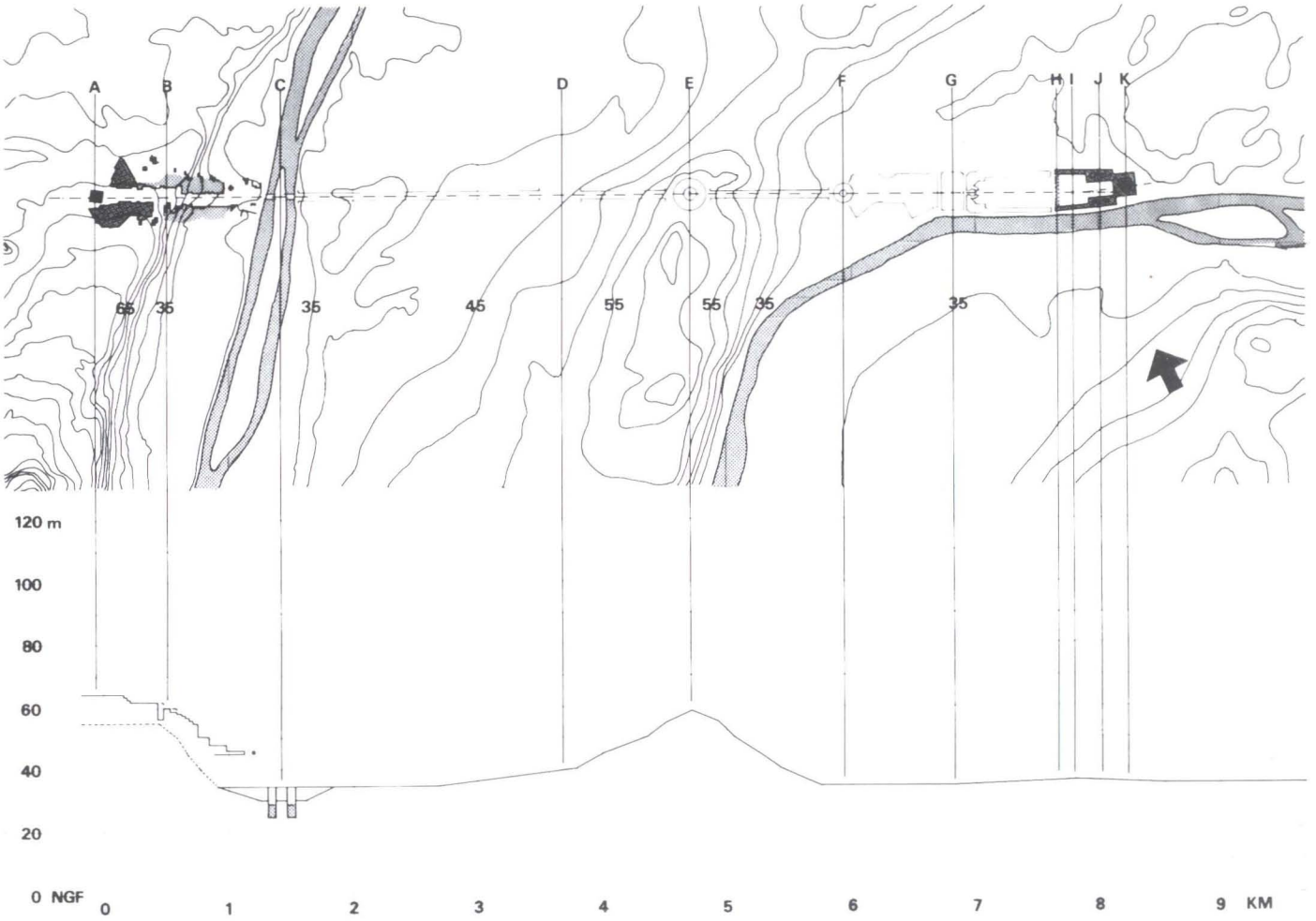
Beyond the Arc de Triomphe, on the other side of the Butte de Chaillot, the axis continued in a straight line over the Pont de Neuilly to the Rond-point de la Défense, on the other bank of the Seine. Yet neither via the tree-lined avenue (after 1770), nor via the urbanised 19th-century avenue, did the view of this play a role in the picture plane visible in the open portico of the Arc de Triomphe from the Louvre. The monumental arch with its colossal proportions stood lonely on the horizon for a century, framing nothing other than the sky.

In 1931 the Département de la Seine announced a competition for designing the axis from the Étoile to the Rond-point de la Défense. Proposals were submitted by Le Corbusier, among others, but the war interrupted further progress. In 1956 it was planned to extend the axis through the area of Nanterre, across the island Chatou in the Seine and through the area of Montesson to St. Germain. This extension (still only on paper) more than doubled the length to a total of 17 kilometres. The EPAD, a public body set up in 1958, was to remodel the La Défense area and create a new business district. Again the targeted area centred on the intersection of the axis with a boulevard, this time Boulevard Périphérique. The old *rond-point* made way for a mega-engineering construction with different levels for through-traffic routes, local roads, underground parking and pedestrians. A platform, measuring 100 by 120 metres, which descends a level at a time, forms a link between the shops, restaurants and public services on ground floor of the tower blocks and the Seine.

La Défense is the antithesis of Le Nôtre's Tuileries where architecture, landscape and city formed a formal unity. At La Défense this formality is negated by the spatial diversity of the modern metropolis. On a clear day, it can even be seen from the Louvre. Despite the distance separating them (eight kilometres), the height of the towers (with a maximum height of 200 metres) makes them appear as though they are next to the Arc de Triomphe as the same size. Due to these blocks, the shifting of the urban skyline far beyond Le Nôtre's horizon can be seen in the old city. Against this background, the 'infinity' of the 17th-century formal spatial axis degenerates into a paradox.

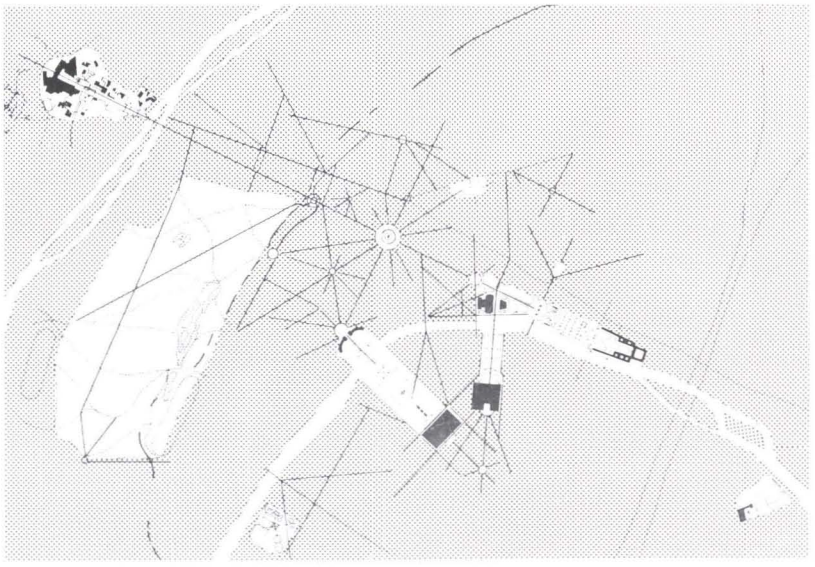


View through the Arc de Triomphe toward La Défense.



Plan and elevation of the axis from the Louvre to La Défense.

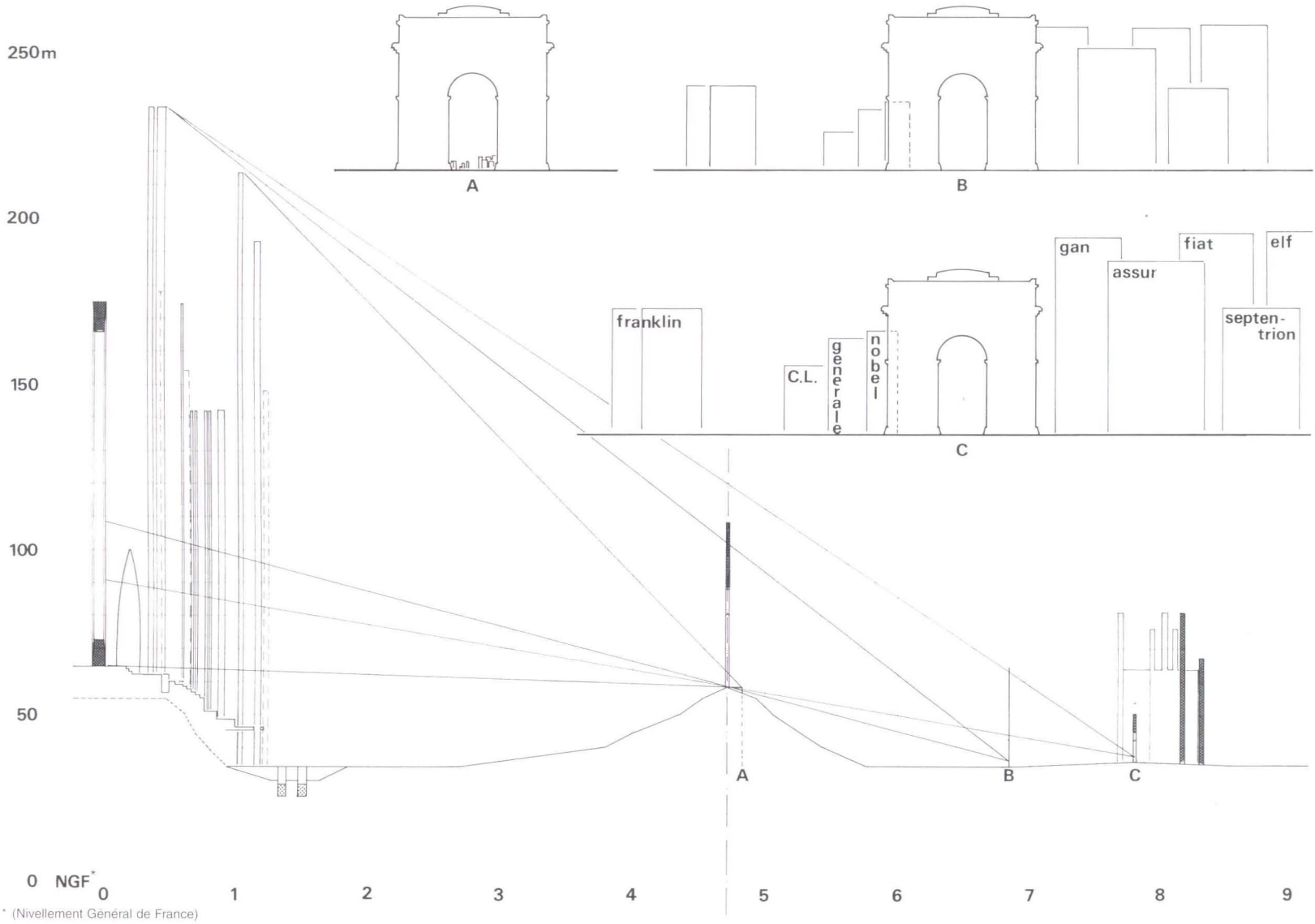
A La Grande Arche (Spreckelsen)
B La Défense
C Pont de Neuilly
D Pte. Maillot
E Étoile with the Arc de Triomphe
F Rond Point
G Place de la Concorde
H The earlier Palais des Tuileries
I Arc du Carrousel
J Pyramide
K Louvre



The Louvre and the Jardin des Tuileries in the urban plan for Paris, 1958 (La Défense lies within the city).

La Grande Arche and the step over the horizon

While the Arc de Triomphe no longer stood alone on the horizon, its portico was still 'empty'. The central area of La Défense was carefully left free of anything that would rise above the horizon and therefore be seen in the portico. In 1973, the architect Emile Aillaud launched an ambiguous project which, with its reflecting façade, terminated the axis, yet at the same time seemed to extend it. The architect Ieoh Ming Pei proposed two symmetric towers, linked by a parabola. But even in 1979 and 1980, when various architects were invited to make a new design for an object on the axis, one of the preconditions was



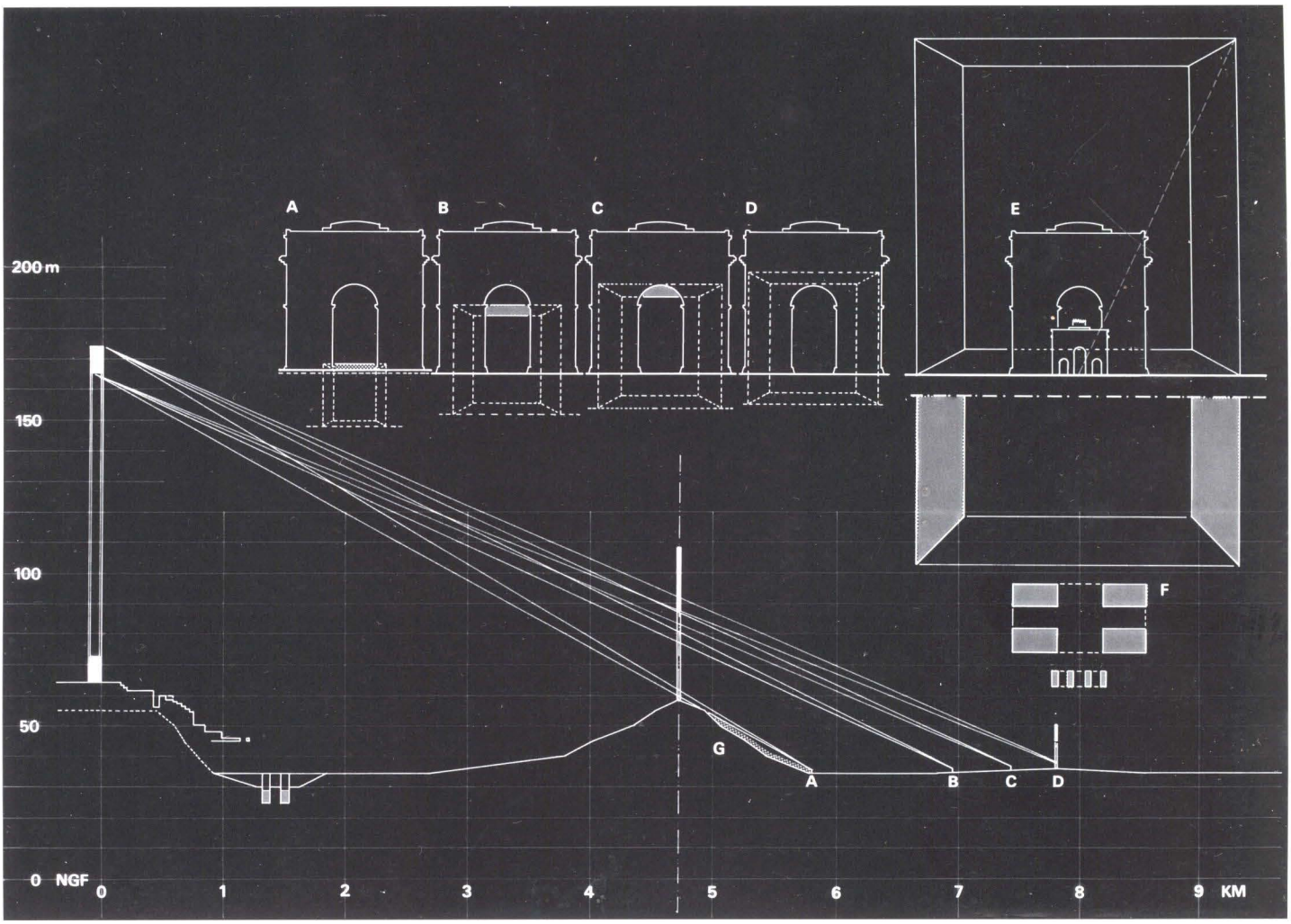
* (Nivellement Général de France)

Perspectival relationship in the sizes of the Arc de Triomphe and the towers of La Défense, seen along the axis.

A From a point in front of the Arc de Triomphe
B From the Champs-Élysées
C From the portico of the Arc du Carrousel

that a structure should not exceed 35 metres so that from the Tuileries it would not be visible through the open portico. However, once it was realised that such a structure would be no match for the other towers, the height restriction was lifted. In an international competition (1982-83), it was in fact the emptiness, which up until then had been carefully protected like a historic monument, that was the design theme. An international communications centre (c. 45,000 square metres) and two new ministries (c. 75,000 square metres) were drawn up for the programme. It is interesting that the jury report on the 424 entries submitted, noted that the project had 'to break with the unitarian morphology of the towers'.

The Dane Johann Otto von Spreckelsen won first prize. His idea was to place a cube with an open front and rear as 'a new Arc de Triomphe' at the head of the axis. The plan's measurements (100 x 100 x 100 metres) and the angle of the cube in relation to the axis defer to the similar size and angle of the large Louvre square at the other end of the axis. The Grande Arche consists of large concrete 'bars'. Offices are housed in the two vertical walls, while the horizontal ones bear a covered square and roof gardens. The cube's walls are smoothly polished marble. The most important architectural aim of this



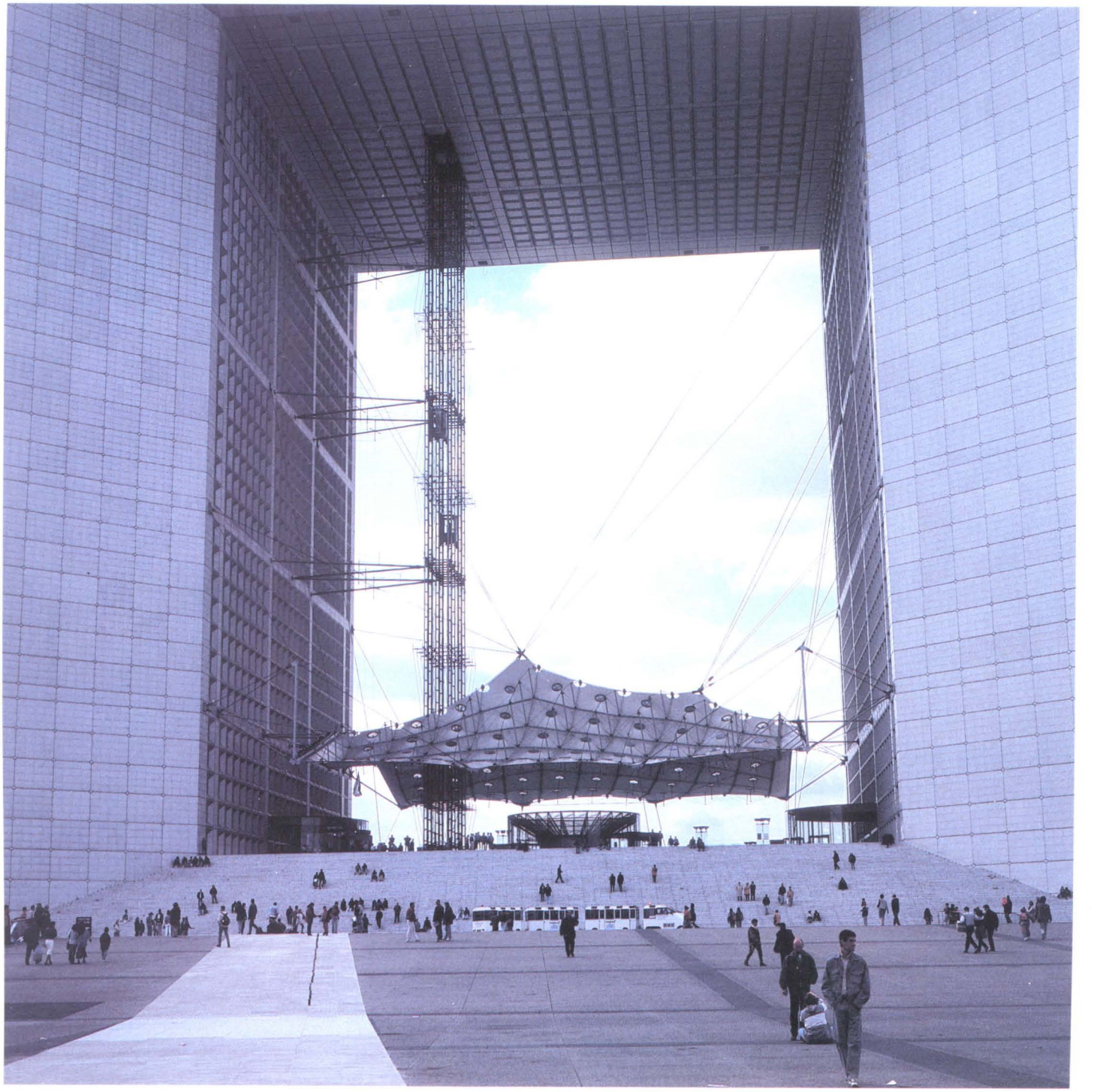
Perspectival relationship in size (and the visibility) of the Grande Arche with regard to the Arc de Triomphe, seen along the axis.

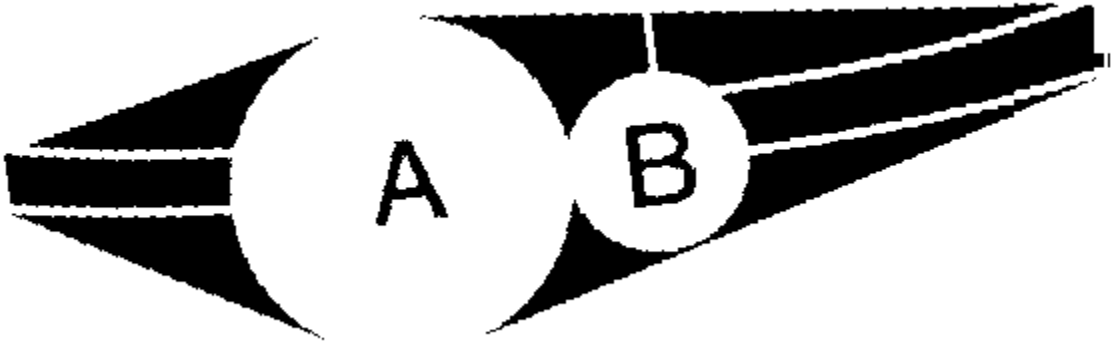
A, B, C From the Champs-Élysées
D From the Arc du Carrousel
E Normal projection in actual sizes of the three arches
F The three ground plans

project was to create an axial 'apex' at La Défense. The architect of the new arch spoke about 'a window onto the world', 'a meeting of peoples' and 'a view into the future'. Spreckelsen has been able to put these grandiloquent views into perspective. On top of his 'window onto the world' he has laid out a roof garden as a fata morgana, which is suspended between heaven and earth and, when viewed from the correct vantage point, is framed by the portico of the Arc de Triomphe.

Due to its height of 100 metres, the structure, across the Butte de Chaillot, can be seen through the portico of the Arc de Triomphe from the Tuileries Gardens. Traversing the Champs-Élysées, its upper part shifts like a horizontal stripe in the vista of the portico. The form of the new structure in the main vista (a horizontal line) is abstract and lacks even more scale than the Arc de Triomphe, which is why the depth of the spatial axis cannot be gauged. Nevertheless, Spreckelsen's arch shifts the visible termination of the main vista from the Butte de Chaillot to La Défense, which greatly alters the character of the foreground, middle ground and background of the spatial axis. The background is now formed by La Défense, while the Arc de Triomphe constitutes the middle ground like a *coulisse*. Le Nôtre's original plan has been entirely reduced to the foreground. The axis has been lengthened from three to eight kilometres, though it is doubtful whether this is accompanied by an increase in perceived spatial depth. The space behind the Arc de Triomphe cannot be perceived and the urbanised background imposes itself like some grotesque backdrop. Here the natural horizon really has been exceeded. The spatial depth is no longer illusionary but real; the tension between appearance and reality has dissolved.

La Grande Arche.




A
B

Castle Howard

Stowe

Bramham

Blenheim

3 The Geometry of the Picturesque

Rousham

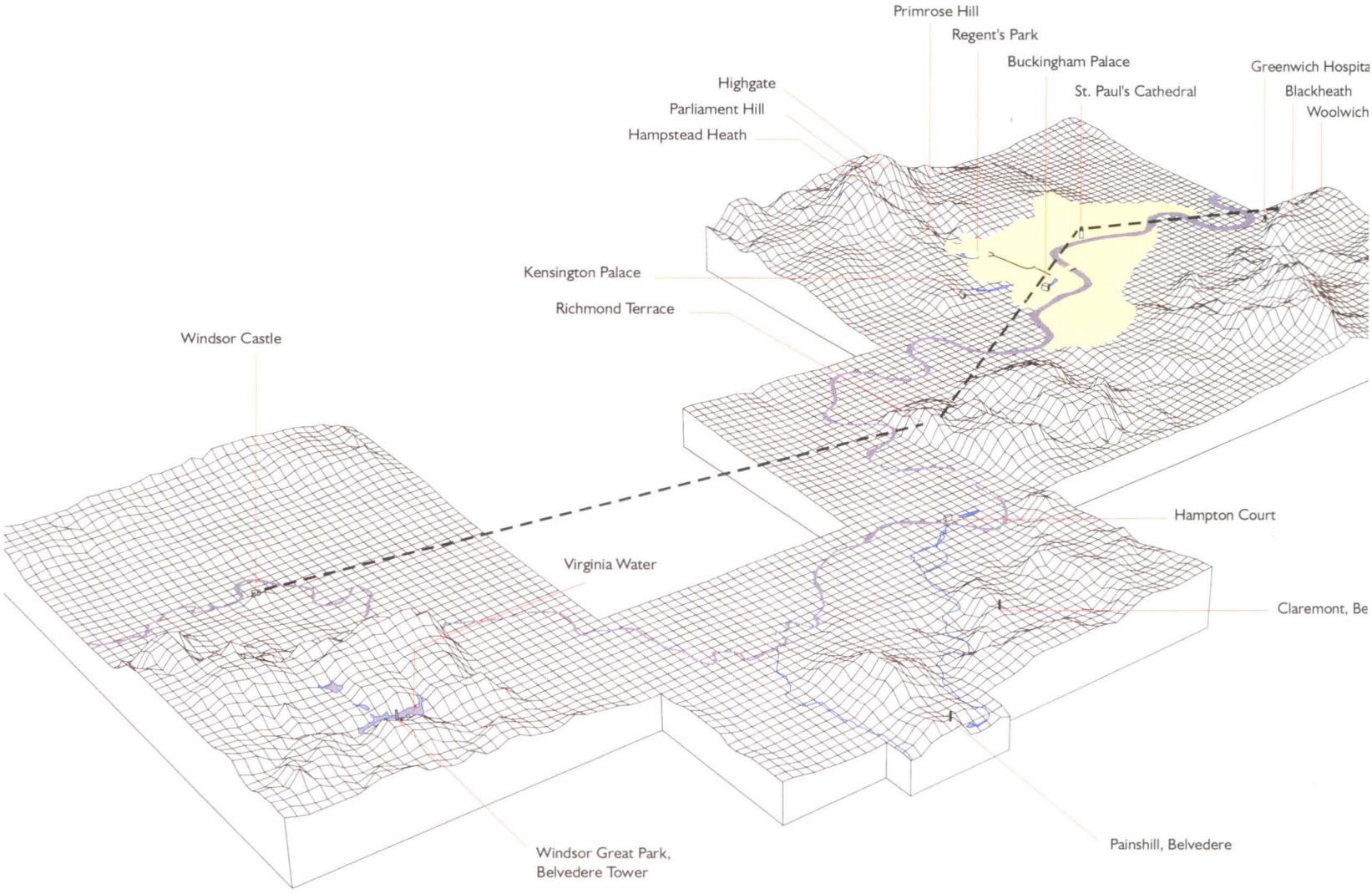
Stourhead

Harewood

Hawkstone

Chatsworth

Regent's



The visual command of the Thames Valley.

The dynamics of the transformation of the landscape

Reason, freedom and equality were the slogans of the Enlightenment, the 18th century spiritual and political reform movement that had virtually all of Europe in its grip. Armed with reason, 18th century citizens wished to liberate themselves from existing religious and political structures and from other inherited forms of authority. In practically every area new ideas and practical organisational forms arose. John Locke (1632-1704) laid the basis for research and empiricism in the sciences and for a separation of legislative and enforcement powers. The social reformer Anthony Ashley Cooper, 3rd Earl of Shaftesbury, emphasised personal integrity. Human nature was thought to be inherently good, but could be corrupted by external conditions. Reason formed the new basis for ethics and aesthetics. David Hume (1711-76) advocated individual experience as a starting point for human knowledge and moral insight, while Adam Smith (1723-90) called for a liberalisation in economic activities and opposed governmental interference.

Parliamentary democracy reached an apex in early 18th-century England. With what would be a limited electorate by today's standards, parliament was representative for the then balance of power within society. A liberal vanguard came into being which propagated new ideas and put them into practice. After the victory of the Duke of Marlborough against the army of Louis XIV at Blenheim on the Danube in 1704, England became the strongest military power in Europe. This led to an expansionist foreign policy in which America and parts of Asia and Africa were colonised. James Cook circumnavigated the world's seas in the interests of England's expansion as a colonial power, discovering New Zealand among other territories, and landing in what is now New South Wales, in Australia.

Isaac Newton. (John Vanderbank, 1726)

The rise of the natural sciences

The age of Enlightenment inspired the development from formal to practical thinking. Scientifically based principles underlined the processes controlling nature and society. In 1687 Isaac Newton (1642-1727) wrote his *Philosophiae naturalis principia*, in which he set down the laws of gravitation which were to be decisive in explaining the creation of the universe. Experimental breakthroughs produced empirical science. Joseph Priestly experimented with electricity and isolated oxygen from air; Henry Cavendish succeeded in separating water into oxygen and hydrogen. Many scientific discoveries found

Balscott, Oxfordshire. Landscape pattern before enclosure (after Sharp).

Balscott, Oxfordshire. Landscape pattern after enclosure (after Sharp).

an almost instant application. England was the undisputed pioneer in the area of technological advances and was the first country to switch from manual to industrial mass production in the second half of the 18th century. Industrialisation and the development of world trade made it the world's richest nation.

Nature as a mirror image

In the 17th century men had still seen nature as 'raw material', as God's creation, corrupted in the Fall; in the 18th century nature was understood as an autonomous system. In 1735 Carolus Linnaeus (1707-78) wrote his *Systema naturae*, in which nature was classified according to a system for the first time. This was further expanded upon in 1753 in his *Species plantarum*, which became the basis for modern botany. This knowledge was applied to agricultural techniques, horticulture and experimental farming methods.

Nature was recognised as a cosmological system to which society was also in principle subordinate. It was therefore a mirror image of the social order. Competition in nature was the legitimisation for economic competition. Smith came to the conclusion that the general interest was best served if everyone could strive unobstructed for his own goals.

Feeling and intuition were however likewise seen as 'natural'. This essentially romantic notion implied a challenge to the Enlightenment value of reason as the highest good. Nature was idealised as the source of good in man (the true civilisation), and was therefore also the mirror of the inner self. This also implied a certain restriction. Jean-Jacques Rousseau (1712-1778), for example, argued for a return to a human 'nature' that was essentially unaffected. Thus sentimentality was also a component of the idea of nature, and one which in the course of the 18th century would begin to show an increasingly hybrid character. In a certain sense echoing Vitruvius, who had identified the 'Ur-hut' as the image of the origin of architecture, in his *Essai sur l'Architecture* (1755) Marc-Antoine Laugier resolved rationalism in architecture to a hypothetical 'primitive' architecture (the natural simplicity of the farmer's cottage) which included all the essential components, which were in turn derived from nature.

The individualisation of time and space

During the Enlightenment an individual understanding of time emerged as well as an awareness of one's own destiny and one's own will. Individual action obtained its significance by being placed in a coherent picture of past, present and future; a perspective opened up which invited man to himself give shape to history. The landscape garden was, in a sense, the metaphorical model of this society: the free will of the Englishman was reflected in the winding stream and the growth of the tree.

Thomas Coke of Holkham, pioneer of the Agrarian Revolution, inspects a new breed of sheep.

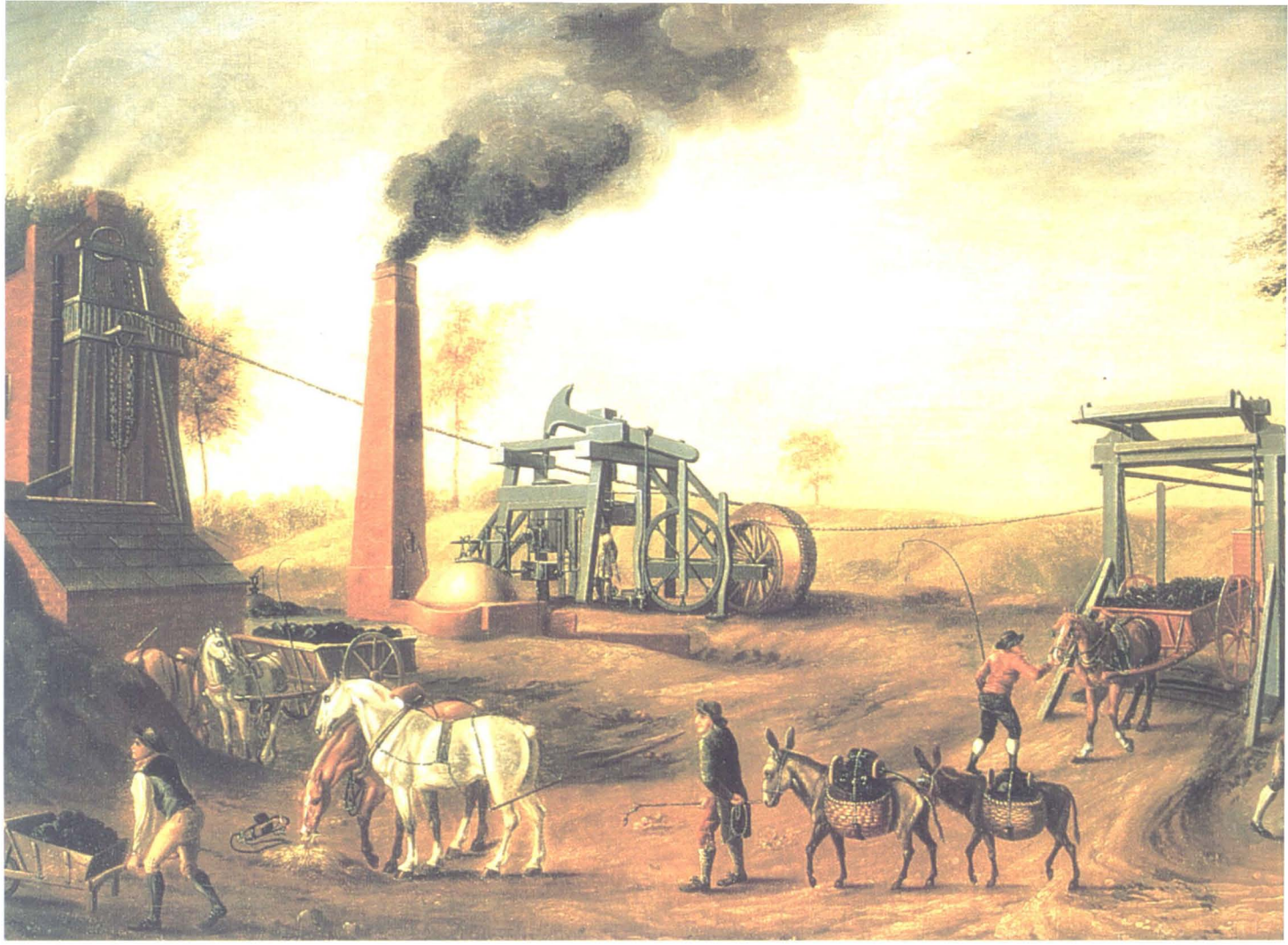
Classical space lost its import, the traditional view of spatial unity was abandoned while the experience of the individual was of paramount importance. What had previously been resolved in architecture according to traditional experience now became problematic. New theories arose on perception and the experiencing of space. In his *Essay concerning Human Understanding* (1690), with his theory of perception John Locke (1632-1704) laid a new foundation for research in the sciences, aesthetics and philosophy. In his *Treatise on Human Nature* (1739) David Hume (1711-1776) identified individual experience as the starting point for knowledge and moral insight. Rational thinking also had a darker side. It called up powers that were to uproot 18th century society; it gave birth to an anonymous sober-mindedness that tolerated no form of thinking other than itself and that ultimately demystified the world and made it unrecognisable. Centuries-old traditions of community life were shattered, villagers were displaced, the familiar place became the object of profit-seeking.

The interaction among these processes brought about a social revolution that lasted more than a century, and is not even entirely completed today. In retrospect one could look back on the Enlightenment as an experimental period in which traditional agrarian society, which had been the basis for the social order for so many centuries, was broken open and an entirely new perspective of modern urban society began to develop. The landscape garden was on the cutting edge in this process.

Breaking open agrarian society

Between 450 and 1066 the first Anglo-Saxons settled in England, establishing their own communal farmlands and social structure. This system reached the peak of its development in the 13th century and in some areas remained largely unchanged until the 18th century. Its archetypal form flourished in the Midlands, the hilly central part of England, where the open fields stretched to the horizon. Surrounded by commons and large grazed or untamed forests, they formed the backdrop of the first landscape gardens.

Between 1570 and 1770, after the difficult period of colonising the natural landscape was over, England's countryside flourished. Agriculture thrived as never before: for two hundred years (seven generations) the country was prosperous enough to provide everyone with a decent living. During Elizabeth I's reign this had already resulted in a general economic revival and renewed building activity in villages and towns. It was only



An English coal mine with a Newcomen steam engine.

towards the end of the 17th century that the four most northern English counties experienced large-scale redevelopment, which was probably a continuation of the first Elizabethan wave that by now had reached the borders. Between 1660 and 1720 there was a second wave of redevelopment across the rest of England, especially in the Midlands, during which entire villages were sometimes rebuilt and many schools and poorhouses founded.

Rationalisation of the man-made landscape

During the 18th century the commons were divided amongst the yeomen (freeholders who cultivated their own land). Until around 1730 this was mainly done among themselves without government interference, but from 1750 onwards enclosure became regulated by law. Agreements between individual owners and the government were enshrined in either a private act of parliament or the parliamentary act and award. These parliamentary enclosures radically changed the face of the English landscape between 1750 and 1850, especially during the reign of George III. One million hectares of land was affected and some 700,000 hectares of wasteland was reclaimed by 'private act of parliament'. This methodical Georgian landscape was most noticeable in the Midlands, particularly in Northamptonshire.

Land appropriation was carried out on the basis of a map, an enclosure plan and a road plan by a committee especially set up for the purpose. Heathland in Norfolk, for instance, was converted to an arable area for rye, barley and wheat. Heavy clay areas, better suited as pasture, were for the most part planted with grass. Where possible the committee made rectangular, preferably square, enclosures. The optimum size for more efficient rotation grazing lay between two and four hectares. The carrying out of land enclosure was efficient even by contemporary standards and resulted in an extraordinary increase in production. 'High farming', modern agriculture on the basis of private enterprise, came into being, which furthermore was freed of tithes, and in which mechanisation gradually began to play a greater role. Taken as a whole, initially

The first cast iron bridge, over the Severn, near Coalbrookdale, 1777-81.

employment in the countryside also increased as a result.

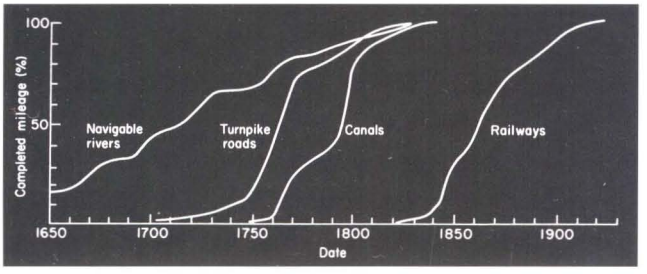
The old pattern with its small fields, twisting cart tracks, headlands and footpaths was transformed into a modern chessboard of small enclosures and a network of new by-roads running as straight as an arrow in all directions and from village to village. The medieval main roads (fosse ways), previously exposed in the open landscape, were replaced by roads 12 metres (40 feet) wide, with a paved carriageway and grassy berm on which to drive cattle, bordered by hedges. Land was chiefly enclosed by planting with quickset (whitethorn or hawthorn). On the more elevated stony plateaus, such as in Derbyshire, the land was enclosed using piled-up natural stones unearthed during the cultivation of the wasteland. Trees were sporadically planted, chiefly ash but also elm and oak. During land appropriation, the enclosures of one owner were clustered together as much as possible, which necessitated the building of new farms outside the villages.

This process of rationalisation completely changed the English landscape. The contrast between the compact villages and the opens fields of the past disappeared. The vastness and natural quality of the old landscape was transformed into small-scale hedge landscapes.

Migration to the cities

The development and sale of the commons assured greater prosperity in the countryside, but it had detrimental social side effects. The villagers who were reliant on this common grazing land lost their incomes. Concentration of land ownership, and thus of agrarian means of production, caused a polarisation in rural communities, and the impoverishment and ultimate exclusion of the propertyless. Increased competition in the world market forced agriculture to more economic production, with fewer labourers. Trades that relied on agriculture also disappeared rapidly as a consequence. After 1770 the social/economic stability of the rural areas had been so undermined that village communities were broken up and a social drama of unprecedented proportions threatened. A migration to the rising industrial cities got under way, where

The Earl of Bridgewater near the Barton Aqueduct.



The development of means of transport (after Pawson).

some would build up a better life for themselves but others, left to the mercy of the unfettered operation of economic forces, became rootless and impoverished.

Urban populations grew quickly. In macro-economic terms the relation between the total size of the population and national agricultural production remained unstable. In 1795 things came to a head for the first time; a failure of the harvest drove up the price of bread so high that the poor were threatened with starvation. Local authorities supported the labourers with a sum related to the price of bread and the size of their family. The farmers made use of the support to drive down wages. The landowners, who controlled parliament, in turn profited from the high price of grain. The Corn Laws of 1815, intended to protect English agriculture against the import of cheap grain from continental Europe, kept the price of grain in England artificially high. After these were repealed in 1846 a modern consumption pattern developed by fits and starts, based on import of grain, meat and other foodstuffs from America and mainland Europe.

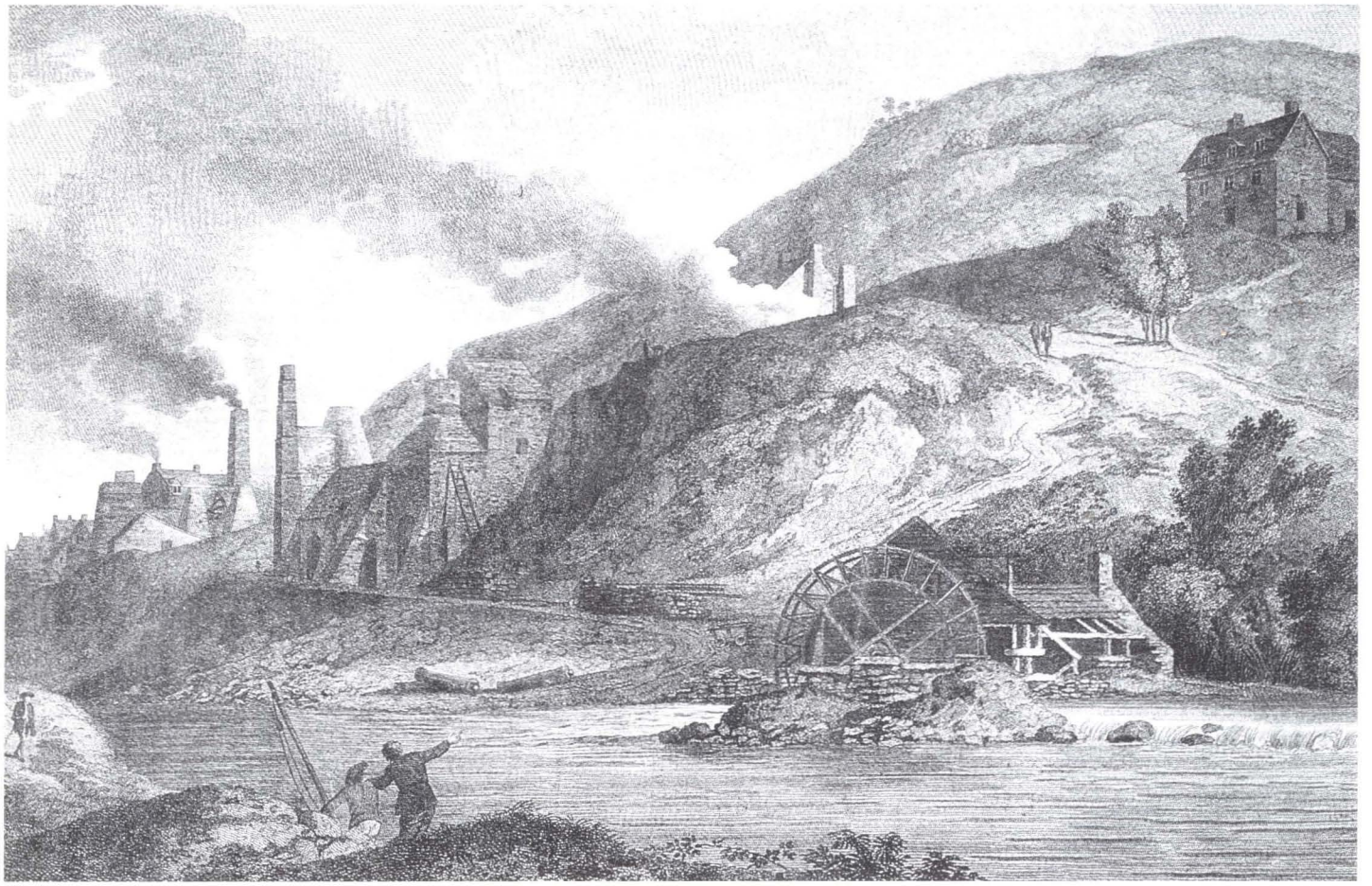
After the great agricultural crisis of 1870 the economic and political importance of land ownership quickly decreased. In 1881 the urban population was already double that of the countryside, and industrial production as a source of wealth had become correspondingly more important. Many landowners sold the land to their tenants. Around 1920 the centuries-old supremacy and parochial paternalism of the landed aristocracy came to an end.

Industrialisation

Industry in Britain dates from the early 18th century, aside from mining and the systematic extraction of minerals, like iron ore, which had taken place since the Romans.

The first real factory was John and Thomas Lombe's silk mill, built in Derby between 1718 and 1722. Lombe's five-storey mill was driven by water power and employed 300 workers. In the 1760s industrialisation really took off. Darby's iron foundry was set up in Coalbrookdale in Shropshire on a tributary of the Severn. In 1765 Matthew Boulton opened his large Soho factory just outside Birmingham and, together with James Watt, began manufacturing steam engines in 1774. Josiah Wedgwood established his Etruria pottery factory at Burslem in Staffordshire, while Richard Arkwright set up his second mill in Cromford along the River Derwent in 1771. These four manufacturers accelerated industrialisation and began to shape the modern industrial landscape.

Initial industrialisation had a revolutionary impact on the 18th century agricultural landscape. The new industries driven by hydropower established themselves not in existing villages but along the upper reaches of streams and rivers in the open, natural landscape. The size of the factories was unprecedented, and as work was done in shifts the noise went on day and night. At night they were brightly illuminated, the whole provided a festive-looking spectacle. The new industrial barons originally built large country houses overlooking their splendid factories. In no time at all, workers' houses began to be built



The Darby's iron foundries at Coalbrookdale, Shropshire, 1788.

around the new factories, cottages at first but later terraces. A forest of large bottle-shaped kilns appeared in the Potteries, the region in Staffordshire in which the china and earthenware industries were then concentrated.

Grime and overcrowding came with the steam age towards the end of the 18th century as a result of the burning of fossil fuel and the emergence of the chemical industry. The iron industry, which flourished wherever there was coal and iron ore side by side, created huge slag heaps in the Midlands, Yorkshire, Lancashire and South Wales. In Ravenshead at St. Helens, Lancashire, the British Plate Glass Manufactory was set up in 1773 and more glass factories followed. In 1780 a large copper smelting works was built near Pary's Mountain on Anglesey. The water became polluted, the atmosphere toxic and the trees perished. In Lancashire, the Potteries, Yorkshire, South Wales and the Black Country of the Midlands, the 19th-century industrial landscape, 'the landscape of Hell', as Hoskins called it, cast its advancing shadow.

The transport revolution

After 1700 transport developed at a rapid pace. From 1720 onwards many new roads were laid out. Thomas Telford worked on the planning and construction of hard roads, while John McAdam improved the foundations and surface using freestone gravel. The hard surface elicited improvements to the carriage, which now carried mail and passengers considerably faster and more comfortably. New turnpikes also linked the urban centres with coastal harbours. Everywhere in Britain turnpike trusts appeared, responsible for road maintenance and collecting toll fees, as well as setting out signposts and milestones for travellers. Development of turnpikes reached its peak around 1750 and by about 1770 the network of roads was more or less complete.

This development in transport was the basis for rapid industrialisation in the countryside, and was used to their advantage by the landowners in all sorts of manners. Canals were dug for the transport of industrial raw materials such as

coal and iron ore. The foremost pioneer of the canal waterways in England was the 3rd Earl of Bridgewater who, together with his engineers John Gilbert and James Brindley, designed a canal from his coal mines in Worsley to his factories in Manchester and Liverpool. The network of canals was so dense that every city of any importance used them as a cheap means of transportation. To lay the canals in hilly regions, tunnels had to be dug, dikes constructed and aqueducts built. This brought with it a new technique of constructing bridges and other engineering feats. The first cast-iron bridge was built across the Severn in Coalbrookdale, Telford, between 1777 and 1781.

The greatest outcome of the transport revolution was the railway. Robert Trevithic built the first steam train in 1809 and in 1813 William Hedley introduced his 'Puffing Billy', a steam train for transporting miners in Wylam, Northumberland. George Stephenson opened the first railway line in 1825, from Stockton to Darlington. From then on development went unexpectedly fast. In 1843 the railway network covered just over 3,000 kilometres; hardly 30 years later more than 22,000 kilometres of track had been laid and passenger transport had increased fourteenfold.

The rationalisation of agriculture, industrialisation and the revolution in transportation created a field of economic and geographic tensions in which traditional country life sought to maintain itself, adapt and innovate during the 18th century.

The modernisation of country life

In principle, in the early Middle Ages hunting was still the prerogative of everyone. At the end of the 10th century the nobility began to exercise more control over hunting wild game, which they wished to preserve for themselves. After 1066 the Norman kings incorporated agricultural land into their hunting forests, destroying settlements and driving away the inhabitants. They introduced legislation which curbed the use of the forest and which made hunting a royal privilege. In this way the Royal Forests were created, sometimes partly surrounded by a fence or by a wall and a moat. They were recorded and administered as royal possessions in the Doomsday Book of 1086. The Royal Forests reached their maximum size under Henry II: at that time they comprised one third of the entire nation.

The nobility were also allowed to lay out their own hunting preserve, or were given one by the king as a reward for their services. Often these hunting parks were the beginning of the 18th century landscape gardens. Knowsley, now the largest park in the north of England, was created in 1292 when Sir Robert Latham received a 'wood which is called a park' from the king. By wild animals grazing on it, Knowsley developed into a forest with open areas of grassland, though this was by no means a park landscape as we now know it: park originally meant no more than an enclosed area or warren.

The rural estate

The top of British society in the Middle Ages comprised some 50 families who ran the country, held sway politically and exercised military power. These great lords founded many new estates after the Middle Ages. At the heart of this domestic colonisation, which came in successive waves, lay political and economic motives. Under the political strategist Henry VIII the monasteries, with their already well-organised and administered estates, were dissolved. In their place the king favoured the landowners, who functioned as satellites of the court. In the second place, the economic success of agriculture was a strong driving force in stimulating the acquisition of more land. Between 1570 and 1640, particularly under Elizabeth I and following the acquisition of foreign colonies, new country houses sprang up all over England, apart from the northern counties.

In the 17th century the country house became an objective of the gentry, that class of untitled moneyed people comprising landowners, merchants, doctors, lawyers and the like. As noble titles could be bought – the proceeds financing the royal household – the number markedly increased. Palaces were built to rival those of the king, or in order to receive him, and a new class of country nobility came into being.

Around 1725 many new stately homes were built as an expression of the new political élan of the aristocracy. The development of the landscape garden now marked an urban colonisation of the countryside. The Palladian stately home was, in a sense, a copy of an urban dwelling printed on the still slumbering agricultural landscape. The renewed colonisation also took on a cultural form through this. Furthermore, after 1740 ownership of land became attractive for the urban commercial bourgeoisie. With a healthy financial economy and flourishing trade, money was available that had to be sensibly and safely invested: estates were seen as the answer. The years after 1760 saw a peak in laying out parks on a large scale. Trade and industry, however, shifted the main sources of prosperity to the city, thereby undermining the economic reason behind the country estate's very existence. Thus few new estates were founded after 1770.

Generally, the new lords of the manor were good stewards of their estates. Initially, they were especially interested in forestry rather than agriculture. In 1664 John Evelyn, in his *Sylva, A Discourse of Forest Trees*, advised landowners to decorate their estates with 'trees of venerable shade and profitable timber'. From 1700 onwards this led to the import of various tree species such as Mediterranean oaks, pines from Corsica, Georgia and New England as well as spruces from Scandinavia and North America. New horticulturists specialised in cultivating, among others, lime, maple, walnut, horse chestnut, laurel, mulberry, cedar of Lebanon and cypress.

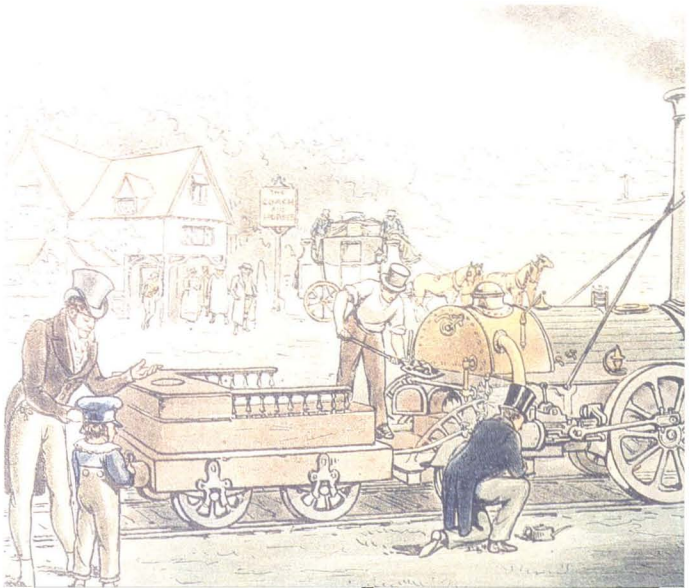
The 'forest gardening' by the pioneering Lord Bathurst in Cirencester encouraged experiments in forestry prompted by tradition and status, but also the expectation that wood would bring in money during uncertain periods. The 'extensive rural gardening' that Stephen Switzer discussed in his *Ichnographia Rustica* in 1718 provided a further practical elaboration to the economic foundation of the estate in a more natural style. Between 1710 and 1720 the 'ornamental farm' was popular, even if this was chiefly due to aesthetic motives. Riskins and Castle Howard, however, also had modern, scientifically conceived kitchen gardens.

In the second half of the 18th century the landowners felt that agricultural modernisation could strengthen the economic basis of their estates. Originally, the appropriation of common lands and the reclamation of wasteland mainly led to more tenant farmers and an increase in revenues for the landowners. From around 1770 onwards the latter set up experimental farms on their estates in which new drainage techniques, improvements to fertilisation methods and crop rotation were tried out. This resulted not only in more tenant farmers but in an increase in productivity and higher rents. In this way the landscape garden was an important factor in the changing technological conditions of the countryside. Thomas Coke, or Coke of Holkham, later Earl of Leicester, turned a bleak expanse of grassy heathland into fertile farming land by ploughing up the underlying calcareous loam and spreading it over the sandy top-soil. He helped his new tenant farmers do the same thing in exchange for a higher rent, so that in 15 years' time he had quadrupled the return on his estate. Jethro Tull created a revolution with his sowing drill, while Robert Bakewell discovered new ways of livestock breeding and laid the basis for a new irrigation technique. The second Lord Townshend, nicknamed 'Turnip Townshend' because he encouraged the growing of turnips, developed a crop rotation system which ensured that no field would be left lying fallow: he grew wheat in the

Tottenham Court Road toll gate, 1790.

Canal near Burslem, Staffordshire.

George Stephenson's locomotive Rocket, 1829.



first year, turnips or beets in the second, barley or oats in the third and peas, beans or clover in the fourth year. Improvements almost doubled the income of the landowners, which contributed greatly to the popularity of the 18th-century estate.

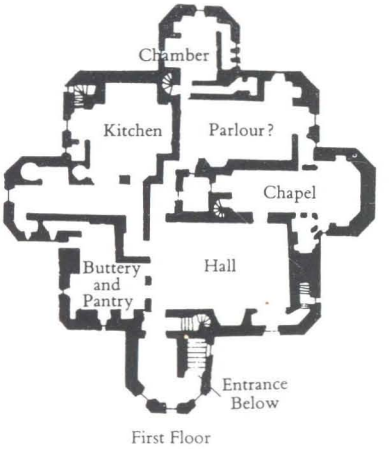
The typological evolution of the country house

In 1715 the Venetian Giacomo Leoni, who was living in England, published the first part of his study on Palladio. In the same year Colin Campbell published *Vitruvius britannicus, or The British Architect*, dedicated to George I, a manifesto of the new movement as well as a direct attack on baroque art, which during the 17th century had served the absolutism of state and church throughout Europe. The poet Alexander Pope and the painter Jonathan Richardson the Elder wrote similar manifestos related to literature and art.

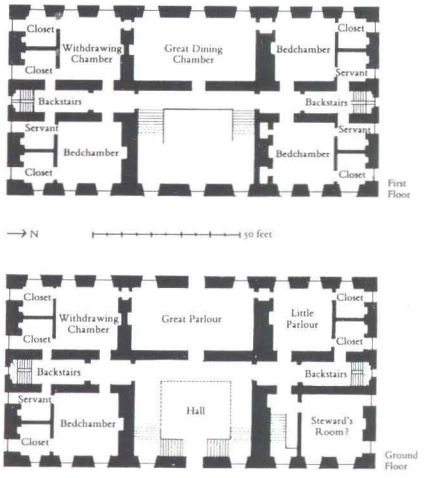
Lord Burlington made trips to Italy to study Palladio's architecture in detail, and upon returning to England became the leader of this new, classicising movement in architecture. Palladianism, as an expression of a more liberal society in Britain and the emergence of the Whigs, was an unprecedented force. Under the guidance of Lord Burlington it became influential at court, and showed all the signs of a takeover. These new politics went hand in hand with an impressive publishing agenda.

Part III of Campbell's *Vitruvius britannicus*, from 1725, was devoted to the country house, which meanwhile had become immensely popular. Palladianism was now the architectonic form with which the oligarchy of Whigs identified, and the book proudly presented the houses built in this style. In fact, the first steps in the Palladian development of the 18th-century country house were taken by Campbell himself with the prototype Wanstead mansion in Essex (1714-15, demolished in 1822), in which, according to John Summerson, the house was conceived for the first time as a palatial unity. Houghton Hall later followed for Robert Walpole, Britain's prime minister (1720), and Holkham Hall (also in Norfolk) for the Earl of Leicester, based on a design by William Kent (1734). With Mereworth, a derivative version of the Villa Rotonda at Vicenza, Campbell achieved a new effect in landscape architecture by placing the villa on the garden's main axis. The standard type of the Georgian villa was resolved in Campbell's third design for Stourhead House (1721-25), and was finally standardised in Marble Hill in Twickenham (1729), likely designed by the ninth Earl of Penbroke, the 'Architect Earl', probably in collaboration with Roger Morris. The evolution of the Palladian country house was completed around 1745.

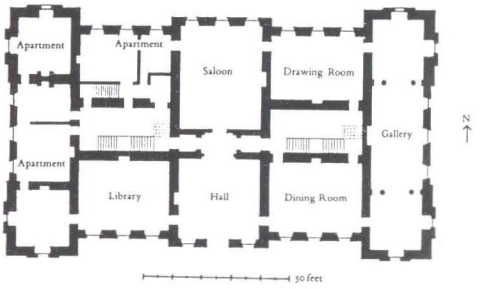
a Warkworth Castle, Northumberland, 1474.



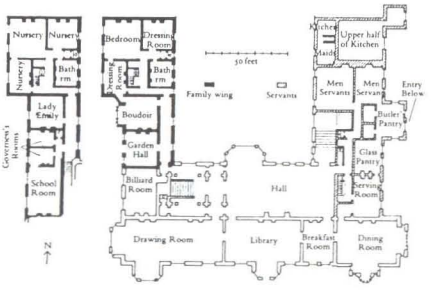
b Coleshill House, Berkshire, 1650.



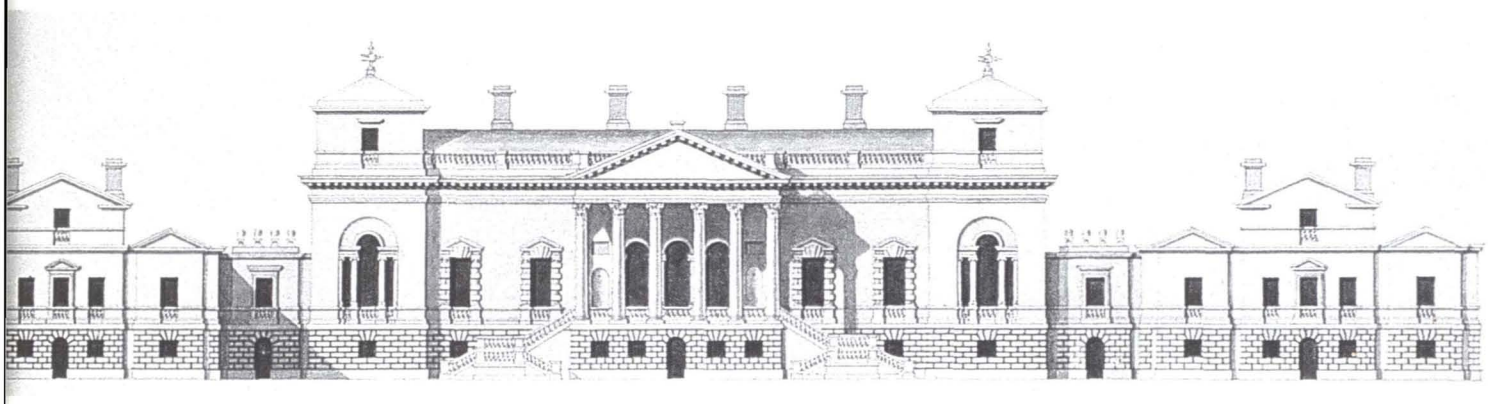
c Hagley Hall, Worcestershire, 1753.



d Thoresby Hall, Nottinghamshire, 1864.



The development of the country house (after Girouard).



Holkham Hall (William Kent, 1734).

The medieval residences of the nobility had been houses of power, their authority based on military strength, administrative control and command over a territory. The house afforded a shelter for the landowner's entire household, including his staff. A feature of the house was the Hall in which communal meals were taken and disputes settled (for this reason the houses were often known as 'Halls'). The late 18th-century country house, however, was distinguished by its 'green baize door', a padded door separating the servant's wing from the landowner's private quarters. Changes like this reflected a social and cultural evolution in country living that had been taking place.

The breaking down of the rigid social hierarchy of the household affected the design of the country house immensely. Coleshill House in Berkshire, designed around 1650 by Roger Pratt, was a milestone in this evolution. Pratt's discovery was to place the parlour on the ground floor and the great chamber on the first floor, in the centre of the house, as a space across two floors, and to incorporate the main staircase into this. Though this made the entrance more impressive, the Hall of the barons was thereby lost. Instead, the great chamber on the first floor was used for communal meals.

The formal assemblies for concerts, conversation or other happenings gradually made way for more informal forms of social contact, such as house parties and circulating around the various quarters of the house. This also had an effect on the design of the landscape garden: the circuit walk was the direct counterpart to circulating around the house. There was a walking circuit in the Pleasure Grounds and a longer circuit through the park, intended for equestrians and carriages.

More rooms were increasingly used for special purposes, such as the morning room, the billiard room and the smoking room. Around 1770 the main spaces of the house were in direct relation to the garden in the form of rooms on the ground floor and balconies. The *piano nobile*, still on the first floor of the classical house, was now on the ground floor, while the servants' quarters also dropped down one floor to the basement. The houses sometimes literally sank into the ground; a dry moat around the house was necessary to enable light to enter the souterrain. This thwarted the country nobleman's contact with the garden and was later solved by allocating a wing of the house for the servants, thus creating an asymmetric arrangement of the layout. The garden came into the house in the form of potted plants and vases of flowers or even took up an entire room in the form of a conservatory.

The delicate pleasure of the garden

Thomas Hill's *The Gardener's Labyrinth* (1577) depicted the garden from the Tudor Age as a walled parterre. In the 17th century, treatises on gardening were practical, aimed at facilitating country living. They brought the influence of the waterworks from Italian gardens, the larger scale of the French garden and the parterre arrangement and embellishment of Dutch garden design, though retaining indigenous elements such as mazes and mounts. In *The English Husbandman* from 1613, Gervase Markham recommended decorating the parterre with various motifs which played an important role in English garden design until Kent introduced a 'modern taste'.

In the 18th century the treatises entirely changed character. Due to colonisation, design theory was aimed at economic development and a new, representative design for country estates. Echoing the views of Joseph Addison and Shaftesbury, Timothy Nourse in his *Campania Foelix* of 1700 recommended siting a country house in an open landscape. A happy life in the country was only possible in a rural setting. Wherever possible, fencing had to be abandoned in favour of an unrestricted view of the surrounding landscape, making it appear as if it

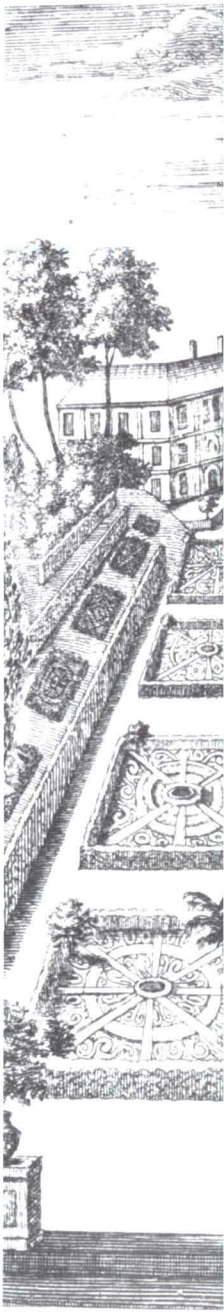
Holkham Hall from the south.

were all a part of the garden. In this sense Stephen Switzer's *The Nobleman, Gentleman and Gardener's Recreation*, published in 1715, was a breakthrough. The landscape garden had won for itself a front rank position in the cultural spectrum.

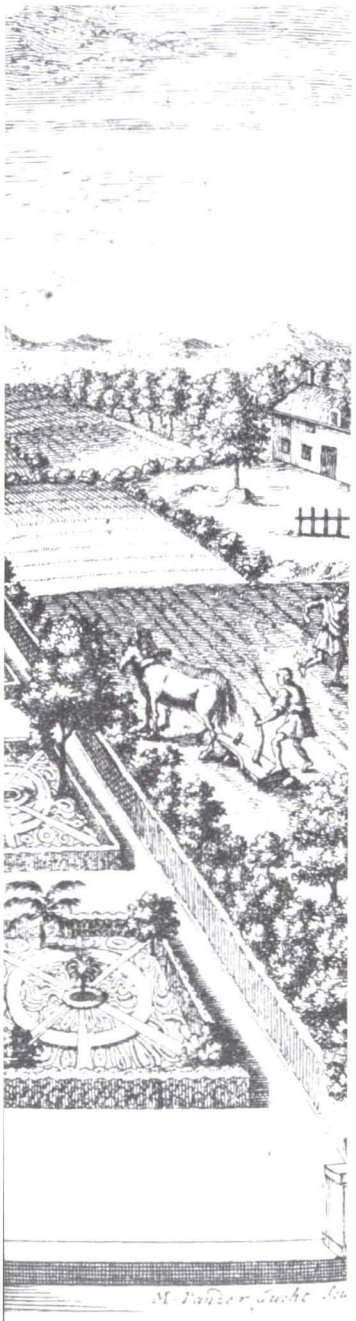
Over the next decades the application of classical rules made way for design experiments, which extended not only into the garden but also into the landscape. Conventional garden theory could not entirely keep up with these experiments. The poet William Shenstone did not call his 1764 text on the treatment of the landscape garden *Some unconnected Thoughts on Gardening* for nothing. In 1765 Thomas Whately wrote his *Observations on Modern Gardening*, while Horace Walpole published his *Essays on Modern Gardening* in 1785, in which the treatise was changed into a 'critique of landscape architecture'.

At the end of the 18th century, the main concern was with aesthetic principles, which were somewhat at odds with the demands of garden practice. The aesthetic manifestos of the squires Uvedale Price and Richard Payne Knight were the foundation for a new movement in landscape architecture. In 1794 Uvedale Price wrote his *Essays on the Picturesque, as compared with the Sublime and the Beautiful*. Price distinguished the 'picturesque', alongside Burke's 'sublime' and 'beautiful', as an independent aesthetic category. An important difference from Burke was, however, that the latter's categories characterised the perception, while Price focused on the visual characteristics of the landscape itself. In his *Analytical Enquiry into the Principles of Taste*, written in that same year, in which he argued that it was indefensible to consider the Picturesque as a 'quality' of the landscape, Richard Payne Knight distanced himself from this.

The rationalisation of the agricultural landscape from 1730 onward evoked counterforces in which nature was identified with human destiny and became glorified as well as romanti-



Front page, *Campania Foelix*. (Timothy Nourse, 1700)



Harewood against the background of the Wharfe Valley. (Thomas Girtin, 1799)

cised. This resulted in a renewed appreciation for the rugged and untamed hilly landscape, previously considered 'wasteland'. This was accompanied by a new kind of tourism in England, an extension of the tradition of visiting stately country homes that had already existed since the 17th century, and had been pioneered, among others, by Celia Fiennes, Daniel Defoe, Richard Pococke and Arthur Young. Around 1770, the hunger among the English to visit wild natural landscapes markedly increased. Their travel objectives were the Alps and the Pyrenees as well as England's Lake District.

In the arts the concept of the 'picturesque' became charged in a manner that it had never been before. At the beginning of the 17th century it still had the meaning of 'truthful', painting 'true to life' or 'true to nature' without concealing the truth or embellishing it. In that sense it initially was the antithesis of the abstract and artificial aesthetic of classicism. In an attempt to bridge this opposition, in French classicism the concept of the 'picturesque' was later defined as 'worthy of being painted' – that is to say, the Picturesque was that in real nature which most closely approached the classical ideal of nature. According to Gilpin, for example, the wild landscape of the Lake District lent itself to painting and was 'picturesque', in contrast to 'Capability' Brown's 'groomed' landscapes. Nevertheless, this uncouth landscape was also subject to aesthetic rules. Using a spherical mirror, termed a Claude glass, an attractive landscape could be lifted out and its reflection painted. The Picturesque also began to be part of landscape design, and a new wild garden came into fashion with fallen trees and hollows overgrown with ferns, set in a natural landscape with spectacular geological features like steep ledges and ravines.

In 1803 Humphry Repton replied with his essay *Observations on the Theory and Practice of Landscape Gardening*, in which the balance between the picturesque fashion and the existing

practice of gardening was restored. Repton, after much deliberation, came to realise that the relationship between landscape design and painting was not so close as the theorists of the Picturesque made it appear. He believed it had its practical basis, after all, in gardening. Nonetheless, after 1800 it was the accepted view, to which Repton also subscribed, that a house should be bounded by a beautiful garden backing onto a more or less natural, picturesque park.

At the beginning of the 19th century, garden art became a science. John Claudius Loudon, for instance, wrote his *Encyclopaedia of Gardening* in 1822. There were magazines such as Loudon's *The Gardener's Magazine* in which gardening was popularised. Interest shifted from the laying out of country estates to the Victorian suburbs. In 1836 Loudon wrote *The Suburban Gardener and Villa Companion*. From 1831 onwards Joseph Paxton drew attention in his magazine *Horticultural Register* to design in the public domain in industrial towns, such as parks and subscription gardens. The landscape garden had already ceased to be an important assignment.

The concept of scenic composition

Natural landscape design was an obvious stylistic counterpart of classicism, as appears from Robert Castell's 1728 *The Villas of the Ancients Illustrated*, among other books. The Palladian country house found its answer in Kent's experimental classical landscapes, which were rooted in the differentiated visualisation of the pictorial tradition. This ideal harks back to picturesque conventions that had already been developed in set designs and murals since Roman antiquity. Two main themes were always in the foreground: the theatre and human response to nature. The theatre dealt with the close relationship between observer and stage management. A second theme touched upon the tension between the paradisiacal ideal of absolute harmony with nature, unfettered pastoral happiness, on the one hand, and a disturbed relationship in which the chaos in nature is seen as a threat, on the other.

The genius loci

For those living in the 18th century, the English landscape had mythical origins. There were the incomprehensible symbols of the Stone and Bronze Ages, such as Stonehenge and the White Horses on the chalk slopes of Salisbury Plain. There were also the remains of the Celtic landscape from the Iron Age, such as the fields and forests which according to tradition were inhabited by Druids, the tumuli, the hill fortresses and *oppida*, such as Danebury in the chalk hills of Hampshire. Then there were the sacred open spots of the early medieval landscape where the great kings gave counsel or did battle. Together they formed the topoi in a mythical landscape that had no geometric elements and which was labyrinthine, infinite and without scale.

The Celts played an important role in 18th-century thinking on design. The 'Gothic style' of the 18th century was linked to their culture, which lent itself to mystification as it had no written form. Celtic art, steeped in complexity and intricacy, derived inspiration from the spiral form and incorporated this into complicated fabrics with imaginative, spiritual motifs. Their language, social structure and customs were maintained in England after the collapse of the Roman empire. After the 11th century their culture was under continual threat from the Anglo-Saxon settlers, and held out only in remoter parts of the British Isles. But the memory remained, and lent a subversive charge to their culture.

In the 18th-century landscape garden the concept of the *topos*, the hallowed places in the mythic landscape, collided with the *locus*, the rational foundation for the Anglo-Saxon development and the 'Georgian landscape'. The mythic landscape mingled with the natural landscape and the man-made landscape in the architecture of the landscape garden. In the landscape garden the *genius loci* was a hybrid concept that encompassed both the *topos* and the *locus*, and sought to connect them with each other.

The landscape theatre

Eighteenth-century landscape compositions are usually associated with the paintings of Claude Lorrain (1600-82) and Nicolas Poussin (1594-1665), especially those after 1624, as well as with those of Salvator Rosa (1615-73) and Gaspard Dughet (1615-75; sometimes known as Gaspard Poussin), in which the Roman landscapes were idealised in the garden's iconic references. Having found their way to the landscape garden, these references were linked with the visual characteristics of the English agricultural landscape, with the expanse of open fields, the spatial effect of the rolling hills, the winding paths, the northern light and the atmospheric perspective. The latter was once described by Sigfried Giedion, after having seen 'Simplon Pass', a painting by Joseph M.W. Turner from around 1840, as 'a humid atmosphere which dematerialises the landscape and dissolves it into infinity'.

Theatre, which is inextricably linked with the picturesque tradition, played an influential role in painting, architecture and landscape architecture – the spatial evolution of which

made a link between these arts possible. The three genres of Greek theatre in the 5th century BC were tragedy, satire and comedy. Satire, which takes its name from the chorus comprising satyrs (half man, half beast), was performed in a landscape setting. In 1545 Sebastiano Serlio designed a simple theatre space, based on Baldassare Peruzzi's perspective designs, in which the stage and the backdrop were linked with the auditorium by a real perspective. He, like Vitruvius, distinguished three types of stage space: the *scena tragica* for tragedy, the *scena comica* for comedy and the *scena satirica* for satire, represented as a garden with rustic objects such as grottoes, rockeries and trees. Kent virtually copied the *scena satirica* in his landscape gardens, for instance in Venus's Vale at Rousham.

In a metaphorical sense this landscape theatre was intended to allow the observer to 'participate' in the performance. This model also received a social elaboration in the visual arts. A 'middle class' culture characterised by sobriety, rationality and realism had developed in England already in the 18th century, much earlier than in France or Germany. The leading 18th-century painter and aestheticist William Hogarth was the personification of this English tradition of 'observed life', which goes back to the Middle Ages. Hogarth presented English life as a stage with a continuous theatrical performance, which he called the 'stage of life' and on which the world was displayed with all its everyday goings-on and human sedulity was exposed and dissected. Hogarth was the greatest master of the caricature. In the landscape garden Hogarth's 'stage of life' was raised to the level of culture and disclosed in its politically ironic but also fabulous qualities.

The natural tableau

In the 17th century, England's natural landscape was, generally speaking, still not an object of artistic or aesthetic appreciation. The work of Lancelot 'Capability' Brown (1716-83) lent a stylised form and content to the landscape garden between 1750 and 1780. Brown came from an entirely different background than William Kent, who embodied the pictorial tradition and the rhetorical style of the early 18th century. Brown was a gardener, but he was more a pragmatist than a theorist. The basis of Brown's design lay in what were for the time generally accessible notions of beauty, movement and 'representative' natural forms. Christopher Hussey points out that Brown's early career coincides with publications by Hogarth and Burke formulating these aesthetics. Brown began as an independent landscape architect in 1751; William Hogarth published *The Analysis of Beauty* in 1753 and Edmund Burke his *Philosophical Inquiry into the Origins of our Ideas of the Sublime and the Beautiful* in 1756. Burke argued that every emotional experience has a physical basis, and he distinguished between two essentially different sensations, the Sublime (challenge, danger, wariness or fear), which was the driving force of the Picturesque movement, and the Beautiful (comfort or satisfaction). Smallness, smoothness, gradual variation and delicacy of form were attributes of beauty.

According to Hussey, Brown's understanding of landscape was so similar to Burke's explanation of beauty and Hogarth's 'serpentine line of beauty' that they represented three complementary expressions of the spirit of the age. Brown's style made a direct appeal to the senses, the experience of movement and speed, of 'streamlining' and harmony. He gave the friable plasticity and rough textures of the English landscape an abstract, serene form. His archetypal park landscapes were tableaux in which the beauty of nature, stripped of 'distracting incidentals', was displayed.

Arcadia and Metropolis

John Nash (1752-1835), architect to the Prince Regent in London, got to know Humphry Repton (1752-1818) about 1794, and worked together with him until 1805 in designing and building country houses. Through this he came into contact with landscape architecture. In 1795 this function also brought him in touch with Price and Knight. Thus a connection was created between the Picturesque and his later urban Regency architecture in London, and in particular in Regent's Park. There Nash succeeded in transforming the landscape garden into an urban ensemble and lifting it to a metropolitan level.

In a deeper sense the Picturesque was a phenomenon which accompanied industrialisation and urbanisation. In intensifying the visual effects of the landscape garden, as the 'mannerism' of scenic landscape architecture it was the counterpoint to the utilitarianism and efficiency of the industrial age. The everyday man-made landscape, as the basis of the classic 18th-century estate and visually integrated into the landscape garden, disappeared from sight.

Thus the landscape experiment of the Enlightenment came to an end. With the decline of country life and the rise of the 19th-century industrial metropolis, the Arcadian dream faded and the question of designing the urban landscape presented itself. The landscape garden seemed to be a suitable model for this, because it, reciprocally, contained the seeds of modern urban life. In a deeper sense it prepared the way for the urban revolution of the 19th century in England, and other countries.

Castle Howard

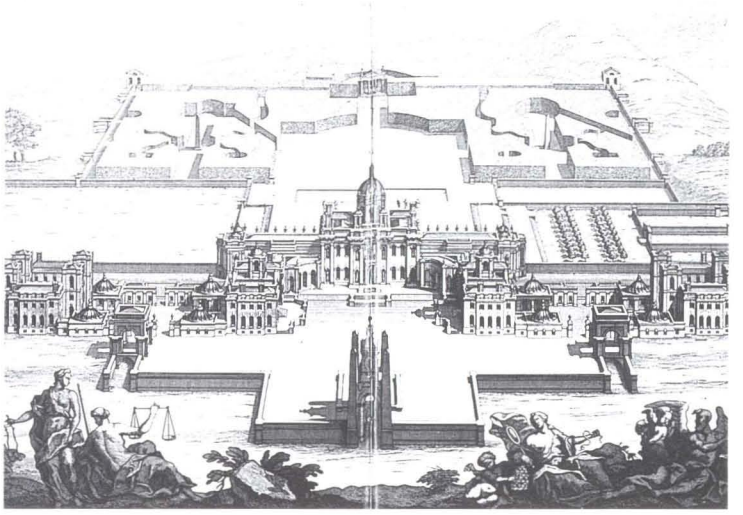
I believe here will be, (beyond all contest), the Top Seat and Garden of England.

Vanbrugh in a letter to Lord Carlisle, 1721

After almost 300 years, the landscape of Castle Howard still makes an overwhelming impression on those approaching it for the first time. Contemporaries also regarded it as extraordinary and remarkable, while for us the spaciousness of the Carlisle landscape still has a special significance. Christopher Hussey regarded Castle Howard as a 'masterpiece of the Heroic Age of English landscape architecture', a direct architectonic evocation of the Elysium of Greek mythology. Castle Howard surpasses the categories of 'garden' or even 'landscape'. Visitors to the estate are confronted by a battle of building styles derived from Classical Greece, Palladianism and the colourful history of England. The buildings and statues in the landscape were the prerequisites for a perfectly stage-managed theatre. The English critic Horace Walpole echoed philosopher Edmund Burke's sentiments in referring to the staged infinity of Castle Howard as 'sublime'. Wherein lies the secret of the Carlisle landscape? How was this great scenic creation achieved?

The protagonists

The Carlisle landscape is the result of a creative collaboration spanning over 25 years between the owner of the estate, Charles Lord Carlisle, and his architects, John Vanbrugh and Nicholas Hawksmoor. Carlisle was the initiator with a sixth sense for landscape, while Vanbrugh's conceptual genius created exuberant and powerful theatrical compositions. Hawksmoor, a skilful architect, was able to translate Vanbrugh's dramatic ideas into pure architectonic creations which have a remarkable allure.



The Grand Design in *Vitruvius britannicus*, Vol. III, 1725.

Carlisle

Charles Howard, 3rd Earl of Carlisle, was born in 1669 in Naworth, a small castle on the border of England and Scotland. Carlisle rapidly carved out a career for himself at court and held various key positions. In 1702 he withdrew from public life and devoted his energies to Castle Howard until his death in 1738. Castle Howard was intended as a visual affirmation of the position and history of the Howard lineage and its tradition of executing great works. Naworth Castle was considered unsuitable for this, and Carlisle's eye fell on Henderskelfe Castle near York, an ancient property of the Dacres which the Howards had owned since the reign of Queen Elizabeth I

1 Castle Howard
2 Wigganthorpe Hall
3 Burton House
4 Gilling Park
5 Newburgh Priory

A Malton
B Slingsby
C Hovingham
D Welburn
E To York
F To Helmsley

The Howardian Hills.

A Mill Hill's Beck
B Carrmire Beck
C Bulmer Beck
D Cram Beck
E Moorhouse Beck
F The Swang

1 New River (Pond)
2 South Lake
3 Reservoir Pond
4 Sata Pond
5 Obelisk Pond
6 Preserve Pond

The landscape morphology.

through the marriage of Lord William Howard to Elizabeth Dacre. Moreover, the fertile land and valuable woods of Henderskelfe Castle seemed a profitable investment for the future. Building was also made necessary by a fire that gutted the castle in 1693, leaving it unsuitable as a permanent abode.

Vanbrugh

John Vanbrugh (1664?-1726) was the son of a prosperous and cultured merchant in Chester, and grandson of Van Brugg, a Protestant immigrant from Ghent. In 1683 Vanbrugh joined the infantry under Lord Huntingdon, where he rose to the rank of captain and by all accounts led a roguish existence. In 1689 he was imprisoned by the French for three years in the Bastille, as he was suspected of spying. After his release and discharge from the army Vanbrugh became a quite successful dramatist and as such took an active role in the artistic world of London.

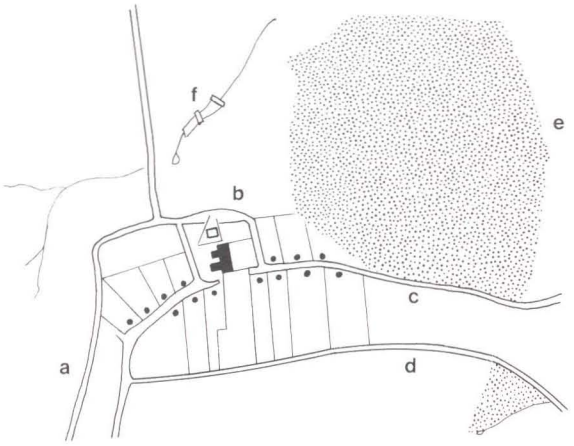
Vanbrugh was a man of the world: convivial, warmhearted and about the same age as Carlisle. As a member of the patriotic Kit-Cat Club, an exclusive dining club for Whigs, he was on a friendly footing with the most influential political and cultural personalities of his day, such as the poet Joseph Addison and the dramatist William Congreve as well as Carlisle. The Club embraced the Glorious Revolution of 1688 and with that its constitutional principles. Vanbrugh's talent as a playwright made him valuable to the Whigs, who were out to acquire, as well as demonstrate, new political and cultural status. He was totally inexperienced as an architect when Carlisle commissioned him to build a new house in 1698 and Castle Howard was his first architectural creation.

Hawksmoor

Nicholas Hawksmoor (1661-1736) was a more 'simple' personality and was far less acquainted with his clientele than Vanbrugh. He was by no means a subordinate or an assistant: in technical terms he was Vanbrugh's superior. Hawksmoor began collaborating with Vanbrugh around 1700, becoming his partner and later his friend. After Vanbrugh's death in 1726 he became Carlisle's chief architect. The original division of roles was consistently maintained for the outside world: Hawksmoor was there to underpin Vanbrugh's ideas, no matter how gradually they began to coincide with his own.

The formal transformation of topography

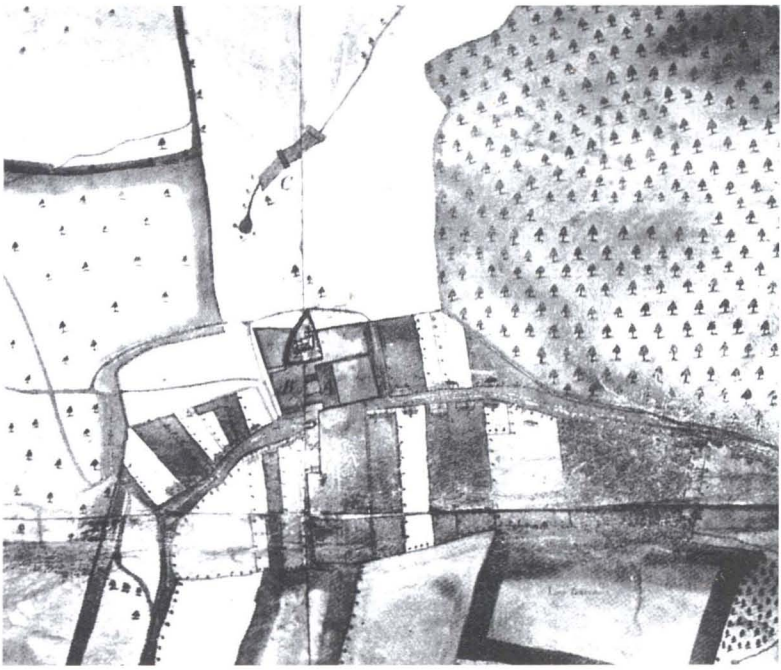
Castle Howard lies 24 kilometres north-east of York in the Howardian Hills, between the vales of Pickering and York.



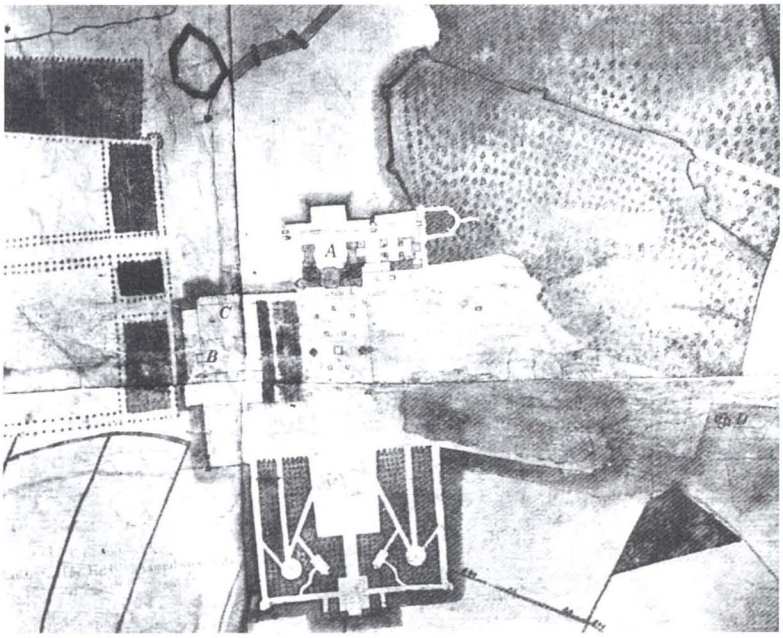
a Cart road to York
b Henderskelfe Castle and church
c Village street
d Back street
e Wray Wood
f Fish ponds

A The Great Avenue
B North Parade
C The Grass Walk
D Route along South Lake
E Woodland Garden
F Great Lake

The formal transformation of the topography.



Henderskelfe around 1694.



Map of the estate around 1727.

The Arcadian landscape.

Castle Howard from the northwest. (Aerial photo P. van Bolhuis/Pandion)

North of the hills lies the Jurassic plateau of the Yorkshire Moors and on the south front the chalk plateau of the Yorkshire Wolds. The rolling Howardian Hills are formed of soft slate and sand with narrow seams of grit and limestone, varying in height between 150 and 350 metres. To the north the hills are bounded by the steeper-sided Slingsby and Coneysthorpe banks, which on the north-west side become the higher plateau of the Yorkshire Moors. The River Derwent flows past the south-east foot of the Howardian Hills at Malton. The central part of the Howardian Hills is saucer-shaped and slopes eastward. In the middle of this the house lies on a saddle-shaped tract of land that ends on the east side in a round hill (Wray Wood). This was the site of old Henderskelfe Castle and the hamlet of Henderskelfe.

The name Henderskelfe, literally meaning 'one-hundred springs', refers to the water-retaining strata; the becks around Castle Howard reflect the abundant presence of water. The South Lake and the New River are fed by springs; the Great Lake, north of the house, was created by damming a stream on the north-east side of the valley. This is fed by the Cascade Ponds via the Obelisk Ponds and the fish ponds situated higher at The Dairies, which together form a visual unity with the lake; it is also probably fed by running underground water on its north-west side. The water is carried away in a south-east direction via Cram Beck, which discharges into the River Derwent.

The shape of the earlier Henderskelfe village is documented in a drawing from around 1694. The new house was built on the east side next to Henderskelfe Castle. The old village street was transformed into the Broad Walk, while the eastern part became the Grass Walk. The road from York to Henderskelfe that went through an area known as the Commons was aban-

doned, and the earlier country road to Slingsby, which ran across a watershed at Henderskelfe through a small dip of Slingsby Bank, was transformed into the Great Avenue. In this way the topography of Henderskelfe has been preserved in the formal layout of the garden.

The house

In 1698 Carlisle asked the architect William Talman (1650-1720) for advice regarding the building of a new house. Together with the garden architect George London (d. 1714), Talman drew up a plan. Carlisle was not impressed by the design and, wanting something different, he then decided to enlist the help of Vanbrugh, who designed an entirely different house and changed its aspect.

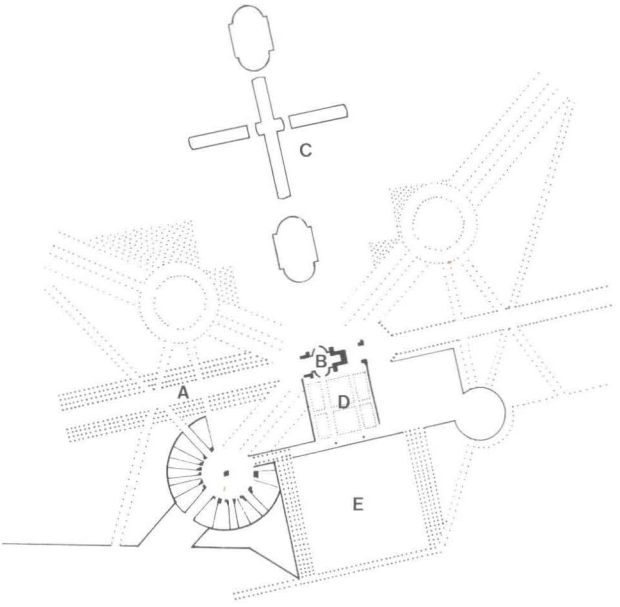
Talman and London's proposal

In Talman and London's proposal the house faced directly on an approach running from east to west, in the same direction as the old Henderskelfe Castle. Wray Wood lay at the rear of the house so that the courtyard was protected from the north-east wind. The garden was a formal one with *rond-points* and diagonal avenues that intersected each other in the courtyard, which was the visual pivot of the design. The formal ponds and canals of the parterre on the north front were aligned with the courtyard, so that from the house the water features could always be seen from an angle. A kitchen garden and a lawn were designed for the south front of the house, while a radial design was planned for Wray Wood. On the south-west front of the house a circular model village had been designed, which according to Hussey was the first English prototype for a landscape garden. However, this was never built.

Vanbrugh's proposal

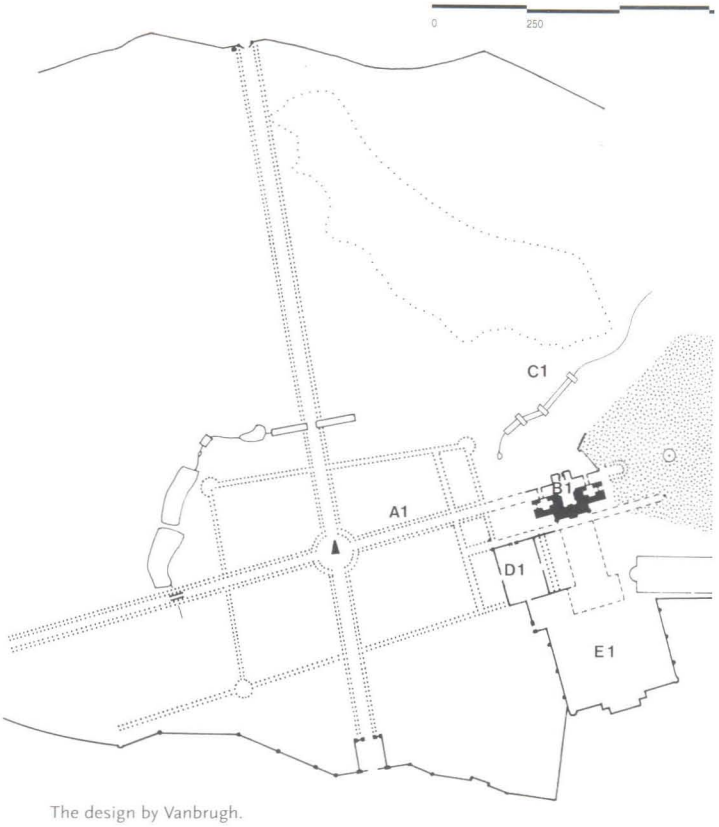
In Vanbrugh's proposal the house was turned by a quarter so that the front façade faced open space. This change of aspect is perhaps Vanbrugh's most important contribution to the development of the landscape garden. This ostensibly small modification actually implied a radical break with the formal tradition, in that it assumed that the starting point for the stage management was not a formal scheme but the view, and, in a more profound sense, the morphology of the Howardian Hills. Thus the given irregularity of the site, which was later always being elaborated upon, became part of the layout in a single stroke.

One advantage of the design was that the garden side and the parterre were exposed to the sun. Vanbrugh drew atten-



The design by Talman and London.

A Formal approach drive
B Forecourt
C Parterre/formal ponds
D Kitchen gardens (?)
E Lawn (?)



The design by Vanbrugh.

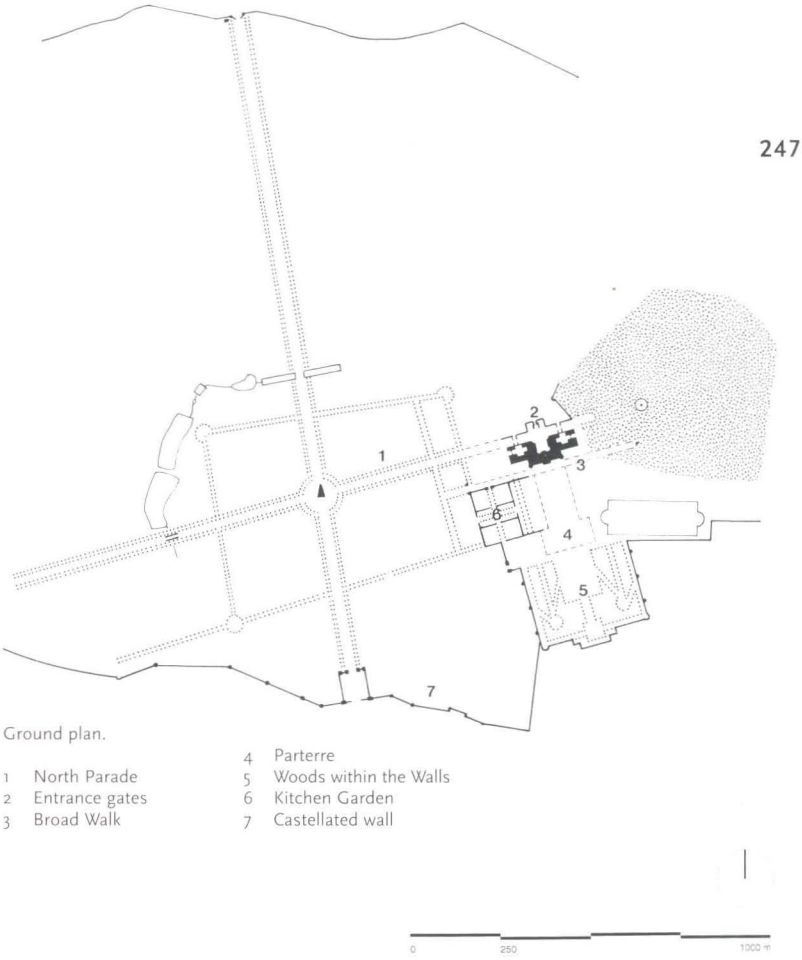
A1 North Parade
B1 Forecourt
C1 Fish Ponds
D1 Kitchen Gardens
E1 Parterre

tion to this by using a different colonnade for the garden façade and treating it in a more flamboyant manner than the front one, which gave rise to caustic comments from the neo-classicists. Vanbrugh laconically defended himself by remarking that nobody could ever take in the two façades in one glance anyway. One practical objection to the design was that the house and the forecourt, contrary to the conventions of the country house, were exposed to England's dreaded north-east wind. As Laurence Whistler once wrote: 'In England, views are windy. The tender glories of English distance have to be paid for in warm clothing.' Carlisle accepted this objection as inevitable. Notwithstanding, Vanbrugh, for his part, went to a great deal of trouble to make a comfortable and energy-conserving house.

The house was modelled after Palladio's Villa Trissino in Meledo (never completed), with a central block and protruding side wings which enclose the forecourt. The building mass is extremely articulated and lively-looking with a crescendo in the slim dome of the central block. Originally, the forecourt was to be walled and had fortified entrance gates, but this idea was dropped during the building phase. On further consideration Vanbrugh decided against an ascending head-on approach to the house. In his mind the view to the north front had already been transformed into an impressive panorama with the Great Lake. However, it was to be a further 70 years before this vision became a reality: the lake was only laid out between 1795 and 1799.

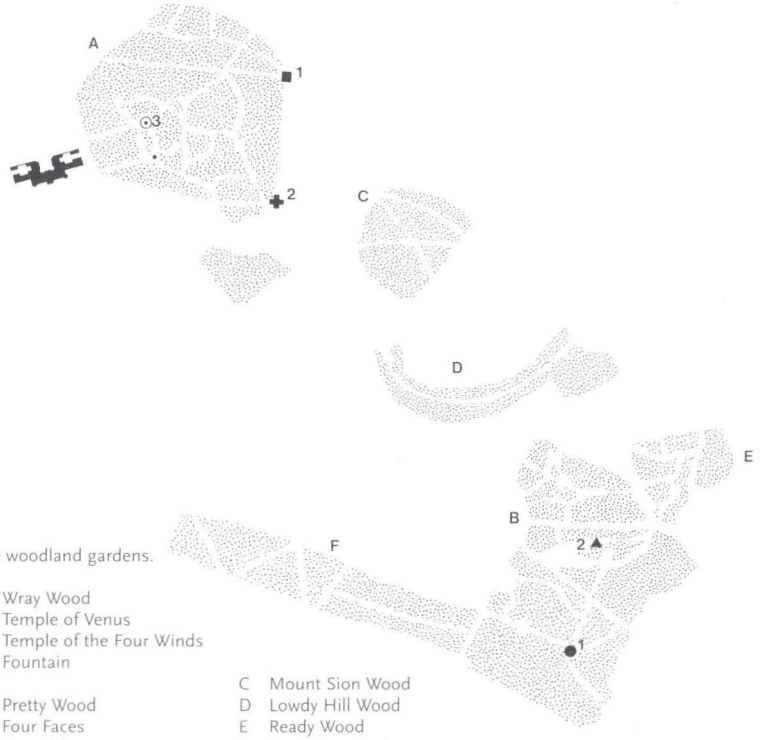
The formal layout

The layout for Castle Howard consisted of a grouping of three different elements: a cross of avenues, a formal arrangement of the house with the parterre and a kitchen garden. These elements were held together by a square space with lawns on a level part of the Henderskelfe Hills (the Commons), enclosed on three sides by a sequence of woods. This space was divided in four by the approach drive (later the Great Avenue) and the North Parade, which intersected each other in the middle. In 1714 an obelisk was erected on the crossroads in memory of the 1st Duke of Marlborough, the victor of Blenheim. The Pyramid Gate was built in 1719 on the edge of the level area. The Great Avenue and the North Parade along with the principle axis of the house and parterre form the lines of an imaginary grid that reflects the natural landscape of the Howardian Hills. Around the principle axis this grid merges with the design matrix of the house.



Ground plan.

1 North Parade
2 Entrance gates
3 Broad Walk
4 Parterre
5 Woods within the Walls
6 Kitchen Garden
7 Castellated wall

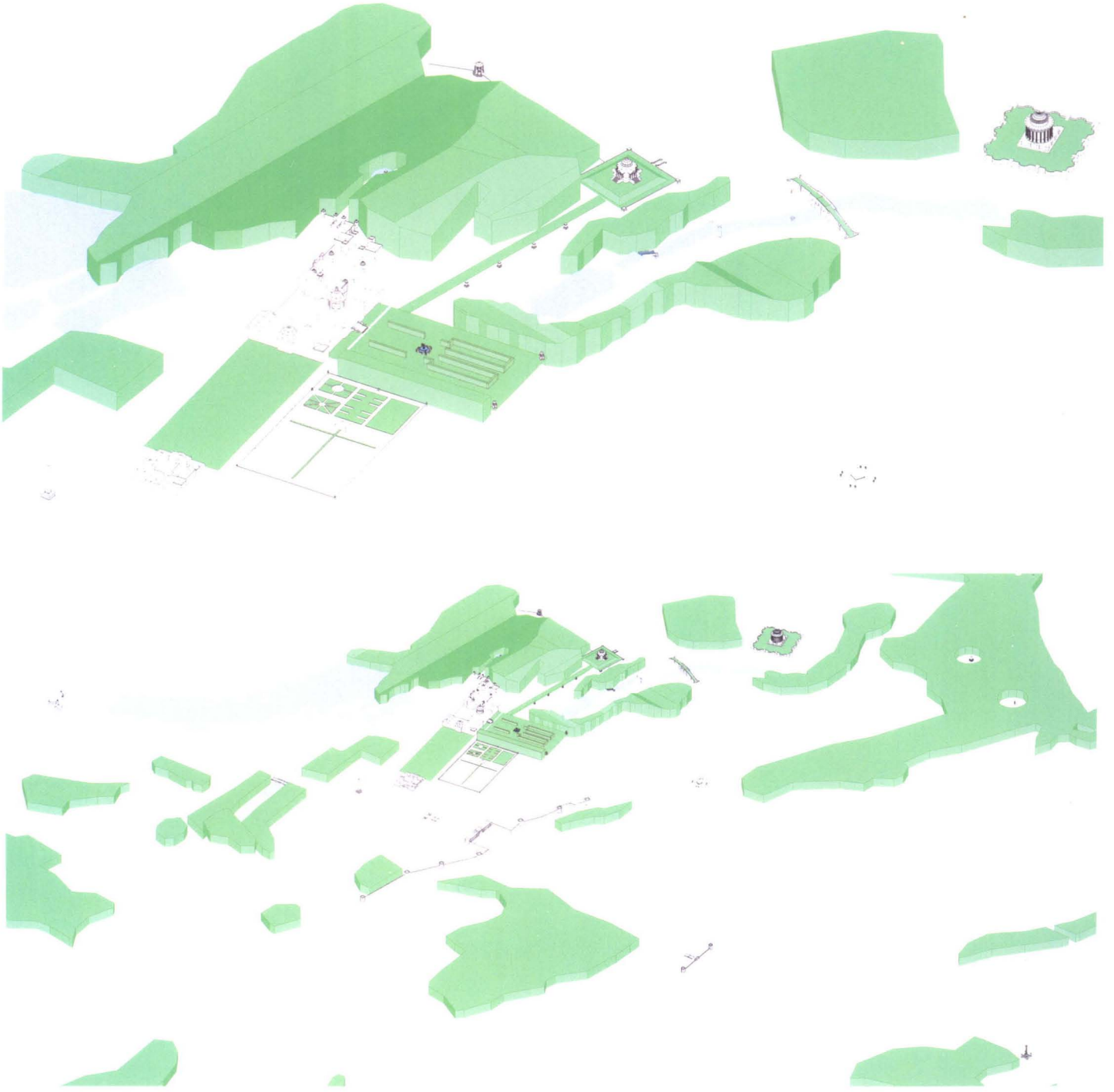


The woodland gardens.

A Wray Wood
1 Temple of Venus
2 Temple of the Four Winds
3 Fountain

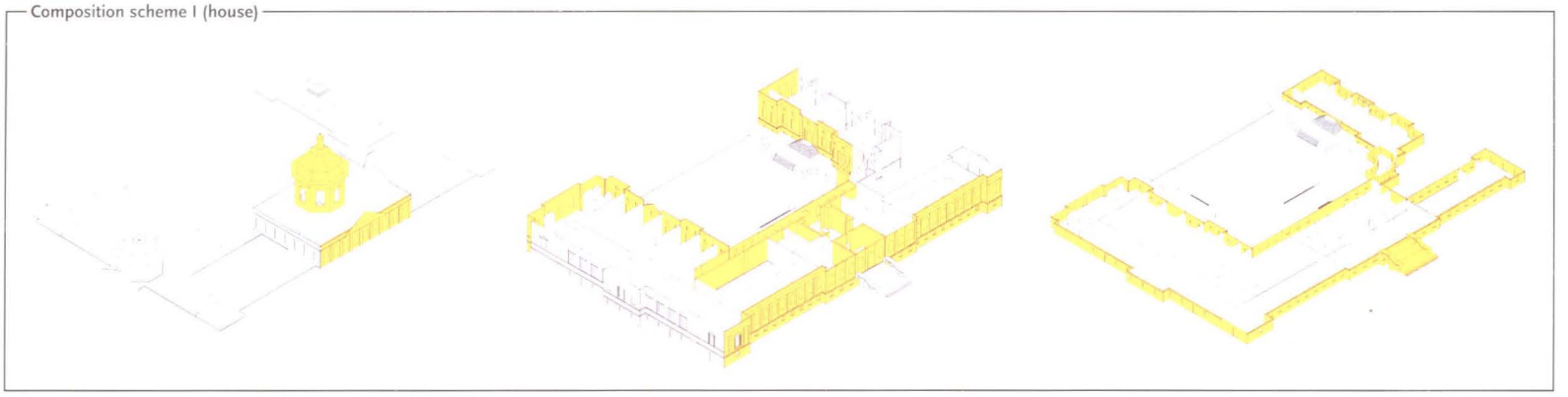
B Pretty Wood
1 Four Faces
2 Pyramid

C Mount Sion Wood
D Lowdy Hill Wood
E Ready Wood
F East Moor Banks

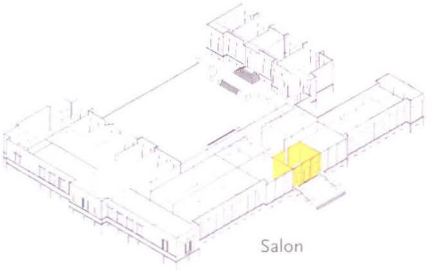


Axonometric projection

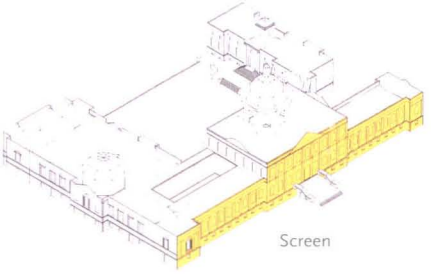
Composition scheme I (house)



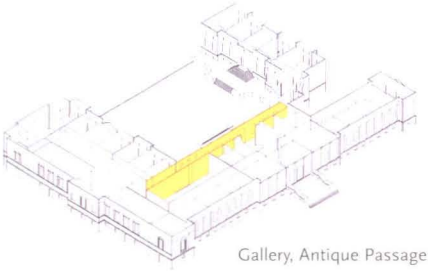
Active composition elements



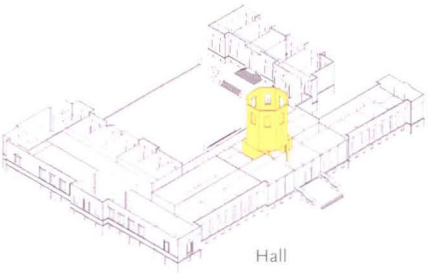
Salon



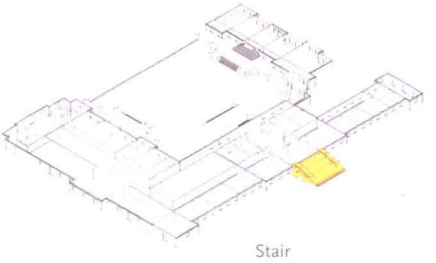
Screen



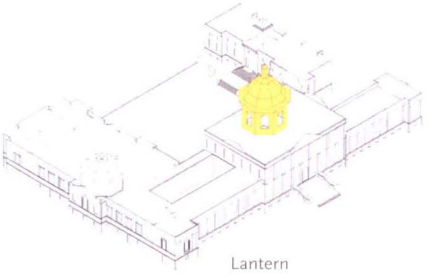
Gallery, Antique Passage



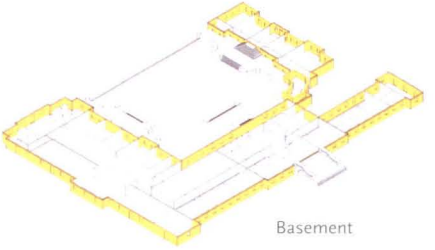
Hall



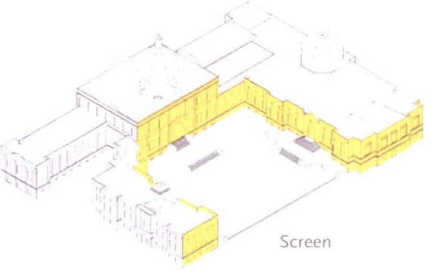
Stair



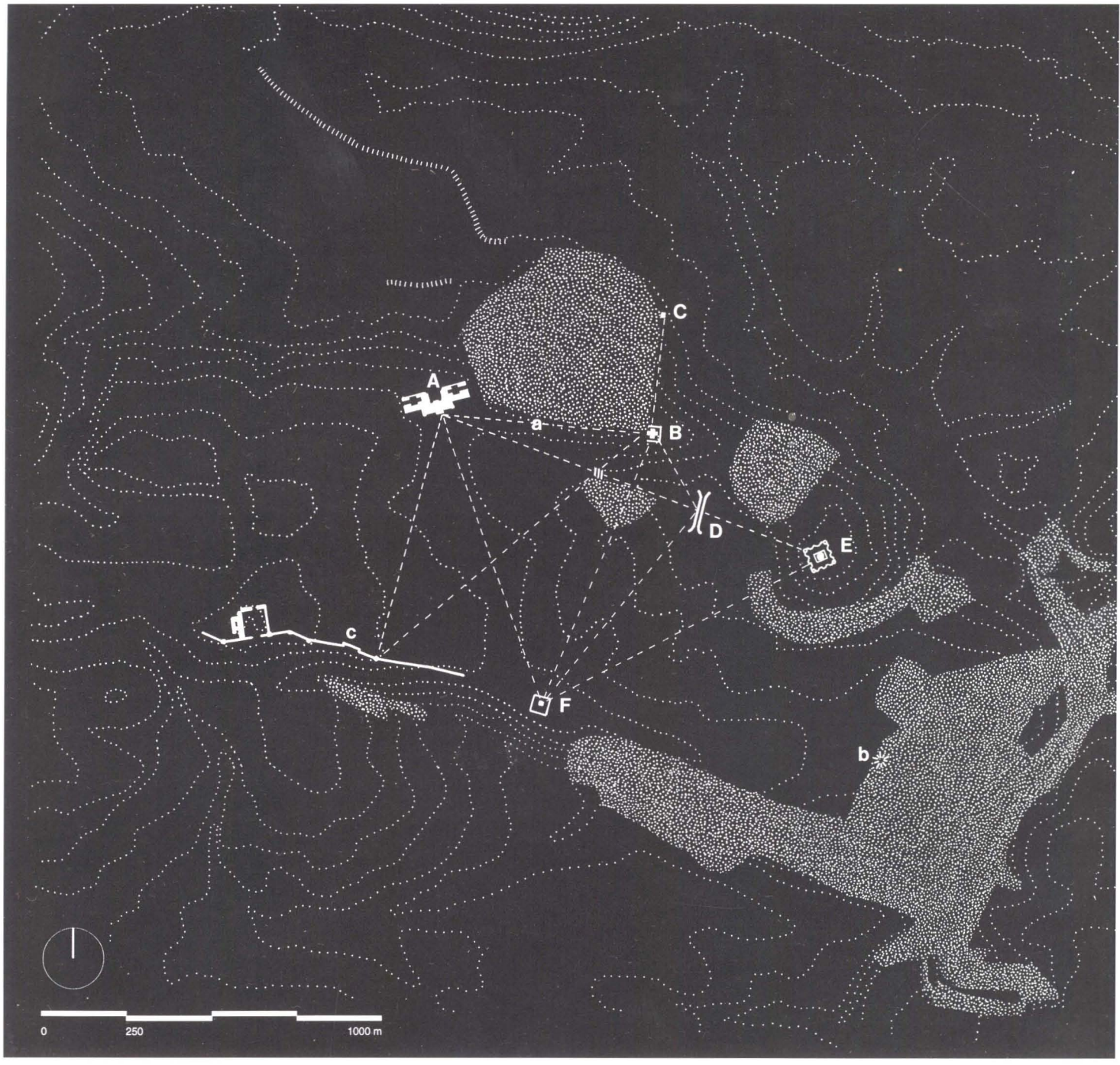
Lantern



Basement



Screen



The Arcadian landscape.

A The Great House
B Temple of the Four Winds 1726-28
C Temple of Venus (demolished)
D New River Bridge 1740
E Mausoleum 1728-44
F Howard Pyramid 1728

a Terrace Walk/Grass Walk
b Tumulus
c Castellated wall 1720-25

The parterre

The parterre, under which most of Henderskelfe lies buried, forms the second element of the layout. It covered a total of 30 hectares – twice as large as the present parterre – and was almost certain to have been laid out as shown in part III of Colin Campbell's *Vitruvius britannicus* from 1725. Its division is a transformation of the model of the walled Venetian garden, which was worked out in a tripartite zoning system. At Castle

Howard this manifested itself in the form of steps, a formal pattern of diagonal, tapering obelisks and a Wilderness or 'Woods within the wall', with a stylised maze after the French model.

The dismantling of the parterre in 1760 was in keeping with the evolution of the Carlisle landscape: the wilderness, serving as an *amora bosco* in the layout, was made redundant when this function was taken over by Wray Wood. The present parterre or new Pleasure Grounds, which was laid out in 1890, is a simplified version of a more detailed design from 1850, with a fountain by William Nesfield (1793-1881).

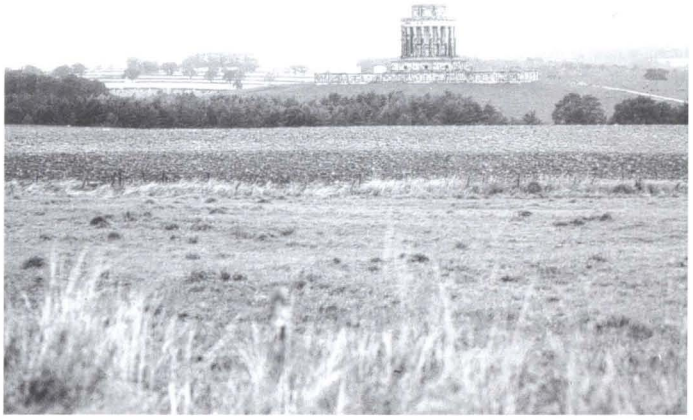
The kitchen garden

Around 1705 the kitchen garden, an 18th-century revival of the *giardino segreto* of the Renaissance villa and the third element of the formal layout, was fitted between the axial intersection of the lawns and the formal parterre. Much attention was given to the architectonic detailing. The contrast between this element and the open character of the rest of the landscape garden is striking.

The woodland gardens

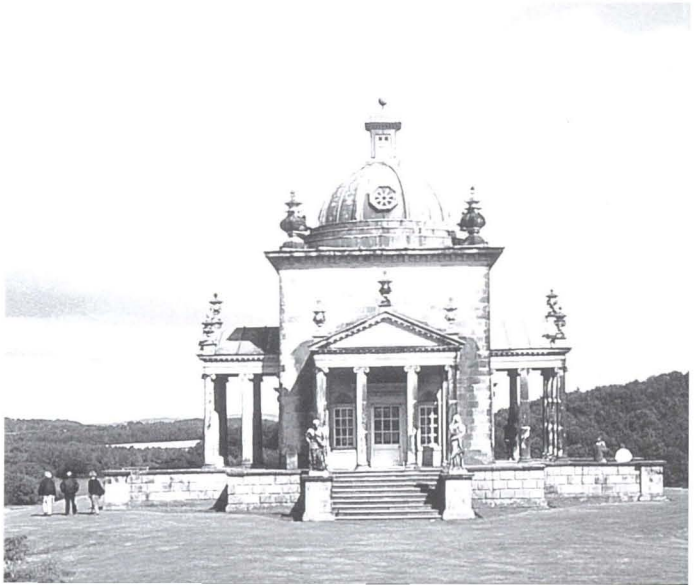
Wray Wood, with 66 hectares of oak and beech trees, dominated the entire site from the beginning of the project. Around 1700 it consisted of enormous trees over a century old and between 25 and 30 metres high, planted during the Elizabethan Age. The original idea of having the Broad Walk continue into Wray Wood was quickly abandoned. In 1706 work began on a woodland garden made according to a 'labyrinthian diverting model'. This experiment was generally regarded as a turning point in the development of the English landscape garden, some 15 years before Kent created something similar in the Elysian Fields at Stowe. At the peak of its development between 1718 and 1732, Wray Wood comprised a series of spaces linked by meandering paths, which according to John Dixon Hunt was designed after the model of the *amora bosco* at Villa Lante and Villa Pratolino owned by Francesco I de' Medici. The pictorial elements were inspired by Ovid's *Metamorphoses*, and the fountains and basins by Stephen Switzer were particularly striking. Even though it was the first and most important one, Wray Wood was not the only woodland at Castle Howard. Traces of a similar arrangement can also be found in Pretty Wood, Lowdy Hill Wood, Ready Wood, East Moor Banks and even Mount Sion Wood. The woodland gardens were already lost by the end of the 18th and early 19th century. During the latter century replanting was carried out in Wray Wood but the garden was never restored to its former glory.

Howard Pyramid on St. Anne's Hill.



Mausoleum on Kirk Hill.

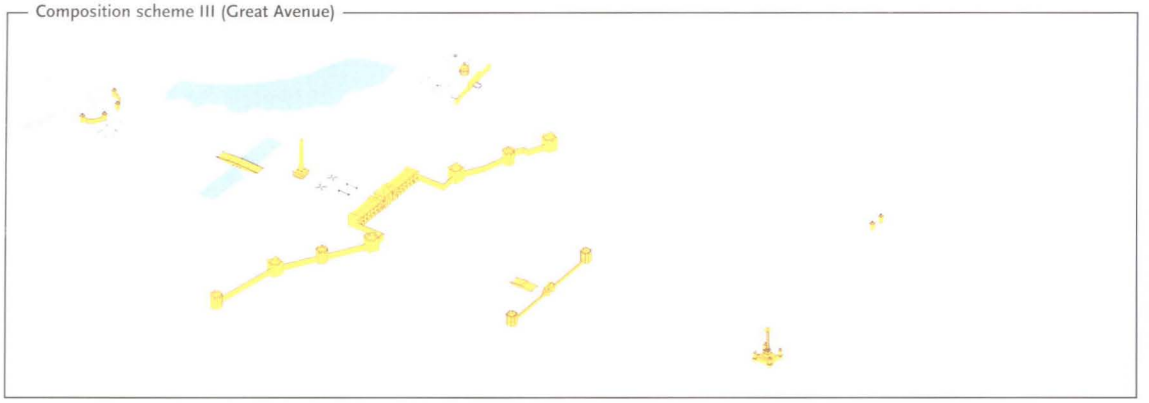
Temple of the Four Winds.



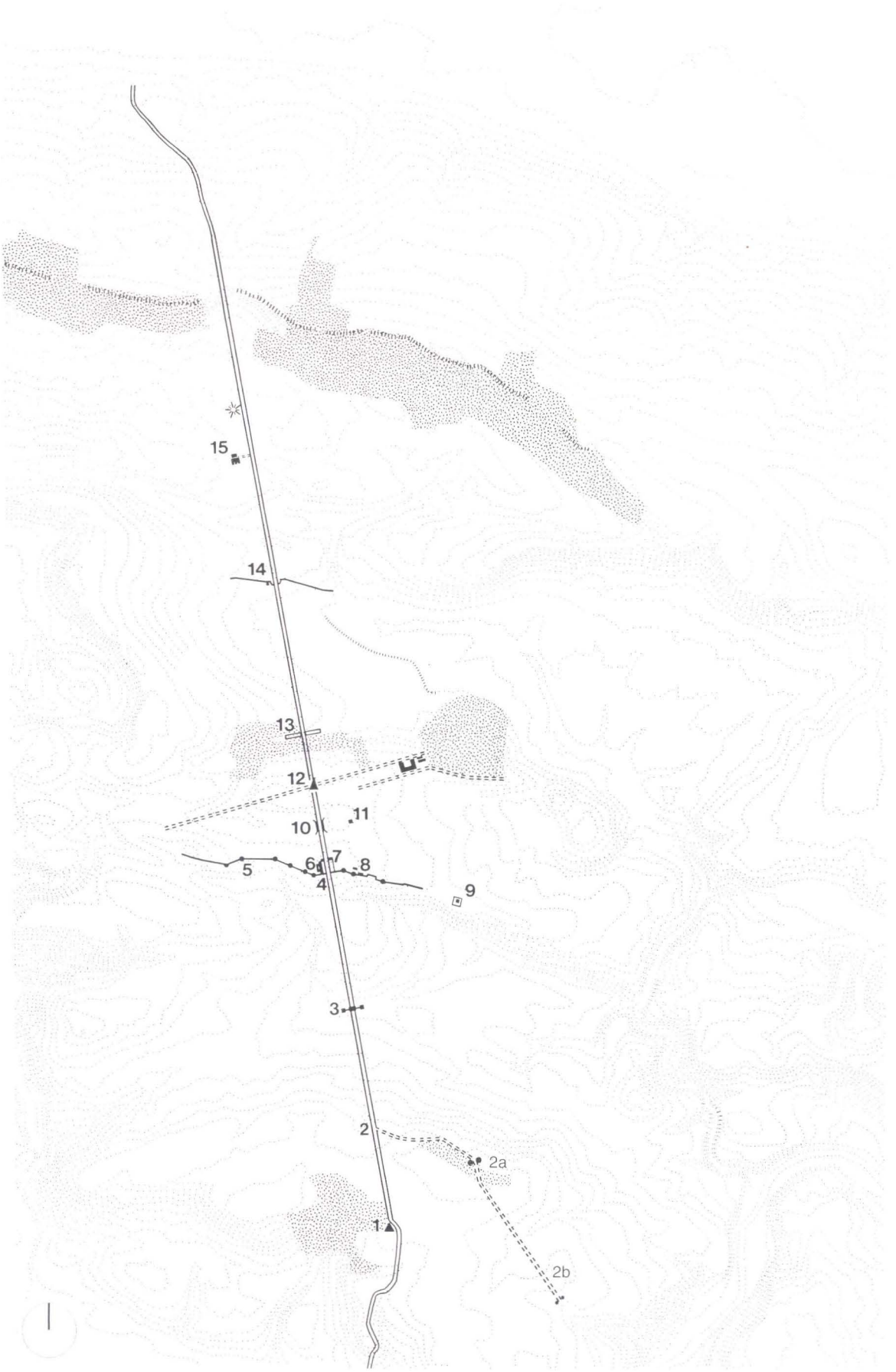
Composition scheme II (Parterre, Grass Walk, New River Landscape)

Active composition elements

Composition scheme III (Great Avenue)

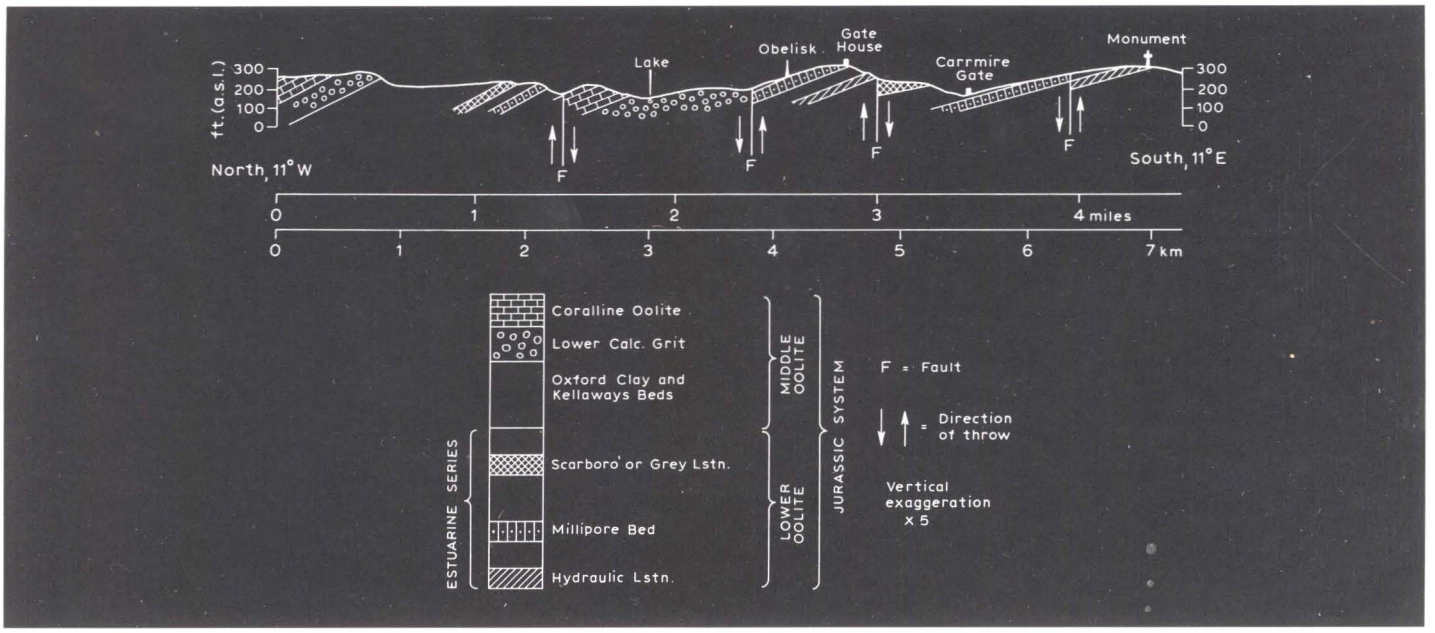


Active composition elements



The scenography of the Great Avenue.

1 Monument to the 7th Earl, 1869
2 The earlier starting point for the avenue
2a Exclamation Gate, 1770
2b Pylons, approach drive
3 Carrmire Gate, 1730
4 Pyramid Gate, 1719
5 Wall with towers
6 Guest house
7 Temperance Inn
8 The Aviaries
9 Howard Pyramid
10 Double C Bridge
11 Swiss Cottage
12 Marlborough Obelisk, 1714
13 Obelisk Ponds
14 Northern entrance gate with lodges
15 Rye Hills Farm



Geology of the Great Avenue (after Appleton).

The scenography of the Great Avenue

The Great Avenue, stretching for more than six kilometres, is one of the most stunning designs in the Carlisle landscape. It derives its scenic architectonic significance largely from the way it reveals the morphology of the natural landscape. The avenue bisects and reveals the geological structure, which would have remained hidden in an east-west setting. Its length makes it possible to visually gauge the scale of the Howardian Hills between the vales of York and Pickering.

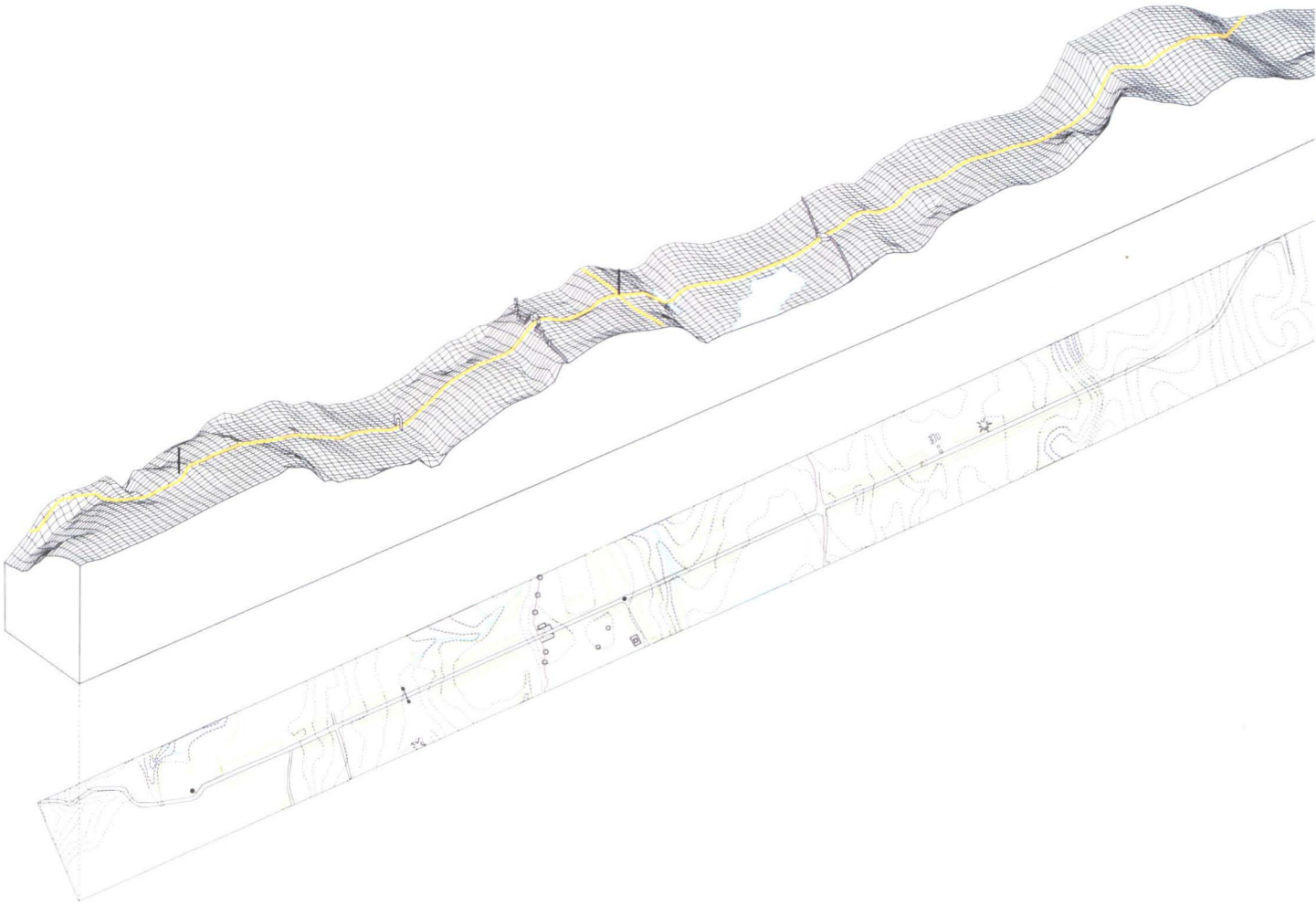
The Great Avenue developed in phases to become an autonomous composition. It was designed with the visitors arriving from York in mind, which explains why the screens were arranged from south to north. Carrmire Gate spans the avenue in a hollow and then the avenue climbs to the Pyramid Gate on the edge of the plateau of Henderskelfe, with a castellated wall on both sides. From Carrmire Gate the Marlborough Obelisk at the junction of the Great Avenue and North Parade can be seen through the opening of Pyramid Gate. From the obelisk the terrain descends again and, past the Obelisk Ponds, the avenue runs along the lake shore until reaching the north entrance of the estate. It then ascends Slingsby Bank and, without any landmarks, becomes part of the local road network.

The pictorial scenography of the Great Avenue can be understood as a 'decomposition' of the formal model of axial symmetry. While at Vaux-le-Vicomte the principle axis complies entirely with the optical laws of a central perspective, so that each visual step on the axis was designed using a three-dimensional decor of surfaces and fixtures to frame a vista, the scenography of the Great Avenue is largely determined by the stimulating 'conflict' between the avenue and the dramatic geology of the Howardian Hills.

The architectonic set pieces on the axis form a series of compositions that correspond with the prominent points in the natural morphology of the landscape. The choice of a rustic gate as a motif in the valley of Carrmire Beck instead of a bridge, like at the Obelisk Ponds or at the Oxford bridge and Waters at Stowe, can be explained as a wish to announce the Pyramid Gate (the former entrance of the estate), thereby visualising the extensiveness and status of the estate.

Phases of development

The first building phase of the Great Avenue covered the tract of land stretching from the north entrance to the Pyramid Gate. In the second phase the Great Avenue was extended. This segment was called the South Avenue, which stretched as far as Carrmire Gate, and possibly included the area between the north entrance and Slingsby Bank. Earlier the route from York ran along the Derwent, via a formal avenue, to the top of a ridge south of Welburn, where the visitor, emerging from the woods onto the hill at Exclamation Gate (built by Sir William Chambers in 1770), suddenly had a view of the grand design, with the south front bathed in sunlight which appeared to set the panorama alight. In the Victorian



The Great Avenue as decomposition of the formal avenue.

Age the Great Avenue was extended further south to join the local road network. This point was marked in 1869 by a memorial to the 7th Earl. However, Exclamation Gate fell into disuse and this sublime element of the scenography of the Great Avenue was lost.

Planting scheme

The plantings of the Great Avenue reflect the three phases of its development. From the Pyramid Gate to Slingsby Bank the avenue is planted with double serried rows of lime, a scheme which was probably already employed in the first design and at the North Parade. Between the turning to Welburn and the Pyramid Gate, the avenue is planted with formal clumps of beech (recent replantings). This part of the avenue leads to a rustic corridor of hardwoods as far as the memorial to the 7th Earl. At strategic points along the avenue deliberate gaps in the plantings reveal the view in a transverse direction. The plantings terminate at the top of Slingsby Bank where a commanding view of the agricultural landscape of the Pickering Vale unfolds.

The Arcadian landscape

Carlisle and his architects had been preoccupied with Wray Wood, the parterre and the South Lake for almost 20 years. Around 1723 it was felt that these more or less independently developed designs should be placed more in context with each other. The key to this lay in a fortification located on the somewhat protruding south-east corner of Wray Wood, where a commanding view of the surrounding countryside could be taken in. Vanbrugh recognised the important significance of the spot and persistently urged the building of a classical tem-

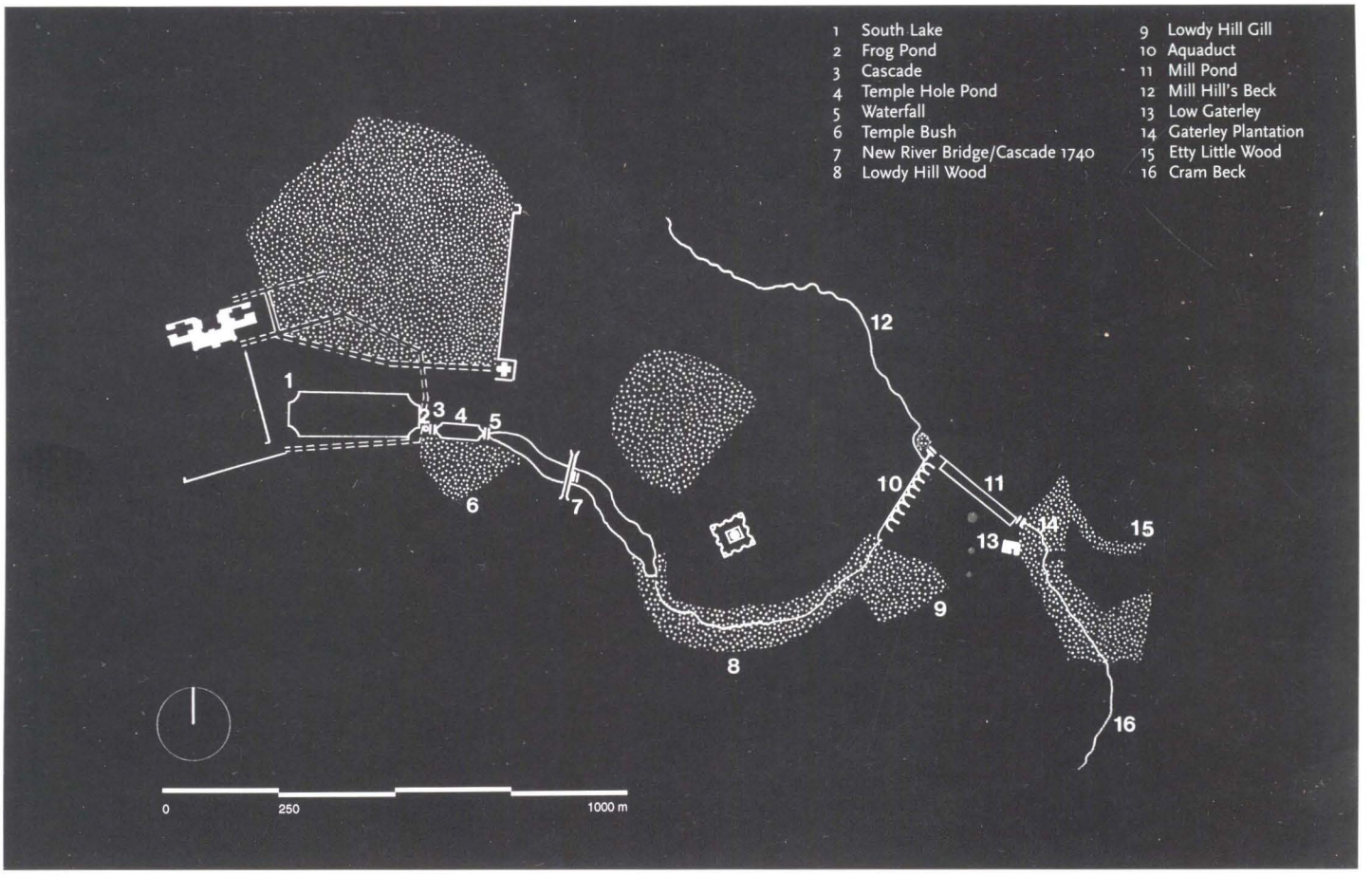
The Great Avenue with the Carrmire Gate and Pyramid Gate.

The Pyramid Gate with the Marlborough Obelisk in the background.

ple in the manner of the Villa Rotonda, while Carlisle had only a rustic, crudely built belvedere in mind.

The Temple of the Four Winds, the Mausoleum and the Howard Pyramid on East Moor Bank have been strategically placed in each other's line of vision and form a visually coherent landscape or natural amphitheatre. The size of the monuments is in keeping with the natural morphology. All three works are symmetrical and are intended to be viewed from different angles. The Temple of the Four Winds is a slim building which, when seen from the Grass Walk and the Temple of Venus, is translucently thrown into relief against the sky. In contrast, the Mausoleum, which can be seen against the backdrop of Slingsby Bank from a great distance, is a quite massive structure, designed to suit the shape and scale of Kirk Hill. The Howard Pyramid appears as a beacon on the long horizontal ridge of St. Anne's Hill. While the Temple of the Four Winds is aligned with the south front of the house, the other works in the Arcadian landscape escaped the formal controls of the layout and correspond directly to the morphology of the natural landscape.

The old village road of Henderskelfe was transformed into an informal architectonic route, the Terrace Walk or Grass Walk, which runs from the house to the Temple of the Four Winds and is then absorbed by the Arcadian landscape. From the temple the other monumental buildings can be seen from various angles. Hawksmoor's Mausoleum on Kirk Hill forms the visual climax and because of its scale is in direct conflict with the house. When the New River landscape was designed, a Roman bridge, built around 1740 by Daniel Garret, was placed between the two as a *coulisse*.



The New River landscape, 1886.

The New River landscape

The New River landscape was completed in two phases. From preserved invoices of the time, it appears that work started in 1732 on the excavation of a 'serpentine river that will lose itself in a wood', as John Tracy Atkyns in his book *Iter boreale* (1732) described it. This river was not yet linked with South Lake.

Around 1876 William Nesfield was commissioned to create a new, unified river landscape. He overcame the discrepancies in height between the South Lake and the serpentine river by building a series of ponds and cascades. The original spring in the Temple Hole Bush was hidden and probably used to feed the Temple Hole Pond. The New River landscape deviated from the classic spring/cascade/reflecting pool design, which until then had also been used at Castle Howard, in that the water elements were spread across the layout.

The Arcadian landscape and the New River landscape complement each other and, because of the morphology of the landscape and the Roman bridge, visually merge into a whole. The difference in the three-dimensional effect lies mainly in the vantage point from where the landscape is observed. In the Arcadian landscape one stands on the hilltops and takes in a commanding view of the countryside, while in the New River landscape one finds oneself in the enclosed space of the valley.

The great scenic creation

After 1725 Castle Howard became an open design, a landscape garden without visual boundaries, directly linked to the natural landscape by means of a panoramic design comprised of water areas, groups of plantings, villages and agricultural land. The final element was the Great Lake, covering 50 hectares, between the house and the village of Coneysthorpe, and laid out between 1795 and 1799. The serpentine lake creates a formal link between the house and the village: the latter was partly demolished and rebuilt for the purpose. Though the fish ponds at The Dairies lie higher up and are separated from the lake by a jetty, they have been visually incorporated into the whole. The lake finally achieves the panoramic unity which in 1724, and perhaps even in 1699, Vanbrugh and

Carlisle envisioned, and which consolidates the rational and formal architectonic fragments of the layout within the physical, geographical parameters of the natural landscape. The rational matrix of the Italian villa and the theatrical perspective design of the French garden were both surpassed in this great scenic creation to which Christopher Hussey referred.

The prototype of the architectonic landscape

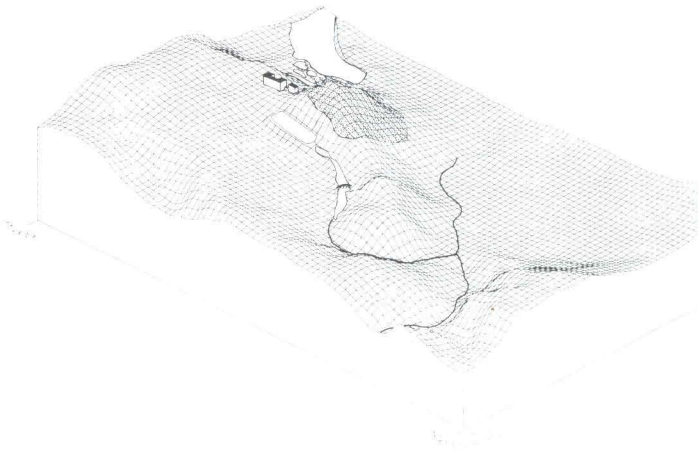
If the various historic phases of Castle Howard could simultaneously be projected onto each other and placed in the morphology of the landscape, the complex visual unity of this landscape garden would become more apparent.

Within the architectonic landscape as a whole one can distinguish various composition schemes, adaptations and transformations of rational and formal schemes. These work at three levels, that of the house and garden, that of the middle plan or the earlier estate, and that of the panoramic level. By means of enlargement and multiple or universal symmetry, the composition elements are adjusted to the scale of the visual reach.

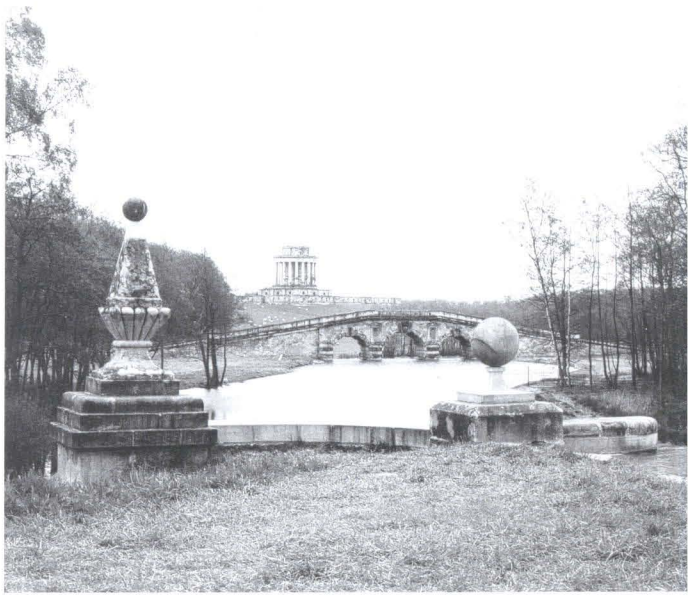
Composition scheme and active composition elements

Seen from the front the house stands on a basement; at the bank it is gradually sunk into the ground with a souterrain. In comparison with Vaux-le-Vicomte the relation between the vestibule and the salon is here reversed. From the front court one comes through the Antique Passage into the Great Hall, which with the lantern is fused into a high dome-shaped space that is the apotheosis of entry. Seen from outside, the dome indicates the centre of the house, as does Brunelleschi's dome in Florence. On the back side of the house lie a row of cabinets with a length of 100 metres, with windows that look out over the parterre, ending on one side in a semicircular pavilion. (The original intention was to have one on each end.) Via the Great Hall one passes through this series to the stair landing leading to the garden side. Because of this the spatial effect is not focused on the parterre, but unfolds in a lateral direction. The front and back façades of the house are worked out as architectonic screens with columns, in the Ionic and Corinthian orders, respectively – on the front to impress, on the garden side for flamboyance. The latter was the façade that one saw first from a distance.

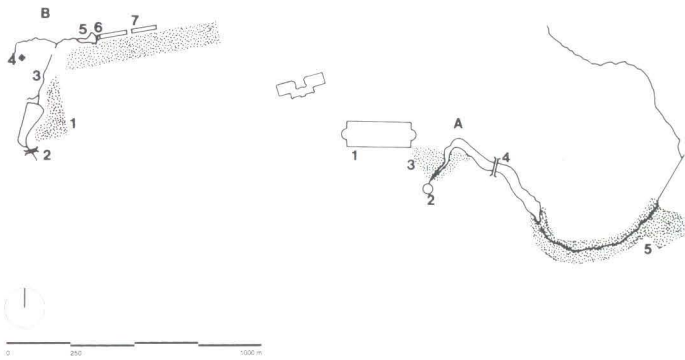
The garden with the earlier parterre and the Kitchen Garden were related to the matrix of the house by the Broad Walk. The present parterre with Atlas in the fountain in the middle, a reappearance of the spring and nymphaeum all in one, draws a formal relation with the surrounding landscape,



The morphology of the New River landscape.



The Temple Hole Cascade, with the Roman bridge and Mausoleum in the background.



The New River, 1732.

1 South Lake
2 Spring
3 Temple Hole Bush
4 New River Bridge
5 Lowdy Hill Gill
6 Low Gaterley
7 Cram Beck

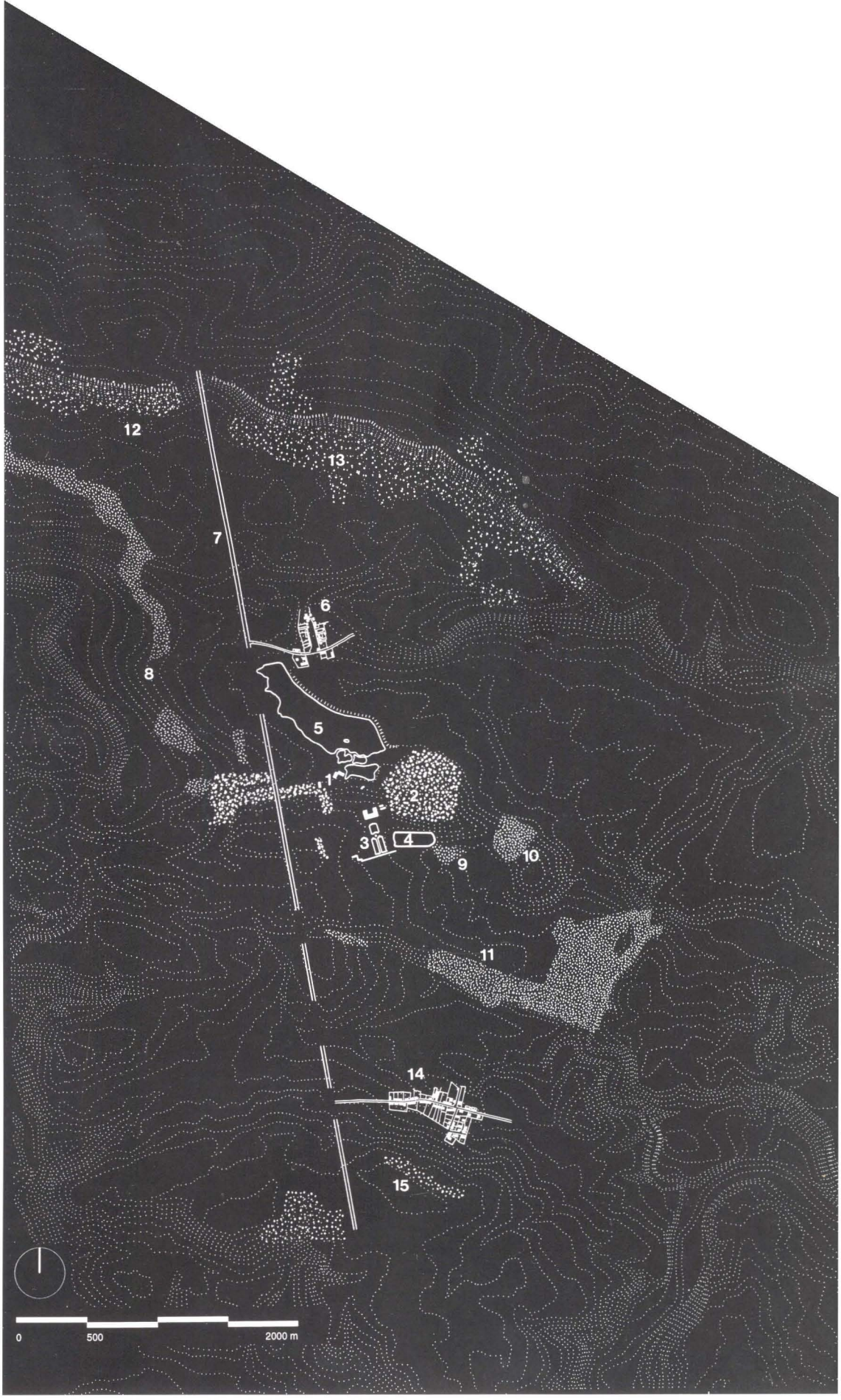
The Great Scenic Creation.

A Coneysthorpe
B Great Lake
C Dairy Pond
D Rolling Spring
E Wray Wood
F South Lake
G New River
H Mount Sion Wood
I Lowdy Hill Wood
J Ready Wood
K Pretty Wood
L East Moor Banks
M St. Anne's Spring
N Welburn
O Bulmer Hag
P Brandrith Wood
Q Brickkiln Wood
R Sata Pond
S Park Quarry
T Slingsby Bank

1 The Great House
2 Temple of the Four Winds
3 Temple of Venus
4 New River Bridge
5 Mausoleum
6 Low Gaterley
7 Pyramid
8 Tumulus
9 Howard Pyramid
10 Obelisk
11 Pyramid Gate
12 Towers
13 Carrmire Gate
14 Monument to the 7th Earl

The Great Lake with Slingsby Bank in the background.

The New River landscape from the Temple of the Four Winds, against the background of Pretty Wood. (Photo J.K.M. te Boekhorst)



The panoramic composition.

Foreground
1 The Dairies
2 Wray Wood
3 Parterre
4 South Lake

Mid-plan
5 The Great Lake
6 Coneysthorpe
7 Great Avenue
8 Screen Deer Park
9 Temple Hole Bush
10 Mt. Sion Wood
11 East Moor Banks

Background
12 Slingsby Bank
13 Coneysthorpe Bank
14 Welburn
15 Location of Exclamation Gate

The northern entrance to the estate, with a view of the house.

visually bounded by St. Anne's Hill with the Howard Pyramid. The Kitchen Garden, with a decorated wall and entrance gate, has the internal divisions of a *hortus conclusus*. This garden was the *refugium* for the spring and nymphaeum, which had no logical place in the organisation of the original parterre. (In a drawing in volume III of *Vitruvius britannicus*, a small temple can be seen at the end of the earlier parterre, which was perhaps intended as a grotto.) The earlier woodland garden in Wray Wood, related to the house by the North Parade, already included the complete programme in which the *amora bosco* expressed itself.

The middle plan is connected with the house by the North Parade and Grass Walk. The Lawn was the entrance section, a transformation of the *avant cour*. The New River landscape is a transformation of the formal water stairs, with a pond, cascades and a stylised 'serpentine river' in two parts separated by a bridge, a scheme that one also finds in the lake composition at Blenheim. The spring is hidden, and the formal scheme is reversed (with the Obelisk Ponds, which cross the Great Avenue, the spring is marked by a Well House). The water stairs begin with South Lake, which was initially intended as a reflecting pond in the orthogonally structured parterre, but on further thought was laid into the morphology of the valley. The Roman bridge (in other landscape gardens the Palladian bridge) is also part of the monumental Arcadian landscape and connects the two. The Grass Walk, flanked by classic statues, can be seen as a transformation of the *tapis vert* of the French garden. Like a belvedere, the Temple of the Four Winds forms a transition between the middle plan and the panoramic level.

The panoramic level, which for a part consisted of already existing natural landscape elements such as woods, is shaped architectonically by the Great Avenue, the monuments of the Arcadian landscape and the Great Lake. The Great Avenue is dominated by a series of elements with an emphatic military character: the Carrmire Gate, the Pyramid Gate and the Marlborough Obelisk. These served to impress the visitor beyond any possible doubt of the high status of Lord Carlisle, but in a deeper sense refer to the history of England.

The Arcadian landscape reveals a hybrid scheme. Through the morphology of Wray Wood, Kirk Hill and St. Anne's Hill, its monuments are all involved with both one another and the house, the Temple of the Four Winds being aligned with the house. The Mausoleum, Roman bridge and house are also placed on one line. As the largest monument and focal point, the Mausoleum, a universally symmetrical structure, relativises the central position of the house within the whole Carlisle landscape, and is at the same time a belvedere on a panoramic scale. The Hercules defining the horizon of the Renaissance villa and French garden and symbolising the control of nature, is here transformed into a swarm of monuments that literally give shape to the Arcadian landscape. Like the reflecting pond in a garden, the Great Lake links the house with the man-made landscape on the north side. The lake is asymmetrical in shape, but creates a formal connection between the house and Coneysthorpe.

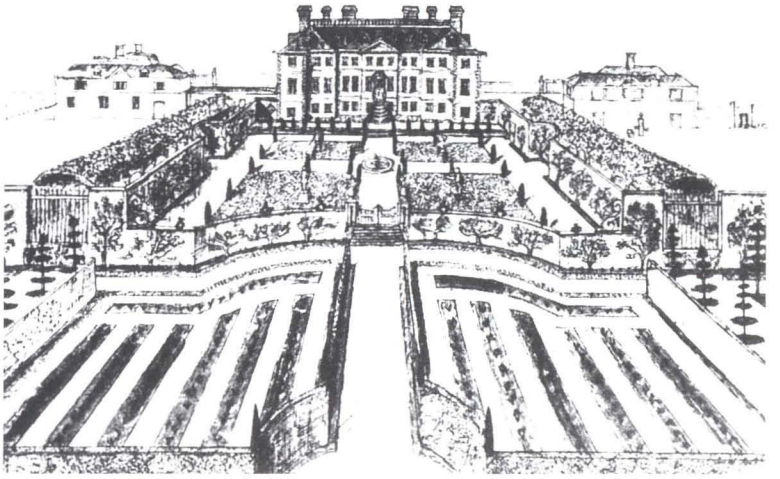
Castle Howard as document

Castle Howard's impact on the development of the 18th-century landscape garden was less evident than that of Stowe. Castle Howard never served as a direct example, although seen from our perspective today it was a key work in landscape architecture of the Enlightenment, in the same way Faust was for the theatre or Don Giovanni for the music world of that time. While in the Italian Renaissance villa and the formal 17th-century landscape – even at Stowe – the garden and the man-made landscape were two separate worlds, at Castle Howard they were fused together to form a new synthesis. The facets of the architectonic landscape and the commonplace landscape influenced by man seamlessly overlapped each other. It was as if the visual and spatial essence of the man-made landscape had been laid out and reassembled again as a work of art. The various fragments of the Carlisle landscape formed a dialectical coherent arrangement. For these reasons the scenic creation of Castle Howard could be termed the first montage in the history of landscape architecture.

Stowe

Eighteenth-century Stowe is full of surprises. But nothing, in the end, is more astonishing about that extraordinary place than the continuity of change.

George Clarke, *The Moving Temples of Stowe*, 1992



Stowe House with garden to the south, circa 1690.

At Stowe in Buckinghamshire the conceptual development of the landscape garden has been established in various parts of the garden. The garden itself, roughly 160 hectares, covers only a small part of the estate, which at one time comprised some 20,000 hectares. Whether these grounds formed a contiguous whole, or if this figure represented the total land owned by the family, is unclear.

Stowe's influence on landscape gardening was enormous. In the same way that Versailles epitomised French formal landscaping, Stowe was the showpiece of English landscape art. The garden has been frequently copied, from Russia – Tsarskoe Selo owned by Catherine the Great – to America – Washington's Capitol, for instance. Leading 18th-century English artists worked on the garden as well as famous foreign architects later on. Yet at the same time Stowe represents the 'dilettantism' of the Georgian era. The garden is an iconographic tenet, containing references to both painting and literature as well as to political and moral statements. In this sense Stowe is a reflection of 18th-century English culture, a living document of its social, political and aesthetic history.

Aspirations and passion for change

The estate came into the possession of the Temple family in the 16th century. During the 17th century several family members distinguished themselves in the army and in affairs of state. The 3rd Baronet, Sir Richard Temple, increased the family fortune, while his son, later to become Viscount Cobham, rose to lieutenant general in the 1st Duke of Marlborough's army and became a leading statesman. Cobham moved in the liberal circles of the Whigs and made his family one of the most influential in England. He was the founder of the 'dynasty and palace of Stowe'.

In 1713 the Tories came to power and Cobham, together with the Duke of Marlborough, was dismissed. With the coronation of George I in 1714 Cobham once again found favour at court. In 1733, however, he was dismissed again and bitterly withdrew from public life, devoting his attention to embellishing his country estate. Behind the scenes he continued to be involved in politics, constantly commenting on affairs of the day from his garden. Like Carlisle, Vanbrugh and Kent, Cobham was a

A reconstruction of Stowe Ridings.

1 Stowe House
2 Stowe Church
3 Wolfe's Obelisk, 1759
4 Silverstone Chapel
5 Red Ditches Farm
6 Linshire Farm
7 Luffield Abbey Farm
8 Kaye's Farm
9 Stowe Castle
10 Column (?)
11 Roman road

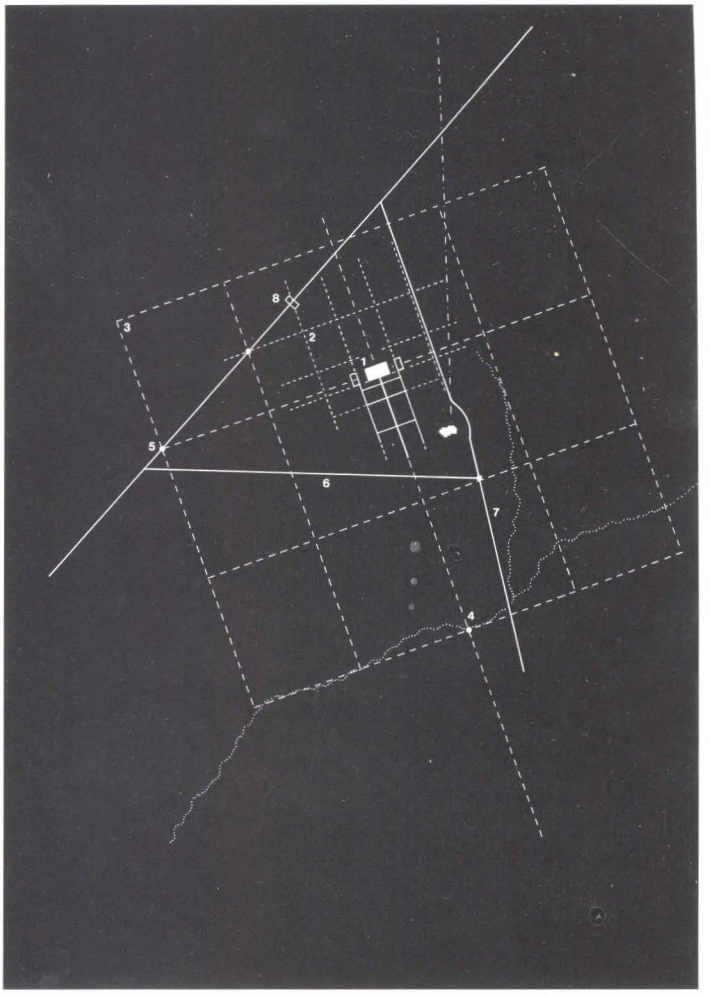
Plan of the system of axes.

1+2 > A
3+4 > B, C, D
5+6 > E, F
7 > G
8 > H
9 > I (?)

The formal system, circa 1719.

1 Wings and side pavilions ± 1719
2 Terrace Garden
3 Kitchen Gardens (The Old Garden)
4 Nelson's Seat
5 Nelson's Walk
6 Temple of Bacchus/Brick Temple
7 Garden of Bacchus
8 Lime Walk
9 Abele Walk
10 Canal
11 Mount
12 The Park

a Roman road
b Stowe Church
c Slant Road
d Hey Way
e Hog Pond



The topographic design matrix.

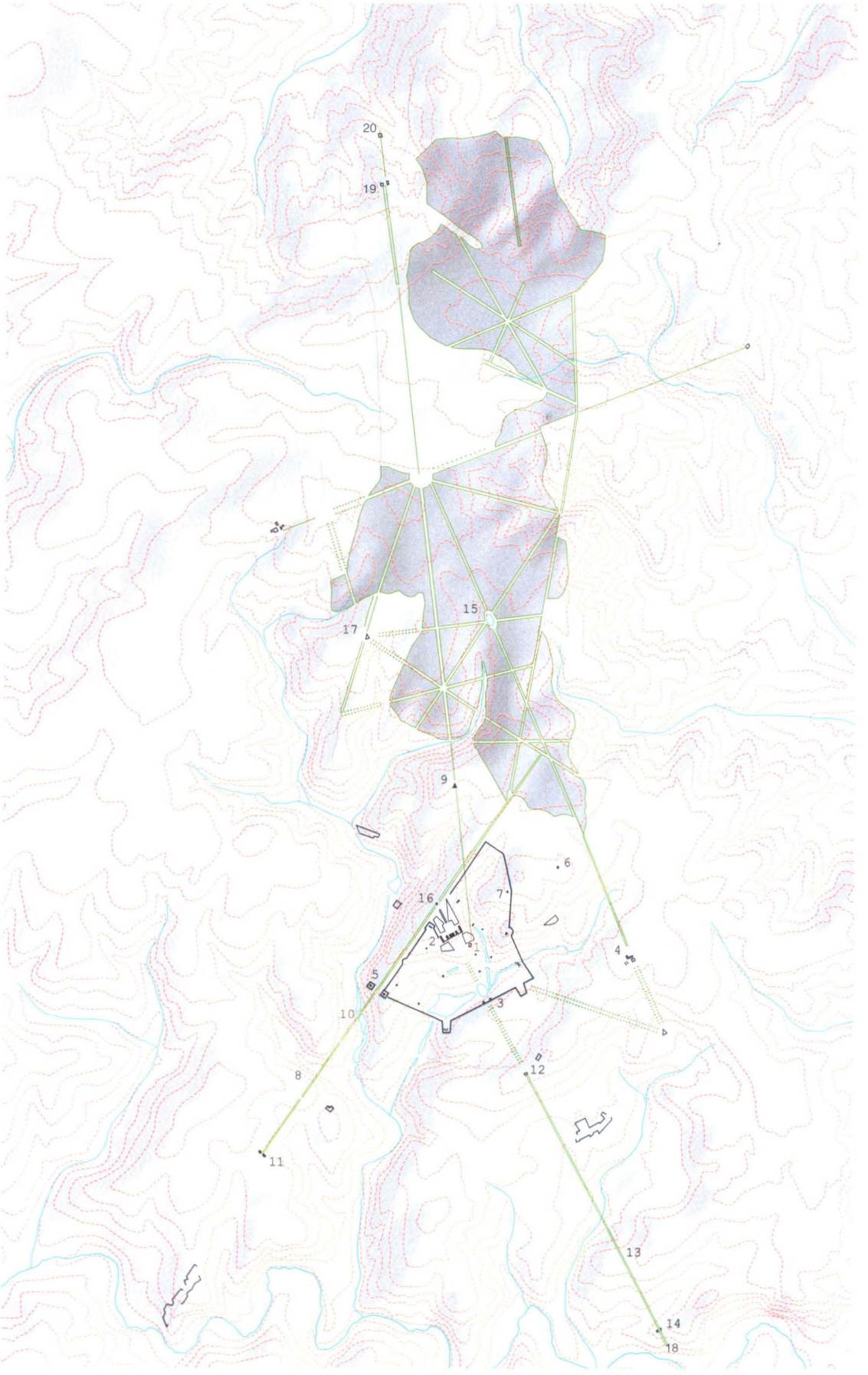
1 House
2 The architectonic design matrix
3 Virtual corner of grid
4 Intersection of main axis and Alder
5 Intersection of traverse axis and Roman road
6 Slant Road
7 Hey Way
8 Nelson' Seat

member of the Kit-Cat Club. Vanbrugh was architect to both gentlemen and was thus most likely to have been the central player in the exchange of ideas that took place during the experimental phase of both landscape gardens.

Cobham died childless in 1749 and bequeathed the estate to his younger sister, who was married to Richard Grenville of Wotton Underwood. Their son and heir, the extremely ambitious Richard Grenville Temple, later to become Earl Temple, increased the family property and worked on the landscape garden until his death in 1779. He also died childless and passed on the estate to his nephew, George Nugent-Temple-Grenville, later the Marquess of Buckingham, who supplied the finishing touches. Aside from a few details, Stowe appeared then as it does today.

After 1813 the estate deteriorated rapidly: in 1848 the family became bankrupt. All possessions were auctioned except for the house and garden. In 1921 even these were finally sold off as one lot.

Brave attempts were made to keep the estate intact, among others by the architect Clough William Ellis, who purchased the Grand Avenue and brought it under the administration of a foundation. In 1923 Stowe was converted into a school, as this was the only means of rescuing it from total oblivion. In 1967 the National Trust became responsible for part of the



The Stowe landscape.
The integration of afforestation, agriculture and nature in a large-scale composition.

1 Stowe Church
2 Stowe House
3 Lake Pavilions
4 Stowe Castle
5 Boycott Pavilions
6 Keeper's Lodge/Bourbon Tower
7 Cobham Monument
8 Oxford Avenue
9 Wolfe's Obelisk
10 Oxford Bridge and Water
11 Oxford/Boycott Lodges
12 Corinthian Arch
13 Grand Avenue
14 Buckingham Lodges
15 Stowe Ridings
16 Equestrian statue
17 Column
18 Buckingham Church
19 Lodges
20 Silverstone Chapel

gardens. In 1984 it acquired Oxford Avenue and in 1989 most of the estate, apart from the house and school buildings. Since then large-scale restoration has been carried out, one of the most spectacular ever undertaken in landscape gardening.

Stowe House

Stowe lies on the upper reaches of the River Alder in the undulating, clay farmland that descends around 155 metres in elevation to the Great Ouse at some 90 metres above sea level. To the north of Stowe is the medieval Whittlewood Forest, situated at the watershed between the Ouse and Tove river systems which flow together in an easterly direction. Two side valleys of the Alder, on both sides of the principal axis of the house, have invited a broadly symmetrical design of the layout and have determined the garden's southern boundary.

The Hey Wey (Highway) ran through Stowe village on the Alder, linking Buckingham to a Roman road that joined Akeman Street at Bicester. The old Manor House was probably situated on Slant Road, a cart track linking Lamport to the Roman road, via the Hey Wey. This triangle was to play an important role in the subsequent development of the garden. This was walled and possibly had an orchard. Sir Richard, 1st Baronet, probably had the Manor House demolished between 1675 and 1680 and a new country house built which lay higher up the hill to allow for a view. It was aligned with the steeple of Buckingham's medieval church. On the south side a parterre was laid out with terraces and a central footpath (Main Walk) leading to Slant Road. This was the garden which the later Viscount Cobham inherited in 1697, and which was the starting point for developing the landscape garden.

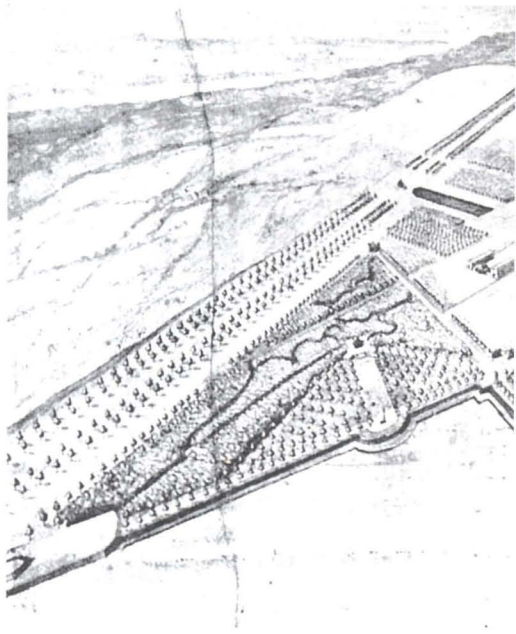
Stowe Ridings

The garden on the south side was initially of only secondary importance. Much more relevant was Stowe Ridings, an extensive plantation on the north side. Of this, roughly 50 hectares still remain; the northern part is now incorporated into Silverstone race track. A reconstruction gives an idea of the original size and design. The layout was determined by a southern foothill of Whittlewood Forest. The wooded plantation was intersected by avenues used for tree felling, horse riding and hunting. The longest avenue stretched between the two church steeples of Stowe and Silverstone, while a secondary avenue pointed towards Stowe Castle. The avenues generally followed the morphology, intersected by the lines of vision. The avenue structure was also supplemented with various offshoots and refinements, though it is no longer possible to

The house and lawn seen from the lake.

Hawkwell Field with Gothic Temple.

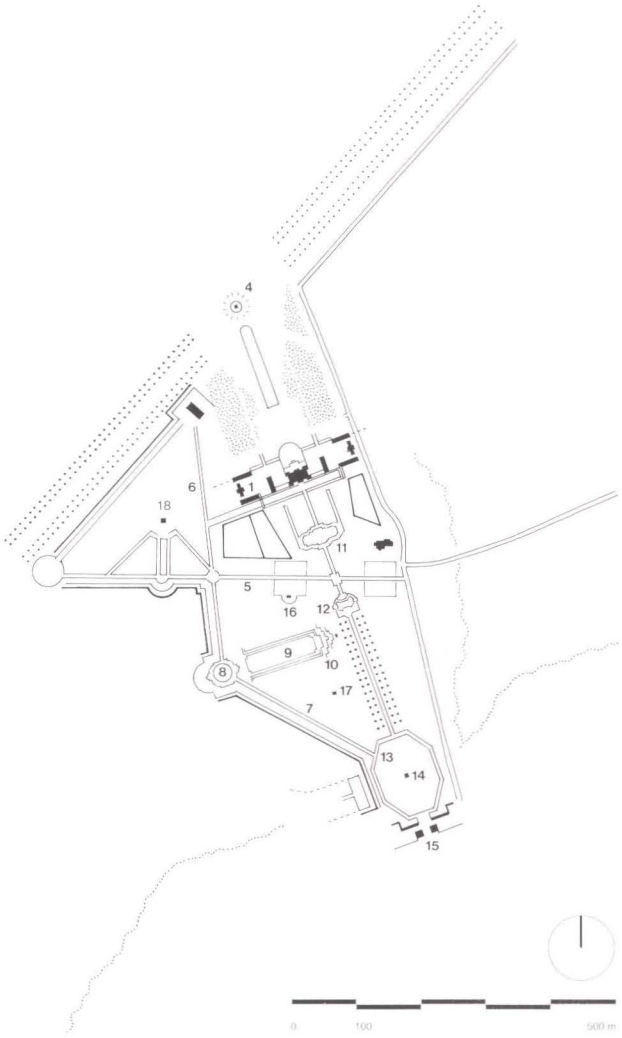
Buckingham Avenue.



Bird's-eye view, Charles Bridgeman, circa 1723.

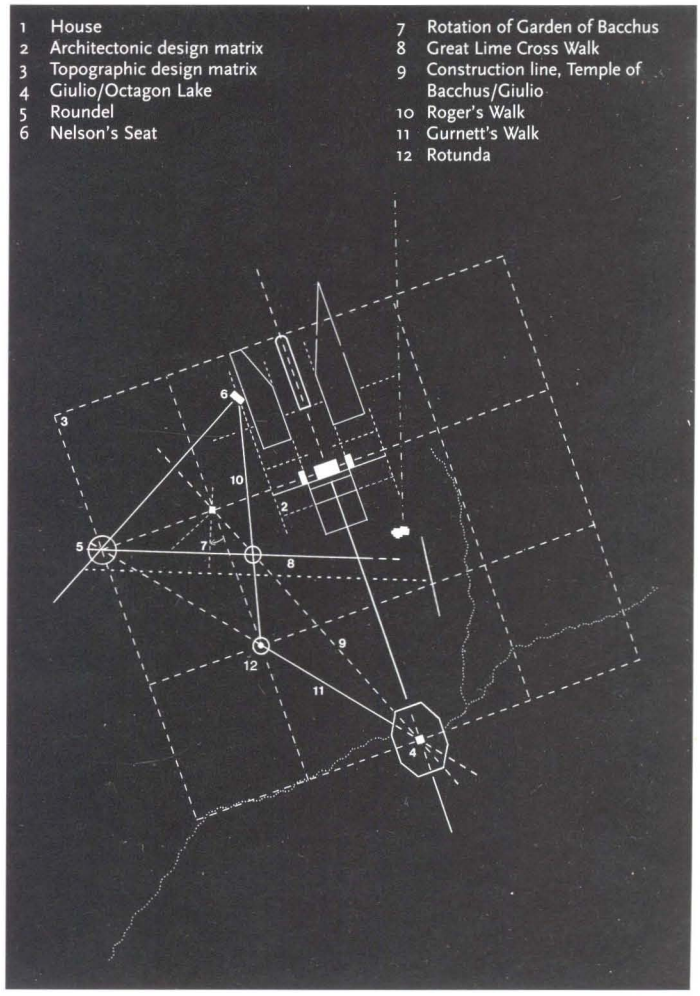
The landscape theatre, circa 1723.

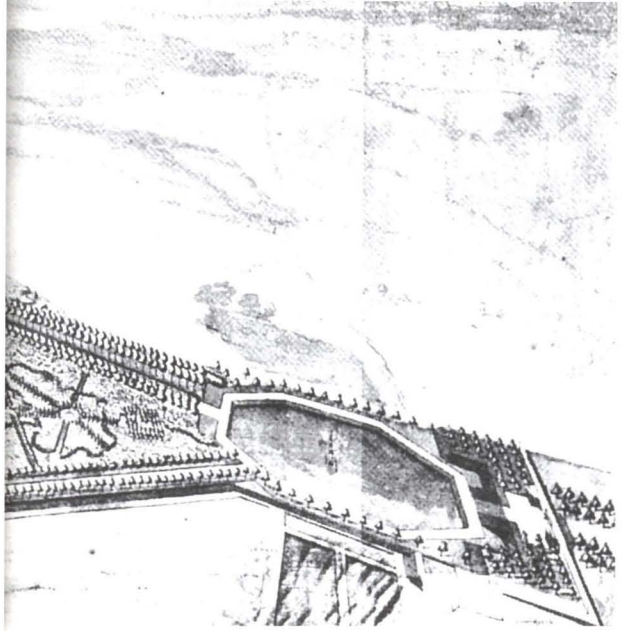
1 House
4 Equestrian statue (George I)
5 Great Lime Cross Walk
6 Roger's Walk
7 Gurnett's Walk
8 Rotunda
9 Garden of Venus
10 Amphitheatre with Queen Caroline's Monument
11 Terrace with pond
12 Turf Terrace
13 Octagon Lake
14 Giulio Fountain
15 Lake Pavilions
16 King George's Column
17 Temple of Sleep
18 Brick Temple/Temple of Bacchus



Grid transformations, 1720.

1 House
2 Architectonic design matrix
3 Topographic design matrix
4 Giulio/Octagon Lake
5 Roundel
6 Nelson's Seat
7 Rotation of Garden of Bacchus
8 Great Lime Cross Walk
9 Construction line, Temple of Bacchus/Giulio
10 Roger's Walk
11 Gurnett's Walk
12 Rotunda





check the extent of these precisely. One intriguing detail is that, in a drawing by Sarah Bridgeman, the avenue leading to Stowe Castle was lengthened on the south side and joined an avenue at a now unmarked point, which started at the south-western bastion on the ha-ha (hidden sunken fence) designed by Charles Bridgeman. Was it originally intended to extend the structure to the south side and thus set the garden in a large configuration of avenues?

The formal garden

The development of the landscape garden began with the arrival of Charles Bridgeman in 1713. He designed the layout of the garden together with Vanbrugh, who quite drastically remodelled the house in 1719. Vanbrugh's influence on the layout of the garden is recognisable in the extension of the principal axis, which was to be realised much later, and in the indirect approach taken. After his death in 1726 his role was taken over by James Gibbs (1682-1754), who designed most of Stowe's buildings.

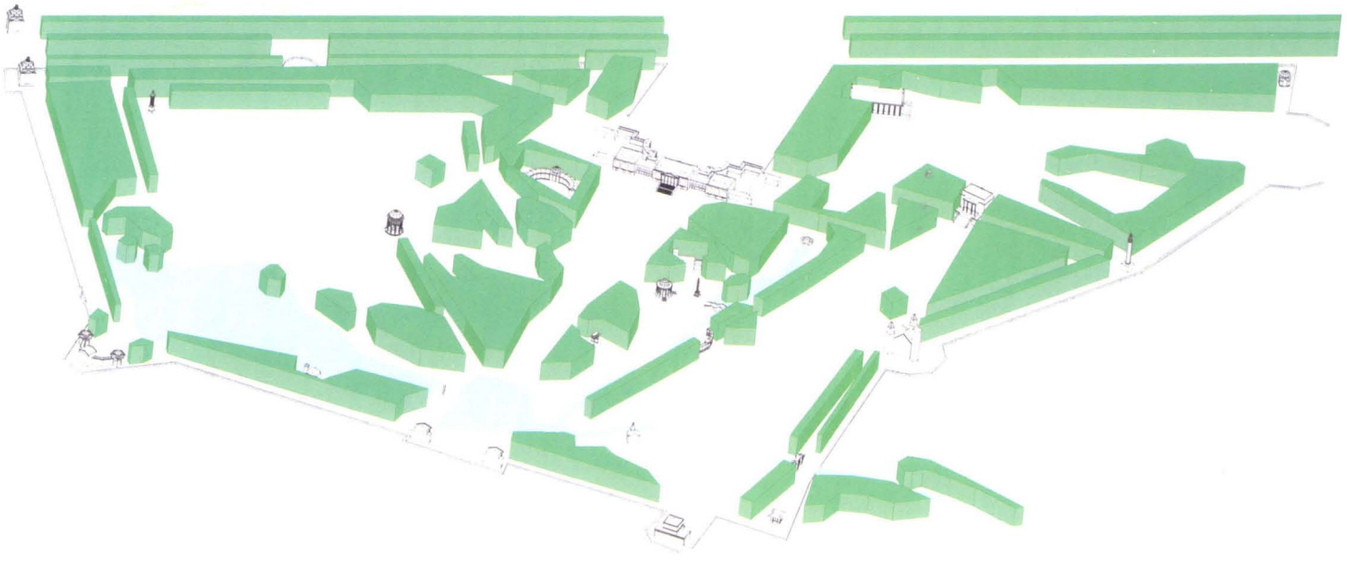
The garden was extended along the principal axis. On the north side an elongated pond was laid out between two formal clumps of trees framing the vista. A lookout mount was built with material from the pond as a termination of the vista. On the south side the principal axis was extended beyond the kitchen gardens to the Alder, which was transformed into a formal canal. Using this ground, a second mount was built on the opposite bank of the river – the visual result being that the horizon was formally represented in the garden. The laying out of the pond broke up the Roman road, and its south-west section was transformed into Nelson's Walk. It is probable that the surrounding area was levelled and bounded by a construction known as a stockade ditch. Slant Road to the south of the 'ould' garden remained.

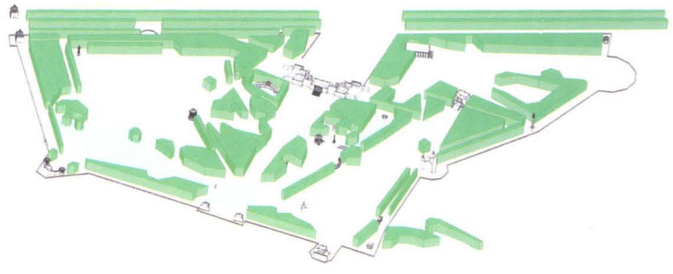
Grid transformations

Around 1720 Lord Cobham began a wholesale refashioning of this formal garden. The design problem confronting Bridgeman in developing the garden was how to create a link between the formal system of the principal axis and the more or less separately developed section of the garden in the western point of the original triangle. Bridgeman brought the apparently irreconcilable facts of the site into a synthesis in a new design. His design can be resolved into a topographic design matrix that laid bare the still hidden order of the future landscape garden.

This matrix drew together the formal system of the principal axis, the design matrix of the house, the topography of the estate boundaries and the morphology of the Alder landscape. This grid enabled every line of force of the morphology and topography to be included in the matrix, while the area to the east of the garden also came into play. The architectonic matrix preserved a certain autonomy in the vicinity of the house, but joined it with the topographic design matrix in other parts of the garden. For instance, Nelson's Seat was built on the intersection of the Roman road with a line of the architectonic matrix on the east side. The Bacchus Temple, however, was placed exactly on an intersection of lines of the topographic design matrix. The topographic design matrix thus 'mediated' between the house and the topography, making a merging of both measurement systems possible. Bridgeman created a geometric synthesis, which Henry Wise had failed to achieve at Blenheim.

In relation to this achievement Bridgeman's transformation of Stowe can be seen as follows. The Bacchus Temple was turned until its axis was at right angles to Lime Cross Walk. A second treatment involved the use of several grid diagonals. The layout line between Bacchus Temple and Giulio determined the outer boundary of the Bacchus garden and organised Sleeping Wood. With the intersection of this construction line and Lime Cross Walk, Bridgeman then drew a line (Roger's Walk) from Nelson's Seat, which intersects the grid diagonal between Giulio and Gurnet's Walk at a grid point, which became the site of the Rotunda. This transformed the estate's topography into an 'architectonic' triangle and integrated it into the formal organisation of the garden.

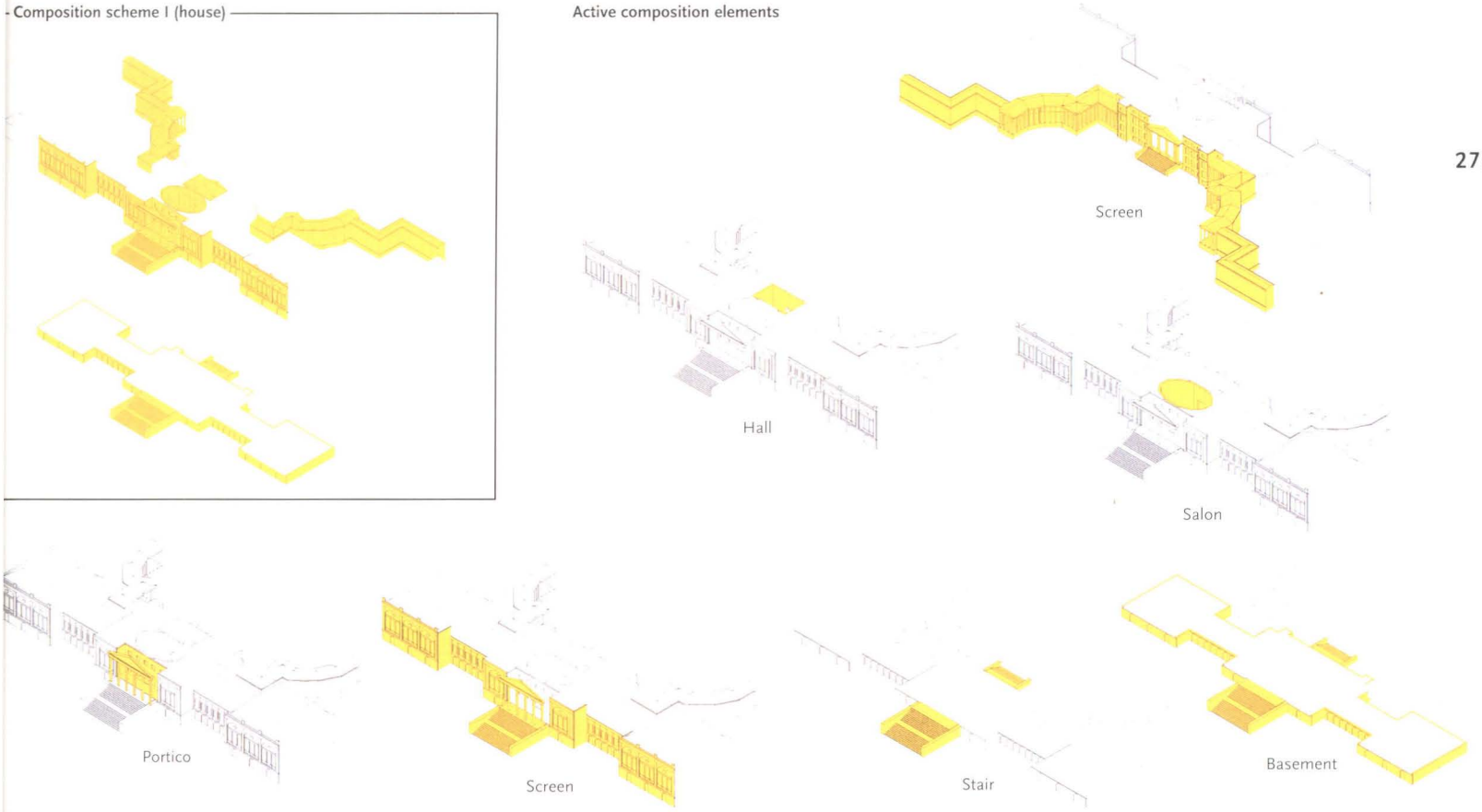




Axonometric projection

Composition scheme I (house)

Active composition elements



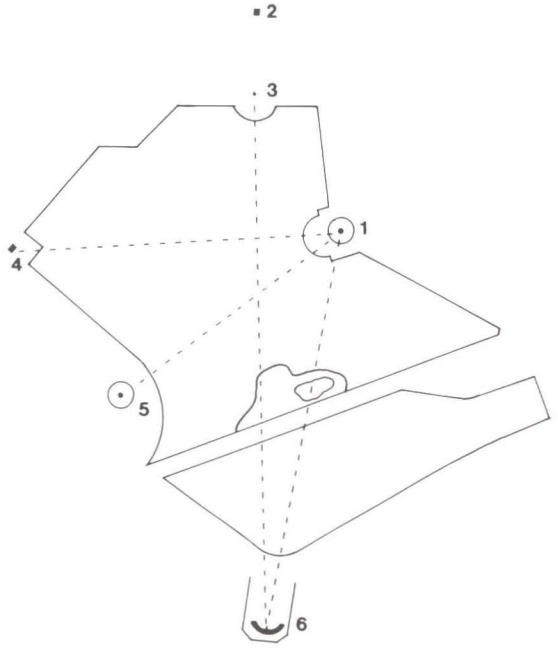
Composition scheme II (Home Park)

Active composition elements

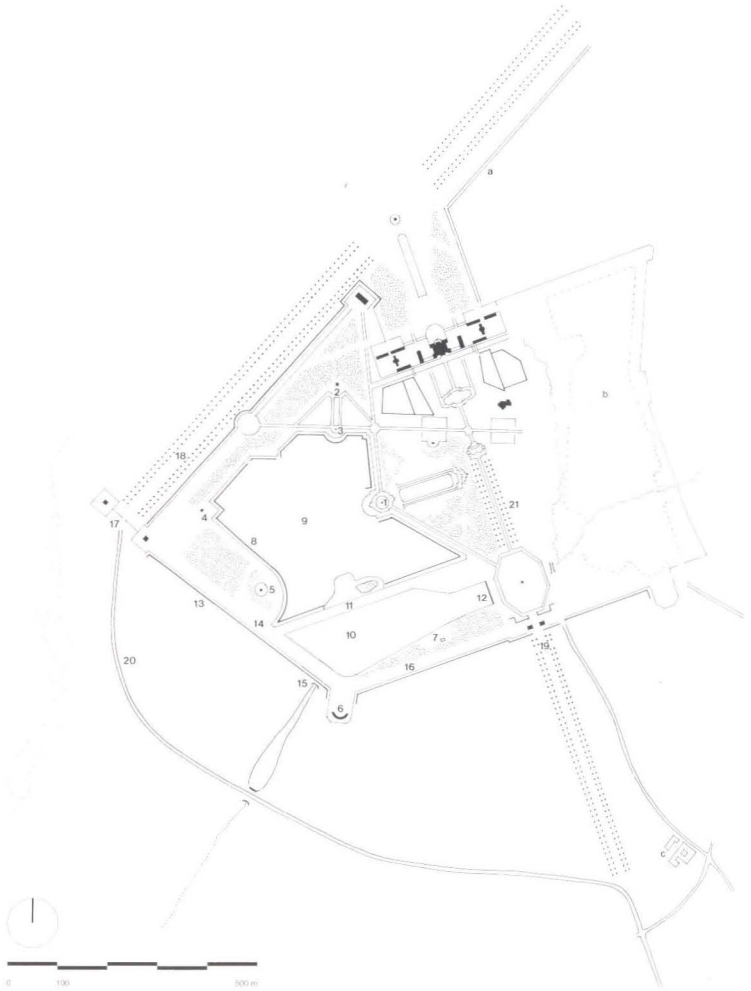
The Home Park, circa 1734.

1 Rotunda
2 Temple of Bacchus
3 Coucher's Obelisk
4 Pyramid
5 Gibb's Building
6 Temple of Venus
7 Hermitage
8 Embankment Terrace/inner ha-ha
9 Home Park
10 Eleven Acre Lake
11 Lake Walk
12 Artificial ruins
13 Great ha-ha
14 Warden Hill Walk
15 Cascade
16 Pegg's Terrace
17 Boycott Pavilions, 1728
18 Oxford House
19 Grand Avenue
20 Indirect approach
21 Abele Walk

a Roman road
b Lamport Road/Slant Road
c New Inn Farm



Composition scheme Home Park



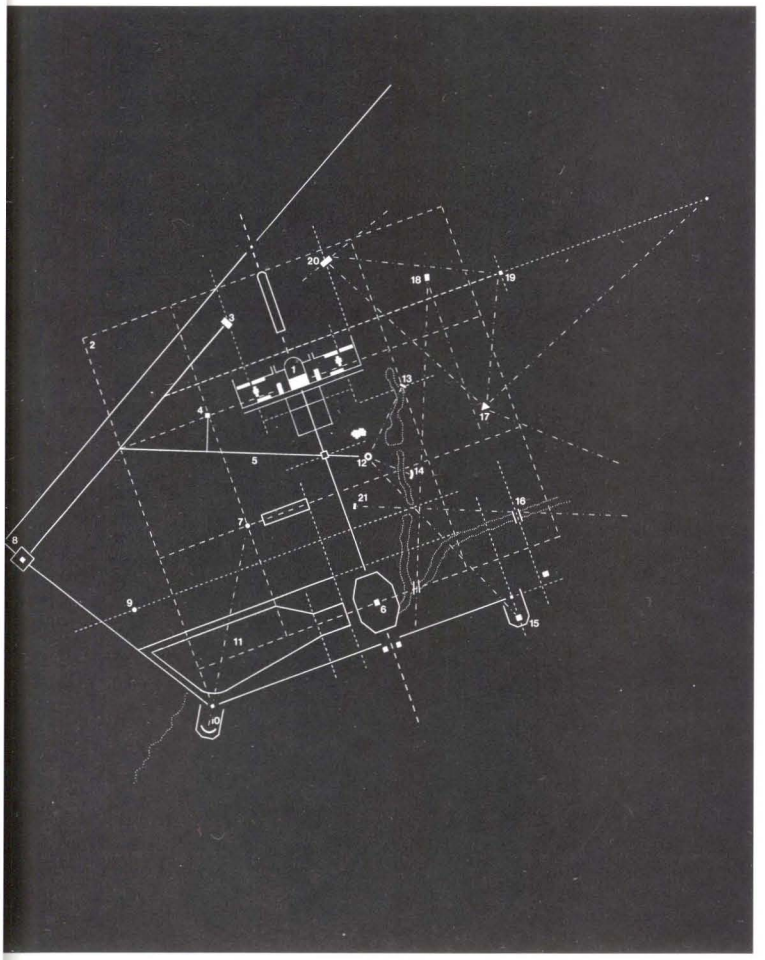
The landscape theatre

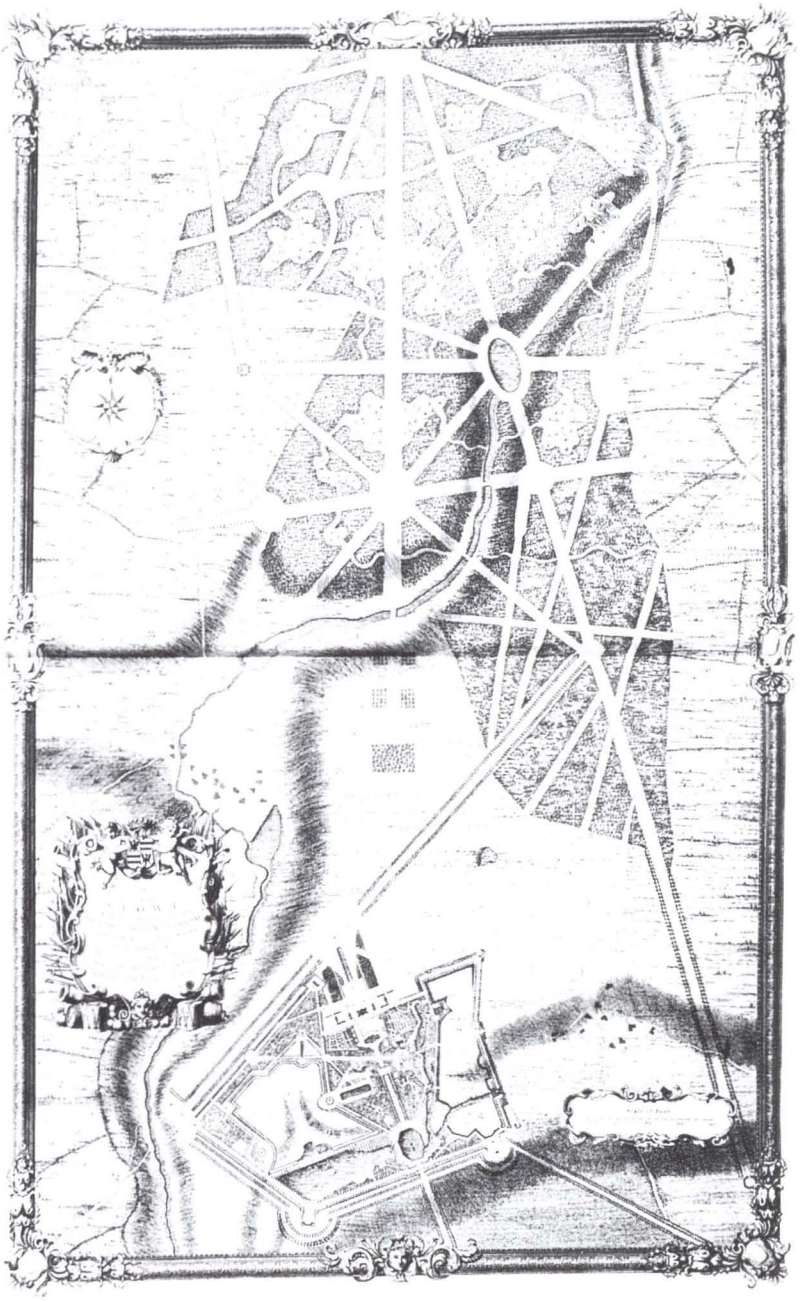
The walled garden with terraces was replaced by a spacious parterre and a pond. The scenography of the principal axis was adapted accordingly; the intersection with Lime Cross Walk was incorporated into this. The octagonal lake was laid out in the River Alder with a somewhat elongated shape, which the reflecting pond proportionally corrected when seen from the portico and parterre. The vista, framed by Vanbrugh's two pavilions, then continued as an avenue, thus making the Alder valley the middle section of the composition. The west side of the garden bordered the natural landscape in the form of the Embankment Terrace, a further development of the stockade ditch, which also provided an unrestricted view.

Lime Cross Walk was extended and became Great Lime Cross Walk, while two ponds accented the symmetry further along the principal axis. There was as yet no formal termination: the avenue probably came out unmarked at Hey Wey, then still the access road from Buckingham. Vanbrugh

The liberation of the pictural element.

1 House
2 Topographic design matrix
3 Nelson's Seat
4 Temple of Bacchus
5 Great Lime Cross Walk
6 Giulio
7 Rotunda
8 Boycott Pavilions
9 Gibb's Building
10 Temple of Venus
11 Eleven Acre Lake
12 Temple of Ancient Virtue
13 Cold Bath
14 Temple of British Worthies
15 Temple of Friendship
16 Palladian Bridge
17 Gothic Temple
18 Ladies' Temple
19 Cobham's Column
20 Grecian Temple
21 Amelian Temple/Doric Arch





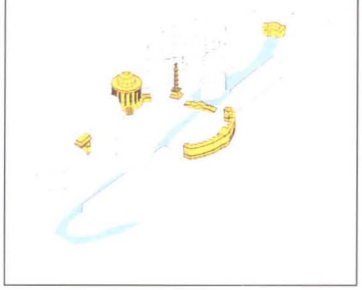
Plan of Stowe, 1739 (from Rigaud and Baron, *Views of Stowe*, drawing by Sarah Bridgeman).

designed the Brick Temple, facing the undulating landscape south of the garden. The widened garden section, halfway along the principal axis, was divided by the Garden of Venus, which had a reflecting pond and an earthen amphitheatre, one of Bridgeman's favourite garden features. At the far end of the pond, at its most protruding point, Vanbrugh positioned the Rotunda. This created a second landscape theatre, directed like a viewfinder toward the agricultural landscape to the west of the garden.

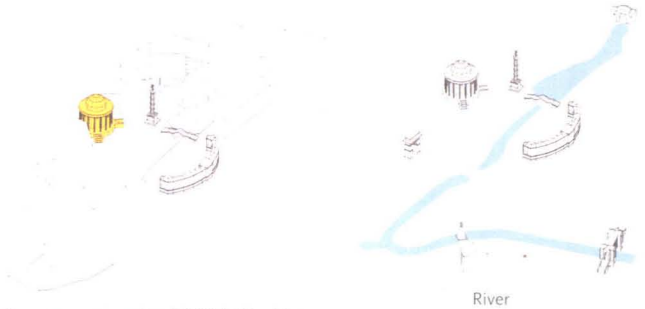
The Home Park

The heavy clay soil in the west part of the garden was difficult to cultivate. It was thus decided to lay a new ha-ha (a hidden sunken fence) with an esplanade around it. This also enclosed the farmland with grazing cattle, thus creating the Home Park. At the same time Eleven Acre Lake was made by damming the Alder. This created a new composition with an open middle area, the counterpart of Sleeping Wood. New structures on the west perimeter were visible from the Rotunda and vice versa.

Composition scheme III (Elysian Fields)



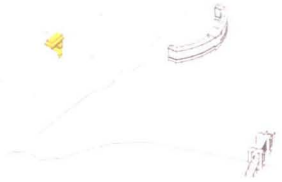
Active composition elements



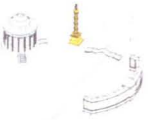
Monument, Temple of British Worthies

River

Grotto



Triumphal arch, Doric Arch

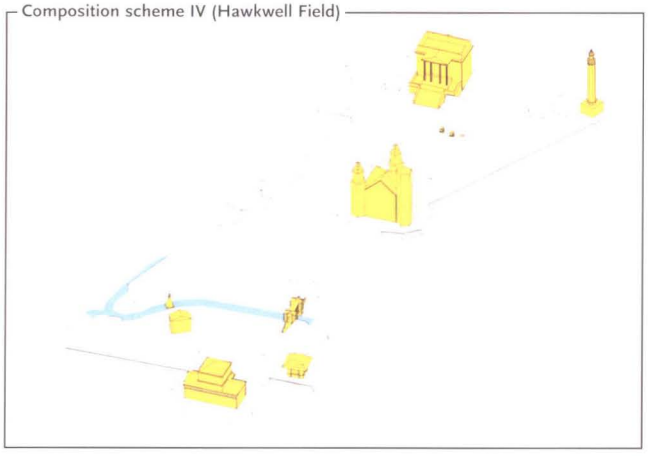


Monument, Grenville Column

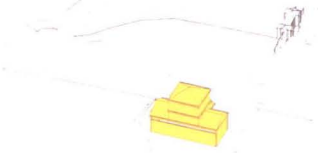
Bridge, Shell Bridge

Pavilion, Temple of Ancient Virtue

Composition scheme IV (Hawkwell Field)



Active composition elements



Pavilion, Temple of Friendship

Pavilion, Gothic Temple

Pavilion, Chinese House

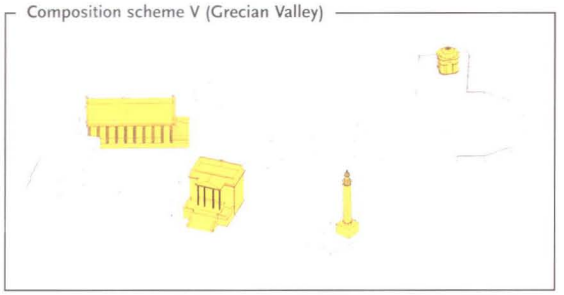
Monument, Congreve Monument

Bridge, Palladian Bridge

Pavilion, Queen's Temple

Pavilion, Pebble Alcove

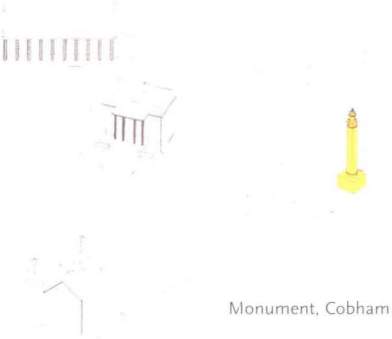
Composition scheme V (Grecian Valley)



Active composition elements

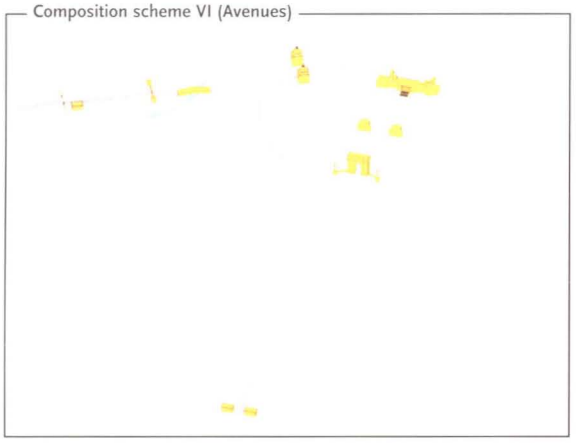
Pavilion, Fane of Pastoral Poetry

Pavilion, Temple of Concord and Victory



Monument, Cobham Monument

Composition scheme VI (Avenues)



Active composition elements

Triumphal arch, Corinthian Arch

Gate, Buckingham Lodges

Gate

River, Ladymead river

Pavilions, Lake Pavilions

Pavilion, Boycott Pavilions

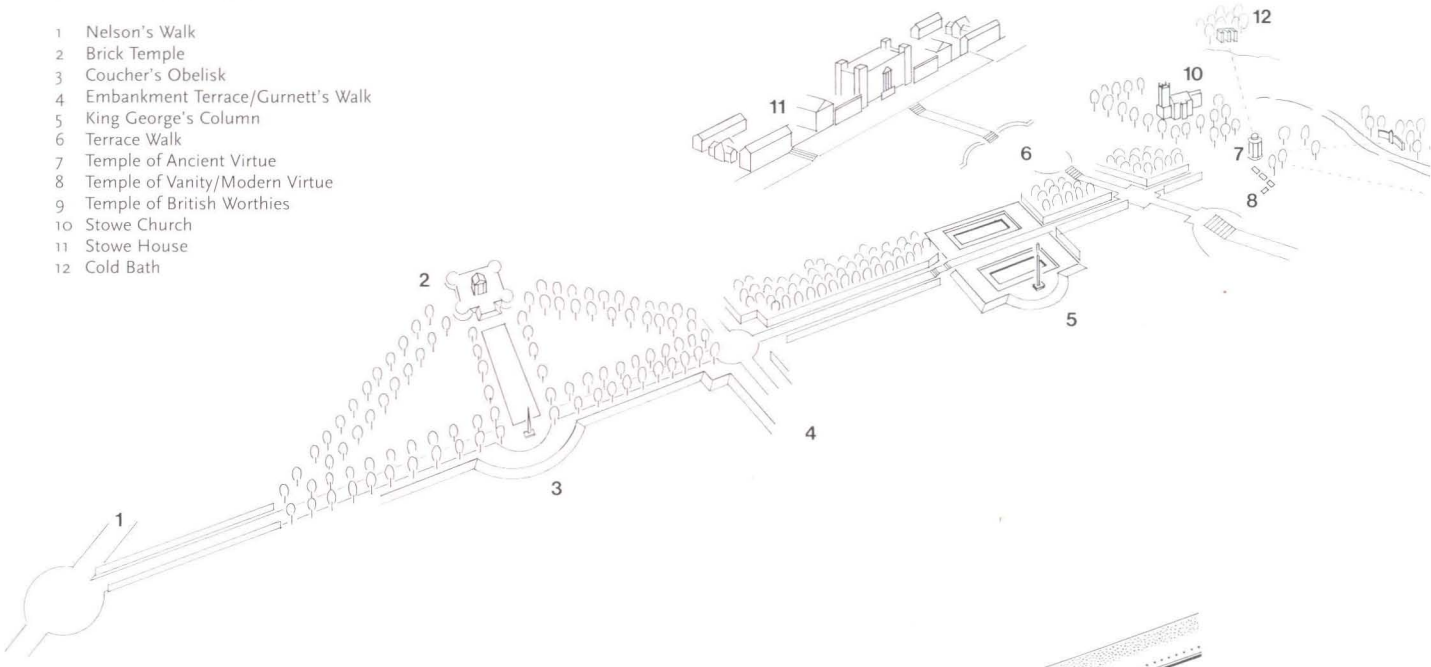
Bridge, Oxford / Ladymead Bridge

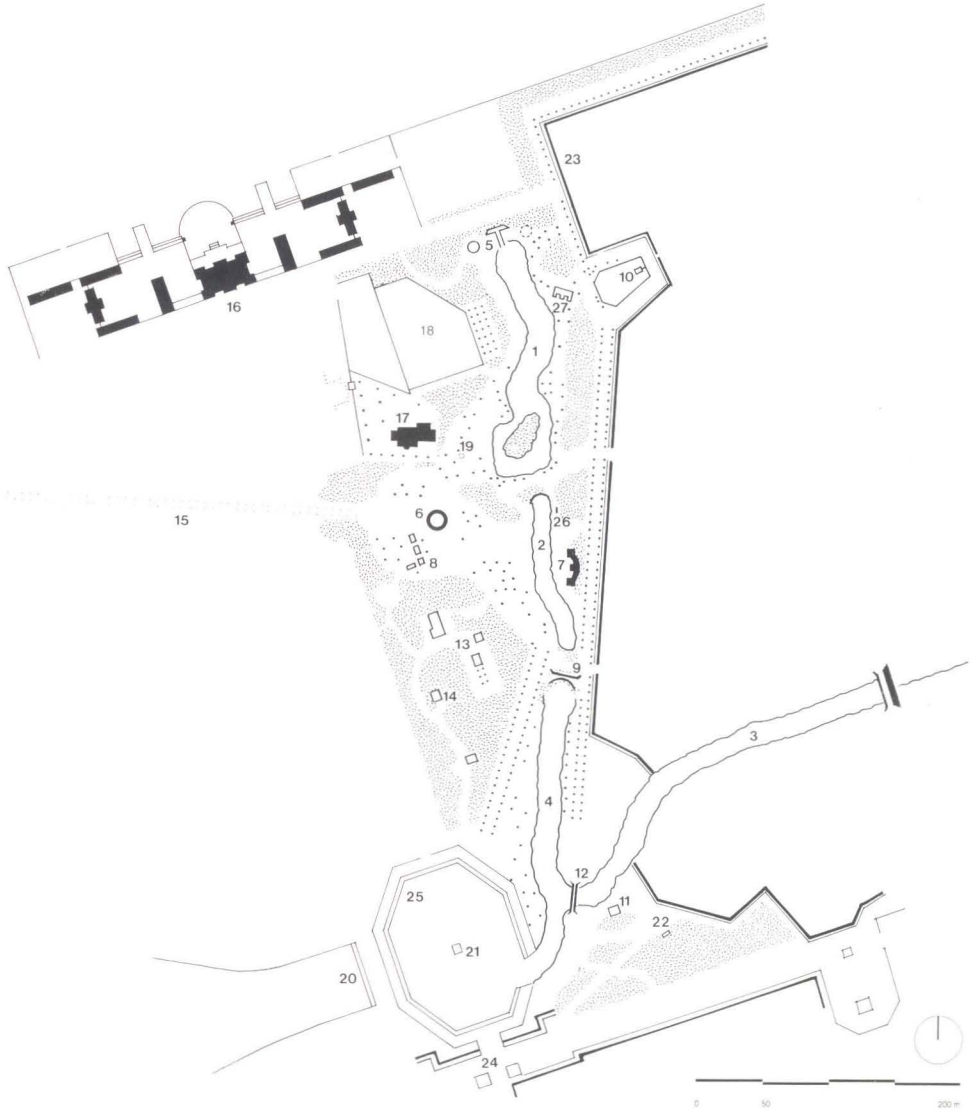
Screen

Screen, Oxford Lodges

The Great Lime Cross Walk.

1 Nelson's Walk
2 Brick Temple
3 Coucher's Obelisk
4 Embankment Terrace/Gurnett's Walk
5 King George's Column
6 Terrace Walk
7 Temple of Ancient Virtue
8 Temple of Vanity/Modern Virtue
9 Temple of British Worthies
10 Stowe Church
11 Stowe House
12 Cold Bath



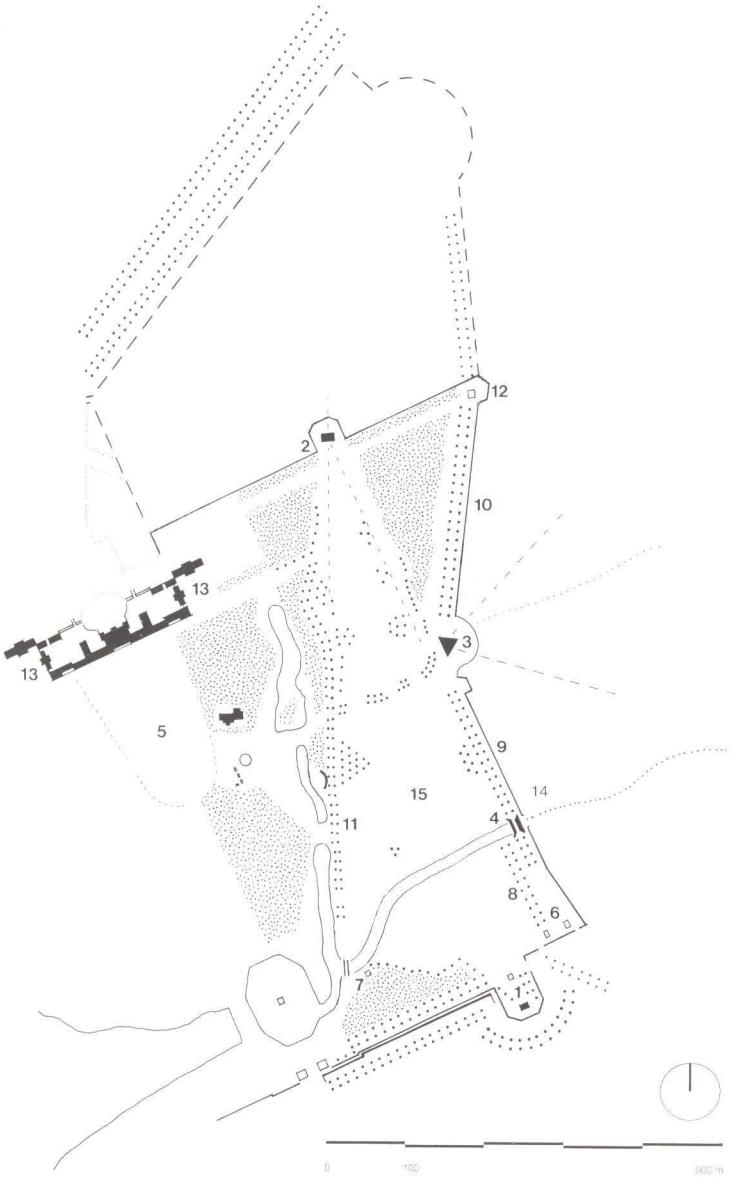


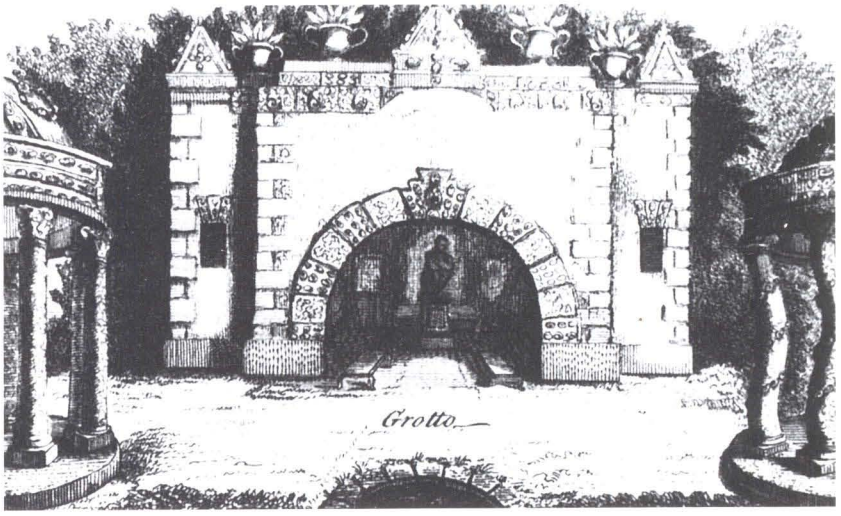
Elysian Fields, circa 1739.

1 River Alder/River Styx
2 Worthies' River
3 Lower River
4 Upper River
5 Egerian Grotto + Shell Temple(s)
6 Temple of (Ancient) Virtue, 1736
7 Temple of British Worthies/Honour, 1735
8 Temple of Vanity/Modern Virtue
9 Shell Bridge
10 Chinese House/Temple 1737-1750
11 Congreve Monument
12 Stone Bridge
13 Witch Wood
14 Witch House
15 Great Cross Walk
16 Stowe House
17 Stowe Church
18 Kitchen Gardens
19 Grenville Column/Monument
20 Cascade/Cook Monument (?)
21 Giulio
22 Pebble Alcove
23 Ha-ha
24 Pavilions
25 Octagon Lake
26 Fountain of the Seasons
27 Cold Bath/Temple of Contemplation

Hawkwell Field, circa 1753.

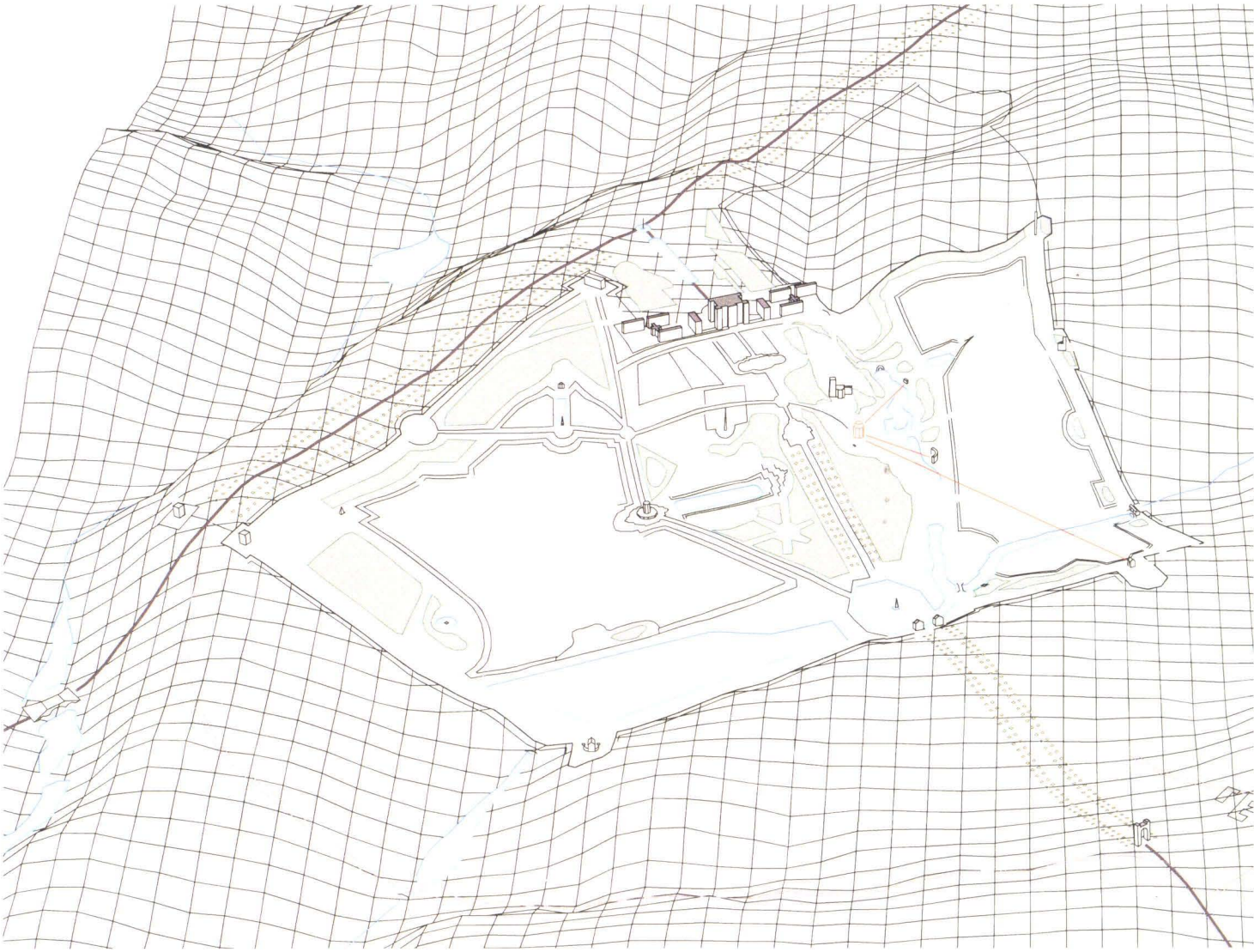
1 Temple of Friendship, 1739
2 Ladies'/Queen's Temple, 1744/48
3 Gothic Temple/Temple of Liberty 1744/48
4 Palladian Bridge
5 Lawn
6 Imperial Closet
7 Congreve Monument
8 Hawkwell Mead Walk
9 Hawkwell Hill Walk
10 Gothic Walk
11 Thanet Walk
12 Cobham's Column, 1747
13 Orangeries
14 Beck
15 Hawkwell Meadow





Grotto with Shell Temples. (Bickham, 1750)

Palladian Bridge.



The Stowe garden as a design laboratory.

The first of these, a high pyramid, was Vanbrugh's last contribution to Stowe. He died in 1726.

The restoration of symmetry

The asymmetry of the garden plan invited an extension of the garden on the eastern side. By extending the layout to the east, the symmetry was embodied in a rough pentagon shape with bastions. Elysian Fields formed the counterpart to Sleeping Wood with the Garden of Venus, while Hawkwell Fields (Hawkwell Meadow) was intended as a counterpart to Home Park. The boundary between the two was planned as a Walk, similar to Gurnett's Walk on the west side.

Great Lime Cross Walk was used to link the new part of the garden with the rest. The diagonal put the symmetry of the principal axis into perspective and contrasted sharply with the naturalism of Elysian Fields. The dynamic of Great Lime Cross Walk was absorbed by the round form of the Temple of Ancient Virtue and disseminated in various directions. The temple dominated Elysian Fields and formed the counterpart to the Rotunda in Home Park. This composition had the special appeal of a hybrid: it was orderly and fanciful, harmonious and asymmetric, all at the same time. The topographic matrix gradually lost its importance. The Temple of Ancient Virtue and the Temple of British Worthies 'escaped' the matrix and were the initial impetus for a picturesque organisation of the garden spaces.

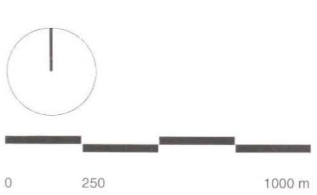
Elysian Fields, with the Temple of British Worthies.

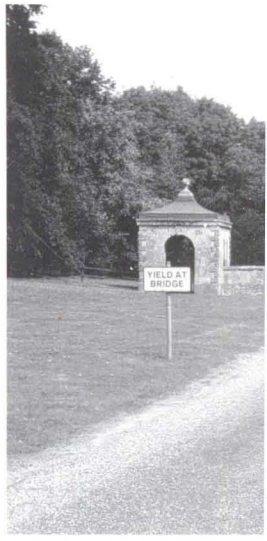
'A view in the Elysian Fields from the Spring of Helicon'. (From Bickham, *Views of Stowe*, 1753)

Elysian Fields

Elysian Fields was a clear example of an emblematic garden. The group of buildings is a comment on the political circumstances of the age, the message being visually conveyed to observers by holding up a classical landscape before them as a mirror. Kent's revolutionary concept was to create a garden as a series of three-dimensional paintings by using foliage, architecture, earth and water. His scenes offered an idealised and 'civilised' view of nature, which was youthful and transparent, with architecture and foliage in equal proportions.

Similar to Chiswick and Rousham, Kent used a river as a motif, but now on a sloping terrain. He solved this problem by designing three ponds linked together by cascades. The

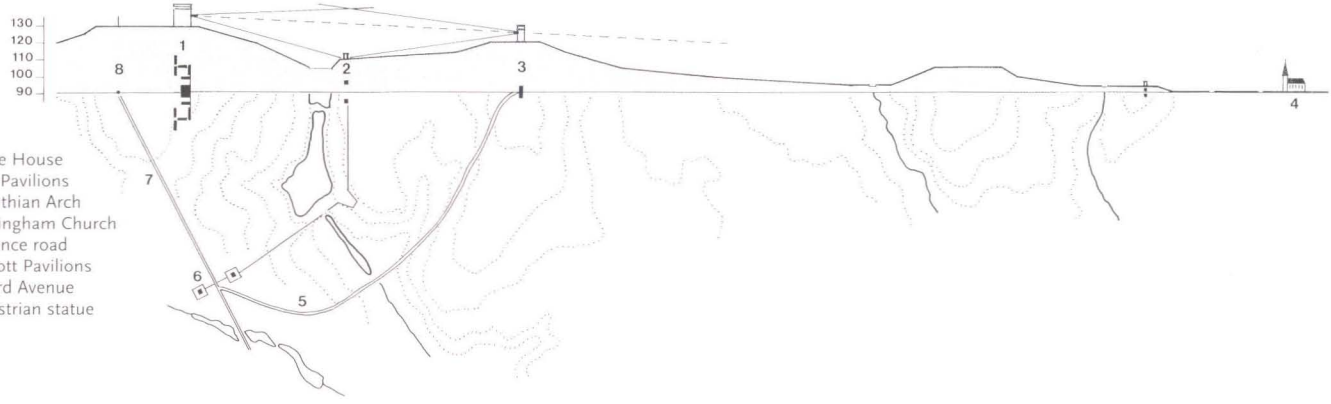




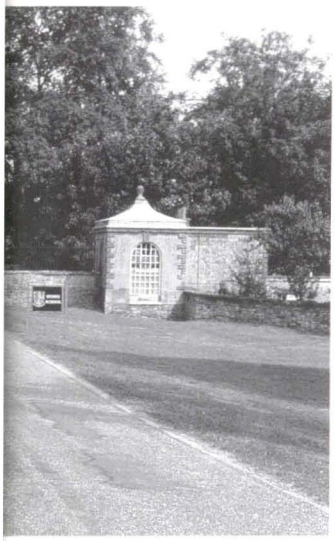
The panoramic composition, 1759-1830.

1 The House
2 Stowe Church
3 The Lake
4 Lake Pavilions
5 Temple of Friendship
6 Temple of Venus
7 Cascade and Lake
8 Boycott Pavilions
9 Bourbon Tower
10 Wolfe's Obelisk
11 Doric/Amelian Arch
12 Corinthian Arch
13 New Inn Farm
14 Lamport
15 Akeley Farm
16 Stowe Castle
17 Chakmore
18 Home Farm
19 Dadford
20 Oxford Bridge and Water, 1761
21 Stowe Ridings

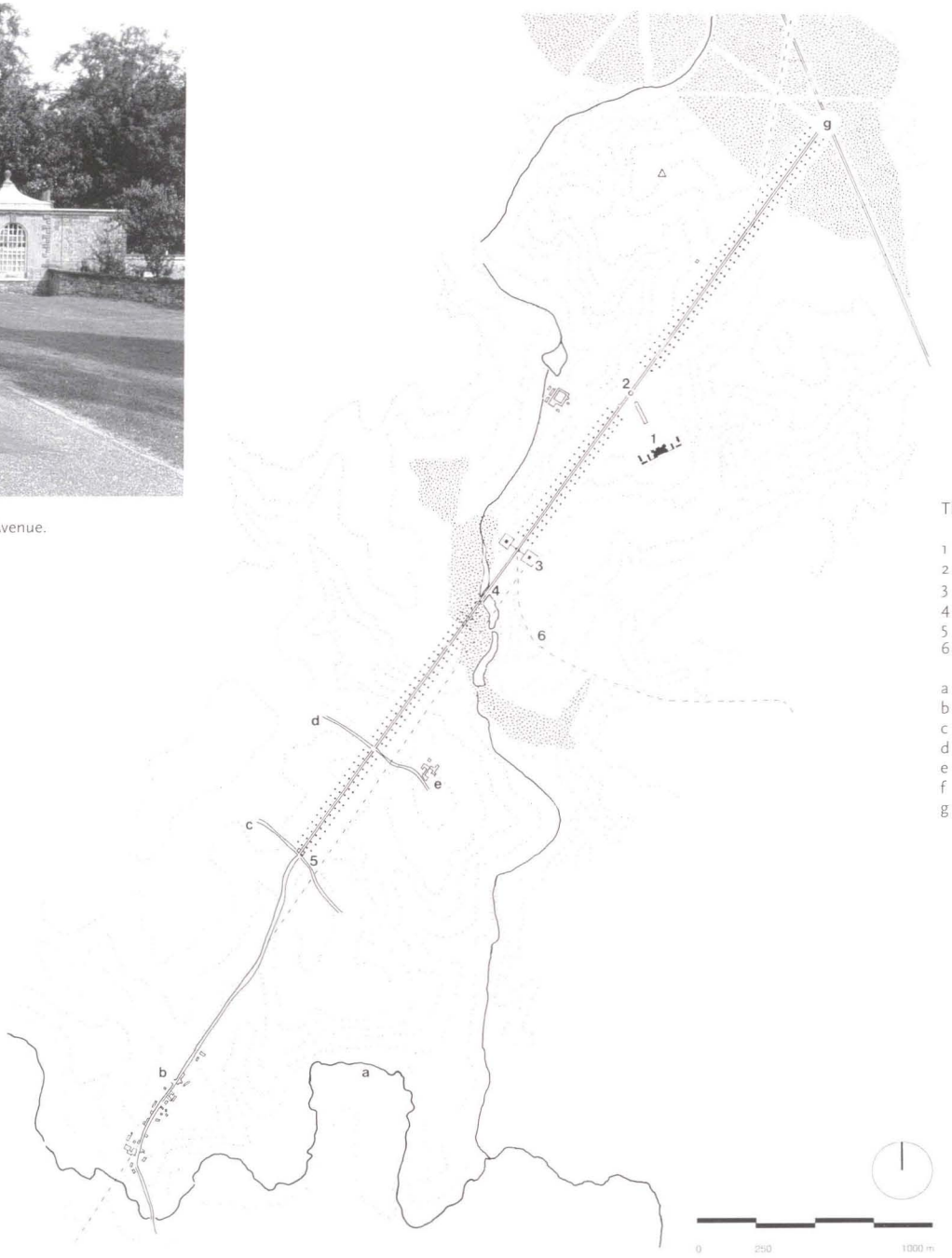
Composition scheme, indirect approach.



1 Stowe House
2 Lake Pavilions
3 Corinthian Arch
4 Buckingham Church
5 Entrance road
6 Boycott Pavilions
7 Oxford Avenue
8 Equestrian statue



Oxford Avenue.

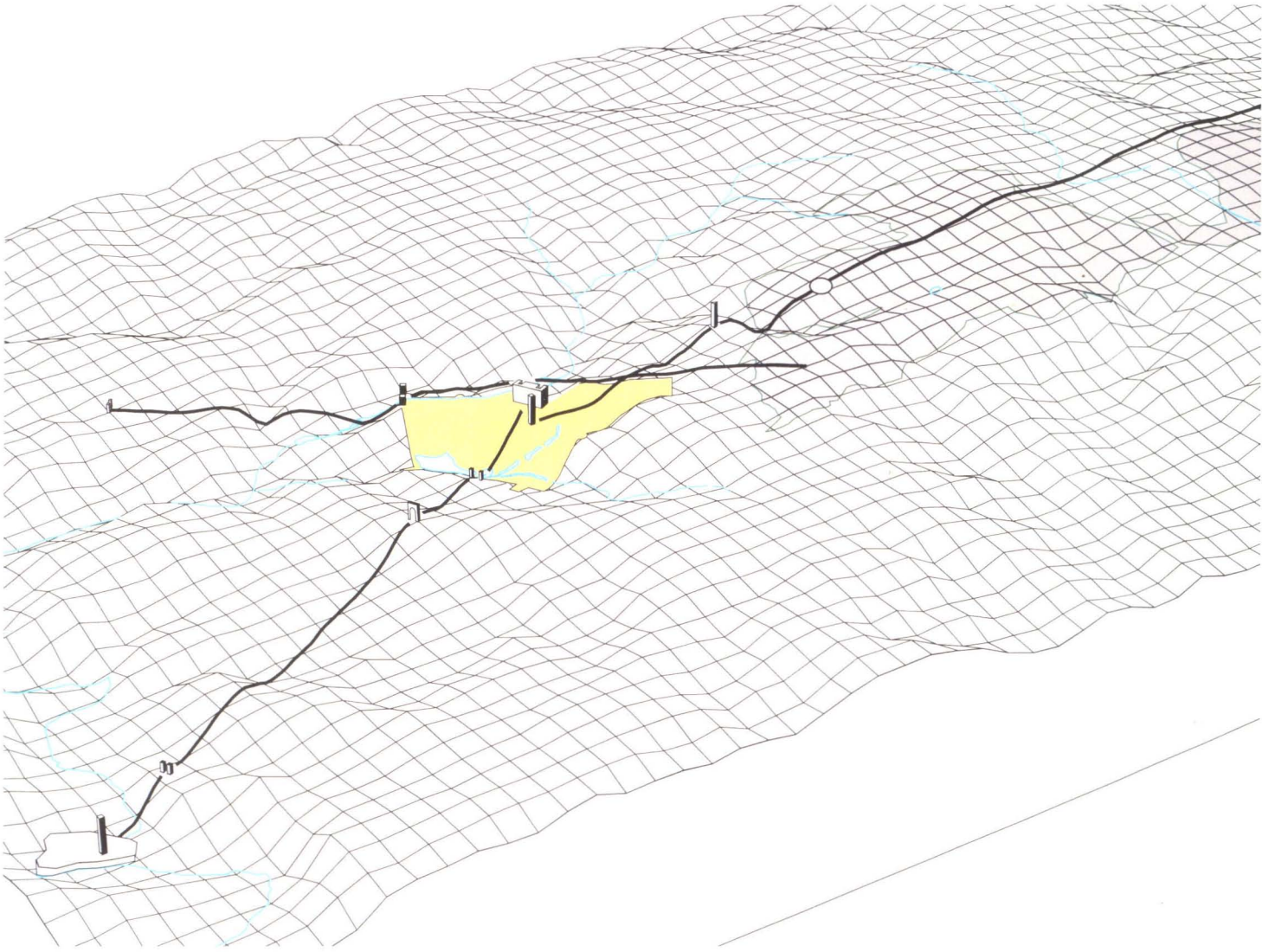


The scenography of Oxford Avenue.

1 Stowe House
2 Equestrian statue
3 Boycott Pavilions
4 Oxford/Ladymead Bridge and Water, 1761
5 Oxford Lodges, 1765
6 Entrance road

a Great Ouse River
b Water Stratford
c Brackeley Road
d Welsh Lane
e Boycott Manor Farm
f Home Farm
g Stowe Ridings

water composition followed the classical scheme: spring/cascade/reflecting pond. The upper section, the Styx, was excavated so that space was created at its tip for a grotto, at one time flanked by two shell temples, while the pool was widened on the lower side and served as a reflecting surface for the Temple of Ancient Virtue. The middle section, the Worthies River, acted as a reflecting pond for the horizontal British Worthies monument when seen from the Temple of Ancient Virtue. The third section of the Alder, the Upper River, converged with the stream from Lamport and, on an unmarked bend, flowed into Lake Octagon.



Morphology of the Stowe landscape.

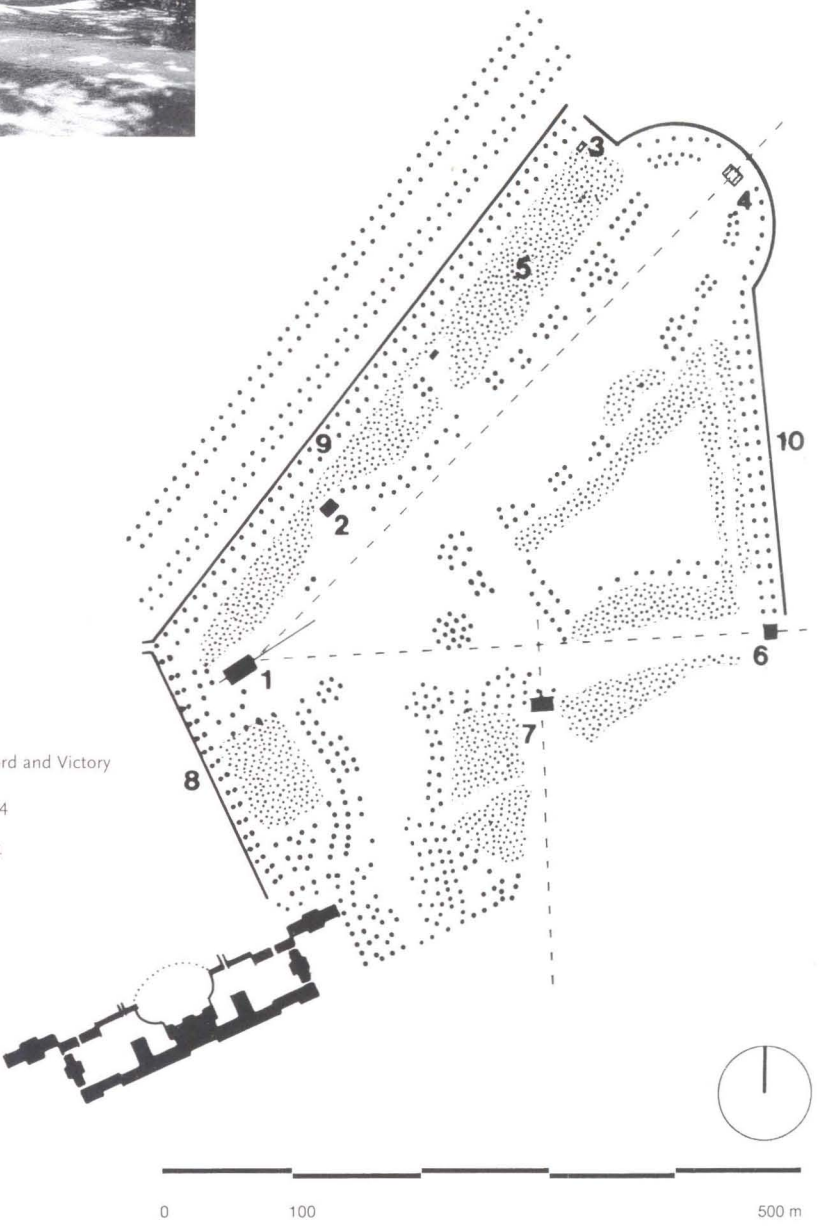
Hawkwell Field

Around 1740 a roughly oblong-shaped triangle, with a hypotenuse some 250 metres long, was cut out of Hawkwell Field. From the portico of the Ladies' Temple, which marked the top of the triangle, one had a vista across the eastern part of the garden and the undulating landscape to the south. On the lower side, the Temple of Friendship, built on a roundel of the southern ha-ha, completed the decor. When this layout is compared to the previous one, the Ladies' Temple appears to lie outside the then garden boundary, possibly on a bastion.

Hawkwell Field was a further development of the *ferme ornée* based on the Home Park model. The central area consisted of pasture and hayfields, the largest garden space up until then. The triangular space was bounded by avenues, their severe appearance being softened – albeit still formally – by means of *coulisses*. The space was marked by the Gothic Temple (originally called the Temple of Liberty) by James Gibbs, built between 1744 and 1748. This belvedere was the ideological pinnacle of the eastern emblematic garden, a 'trumpet-call of Liberty, Enlightenment and the Constitution'. From its tower there was a commanding view of the surrounding landscape. On the eastern horizon two eye-catchers were built: Stowe Castle, a farmhouse in disguise, and the Bourbon Tower, a gamekeeper's cottage built to resemble a medieval tower.

View from the salon along the main axis of the garden.

Grecian Temple/Temple of Concord and Victory.



Plan of Grecian Valley, circa 1753.

1 Grecian Temple/Temple of Concord and Victory
2 Captain Grenville's Monument
3 The Fane of Pastoral Poetry ± 1774
4 Triumphal Arch
5 Circle of the Dancing Faun ± 1774
6 Cobham's Column
7 Queen's Temple
8 Grecian Walk
9 Paddock Course Walk
10 Lord Cobham's Walk

Grecian Valley

What Cobham had in mind for the Grecian Valley went further than the pastoral idyll of the *ferme ornée* of Hawkwell Field. His intention was to design the perfect Arcadian landscape as depicted in one of Claude Lorrain's paintings, an English 'Vale of Tempe'. Death, however, came more quickly: Kent died in 1748, Cobham in 1749. After that, work came to a standstill until the moment when Grenville made the Grecian Valley a turning point in the development of Stowe gardens.

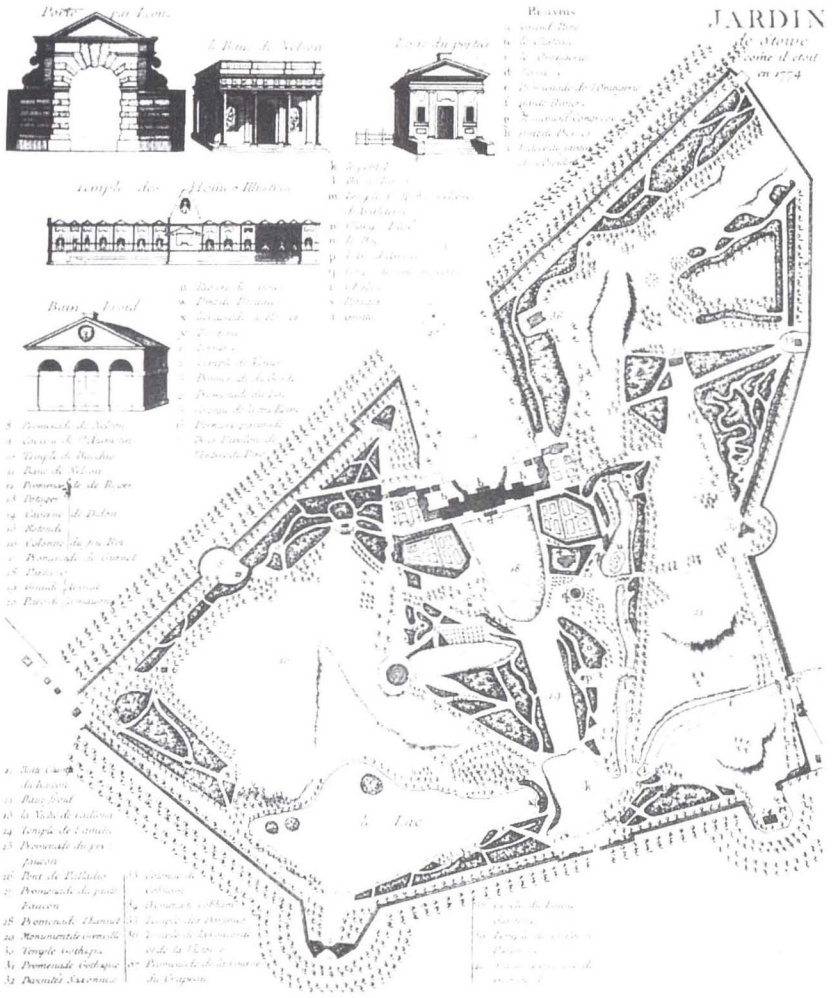
'Capability' Brown took over the work of William Kent. The Grecian Valley turned into an elongated, partly artificial, excavated valley, roughly 180 metres long and between 20 and 30 metres wide. Kent had already designed a Greek Temple, the 'largest and most exquisite ever built', at the head of the valley. This Grecian Temple was placed slightly at a slant so that it was always obliquely visible. Around the valley was a meandering path that wove in and out of woods and clumps of trees: a scheme that can be interpreted as the prototype for Brown's belt. Statues were placed along the paths to reflect the theme of the Arcadian landscape. The plantings were more varied than Bridgeman's or Kent's and included cedar, larch and Scots fir.

According to an earlier proposal (by Kent or Brown), a lake was to be created in the valley and a triumphal arch facing the Grecian Temple erected on a roundel at the other end of it. Grenville rejected the idea for a lake, probably out of necessity, as there was insufficient water on this site. He had in mind a prominent place, however, for the triumphal arch.

The panoramic composition

Grenville's era, spanning 30 years between 1747 and his death in 1779, resulted in a rigorous expansion of the garden. Meanwhile an evolution in thinking about the garden had taken place, already evident from the Elysian Fields, Hawkwell Field and the Grecian Valley. Cobham had put the spatial boundaries of garden architecture to the test, while Grenville switched to the panoramic scale of landscape architecture and attempted to integrate the garden visually into the natural landscape.

The broadening and extending of the garden began by thinning out Bridgeman's plantings. More far-reaching, however, was the widening of the vista along the principal axis and the breaking up of the configuration of avenues in favour of criss-crossing vistas. The parterre was swept away and replaced by a lawn covering the entire width of the façade, while Vanbrugh's pavilions were set further apart from each other. The garden



Le Rouge's plan, 1774.

Stowe from the north. (Aerial photo P. van Bolhuis/Pandion)

façade of the house had to be modified: to redress the proportions the existing portico was made bigger. The Embankment Terrace along Home Park was broken up and Lake Octagon and Eleven Acre Lake were 'naturalised'. The landscape theatres lost their importance: the pond in the Garden of Venus was drained and the theatre hill smoothed. Out of consideration for proportion, the dome of the Rotunda was lowered and the columns shortened, while the vertical accents of the former 'architectural' garden were adjusted to the overwhelming horizontality of the panoramic landscape.

In 1765 the Corinthian Arch, originally intended for the Grecian Valley, was erected on the hill at New Inn Farm, thereby extending the principal axis as far as the horizon. The Lake Pavilions and the Corinthian Arch now formed a triangle from the lowest point of Eleven Acre Lake to the highest point of the facing ridge. The plantings reflected this composition, when seen from the portico, in the form of *coulisses* which underpinned the perspective effect of the architectonic composition.

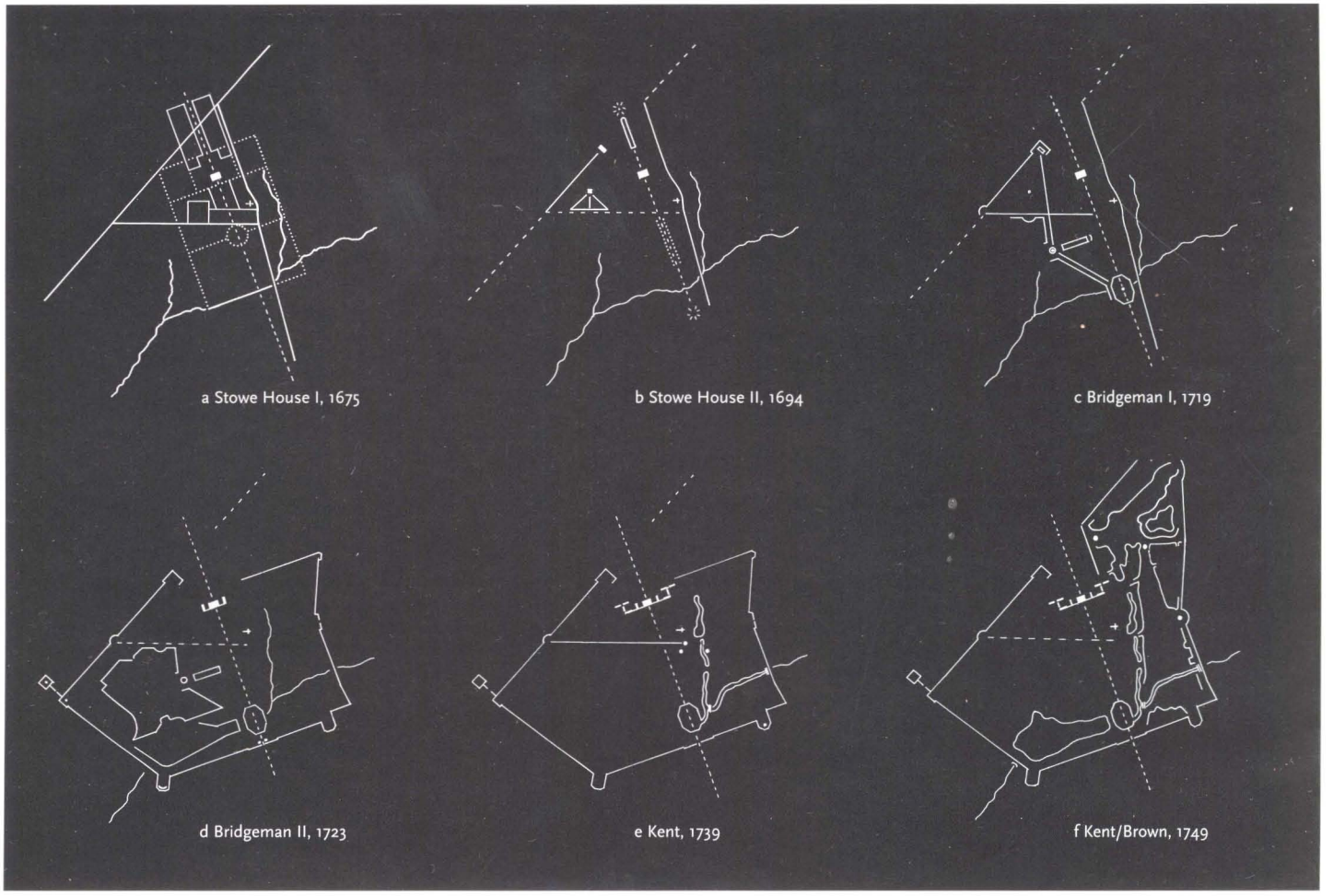
Wolfe's Obelisk on the north side of the house divided the open space between the house and Stowe Ridings. The earlier architectonic garden, with its highly defined boundaries, was transformed into a panoramic composition in which the foreground, the middle section and the backdrop were drawn together in a new dynamic balance with each other.

Oxford/Ladymead Bridge and Water, with the Boycott Pavilions in the background.

The scenography of Avenues

Grenville also realised an idea which had probably already been in Vanbrugh's mind. As a continuation of the principal axis towards Buckingham, he laid out a grand entrance drive, over two kilometres long and planted with rows of lime trees. Arriving from Buckingham, as a *coup de théâtre* the visitor was confronted at the end of the drive with a view of the raised façade of the house through the Corinthian Arch. The drive then turned off and the house disappeared behind clumps of trees, to reappear after the visitor had passed Boycott Pavilions and, via Oxford Avenue, arrived at its forefront. In this stage management Vanbrugh and Cobham's idea of the indirect approach finally was expressed.

Oxford Avenue was also extended. At the foot of Boycott Hill the Oxford Lodges, designed by Valdre, were built. A stream was dammed and widened and transformed into Oxford Bridge and Water, while Oxford Bridge was built in 1761. From Water Stratford on the Ouse the road from Oxford now followed the line of the Roman road and came with a curve, via the junction with Brackley Road at Oxford Lodges, onto the entrance drive. This descended through the woods until reaching Oxford Water and the bridge. Boycott Pavilions marked the edge of the plateau on which the garden was situated. The avenue continued at a 30-degree angle past the house as far as Stowe Ridings.



Phases in the development of the garden.

The pictural prototype

The Stowe landscape comprises five important phases in the conceptual development of the 18th-century landscape garden. The first was the plantation of Stowe Ridings with its formally ordered system of avenues, which tied in with the garden through the main axis aligned with Stowe Church. The garden plan itself was still very formal then, chiefly defined by the development of the main axis. The second was the 'theatrical' phase of the western part of the garden by Bridgeman, which Christopher Hussey termed the most creative phase and which includes the Bacchus and Venus gardens, Great Lime Cross Walk, the ha-ha with its fortifications as well as the Home Park. In an intermediate phase Home Park took shape in the western part of the gardens, and the symmetry of the eastern and western sections was restored. After that came the third, naturalistic phase of Elysian Fields, the emblematic garden with its idealised nature and Hawkwell Field, the first conscious attempt to stage-manage the natural landscape as a *ferme ornée* within the garden boundaries. The fourth, Arcadian phase, with its natural decor of the Grecian Valley, resulted in sweeping changes to the architectonic garden. In the fifth, panoramic phase the garden was visually integrated into the natural landscape. The Grand Avenue and Oxford Avenue link the garden with Buckingham and the Ouse valley, while the central axis of the Ridings links the garden with the watershed between the Ouse and the Tove. Together they represent the morphology of the hilly landscape. If the various historical phases of Stowe were summarised and projected into one plan, one could conceive of the scale and scope of its architectonic landscape, which in certain aspects was greater than that at Versailles. This conjures up an image of Stowe that was never a reality: it existed – and exists – only in the mind.

The active composition elements

A range of classical, 'critical', picturesque or 'Gothic' and even exotic architecture forms the active composition elements at Stowe. This range reflects not only the spatial but also the iconographic development of the landscape garden during the first half of the 18th century. For instance, the Elysian Fields includes a classical water stairs with a grotto from which the spring rises, various cascades and a reflecting pond. But the Temple of British Worthies in this same composition elevates British history through a comparison with the classic age. Most of the elements are related to the scale of the garden, with the exception of the Corinthian Arch which visually caps the main axis. The church of the village of Stowe, initially the focal point from Stowe Ridings, was included in the garden as a remembrance of the earlier man-made landscape. The Gothic Temple, a belvedere on the east side of the garden, is a picturesque transformation of this idea. The position of the two rotundas, Vanbrugh's on the west side and Kent's Temple of Ancient Virtue on the east side, which function as visual pivots in the complicated system of the garden, is striking. Their position confirms the basic geometry of the ground plan.

The composition scheme

The house was aligned with the church tower of Buckingham. In the course of the development the scheme of ceremonial approach was altered, albeit less elaborate than at Castle Howard. There is a direct relationship between the view on the front side and that of the garden on the back via the central hall, which is of modest dimensions. The enlargement of the façades as architectonic screens followed the development of the garden. To the degree that the parterre was stretched out and the view along the main axis became longer, the garden façade was also adapted with a larger portico and side pavilions. A semicircular colonnade was added on the north side in order to bring the form and scale of the forecourt into harmony with the new approach via Oxford Avenue. Unlike at Castle Howard, the main axis of the house remained an important support for the landscape composition. Because of this, the house preserved its central location.

The topographic design matrix mediated between the architecture and the *genius loci*, the irregularities of the terrain, and controlled the hidden geometric links among the various lines on which the garden plan was constructed. The various garden compositions within the larger, originally walled garden each have their own scheme and contain a coherent system of visual elements. They were linked together with one another by the elaborated Great Lime Cross Walk, the main axis and the avenues along the ha-ha on the outer side. A composition added later involves a view through the Doric Arch, over the Palladian bridge to Stowe Castle. However, the architectonic elements in the eastern section of the garden 'escaped' this matrix and were placed directly in the morphology of the terrain. A network of visual relations developed among these objects, that gradually also reached out over the boundaries of the garden and resulted in a large-scale panoramic landscape composition.

The panoramic level was present from the very beginning in the Stowe Ridings with its radiating paths, from which the main axis over the watershed between the Ouse and the Tove drew a visual connection between Stowe Church and Silverstone Church. The later avenue compositions of Grand Avenue and Oxford Avenue link the garden with Buckingham and the Ouse valley. Together they represent the morphology of the hilly landscape. The Bourbon Tower (a belvedere), Stowe Castle, the Corinthian Arch and Wolfe's Obelisk are architectonic elements on a panoramic scale.

At Stowe the middle plan is supported by elements on the edge of the garden such as the Lake Pavilions, the Gothic Temple and the Boycott Pavilions. As an ensemble, Oxford Bridge and Water and the Cascade and Lake, just outside the garden, are an expansion of this. The original reflecting ponds in the garden, Octagon Lake and Eleven Acre Lake, were transformed into connecting links between the house and the panoramic level. The closed nature of the garden was broken open. Unlike at Castle Howard, in this way the garden level at Stowe has direct links with the panoramic level.

Stowe as a document

In terms of landscape architecture, Stowe is England's most complex landscape garden and is probably the best example of the 18th-century experimental tradition. It represents a new form of landscape architecture in both a conceptual and a technical sense. Between 1713 and 1780 three successive generations of owners, together with their architects and artists, created a picturesque landscape which had an almost inconceivable construction. Stowe, to use Christopher Hussey's words, is the *locus classicus* of picturesque landscape architecture.

Bramham

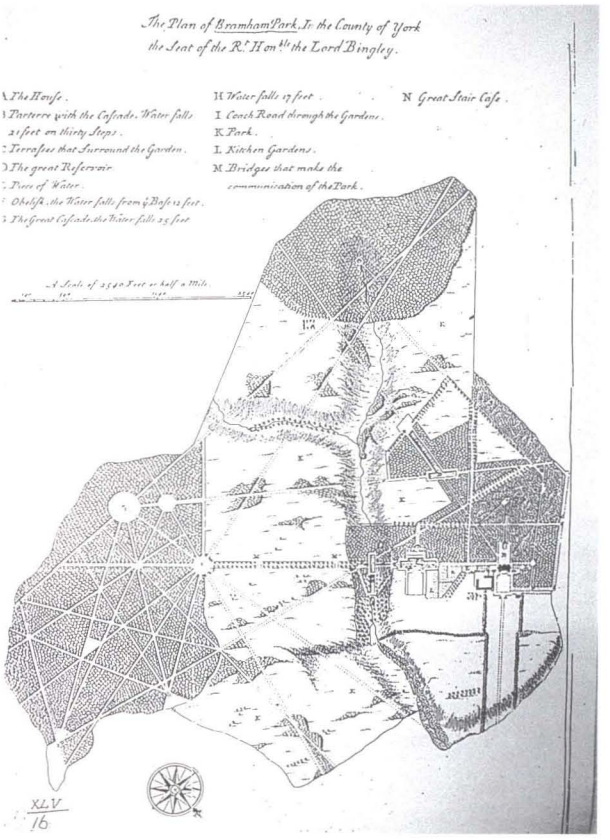
The acceptance of irregularities of site as a controlling factor in the design instead of symmetry for its own sake, [...] foreshadowed strikingly the dawning consciousness of landscape.

Christopher Hussey, *English Gardens and Landscapes 1700-1750*, 1967

The landscape garden at Bramham House, designed by Robert Benson with the help of his gardener Robert Fleming and the architect John Wood the Elder (1704-54), is regarded as one of the best surviving French-style formal gardens in England. Bramham, however, is more a 'decomposition' of the formal garden. Notwithstanding the formal aspects of Bramham, Hussey saw it foreshadowing English landscape art.

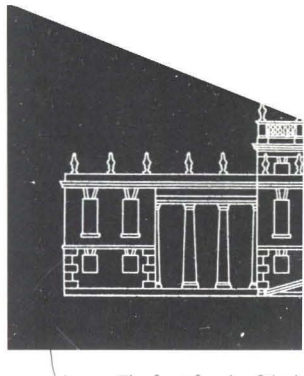
At the foot of the Pennines

After a 'grand tour' through Europe, notably in Italy, Robert Benson (1675-1730) became a successful politician as Lord Mayor and Member of Parliament for York. In 1713 he was elevated to the peerage and became 1st Lord Bingley. In 1699 he acquired 611 hectares of Bramham Moor, south-west of Bramham village, and probably began building the house in 1700. His son-in-law, George Fox, became 2nd Lord Bingley. George Fox's son Robert died childless and the Bingley peerage ceased to exist for the second time. In 1792 George's nephew James rescued the estate by going to live there. After his death in 1821, matters deteriorated again. In 1828 fire practically destroyed the house and there was no money to restore it. It was only in 1906 that a start was made to repair the house under George, 3rd Lord Bingley.



Bramham Park, 1723-25. (John Wood the Elder)

Since 1828 the garden had been entirely neglected. In February 1962 practically all the existing beech trees, mainly dating from the second half of the 19th century, were blown down. A start was made on restoring the garden and buildings, including the Great Cascade along the Broad Walk. The newly planted trees are now 30 years old and give a good impression of the garden at the time of 1st Lord Bingley.

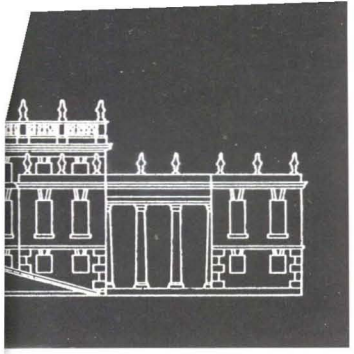


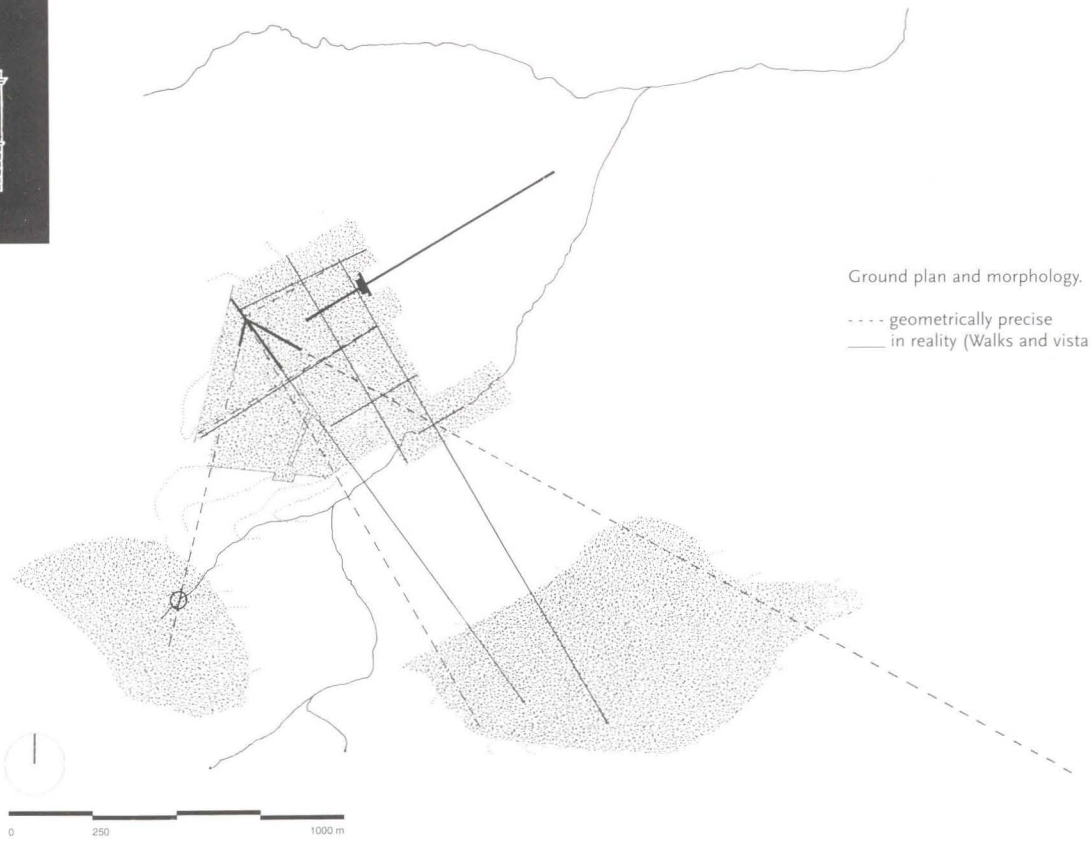
The front façade of the h

The landscape morphology.

1 Bramham Village
2 Old Bramham House
3 Bramham House

a Carr Beck
b Bramham Beck
c Openrakes Beck





Ground plan and morphology.

- - - - geometrically precise
____ in reality (Walks and vista to the temple)

Bramham House lies 15 kilometres north-east of Leeds, on the rather flat, eastern edge of the Pennines, some 65 metres above sea level. Bramham Beck drains into the Wharfe, a tributary of the Ouse. The soil composition is extremely varied, from boulder-clay to sand, on a base of calcareous magnesian limestone in the northern part and lime-deficient Millstone grit, from an earlier geological period, in the southern part of the Black Fen.

The landscape garden is laid out around three branches of the upper course of Bramham Beck. The Terrace Garden was probably natural landscape. The Black Fen, as the name suggests, was a peat bog on the loamy plateau on the other side of Bramham Beck. Terry Lug, the home farm, responsible for the estate's agriculture, is on the north side of Bramham Beck and is relatively well drained.

The development of the ground plan

Robert Benson probably designed the plan for the house and garden himself with the help of Thomas Archer, though John Summerson names Giacomo Leoni as architect. The house, completed in 1710, is symmetrical, with two colonnades on each side. The whole has been adapted to the east-west slope of the terrain. The siting of the house does raise questions. The principal axis points towards the view in a westerly direction, perhaps towards the old Bramham House in the village, although this is now blocked from view. Access is via the local road system and, aside from the entrance drive, has not been formalised. The drive is flanked by lime trees, planted both as single trees and in clumps. In a drawing by John Wood the Elder, a single row of trees on either side of the axis can be seen. The cascade on the principal axis of the house no longer exists, probably as a result of it drying up.

The earliest known drawing of the landscape garden was dated by Christopher Hussey between 1710 and 1713. It shows the same division as a drawing by John Wood the Elder, dated 1724-25, but without the Great Reservoir and the diagonal vista from the house.

The architectural elements of the landscape were partly built after Benson's death. When the 2nd Lord Bingley, George Fox Lane, occupied the house, various temples, urns and columns were added to the garden. The obelisk at the end of the Broad Walk was erected in memory of his son, Robert. The design of the Rotunda was probably based on Kent's Temple of Ancient Virtue at Stowe. The Temple of Lead Lud takes its name from the lead copies of antique statues on the temple's roof.

The Broad Walk, seen near Paine's Temple.

The woodland gardens

The woodland gardens nestle amid areas of natural wooded parkland of roughly the same scale, giving the impression of a continuous, unified whole. The woodland garden around the house is known as the Terrace Garden, while that on the Black Fen was known in Benson's time as 'Boscobello', clearly an Italian-inspired reference. As well as a parterre, the Terrace Garden consisted of a cascade and meandering paths leading through an artificial wilderness in young woodland, while the whole was surrounded by a ha-ha. The woodland garden on the Black Fen is star-shaped and is planted with diverse species of tree such as cedar, sweet chestnut, red beech, lime and Weymouth. The third woodland garden, on a hill containing the source of one of the tributaries of Bramham Beck, is probably what is left of the original wood. It has become overgrown, marked only by the architectonic treatment of a spring.

The three woodland gardens are connected by a system of vistas and avenues, walks and rides that also crisscross the natural landscape between the woodland gardens, which is planted with clumps of trees. In the Broad Walk, where this crossing has been architecturally treated, two bridges have been included, which according to John Wood the Elder 'make the communication of the park'.

The Broad Walk, seen near the Round House and Obelisk.

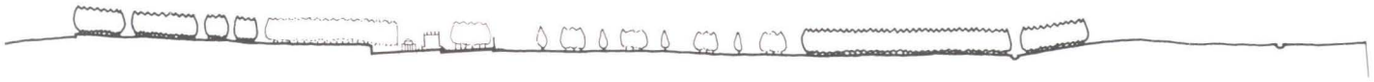
The Four Faces, seen across the T-pond.

The Four Faces, seen through an avenue of the Terrace Garden.

Plan and landscape morphology

What at first appears to be a disorderly system of avenues and vistas in the layout can be understood as a 'transformation' of a rudimentary orthogonal grid, located on the principal axis of the house. Due to accommodating the terrain's natural conditions, the grid is distorted. The most important lines of this design matrix are the Broad Walk, orthogonal to the main axis, the Quarter Mile Walk, running visually along the house, parallel to the main axis (now blocked by the stables) and the axis of the Bowling Green, which crosses the Broad Walk at the Obelisk Ponds and Cascades.

In the grid several vistas have been aligned, such as the principal axis of the house and the *patte d'oie* from the Four Faces, which thus became a visual focus of the Terrace Garden. Due to having to accommodate the site's morphology, the angles between the points of the *patte d'oie* are not purely geometric and are unequal in length. The longest vector pointed towards Bramham Cross, along the Great North Road, originally a Roman road, the central one towards the Temple of Lead Lud at the highest point of the Black Fen, while the third probably went to the spring in the third woodland garden. Thus a triangle was created between the Four Faces, the spring and the Temple of Lead Lud in which the morphology



Elevation, The Broad Walk.

The Broad Walk.

1 Chapel (Paine's Temple)
2 The House
3 Forecourt
4 Parterre
5 Cascade
6 Obelisk Pond
7 Great Cascade
8 Bramham Beck
9 Rotunda
10 Obelisk

Overview.

1 Forecourt
2 The House
3 Stables
4 Parterre (Rose Garden)
5 Cascade
6 Terraces
7 The Broad Walk/One Mile Walk
8 Quarter Mile Walk
9 Lord Bingley's Walk
10 Cathedral Ride (?)
11 The Great Reservoir/T-pond
12 Obelisk Pond and Cascades
13 Half Moon Pool
14 Great Cascade
15 Chapel (previously Orangery)
16 Stone Nymph
17 The Four Faces
18 Open Temple
19 Bowling Green
20 Octagon (Gothic Temple)
21 Dog Graveyard
22 Folly
23 Rotunda (Round House)
24 Obelisk
25 Temple of Lead Lud
26 White Gate
27 Thatched cottage

of the natural landscape was formally represented. The avenues of Black Fen point towards the three focal points of the system: the Rotunda, the Obelisk and the Temple of Lead Lud. Lord Bingley's Walk is the exception: it is possible that this avenue was part of a circuit that linked the various parts of the landscape garden with each other.

The Broad Walk

The Broad Walk was conceived as an architectonic route similar to Great Lime Cross Walk at Stowe. The cascade flowed into a formal basin at the foot of the valley, while on the south side there was a flight of steps. Due to increasing cultivation and water extraction for the Great Reservoir, the basin has now dried up at the point where the Broad Walk and the diagonal vista from the Four Faces to Bramham Cross intersect each other. The Bowling Green was treated as a landscape theatre, similar to the Bacchus and Venus gardens at Stowe.

The emergence of the landscape garden

Bramham is a pre-eminent illustration of the theory that English landscape design has its origins in the grid plan. The early and fragile beginning of what Christopher Hussey called the 'dawning consciousness of landscape' has been preserved in this garden through sheer coincidence. The main features of the plan were determined by a direct confrontation between the design matrix and the landscape morphology. The circuit walk was an important factor from the very beginning. The estate's most important avenues formed a triangle which were probably built to connect the three woodland gardens.

Blenheim

You have your end Madam,
for I will never trouble you more.

Vanbrugh in his resignation letter to Sarah,
Duchess of Marlborough, 1716

We have nothing equal to this.

George III in a letter to the Archbishop of Canterbury
after visiting Blenheim in 1786

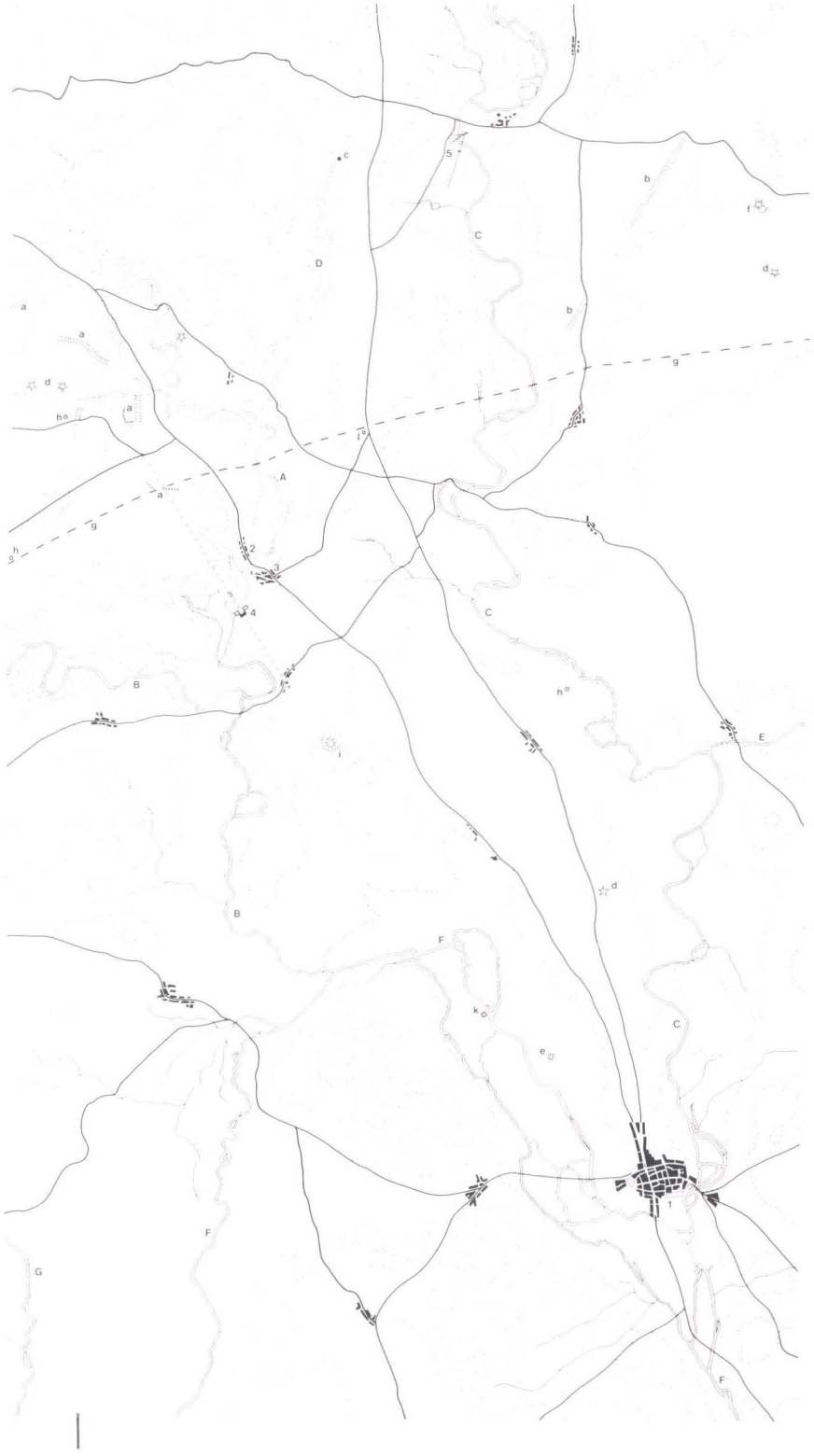
Ruins of Woodstock Manor. (Anonymous, 1714)

Blenheim Park is situated at Woodstock, about 12 kilometres north of Oxford. The park comprises some 1,100 hectares with a circumference of over 19 kilometres. Blenheim lies along the River Glyme, while not too far away is Rousham on the Cherwell. Both rivers converge at Oxford. Blenheim, which owes its existence to a war, also represents a battle of ideas. The garden is interesting in that it represents the conflicting theories of Vanbrugh, Wise and Brown.

A gift from the nation

Before the year 1000, Woodstock Park was enclosed and separated from Wychwood Forest, supposedly by King Alfred, as a hunting reservation for the Anglo-Saxon kings. The park was a favourite resting place of Henry I, who also enclosed it by means of a wall. Henry II had Woodstock Palace built, with a retreat and a walled garden and lakes at Everswell (now Rosamund's Well). Henry III, Edward III and Henry VII all rebuilt and embellished Woodstock Palace. There then followed a period in which various English princes were born at Woodstock. Most of Woodstock Palace was probably demolished in 1617. During the Civil War, in 1646, the rest of Woodstock Manor, as it was then called, became a ruin.

The hilly landscape of Blenheim Park varies in height between 115 metres at High Park and 80 metres around Bladon. The Great Park is situated at a height of roughly 100 metres and the lake at 70 metres. The medieval landscape comprised pastoral oak woods, with single trees that were saved for their fruits. The name Furze Platt, along Akeman Street in the north-east of the Great Park, refers to an open, grassy overgrowth, probably an extensive meadowland. There are also various remains from Celtic, Roman and medieval defences. Grim's Ditch in the northern part of the Great Park was a Celtic fortification during the Ice Age, while Akeman Street was a vital Roman road. South of Bladon is a ruin of a former medieval castle.



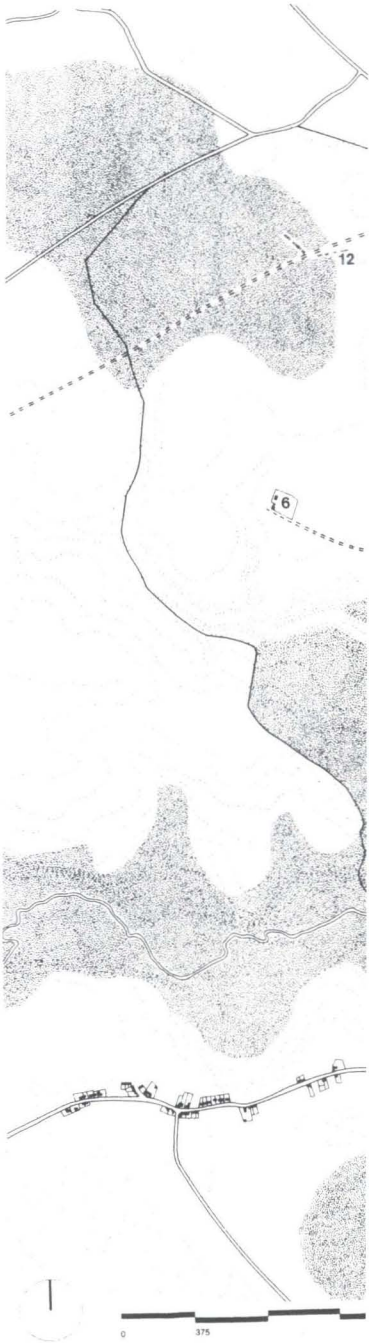
Topography.

1 Oxford
2 Old Woodstock
3 Woodstock
4 Blenheim Palace
5 Rousham House

A River Glyme
B River Evenlode
C River Cherwell
D River Dorn
E River Ray
F River Thames or Isis
G River Windrush

a Grim's Ditch
b Aves Ditch
c Hoar Stone
d Tumuli
e Round Hill
f Motte & bailey
g Akeman Street

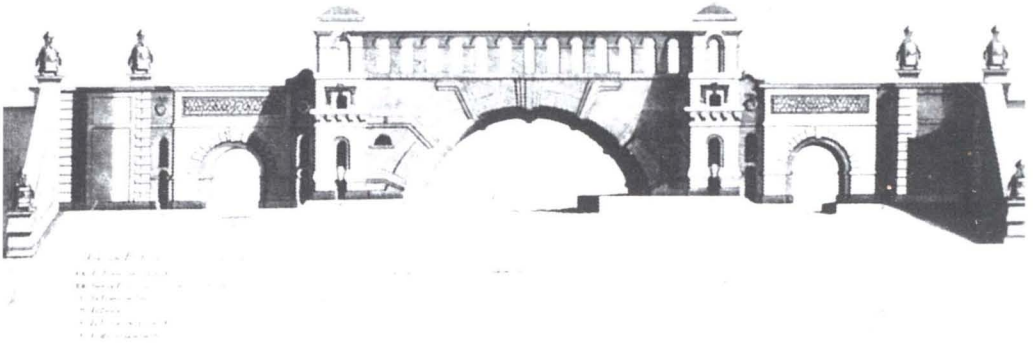
h Site of Roman villa
i Round Castle (ruin)
j Sturdy's Castle
k Godstow Abbey



A reconstruction of Woodstock Park.

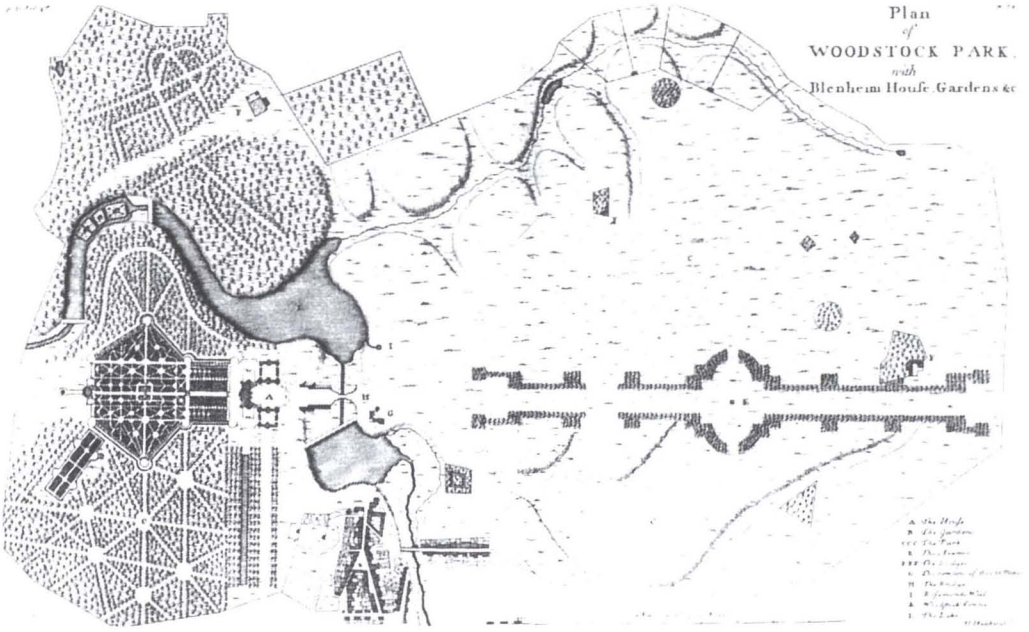
1 Woodstock Palace/Manor
2 Everswell
3 High Lodge
4 Akeman Street
5 Furze Platt
6 Park Farm
7 Bladon
8 Old Woodstock
9 Woodstock
10 Oxford Ca
11 Round Cas
12 Grim's Dit

a Glyme
b Evenlode



The Roman bridge designed by Vanbrugh. (Terasson, 1739)

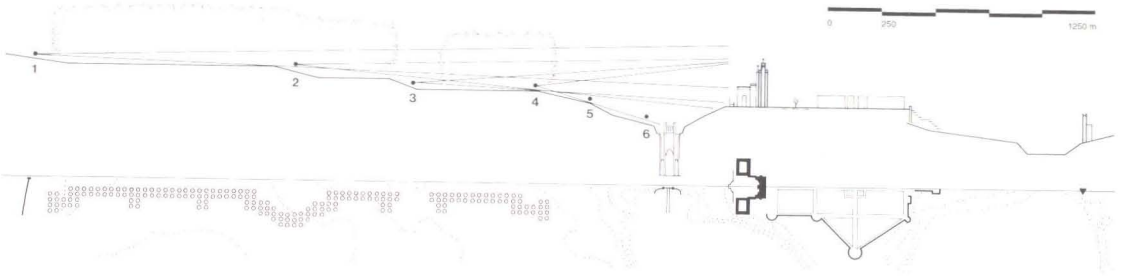
Ground plan of Woodstock Park, *Vitruvius britannicus* III. (Campbell, 1725)



Queen Anne presented Woodstock to the Duke of Marlborough (1650-1722) in 1705 in honour of his victory against the army of Louis XIV at Blenheim (in south-west Germany) on the Danube on 13 August 1704. Marlborough also received a sum of money, sufficient enough to have a new house built, which was intended to serve as a national monument. It was designed by John Vanbrugh, together with Nicholas Hawksmoor, and after Castle Howard it was their second most important commission. The foundation stone was laid in 1705.

In 1710 the Tories came to power. Marlborough was accused of embezzlement and discharged from his duties. In 1712 Queen Anne ordered the building of the house to cease. After the coronation of George I in 1714, Marlborough was rehabilitated, but was not allowed to exercise political power anymore. He decided to complete the house and, as an acknowledgement of Vanbrugh's loyalty, he procured a knighthood for him.

In 1716 the Duchess of Marlborough took matters into her own hands and dismissed all the workmen. She quarrelled



Elevation, Grand Avenue.

Scenography of the Grand Avenue.

1-6 Important elements in the scenography (see the text)

Blenheim Palace. (Aerial photo P. van Bolhuis/Pandion)

over every detail with Vanbrugh, who finally threw in the towel in an emotional but brilliantly written resignation letter. Twelve years after the first stone had been laid, the dream house was still not habitable. In 1722, after a six-year absence, the Duchess summoned Hawksmoor to complete Blenheim. The Duke died that same year and, because the chapel at Blenheim was not yet ready, was temporarily laid to rest in Westminster Abbey.

From 1705 on Henry Wise, with the assistance of Charles Bridgeman, was responsible for designing the garden, continuing the ideas of Vanbrugh. Under the 4th Duke, Lancelot 'Capability' Brown (1716-83) transformed Blenheim Park into a landscape garden in 1763. He began the work in 1764 and it took ten years to complete. Sir William Chambers (1723-96) added various embellishments. The 9th Duke inherited the estate in 1892 during the *belle époque*. He restored the formal aspects of the garden which had been lost during the Victorian era. Between 1892 and 1935 he carried out much replanting and started restoring Brown's landscape, as well as elements from before Brown's time.

Vanbrugh's landscape

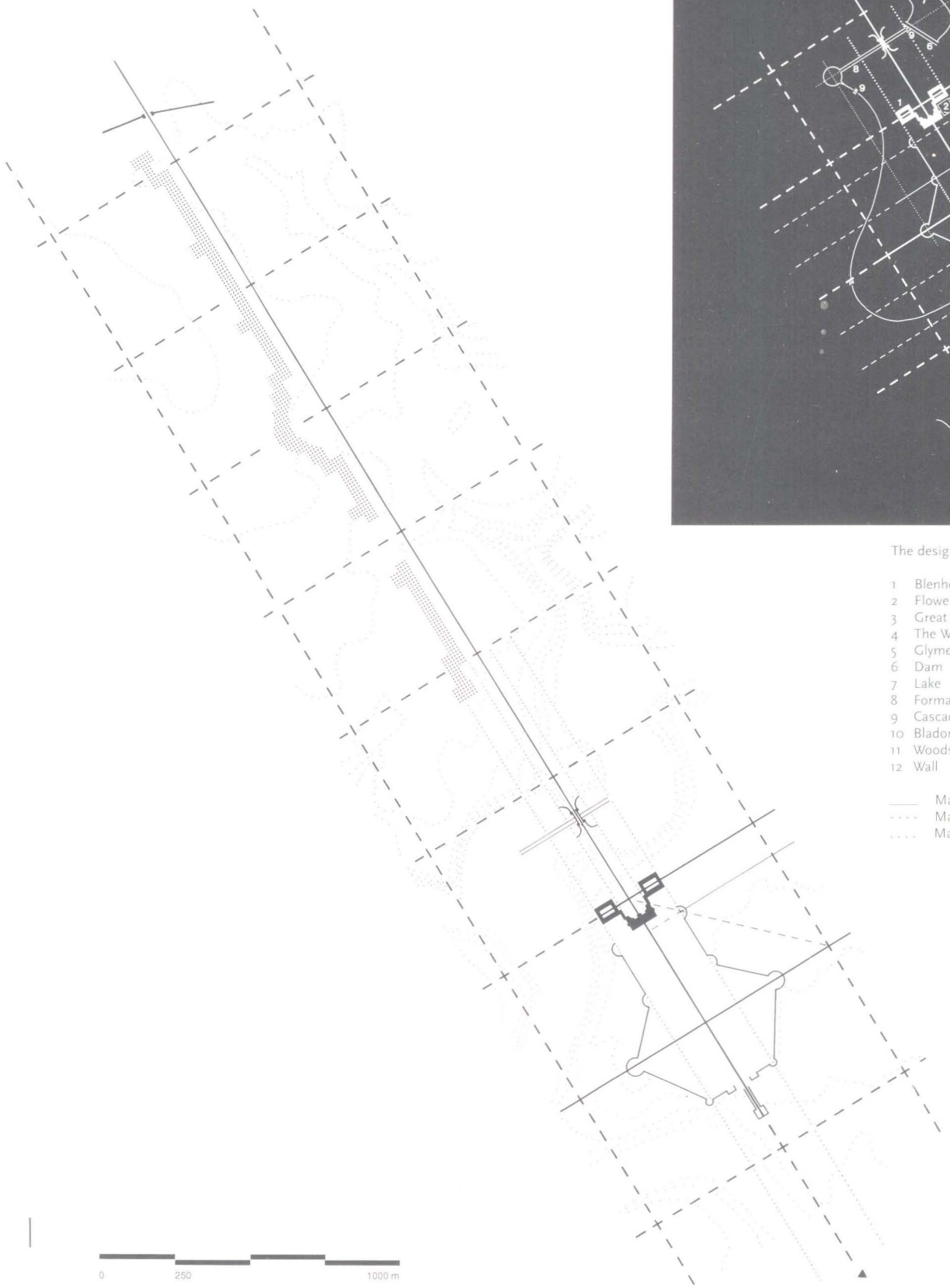
The monumental landscape Vanbrugh envisaged for Blenheim comprised a formal approach drive, a Roman bridge enhanced by the picturesque ruin of Woodstock Manor, and a parterre at the rear of the house.

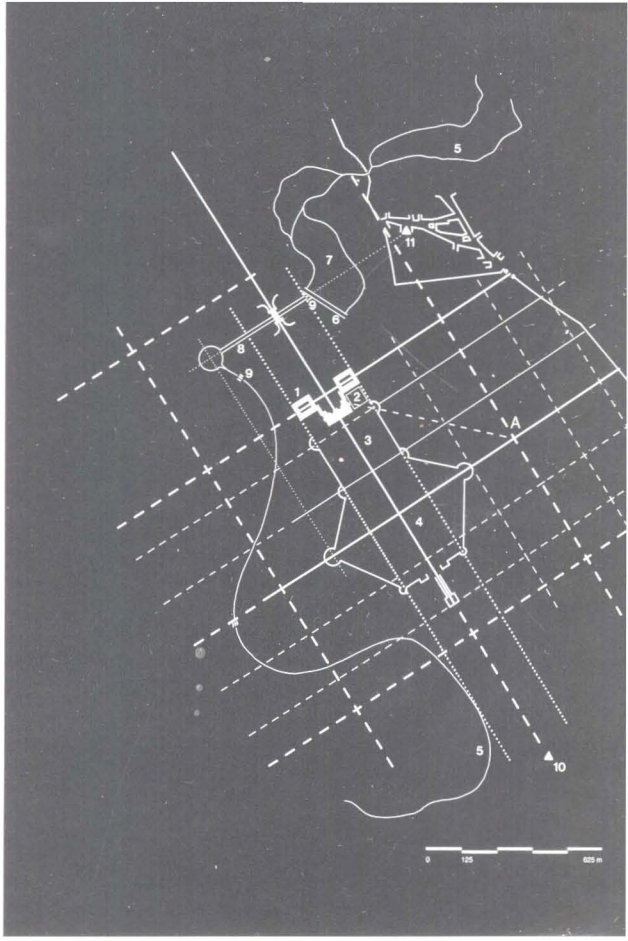
The House

Vanbrugh already had a design in mind before he even set foot on the estate: similarities between the layouts for Blenheim and Castle Howard are striking. The whole complex was designed to create an impression. The main building is recessed and has four high corner turrets, the reason the house was originally given the name Blenheim Castle. The

Wise's design matrix.

—— Matrix lines: real
- - - - Matrix lines: imaginary
. . . . Matrix lines: house





The design matrix of the Lower Park.

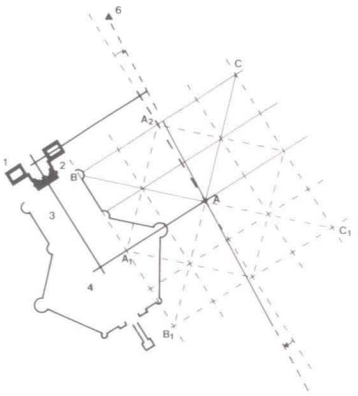
1 Blenheim Palace
2 Flower Garden
3 Great Parterre
4 The Wilderness/Woodwork
5 Glyme
6 Dam
7 Lake
8 Formal canal
9 Cascade
10 Bladon Church tower
11 Woodstock Church tower
12 Wall

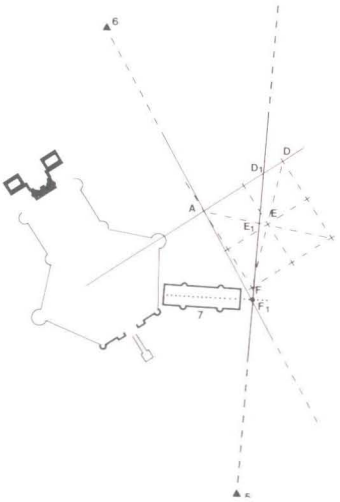
—— Matrix lines: real
- - - - Matrix lines: imaginary
. . . . Matrix lines: house and canal axis

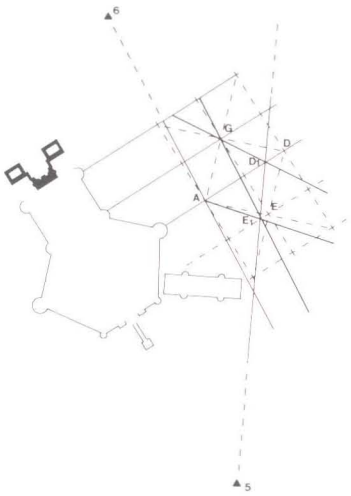
Transformation of the woods with radiating paths.

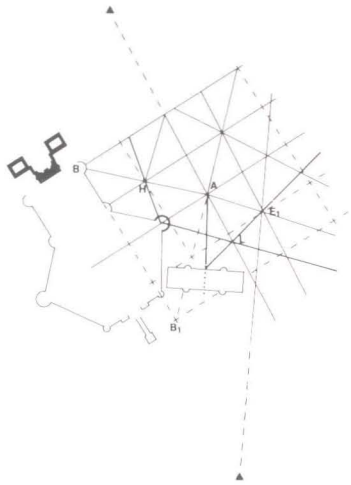
1 Blenheim Palace
2 Flower Garden
3 Great Parterre
4 The Wilderness/Woodwork
5 Bladon Church tower
6 Woodstock Church tower
7 Kitchen Garden

—— Matrix lines: real
- - - - Matrix lines: imaginary









Duchess thought the house was impractical and uncomfortable; among her objections was the great distance between the kitchen quarters and the dining room. Yet it also had several extremely practical devices, including one of England's first water towers. A machine, hidden under the Roman bridge, pumped water up via a wooden reservoir into a lead-lined basin above the entrance gate. By the stables there was another reservoir used for the west side of the house.

In choosing a site Vanbrugh showed exceptional insight into the *genius loci* of the estate. The main entrance had to face north so that a garden could be laid out facing south. Only in this way could use be made of the steep Glyme valley on the north side. The stream itself was no more than a metre wide, but had formed a broad valley with banks between 20 and 25 metres high. The principal axis of the house stretched between Ditchley Gate, on the northern boundary of the estate, and the village church at Bladon, on the south, with Bladon Heath Hill in the background. The principal axis divided the site into four unequal parts.

The 'Pons Blenheimensis'

Sir Christopher Wren (1632-1723) advised building a bridge roughly four metres above the water level of the Glyme, with two semicircular offshoots of the approach drive bridging the remaining difference in height of 20 or so metres. Vanbrugh felt the resulting approach from below would not be distinguished enough and in 1708 designed a Roman-inspired bridge – a reference to the Roman forces who had once marched along Akeman Street – at virtually the same height as the forecourt so that the portico remained in view. The bridge comprised four pavilions and the arch measured roughly 13 metres in width, based on the width of the Glyme valley. The water was to flow under the bridge in the form of three formal canals. An 11-metre-high arcade, intended to crown the bridge, was never built. A model of Bernini's river gods' fountain in Rome was to occupy a grotto under the bridge.

The scenography of the Grand Avenue

Vanbrugh envisaged a formal scenography for the three-kilometre-long Grand Avenue with four important visual moments. The morphology played an important role here. The circle, which lies on a grid point of Henry Wise's design matrix, denotes the point at which the plateau of the Great Park begins to slope. From here the visitor had an overview of the vertical structure of the house. Attention was drawn to the side valley of the Glyme by means of an opening in the plantings.

Approaching from Ditchley Gate, only the middle section of the house was to be seen, framed by trees and without the side wings. From the slopes of the side valley, both the building and its side wings could be seen in its entirety. At the point where the plantings terminated, the visitor had a view of the bridge and the house couched in a sweeping panorama.

The parterre

In the first phase, the garden on the south side consisted of three different areas: the kitchen garden, the flower garden and the Great Parterre, with paths, ponds and fountains and planted with evergreens. On the south side the parterre gave way to a six-sided wilderness (The Woodwork), which can be seen as a formalisation of the bend in the River Glyme. The whole was bounded by a curtain wall with bastions in the corners.

The Mall and the Triumphal Arch

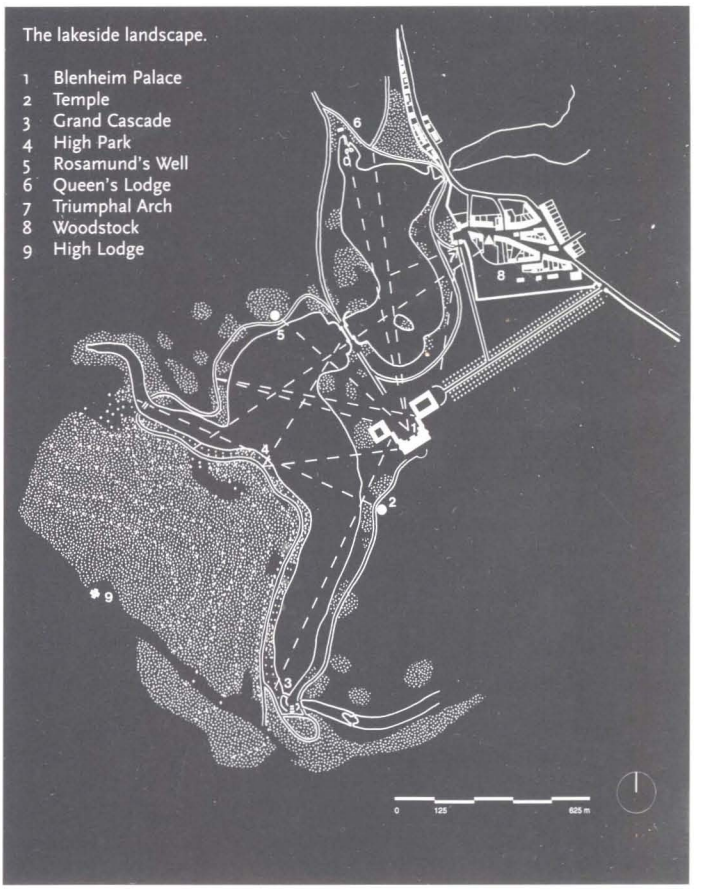
Due to the peculiarities of the topography, the approach to the house from Oxford posed a problem. From which point could the visitor best have a preview of the house? Vanbrugh's proposal to lead visitors, via the Mall, through the courtyard of the kitchen block instead of along the front of the house transformed the restrictions of the site into an advantage. Vanbrugh probably intended to mark the beginning of the Mall at Oxford Road with a triumphal arch, but things worked out differently. The Triumphal Arch, designed by Hawksmoor in 1722, was finally placed at the end of the village street of Woodstock, not as an extension of this but at an angle, with a link to the Mall, whereby the visitor is 'channelled' as it were to the park entrance via a *cul-de-sac*.

Woodstock Manor and the Victory Column

Vanbrugh urged that Woodstock Manor be preserved, and later he wanted to erect a historic column on its site to commemorate the victory of the Duke of Marlborough. In 1731, however, the Column of Victory was placed at the beginning of Grand Avenue, after the Duchess had earlier considered positioning it at the junction of the Mall and the formal avenue leading from the Triumphal Arch.

Wise's landscape

Henry Wise (1653-1738) designed the plan for the landscape garden. Charles Bridgeman, who was just starting his career, assisted him, while Stephen Switzer helped him lay the waterworks. Wise hardly had time to make a coherent design, for due to the age of the Duke the garden had to be planted within a year. Wise laid out the parterre with clipped trees in tubs. Within 18 months following the foundation stone, Grand Avenue and the Mall were planted, most likely with limes. To the south of the Mall, Wise designed a formal canal.



The lakeside landscape.

A sketch by Wise from 1705/06 has been preserved in which he attempts to find a solution for the Glyme in the form of a sequence of formal canals and basins on the north and south side of the house, linked to each other by a more or less natural reservoir in the low, meandering part on the west side. A sketch in *Vitruvius britannicus*, part III, from 1725, shows the further development of this idea, with two reservoirs connected to each other by a formal canal. The design was never realised in this form, however.

The design matrix

Wise attempted to integrate the different parts of the garden by means of a design matrix which would incorporate Vanbrugh's formal system and the architectonic matrix of the house. He was only partly successful due to the extreme irregularity of the site. The matrix, however, did influence the scenography of the Grand Avenue and the wood in Lower Park.

View from the Triumphal Arch to the sunken bridge.

Brown's landscape.
1 Blenheim Palace
2 The Mall
3 Woodstock
4 Bladon Church tower
5 Glyme
6 Evenlode
7 Queen's Pool
8 The Lake
9 Roman bridge
The Great Park
10 Ditchley Lodge
11 Roman road/Akeman
12 Furze Platt
13 Park Farm/Menagerie
14 The Paddocks
15 Fourteen Acre Clump
16 Big Clump
17 Icehouse Clump
18 Wall
19 Belt
20 Mapleton Pond
21 Ha-ha
22 Great Avenue
23 Column of Victory
24 Queen's Lodge
25 Triumphal Arch (Hawk
26 Rosamund's Well
Pleasure Garden
27 Flower Garden
28 Temple of Diana/New (Chambers)
29 Temple of Health (Yen
30 Fountain
31 Grand Cascade
32 Boathouse
33 Middle Lodge
Lower Park
34 Kitchen Garden
35 Conservatory
36 The Groves
37 Lower cascade
38 New Bladon bridge
39 Long Acre bridge
40 Comborough Bridge
41 Bladon Lodge
42 Combe Lodge
43 High Lodge
0
250
1250 m

On the east side of the parterre Henry Wise was successful in achieving continuity on the basis of a grid that divided the site into four parts. The module was determined by the Mall on the north side, the principal axis and the axis of Woodwork. From the Bower Room an imaginary diagonal could be drawn across the flower garden and the first bulwark of the parterre. This resulted in intersection A, the fixed point in the plantation. A grid with a smaller module size formed the basis for dividing the site between the parterre and the east wall. The avenues of the plantation originate from grid transformations.

Brown's landscape

Lancelot 'Capability' Brown (1716-83) put the final touches to the landscape garden. His parkland was suitable for farming, while the woods he planted were an investment for the future. For plantings he used elm, oak, beech, ash and lime, supplemented with a mix of Scots fir and larch with cedar to give a special accent. Brown radically reorganised the Blenheim landscape. The Great Park was bounded by a belt along the borders of the estate with openings at certain points which provided vistas across the park, or framed a visually important element. The ha-ha (hidden sunken fence) on the inside was concealed by clumps of ornamental trees and single ones. The belt walk was a further enhancement of Bridgeman's circuit walk, a route which offered both a view of the house and the surrounding natural landscape. Brown made a curve in the Grand Avenue, about two thirds of the way from Ditchley Gate, and continued it in a great bend along the lake before returning it to the principal axis at the bridge. The parterre on the south side of the house was dismantled and laid with grass, from which Brown made an open, sloping lawn surrounded by the Pleasure Grounds with clumps of trees and bounded by a ha-ha. The dismantling of the parterre did not do anything for the spatial cohesion of Lower Park, though from a panoramic viewpoint it convincingly anchored the massive house in the landscape garden.

The lakeside landscape

The essence of Brown's contribution to Blenheim, which instantly became well-known, was the lakeside landscape of the Glyme valley. In his *Plan for the Intended Alterations*, probably dating from 1763, Brown proposed damming the river at Bladon in order to create a smoothly connecting reservoir, which was also considerably larger than before. It was the largest lake Brown ever designed and a worthy counterpart of Vanbrugh's palace and the great Roman bridge. The monumentality of Vanbrugh's landscape was suddenly put into perspective by the diagonal landscape of the lake, which brought the scale of the architectonic landscape visually in keeping with the geomorphology.

The level of the lake had to be raised to three metres in order to function as a reflecting surface for the panoramic composition. As a result the bridge was submerged deeper into the water so that its rooms on the underside were flooded. Armstrong's cascade near the dam at Woodstock Manor also disappeared under water. It is telling for Brown's precision that the water level came precisely to the beginning of the arch, which just about provides a balanced image and leaves the bridge visually intact. At the far end of the reservoir, Brown designed a cascade. Around the lake he made a panoramic composition; the view from the Triumphal Arch was stage-managed as a *coup de théâtre*. From the Queen's Lodge there was a view of the house across the length of Queen's Pool, while from the Temple of Diana, by Sir William Chambers, one could look across the west part of the lake. Above the cascade a viewing point was made from where, across the stretch of lake, the house could be seen.

The dialectics and visual synthesis of the architectonic landscape

At Blenheim the main developmental phases of picturesque landscape architecture are directly evident. While Stowe derives its strength from the topographic design matrix and Castle Howard gains its from the landscape theatre, Blenheim was exceptional for its formal dialectics. Its landscape seems to have been forged with a sledgehammer; it is a visual tour de force, unique in the history of 18th-century landscape architecture.

The formal scenography of the Grand Avenue has been lost for the most part; only traces of Wise's rational design matrix remain. Recent reconstructions have disregarded the aspects of the formal and rational staging that were connected with it. As a result the confrontation between Vanbrugh's landscape and Brown's lakeside landscape fails to convey the boldness which lies hidden in the plan.

Brown's damming of the Glyme combined the design dialectics of the architectural landscape to create a visual synthesis. His lake composition has something miraculous about it, or as Sir Sacheverell Sitwell, friend and advisor of the 9th Duke, put it: 'There is nothing finer in Europe; in its way this is one of the wonders of the 18th century.'

Rousham

The garden is Daphne in little; the sweetest little groves, streams, glades, porticoes, cascades and river imaginable; all the scenes are perfectly classic.

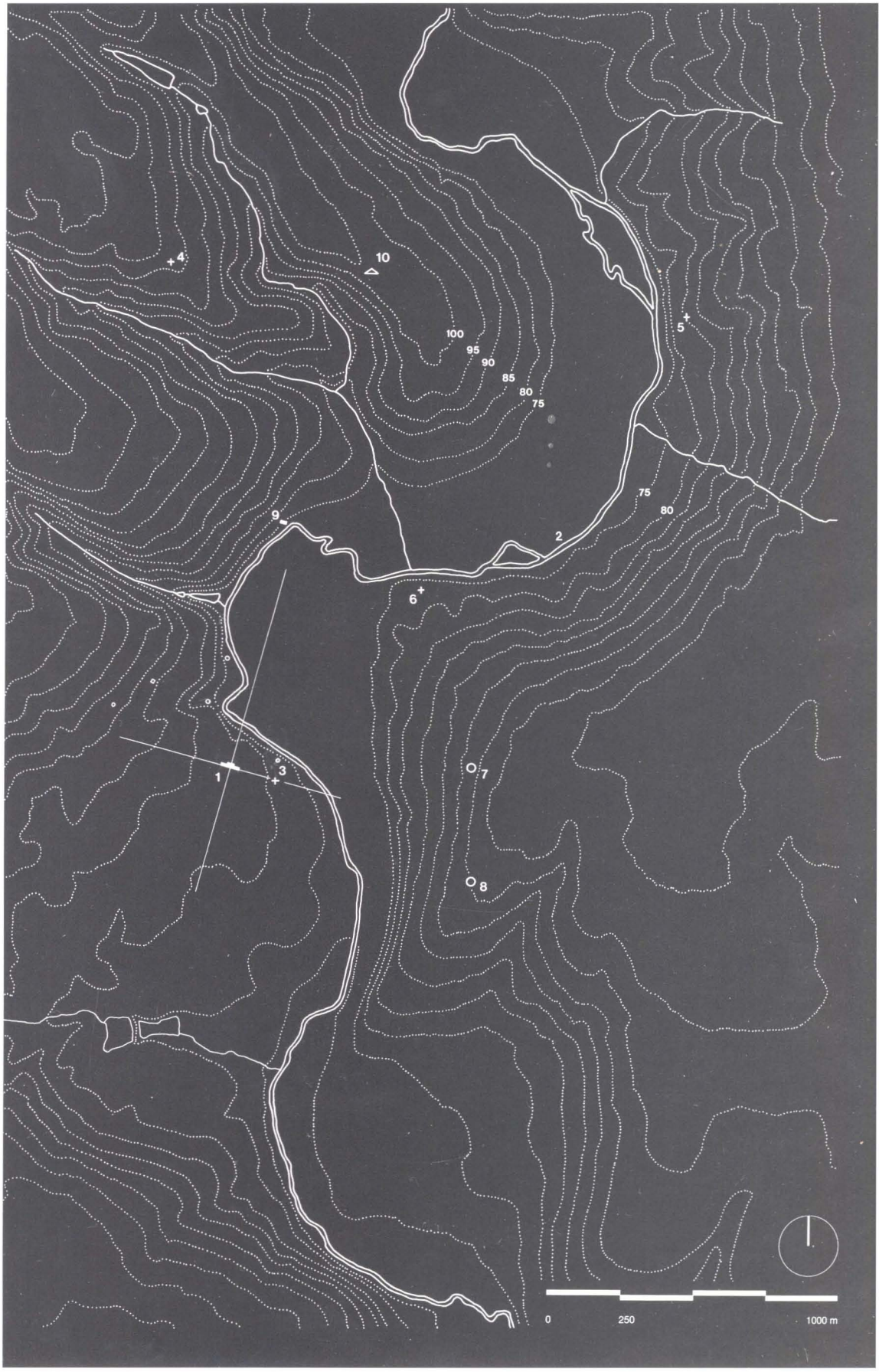
Horace Walpole (1717-97), *Correspondence vol. X*

The garden at Rousham is regarded as the best surviving design of William Kent (1685-1748) and is an important document for studying his work. Kent's plan was based on an earlier design by Charles Bridgeman (circa 1680-1738), executed around 1720. While Bridgeman and Kent were contemporaries, they represent different generations from the viewpoint of landscape architecture. Bridgeman's style was shaped by the formal idiom of Wise, while Kent's compositional technique was more picturesque than architectural, aimed more at corresponding tableaux and visually coordinating spaces than the tectonics of the plan.

A bend in the river

Rousham House was built around 1635 by the grandfather of Colonel Robert Dormer, who settled there after a series of campaigns under the Duke of Marlborough. He commissioned Bridgeman to design a new garden, which was possibly laid out between 1715 and 1726. His brother, General James Dormer, also a Blenheim veteran, inherited Rousham after the Colonel's death in 1737, and in that same year commissioned Kent to modify Bridgeman's garden. This was designed and executed between 1737 and 1738. The General died in 1741 or 1742 and his nephew, Sir Clement Cottrell, the Master of Ceremonies of George II, inherited the estate but was hardly ever there. Around 1860, William St. Aubyn enlarged the house, whereby many of the details of Kent's design, such as

Rousham. (Aerial photo P. van Bolhuis/Pandion)



The landscape morphology.

1 Rousham House
2 River Cherwell
3 Rousham Church
4 Steeple, Aston Church
5 Upper Heyford Church
6 Lower Heyford Church
7 North Roundel
8 South Roundel
9 Gothic Mill
10 Eye-catcher

the mullioned windows, probably disappeared. In 1982 a restoration plan was drawn up by the then Historic Buildings and Monuments Commission to restore Kent's landscape.

Rousham House is situated in a wooded landscape, close to the villages of Steeple Aston and Lower Heyford, halfway between Oxford and Banbury in Oxfordshire. The hamlet of Rousham probably dates from about 1200. The house lies on a level area of a plateau, facing south, while the garden lies on the north and west banks of the River Cherwell. The part that Kent developed covered some six hectares. The Cherwell flows from north to south, bounded by a steep bank of oolitic limestone, 15 metres in height, situated in a bend of the river, from which several springs originate.

Bridgeman's design

Before Bridgeman's arrival, the Tudor house was situated in the centre of the village, flanked on the east side by a walled vegetable garden. On the west side was the Warren, an enclosed wild park and probably the remains of a more extensive wood. To the rear was a walled garden with a parterre and terraces that descended to the river. In the bend of the river was a series of fish ponds.

An undated drawing by Bridgeman depicts the most important elements of his design. The parterre was replaced by a gravel walk and a slightly sunken Bowling Green. The five terraces were replaced by a grassy slope. The main division in Bridgeman's design of the walled woodland garden was based on two intersecting axes, suggested by the sharp angles of the boundaries. The garden contained a series of formal elements linked together by serpentine paths. The house and the new woodland garden were linked by one path along a retaining wall in the slope. Halfway, at a bend, Bridgeman designed a bastion as a 'rise' in the axis of the straightened river. He also designed two amphitheatres on each side of the parterre from where one could have a view across the valley. These landscape theatres established the most important characteristic of the later landscape garden.

Kent's design

Kent remodelled the Tudor house in the Gothic style, adding wings to each side of the house. He designed several garden spaces which opened onto the meadows of the Cherwell, with roughly the same symmetrical structure and with a concave slope. The visual reach of the relatively small garden was enlarged by including the hills, on the other side of the valley, in the plan.

The New Garden. (Charles Bridgeman, circa 1725)

A reconstruction of Rousham House, circa 1715.

1 Rousham House
2 Farm yard
3 Walnut Tree Orchard
4 The Warren
5 Rousham Church
6 Green
7 Terraces

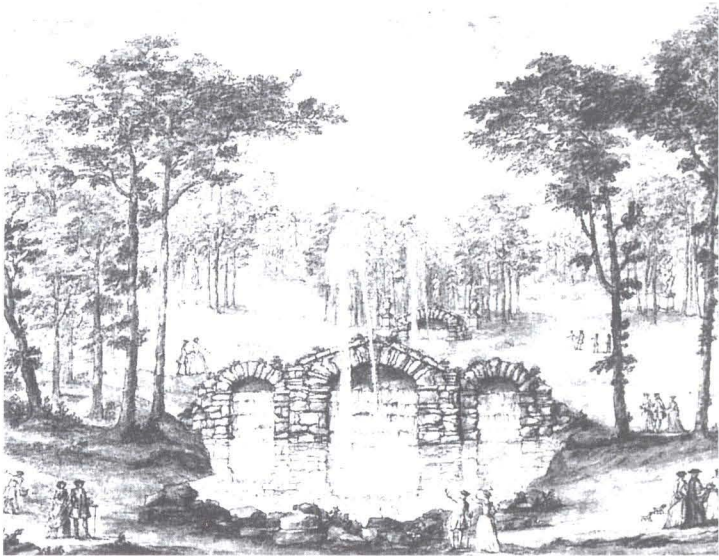
Serpentine Rill with Cold Bath.

The Paddock from the terrace, with the Dying Gladiator.

From an iconographic viewpoint Rousham, like Stowe, was an emblematic or 'learned' garden, each space having been given the significance of a classical scene. Along the edge of the plateau, urns and stone sculptures were used, often to horizontal effect. Lead statues were placed in the niches of the house and lower down in the garden. The structures were also combined with a lookout point. Kent placed a statue by Scheemakers at the end of the Bowling Green as a visually important link: from the house it denoted the edge of the terrace and in conjunction with the Gothic Mill and the Triumphal Arch (an eye-catcher) gave depth to the valley.

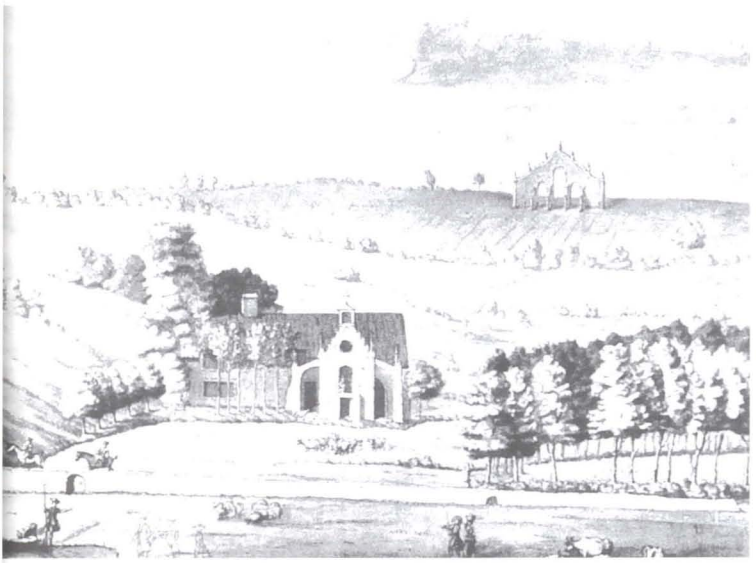
The transformation of the woodland garden

In order to enlarge the north part of the garden, the road to Steeple Aston was shifted with the result that Heyford Bridge, dating from 1255, became part of the garden. Kent replaced Bridgeman's serpentine system of paths with a simpler structure and reduced the number of garden spaces. As an impor-



Venus's Vale. (Kent, circa 1738)

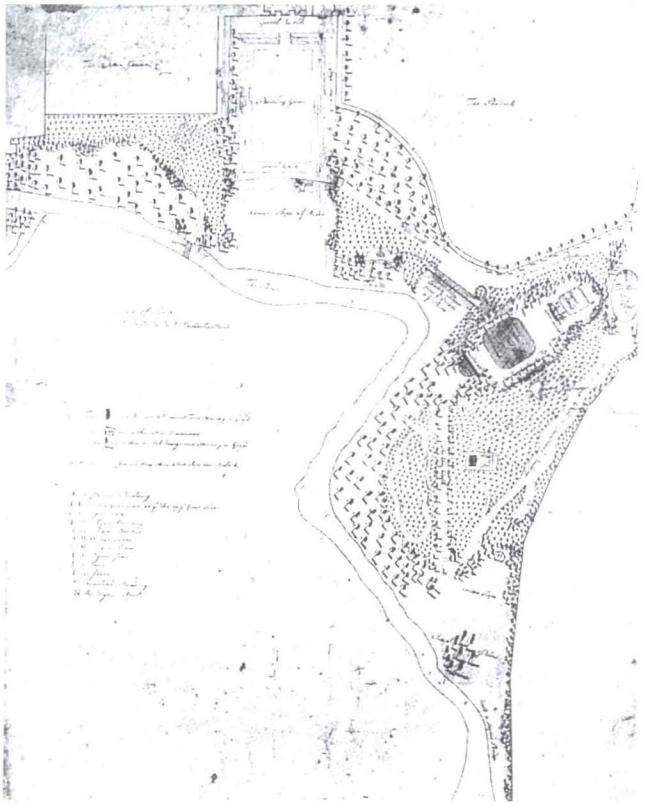
View from the Parterre/Bowling Green.



The Cuttle Mill/Gothic Mill. (Kent, 1738)

tant new element he designed the Grass Walk, which made it possible to walk along the wall from the Paddock, via the Oval Pond, to the lower part of the garden. This now comprised three sections. Along the river an open grove was planted and as a new lookout point Kent designed Townsend's Temple, named after the mason-architect William Townsend of Oxford. At the end of the shortened Elm Walk a statue of Apollo was placed with its back to the Walk. This was apparently intended to lure one into the Praeneste. Mavis Batey points out that virtually all of the statues at Rousham face outwards instead of inwards, as was then the custom, undoubtedly with the idea of enticing the visitor to do the same.

The key to improving the relationship between the Bowling Green, the Paddock and the woodland garden lay in a narrow part of the garden at Bridgeman's bastion. This was refashioned into a terrace with balustrade, the spatial pivot of the landscape garden with a view from each of its sides. On the terrace the visitor is unaware that the balustrade lies directly



Kent's design. (Probably drawn by William White, circa 1738)

The garden spaces.

1 The Forecourt
2 The Bowling Green
3 The Great Slope
4 The Walled Garden
5 The Meadow
6 The Paddock
7 Upper Grove
8 Green Walk
9 Woodland Walks
10 Venus's Vale
11 Oval Fishpond
12 Header Pond/Upper Pond
13 Watery Walk/Serpentine Rill
14 Garden Bridge
15 Bridge Walk
16 River Cherwell
17 Heyford Road and Bridge

above Praeneste. From Elm Walk, the longitudinal axis of the lower-situated woodland garden, the arcade is visible from a diagonal area. Thus there is an arrangement on two levels, the one linked to the other by the pivotal position of the terrace and arcade.

Venus's Vale

The waterworks at Rousham were fed by a number of springs high in the hills, where the water was collected in two header ponds and an oval fishpond just inside the garden wall. In this way modest, natural water pressure could be built up. The Lower Cascade and Pool and the Upper Cascade had fountains some nine and six metres in height, respectively. The theatre to the east of Praeneste also has a 7.5-metre-high fountain with shell-shaped basins. The Cherwell served as a reflecting pool.

The iconography of Venus's Vale embraces symbols of sensuality and fertility (counterpoints to the dying gladiator on the terrace above the Praeneste) as well as containing references to Spencer's *The Faerie Queen*. This fairytale theatre is dominated by Venus, flanked by swans and observed from the surrounding woods by Pan and a satyr. The drawing of Venus's Vale by Kent shows he intended an airy composition, with open views along the statue of Venus. Kent planted the sides with clumps of trees, pruned to allow light to enter this limited space in which one looks towards the hill and, in the afternoons, towards the sun.

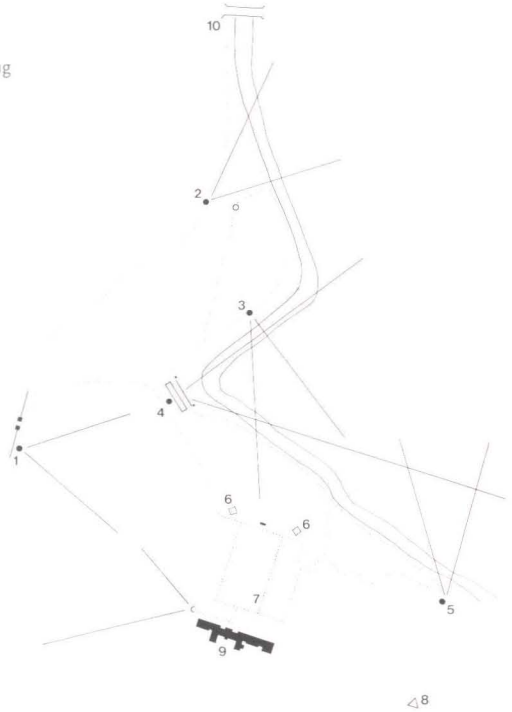
The Warren on the west front of the house was transformed into the Paddock, an open meadow with clumps of trees surrounded by a ha-ha, and the Pleasure Grounds, with views on all sides. On the west side Kent designed the Palladian Gate, flanked by two urns. Next to it was the Cow Tower, a gatehouse which was used on the other side as a cow shed. Inside the tower a space had been left open for the Gothic seat, from which the visitor had an advantageous view of the remodelled house, embellished with Gothic ornamentation, and Rousham Church, with the clumps of trees, the North and South Roundels, on the hills on the eastern horizon.

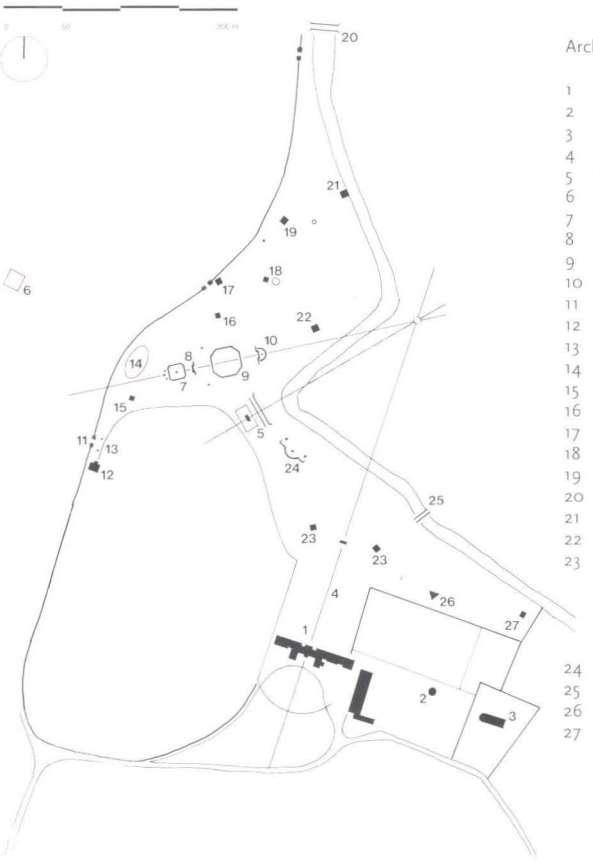
The perimeter walk

In Bridgeman's design the parts of the garden on both sides of the parterre were not directly linked to each other. The path to the bastion was the only access to the woodland garden, which had to be taken in both directions. Kent designed a circular walk with many alternatives in which he made optimum use of the garden's perimeter. In this walk along the boundary

The Perimeter Walk.

1 Gothic Seat
2 Townsend's Building
3 Viewing Seat
4 Praeneste
5 Classic Seat
6 Green Seat
7 Gravel Walk
8 Rousham Church
9 Rousham House
10 Heyford Bridge





Architectonic elements.

1 Rousham House
2 Pigeon House
3 Rousham Church
4 Parterre
5 Terrace/Arcade
6 Header Pond
7 Upper Pond
8 Upper Cascade
9 Octagon Pond
10 Lower Cascade
11 Palladian Gate
12 Cow Tower/Gothic Seat
13 Urns
14 Road Well/Oval Fish Pond
15 High Seat
16 Garden Privy
17 Forest Chair
18 Cold Bath
19 Townsend's Building (Kent)
20 Heyford Bridge
21 Boathouse
22 Viewing Seat
23 Green Seat
24 Theatre
25 Garden Bridge and Cascade
26 Pyramid House
27 Classic Seat

of the garden, Rousham was presented as a *ferme ornée*, with the house, church and walled vegetable garden serving as a backdrop.

The walk was mainly along grass and came out in the lower-situated part of the garden. Via Elm Walk the walk continued through the new garden to the lower side of Venus's Vale. The turning point of the route was Praeneste, from where there was a view across the valley to Lower Heyford. The walk continued along the river to the eastern part of the garden with the Classic Seat, from where there was a longitudinal vista of the Cherwell. The house could finally be reached again via the vegetable garden.

The landscape theatre

Kent retained the greater part of Bridgeman's design for the garden but enhanced the visual cohesion between the main spaces by coordinating the most important vistas. He had the axes intersecting at an unmarked point located outside the actual garden. By means of this imaginary intersection, the hidden link between the valley wall and the various garden spaces became visible so that the Cherwell valley and the surrounding hills were transformed into a large amphitheatre.

Kent created a theatrical landscape by 'retouching' the existing natural one. He made practical use of existing picturesque features such as the house, Rousham Church, Heyford Bridge and the church towers of Steeple Aston and Lower Heyford. He transformed a cottage in the middle section by using a Gothic gable for the Gothic Mill. On the barren hills to the eastern horizon he planted two clumps of trees, the North and the South Roundel. Refinement was achieved in the form of an eye-catcher in Aston Field, built against the northern valley wall, intended to 'animate' the horizon.

The hidden geometry of the panorama

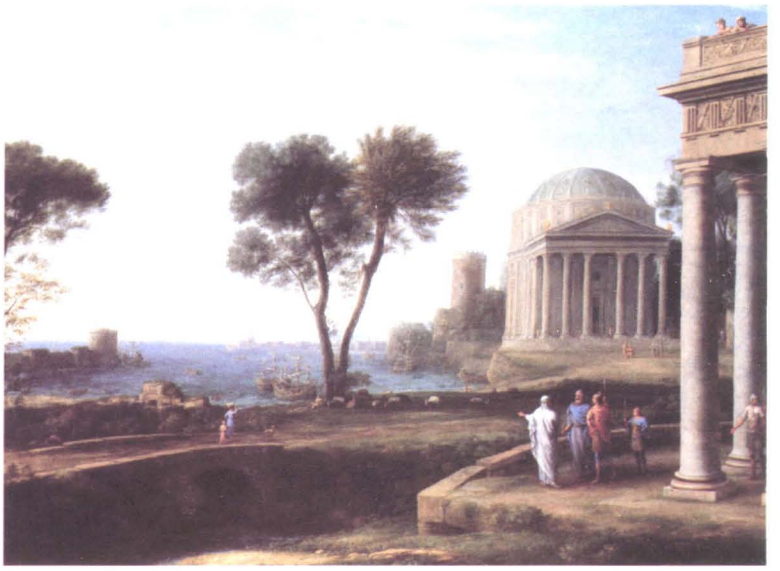
Kent's completion of Bridgeman's composition was a masterpiece. He opened up the garden and systematically directed the focus outwards. By using clever routing and by animating the horizon, Kent created the illusion of a boundless park landscape within this small garden. The arrangement of the garden spaces and vistas around an imaginary centre was unique and herein lies the secret of Kent's visual synthesis. He discovered the hidden geometric relationship between the various parts of the garden and in so doing made the house, the garden spaces and the surrounding hills part of a panoramic landscape theatre which also included the observer.

Stourhead

Apollo grant us a home of our own. We are weary.
Give us a walled city which shall endure and a lineage
of our blood.

Prayer of Aeneas at Delos

Around 1740 Woburn Farm, The Leasowes, Painshill and Stourhead were created, which were to be influential in the development of the landscape garden during the second half of the 18th century. It is significant that these gardens were designed by the owners and garden enthusiasts themselves, unassisted by landscape architects. They are all based on the concept of the circular walk: the path and immediate surroundings was the actual garden, while the rest was agricultural landscape or woods. The most famous and best preserved example of these is Stourhead, where an Arcadian landscape was created in the manner of paintings by Claude Lorrain and Salvator Rosa. Here the circular walk is staged as a sequence of vignettes, with the lake as the reflecting pool mirroring the scenes. The park also has an exceptional geology.



Landscape with Aeneas at Delos (Claude Lorrain, 1600-82)

The Arcadian initiation

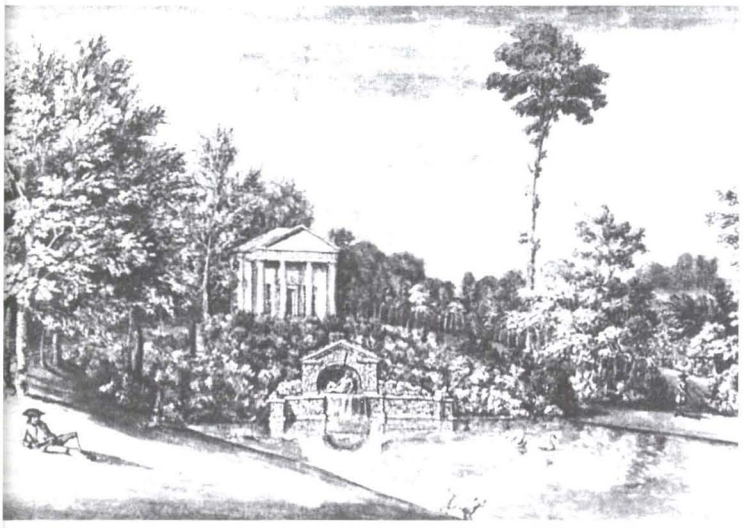
Historically speaking, the area around Stourhead is holy ground. According to tradition it is the spot where King Alfred, the founder of the English nation and leader of the Anglo-Saxons, defeated the Danes at the Battle of Edington in 878. Stourhead Park, covering some 2,100 hectares, was originally a much larger estate belonging to the Stourtons, already a powerful family during the Anglo-Saxon period. Robert Stourton was granted permission to build Stourton House around 1350. In 1448, Sir John Stourton, Henry VI's treasurer, was allowed to enclose 400 hectares of meadows, grazing land and woods around the source of the River Stour as a hunting park. After that the fortunes of the Stourtons steadily went downhill. In the 17th century they suffered for their Catholic and royalist beliefs, and during the Civil War of 1642-46 their estate was ransacked by government troops and they incurred heavy debts. In 1717, the estate was sold to Sir Thomas Meres, who resold it that same year at a profit to the bank of Sir Richard Hoare. In 1720 it came into the possession of the latter's son, Henry Hoare (1677-1725). 'Good Henry' was the second generation of a burgeoning financial elite. The buying of land was one of the few ways of investing financial profit, as well as being a prerequisite of power.

Geomorphology of Stourhead Park.

1 House
2 Six Wells Bottom
3 St. Peter's Pump
4 Diana's Basin
5 Lily Pond
6 Fish Ponds
7 Garden Lake
8 Paradise Well
9 Paddock Lake
10 New Lake/Gasper Lake

Stourhead Park, 1722.

1 Location of Stourhead House
2 The new house
3 Forecourt with oval lawn
4 Walled garden
5 Great Oar Pasture
6 Stables
7 Stourton Village
8 Ponds on the Stour
9 Rectory



Temple of Flora with cascade and spring. (Bampfylde, 1753)

'Good Henry's' son, Henry Hoare II, 'The Magnificent' (1705-85), 1st Baronet and founder of Stourhead Park, was not only a sporting type but a man of taste, with an interest in painting and literature. As a banker, he was at the hub of the new court society under George I, who established the political power of the Whigs. Powerful gentlemen such as Carlisle and Burlington borrowed money from Hoare to build their country seats, as did Vanbrugh and Kent. In 1741 he moved to Stourhead and after the death of his wife in 1743 he set about designing the landscape garden, assisted by Henry Flitcroft, an established architect of the time.

In 1785 the grandchild of Henry Hoare II, Richard Colt Hoare (1758-1838), 2nd Baronet, inherited the estate. Under his guidance the family came to own land, including Stourhead, which encompassed an impressive 4,500 hectares, and the landscape garden was considerably enlarged. Stourhead changed very little during the Victorian Age and in 1946 all but 890 hectares of the estate was bequeathed to the National Trust.

View across the lake screening the buildings.

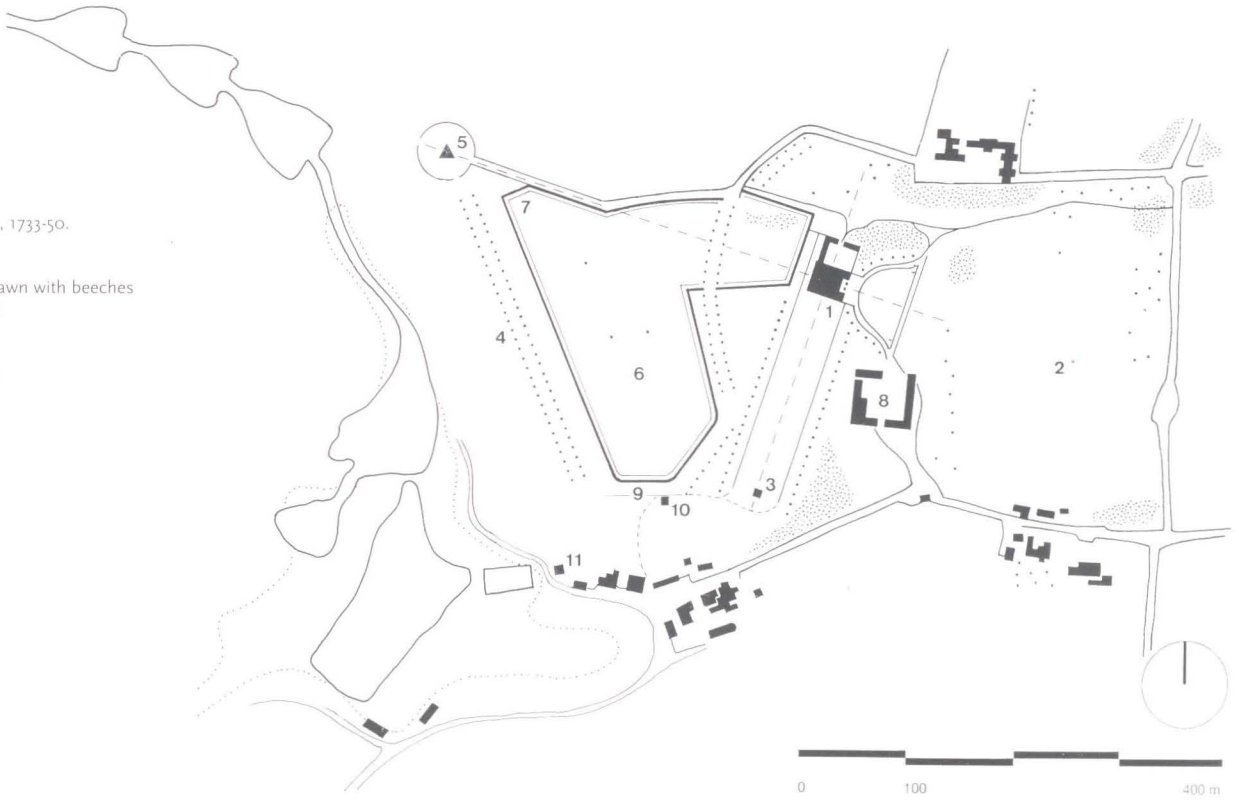
Stourhead House.

Stourhead lies on the western edge of the Wessex chalk downs, known as Salisbury Plain, and borders the three counties of Wiltshire, Somerset and Dorset. These downs, created by folds of metamorphic Jurassic rock, form the scarplands of Southwest England, and vary in height between 400 and 600 metres above sea level. They become increasingly higher to the west and are bounded by a steep ledge lying 900 metres above sea level before descending abruptly to 300 metres above sea level. The relatively soft rock is dissected by deep valleys or combes, their steep ledges being the source of several artesian springs that feed the surrounding rivers. The area around Stourhead is the watershed of the Brue, Wylye and Frome rivers, the latter meeting the River Avon at Bath and of the Dorset Stour which flows through Dorset. Salisbury Plain is England's oldest inhabited landscape and there are many prehistoric and Roman remains of settlements and fortresses, including the famous Stonehenge, from the Bronze Age, some 30 kilometres away.

The Stourhead landscape therefore consists of two extremely different areas: the chalky, rolling, arable land of Salisbury Plain with its sparse vegetation, east of the house, and the scarplands intersected by the River Stour, with a steep bank hugging the Glastonbury Plain to the west. The Stour was probably already dammed around 1700. In Six Wells Bottom

The Pleasure Grounds, 1733-50.

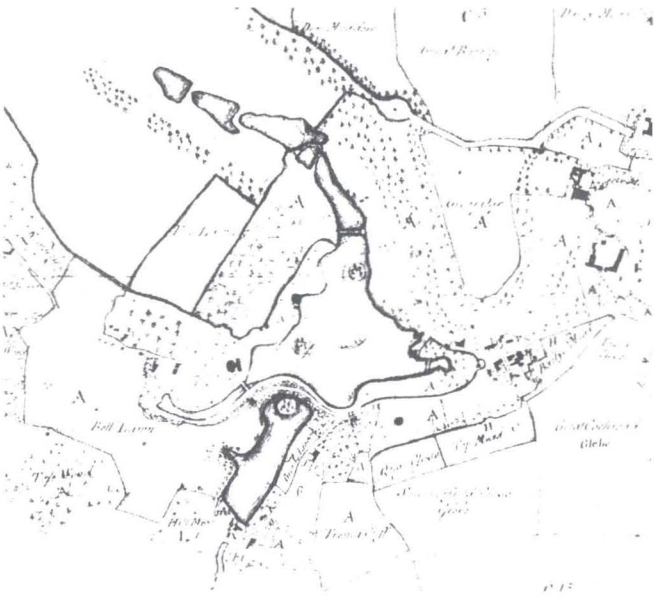
1 House
2 Pleasure Garden/lawn with beeches
3 Apollo's Belvedere
4 Fir Walk, 1733
5 Obelisk, 1746
6 Great Oar Pasture
7 Ha-ha
8 Stables
9 Terrace
10 Venetian Seat
11 Temple of Flora



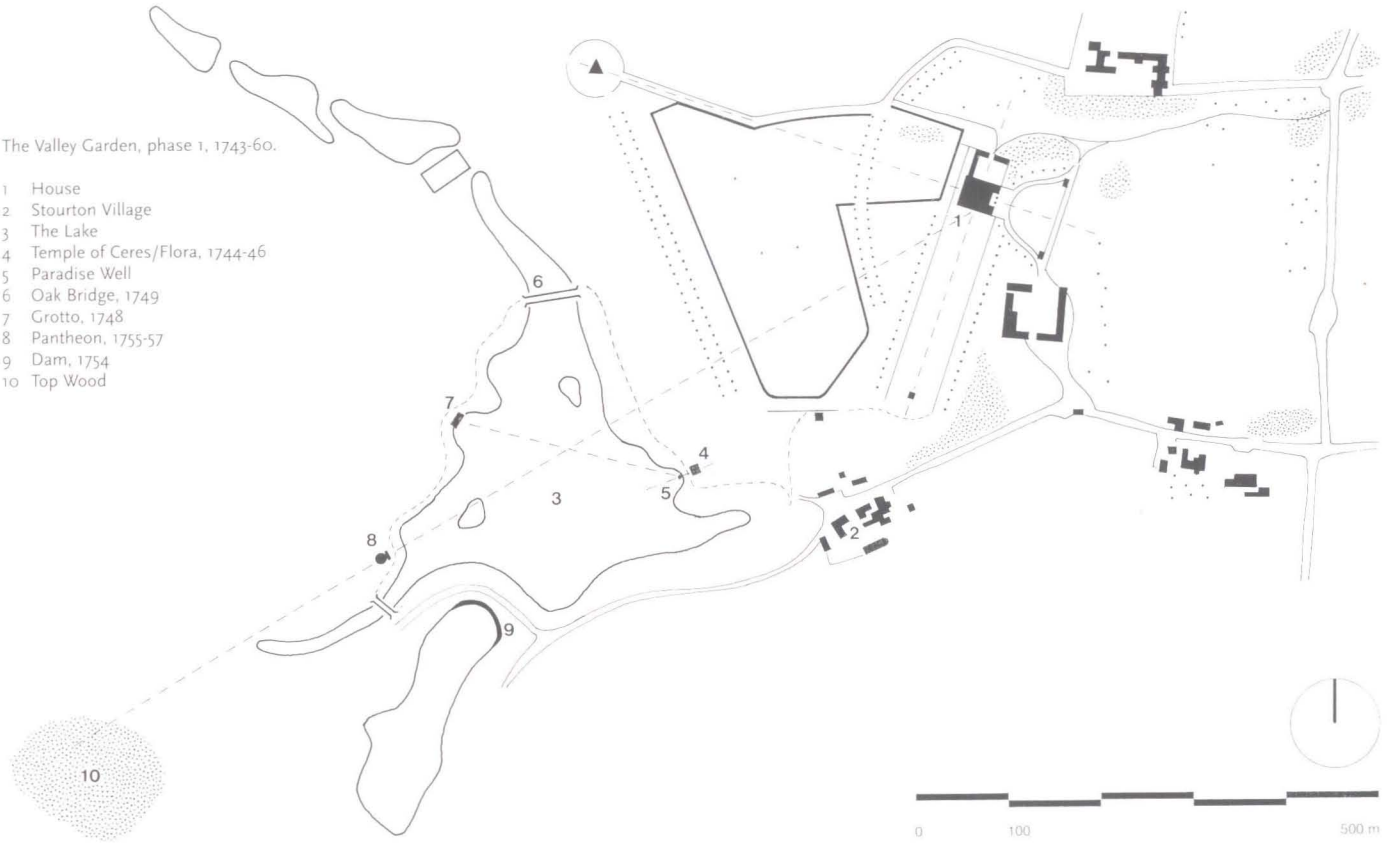
and the junction with the side valley of Stourton village there was originally a chain of ponds. In the valley there were supposedly a windmill and a few farmhouses. The rectangular pond at Paradise Well, where Flitcroft later built the Temple of Flora, was a drinking water reservoir for Stourton village. By building a dam across the south-west corner of the valley the fish ponds were flooded to create a lake.

Stourhead Park around 1722

In 1718 Stourton House was pulled down and in 1720 building started on a new house in the Palladian style, designed by Colin Campbell (1676-1729). It was called Stourhead House – a name that suggests the damming of the Stour was intended from the very beginning – and consisted of a cube-shaped block similar to the central part of Villa Emo in Italy, also a Palladian building. The house existed for some 60 years in this simple form, until in 1792 it was enlarged by two side wings, a library and a picture gallery. In 1838 a portico with a flight of steps was added, built according to Campbell's original design.



Map of the estate, 1785.



The Valley Garden, phase I, 1743-60.

1 House
2 Stourton Village
3 The Lake
4 Temple of Ceres/Flora, 1744-46
5 Paradise Well
6 Oak Bridge, 1749
7 Grotto, 1748
8 Pantheon, 1755-57
9 Dam, 1754
10 Top Wood

The Valley Garden, phase II, 1760-85.

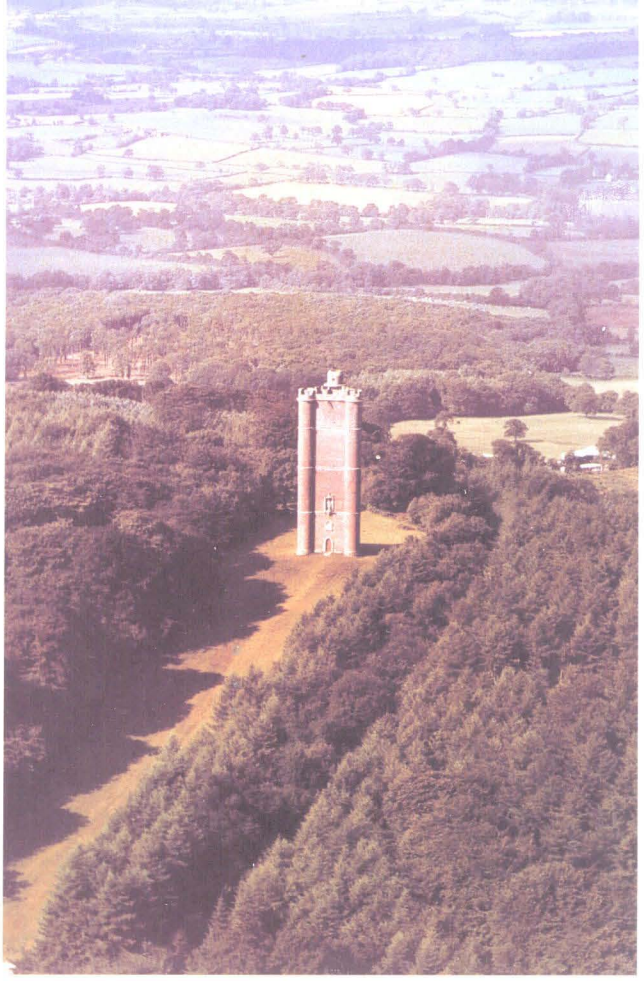
1 House
2 Iron Bridge
3 Cascade, 1765
4 Temple of Apollo, 1765
5 Rock Bridge, 1760-65
6 Rock Underpass
7 Hermitage
8 Stone Bridge/Palladian Bridge
9 Bristol Cross, 1765
10 Greenhouse (Gothic?)
11 Venetian Seat?
12 Chinese Umbrella
13 Turkish Tent
14 Orangery

The new house lay some 200 metres west of former Stourton House, with the entrance on the east front. It was reached from the south front, probably via the existing approach to Stourton House that branched off from the village road to Stourton. On the north front was a walled courtyard that was probably dismantled or moved elsewhere at a later stage. When the site is seen in the morphology of the landscape, the view of the forefront across the farmland, in keeping with the neo-Palladian nature of the agricultural villa, appears to have been the deciding factor in positioning the house.

The Great Oar Pasture

The first garden to the west of the house was a *ferme ornée* after the model of Home Park at Stowe. The Pleasure Garden comprised a walk around the Great Oar Pasture, its form directly derived from the natural morphology and surrounded by a ha-ha. Around 1746, Fir Walk, a terrace covering the entire length of the valley wall, was laid out along the edge of Six Wells Bottom. In 1746 an obelisk was built at its northern end. On the south side lay a terrace that probably had a commanding view of the eastern side valley and Stourton village.

In 1724 the Stour valley appeared as it did at the time of Stourton House. The walled vegetable garden to the south of the house was dismantled and replaced by a lawn with beech trees. Apollo's Belvedere was built at the southern tip of this. In the present situation the Great Oar Pasture forms a whole with the parkland around the house, though the visual relationship with the valley garden has been lost through the growth of the plantings on the hill.



Alfred's Tower on the edge of Salisbury Plain, with views over Glastonbury Plain.

The valley garden

The development of the valley garden began in 1744 with the building of the Temple of Flora and a grotto on the edge of the drinking water basin at Paradise Well. The building of the dam in 1754 flooded the tableau at the Temple of Flora and the role of Paradise Well was partly taken over by the Grotto on the other side. The site of the Grotto, as with the Temple of Flora, was selected due to its proximity to a spring of the Stour. The water source was venerated like the Spring of Clitumnus by Pliny the Younger. The public road between Stourton and Blackslough ran across the dam on the edge of the plateau. Later the outermost circuit of the park along Alfred's Tower and the Covent was linked up with this.

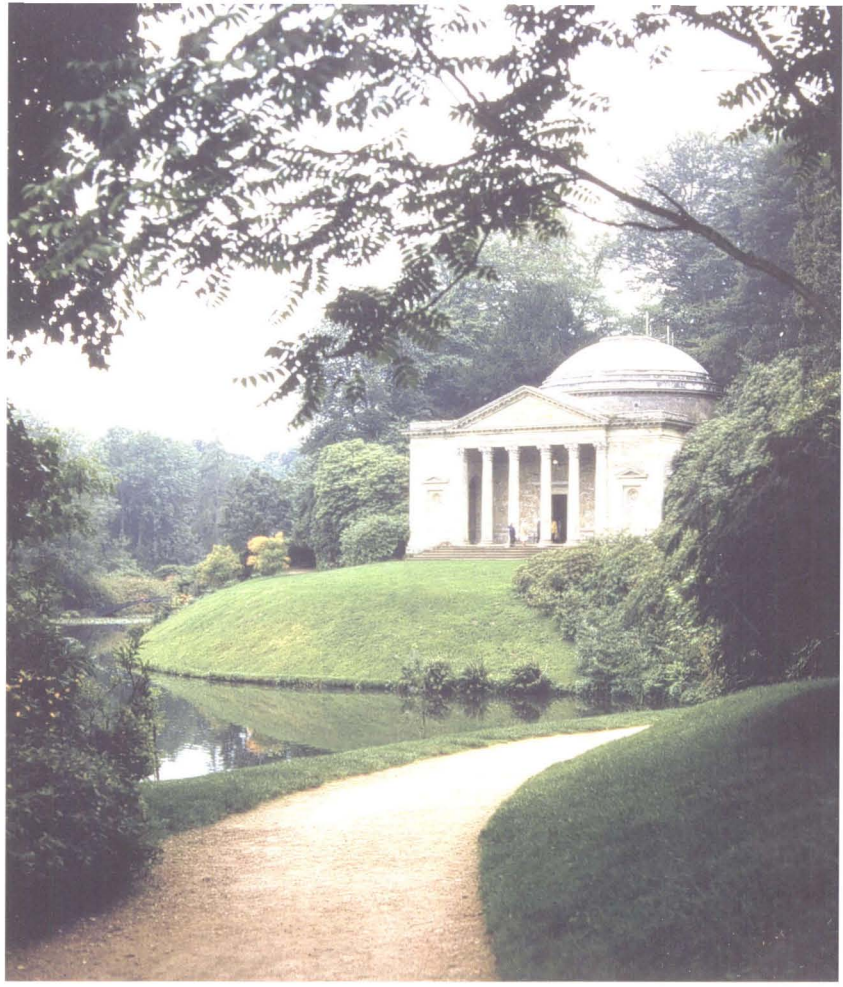
The *Aeneid*, an epic poem by Virgil on the founding of Rome, played an important role in the initial phase of the garden. On the Temple of Flora an inscription tells of Aeneas's initiation into the future of Rome. The Grotto, covered in tuff stone, is also dedicated to Aeneas. According to Kenneth Woodbridge, the painting 'Aeneas at Delos', by Claude Lorrain, is a key to the grotto's design.

After 1751 work came to a standstill until, in 1755, Hoare resumed again with the building of the Pantheon, originally called the Temple of Hercules. It became the chief element of the design and was placed at an angle across from the house, on one of the longitudinal axes of the lake, so that it could be seen from Fir Walk and terrace. This Roman temple consolidates the universal, classicist nature of the design and puts the Aeneid theme in a broader context.

The second phase 1760-85

In 1757 the Pantheon was completed and the lake given its present outline. A rock bridge was built across Zeals Road, carrying the path which went from the dam up the hill

View across the lake from the Pantheon.



The Pantheon/Temple of Hercules, 1755-57.

towards the more elevated Temple of Apollo, built in 1765. From here, as the apotheosis of the circular walk, there was a view across the entire lake. The path continued along the other side, going down and passing through a grotto under Zeals Road, until it emerged at the eastern arm of the lake. The Grotto and the Temple of Apollo indicate the amplitude of the wave-like movement, as it were, which is described by the path in relation to the reflecting surface of the lake.

Meanwhile at the foot of the Temple of Apollo a new tableau was created, the concluding element of the design of the valley garden. From the Pantheon the visitor could look back towards the buildings of the village and St. Peter's Church, which were somewhat at odds with the classical structures around the lake. What to do with the village? At Castle Howard the village of Henderskelfe disappeared under the parterre, while at Stowe only the church remained. Henry Hoare II, however, left Stourton Village as it was. A rustic, five-arched brick bridge, inspired by Palladio's bridge in Vicenza, was placed as a *coulisse* in front of it, thereby creating the impression of a river flowing through the village.

In 1765 Bristol Cross was added to this scene, a medieval cross that Henry Hoare acquired in 1764 and had re-erected in Stourton at the garden entrance, on the axis of Fir Walk, as a counterpart to the obelisk on the plateau and the Pantheon on the other side of the lake. This simultaneously created a geometric synthesis in this tableau between the various garden spaces and merged together the three pictorial genres: the Classical (in the form of the temples), the Rustic (the village) and the Gothic (elements from British history).

The third phase 1785-1820

This was the landscape garden that Richard Colt Hoare inherited in 1785. The valley garden was largely completed, and it was only necessary for him to add or modify a few of the

The Stourhead landscape.

1 Stourhead House
2 Stour
3 Stourhead Lake
4 Paddock Lake
5 New Lake/Gasper Lake
6 Six Wells Bottom
7 Tower Road
8 New Road
9 The Drove
10 Long Lane
11 Stourton Village
12 Stables
13 Rectory
14 Stourton Farm
15 Top Lane Farm/Home Farm
16 Beech Clump
17 Quarry
18 Neolithic acres
19 Iron Age fort
20 Circular earthen wall
21 Roman Camp
22 Beech Cottage
23 St. Peter's Pump
24 Rustic Convent
25 Alfred's Tower

details. Henry Hoare's building programme was revamped to obtain a stylistically pure effect, similar to that of an Italian villa. The Turkish Tent, another artefact, had already disappeared in 1792 and the Venetian Seat, the Chinese Alcove and the orangery were pulled down. In 1798 the wooden bridge spanning the northern arm of the lake was replaced by a ferry. In Stourton the cottages that spoiled the view of St. Peter's Church and the garden were torn down, while the remaining ones plus the church were given Gothic-style parapets. The inn was supplied with the family coat of arms, while a Tudor-inspired lodge was built at the beginning of the driveway to the house.

The valley garden's system of paths was radically changed. Gravel paths were laid out along the shore of the lake and a path running along its northern arm incorporated this part of the design into the garden. Zeals Road was enclosed and an internal link created by making a path from the village across the Palladian bridge to the dam. The valley garden entrance was moved to the village so that the 'prescribed' route of the walk was interrupted. The descent from the house and the steep climb to the Temple of Apollo were skirted, while the effect of Henry Hoare II's scenography was lost.

Colt Hoare drastically altered the plantings around the lake by planting exotic trees and shrubs. The hill south of the lake was planted with laurel trees so that the Temple of Apollo stood out in a sea of green. The wood was also underplanted with laurel, which became so rampant it quickly had to be kept under control. Thus the transparent 18th-century plantings turned into an impenetrable thickset mass.

The Stourhead landscape

In a letter to his daughter Susanna in 1762, Henry Hoare II wrote of a plan that would crown all the other foregoing work. This was to be a tower dedicated to King Alfred on Kingsettle Hill, a few kilometres north-west of the house on the edge of Salisbury Plain. Alfred's Tower is at the end of a formal drive

Bridge, lake and south bank. (C.W. Bampfylde, 1770)

Bridge, lake and south bank. (S.H. Grimm, 1790)

Bridge, lake and south bank. (F. Nicholson, 1813)

at the highest point along the steep western ledge, close to the former battlefield and on the borders of the counties of Somerset, Wiltshire and Dorset. This visually strategic position offers commanding views across the Somerset Plain and the Glastonbury Moors, against the backdrop of the Bristol Channel. The triangular tower, directed towards each of the three counties, was designed by Flitcroft and completed after his death in 1772. It is 53 metres high so that it can be seen from various points in the valley and from the house.

The carriage route marked the introduction of the horse-drawn carriage into the life of the country estate and the landscape garden of the second half of the 18th century. The development of the various circular walks and carriage routes reflect the increase in scale of the Stourhead landscape. A new drive was laid out from the north. The Tower Drive ran across the scarp along Six Wells Bottom to Alfred's Tower and, via the Hermitage (Convent), returned in a circular route to the dam and Stourton village. The avenues in the panoramic landscape of the plateau form a counterpart to the prescribed walk in the enclosed valley garden.

In 1820 Lake Gasper (now New Lake) was made, roughly 5.5 hectares in length and sited south of Turner's Lake Paddock at the village of Gasper. Its shape somewhat resembles Lake Stourhead, but it has not been architectonically developed. By creating the carriage routes along the edge of the plateau, the panoramic congruity of the parkland became a new topic for consideration. Lake Paddock, Lake Gasper, Park Hill and Top Wood are all evidence that Colt Hoare was preoccupied by this.

The dynamic of the tableaux

The plan of Stourhead Park consists of three different, yet interconnected, circuits. The circuit walk around the Great Oar Pasture distinctly recalls the pastoral compositional scheme of the Home Park at Stowe. The succession of tableaux around the lake is the most detailed part of the plan, a further development of Kent's classical landscape, the first experiments of which were given form in the Elysian Fields at Stowe. The lake is the reflecting surface for the various staged scenes, divided up by screens of islands planted with clumps of trees and surrounded by the Arcadian decor of the lush, forested hills. The scenic drive to Alfred's Tower on Kingsettle Hill on the edge of Salisbury Plain integrates the spectacular geology of Stourhead Park into the composition. In this sense it is a forerunner of the late 18th-century landscape gardens, like Hawkstone, which were also sited in similar settings.

Harewood

One of the most delectable of landscapes.

Dorothy Stroud, *'Capability' Brown*, 1975

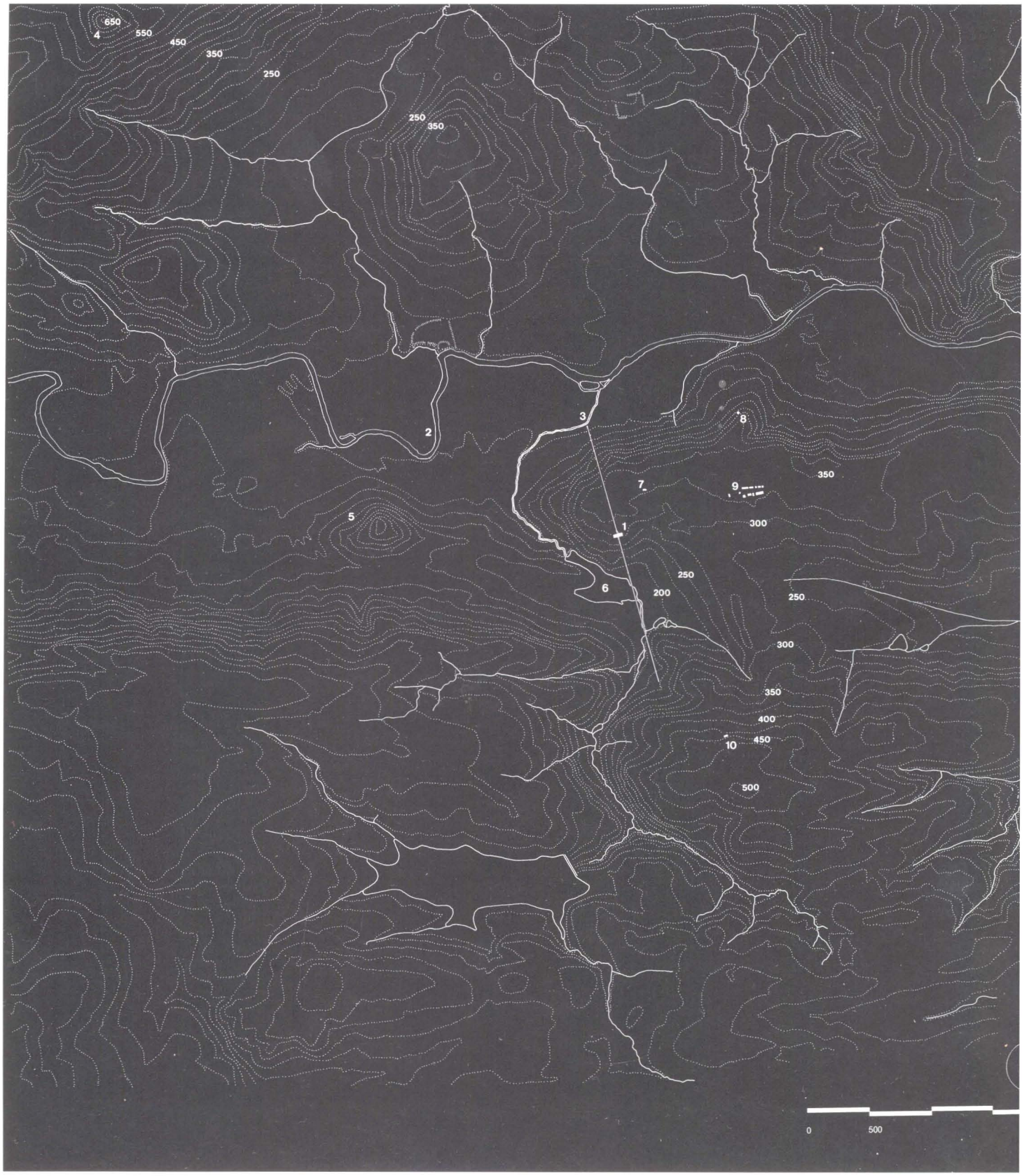
Harewood House is situated on the eastern flank of the Pennines, 12 kilometres to the north of Leeds. The landscape garden comprises some 600 hectares, while the estate now covers 2,830 hectares, bounded on the north side by the wide valley of the River Wharfe.

A ford in the Wharfe

A border castle at Harewood was built on the edge of a plateau, just to the south of a ford in the River Wharfe, by Robert de Lisle in the early 12th century in order to keep invaders from the north at bay. In 1116 the Norman nobleman William de Curcy erected All Saints' Church a short distance from the castle. In the mid-17th century the castle was abandoned and became a ruin. During the 16th century the estate was inherited by the Gascoigne family and combined with nearby Gawthorpe Hall. In 1580 it came into the possession of the Wentworths (Earls of Strafford). In 1738 it came into the hands of Henry Lascelles from Northallerton, a descendant of a noble family who had come over to England with William the Conqueror, and had lived at Henderskelfe Castle in Yorkshire, among other places. Lascelles had amassed a fortune from the proceeds of sugar plantations in Barbados.

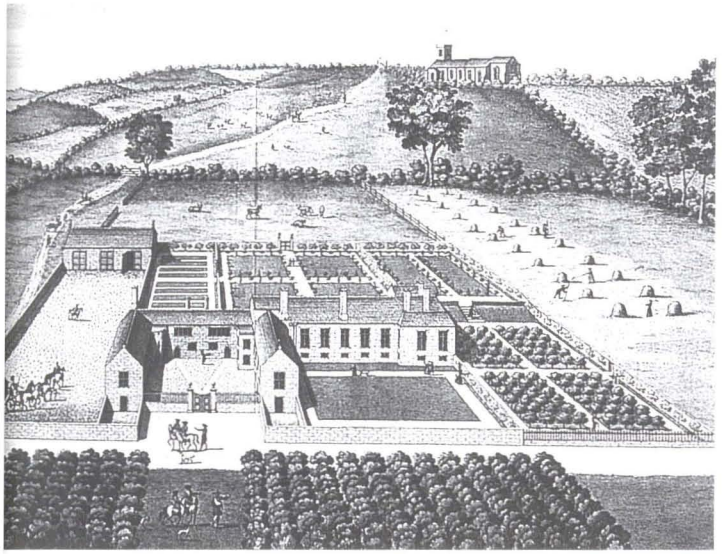
Henry Lascelles's son, Edwin (1712-95), was the originator of the estate's landscape garden. His nephew Edward inherited the estate and became the 1st Earl of Harewood in 1812. The house, including the extensive art collection, is still owned by the Lascelles family and is now occupied by the 7th Earl and his wife.

Harewood. (Aerial photo P. van Bolhuis/Pandion)



The landscape morphology.

1 Harewood House
2 River Wharfe
3 Eccup Beck/Stank Beck
4 Almscliff Crag
5 Rawden Hill
6 Harewood Lake/Fish Pond
7 All Saints' Church
8 Harewood Castle
9 Harewood Village
10 Sugar Hill (Temple)



Gawthorpe Hall, circa 1720.

Harewood House lies in a landscape of fairly even, sandy hills running from east to west, between 200 and 500 metres above sea level, on a loamy undersoil intersected by marshy, badly drained river valleys. The Stank Beck runs through Harewood's park landscape from south to north and flows into the Wharfe. On the north side of the Wharfe is Alms Cliff, a steep 650-metre incline. Harewood village, a flourishing market town in 1209 with its own charter, was an important relay point for coaches in the 18th century. In 1753 the bridge spanning the Wharfe on the turnpike to Harrogate was replaced. Edwin Lascelles had the village rebuilt as a model town, designed by John Carr of York, and attempted to set up a ribbon factory, but this proved a failure. Around 1800 Lascelles had virtually the entire population of the village in his service. Halfway to the house is All Saints' Church, remodelled in 1760 by Edwin Lascelles, which remained in use until around 1970.

Gawthorpe Hall, 1720

The 17th-century Gawthorpe Hall was situated on Stank Beck, surrounded by meadowlands and the remains of a wood, and was linked by a road with All Saints' Church, as well as possibly with the ford in the River Wharfe. Most of the land was already enclosed, although around All Saints' there were still common fields. The plateau south-east of the village was moorland. In 1771 Gawthorpe Hall was demolished to make way for a new house higher on the hill.

Harewood House

Immediately after his father's death Edwin began building a new house, designed by John Carr (1723-1807). The site was probably decided partly on the advice of 'Capability' Brown. In 1759 the foundation stone was laid and by 1771 the house was habitable. Robert Adams contributed greatly to its interior, while Thomas Chippendale supplied the furniture. The house had a classic façade, with a portico and symmetric wings with side pavilions. The layout was asymmetrical, a so-called double-circuit house, with public rooms on the right side and private quarters, with a different layout, on the left. Around 1850 Sir Charles Barry (1795-1860) built an additional third floor and replaced the portico on the south side with an enormous terrace and parterre. Thus the house changed from an 18th-century country manor into a 19th-century Italian palazzo.

Brown's landscape, 1772-81

Harewood Park is one of 'Capability' Brown's late compositions. After his first visit to Gawthorpe Hall in 1757 Brown made a general plan for a new house and garden, although no sketches from his hand still remain. As a member of the House of Lords, Lascelles lived part of the year in London, so that his steward Samuel Popplewell oversaw the building and the laying out of the garden. The garden was worked on without consulting Brown: much of the practical design was left to one Mr. Woods, a surveyor, to Thomas White, a pupil of Brown, and to Mr. Hutton, the estate gardener. The work focused initially on the Pleasure Grounds, where a mount and a ha-ha were laid out. A few years before Brown appeared for the second time on the scene, Lascelles had the Stank Beck dammed, thus creating an irregularly shaped lake which was to be the starting point of Brown's composition.

In 1772 Brown was consulted for the second time and designed *A Plan for the Intended Water and the Grounds*. He completed his work in 1781, two years before his death. This time he hired a foreman who paid the workmen, while Lascelles provided the tools, horses and materials. The meadowland and the fields on the south front of the house were refashioned into a park landscape with trees singly and in clumps. The fences were removed and agricultural improvements such as levelling the terrain, building a drainage system and sowing better varieties of grass were carried out, as well as stocking the lake with fish. The aesthetic ideal also went hand in hand with improving cattle stock, producing wood and managing the estate's wildlife. The park was surrounded by a ha-ha, of which only sections now remain.

The South Park, seen from the terrace. (Photo J. van der Zwart)

Cosmetics for the landscape

The hill to the north of the new house was excavated so that the house was sited on a ridge. In the belt of North Park a diagonal vista of Alms Cliff was cut out on the other side of the Wharfe. The Stank Beck in Piper Wood was transformed into several trout ponds, while the lake was formed by digging out a mill dam upstream. Dickenson's Pond and Long Ing Pond, with a water level 10 metres higher than the lake, were dug out as a visual continuation of the lake as far as the principal axis of the house and Sun Sides, the lawn to the south. Oak and elm were planted on the poorly drained gley soil of the river valleys; on the sandy hills, birch, while holly-oak, laurel and hawthorn formed the undergrowth.

On the north side a belt walk was laid out around the lawn, with seating, statues and follies. A belt walk was less suitable to the south due to the imposing asymmetry of the site to the south. Instead, Brown concentrated on designing the approaches to the estate as scenic drives. On the north side Harewood Drive joined the network of village roads and continued through a gatehouse in a forecourt, a landscape antechamber with All Saints' Church as a landmark. Only after cutting into the belt could the house be seen from a favourable angle.

The scheme for the southern drive suggests a 17th-century 'mannerist' route. The Lofthouse Drive branched off from the Leeds to Harrogate turnpike at a point which provided a grand vista of the house and the lake against the hazy background of the broad Wharfe valley. The drive followed the lay of the land along the edge of Sugar Hill, disappeared into Piper Wood and continued along the trout ponds in the valley of Stank Beck, after Dickenson's Pond intersecting the vista from the house to Sugar Hill for a second time in the opposite direction. After a broad sweep of the house, All Saints' Church appeared and the house disappeared from view. In the belt the drive joined the northern one at right angles.

Brown's design did not aspire to architectonic order, but made use of the morphology of the natural landscape. The asymmetry of the site was accentuated even more, rather than compensated for or disguised. Perspective was provided in the predominantly horizontal composition by the main band of trees of Piper Wood, which came down to the lake. Brown

Harewood House and Sun Glades from the opposite side of the lake.

used the lake's irregular water as a reference surface on which the wavy lines of the composition could be visually traced. The eye is continually drawn to the distance on the left side of the picture plane, but can only settle when it returns to the water surface in the pith of the composition on the extreme right side.

The additions by Repton, 1800

Edward, 1st Earl Harewood, asked Humphry Repton (1752-1818) to make certain modifications. Repton proposed a new gatehouse and drive for the north side which joined the turnpike from Wetherby. The garden was made considerably bigger, from the east side to the Leeds to Harrogate turnpike, where a belt was laid out on the north side with North Park. This changed the visual reach of the park; attention shifted from Brown's classical landscape on the south side to the view over the Wharfe valley on the north side. The South Park was cleared for agricultural use, so that many single trees were dug up and wire fences appeared. The lake's shoreline became undefined, caused by silt and flooding, while Dickenson's Pond and Long Ing Pond became overgrown. The spatial impression is less distinct than it was, but nevertheless Brown's landscape has essentially been preserved.

The balance of movement

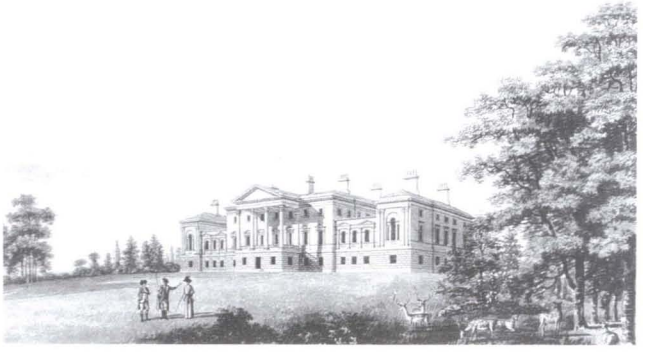
The spatial effect of Brown's composition for Harewood eludes the geometric principles of a layout. Brown designed Harewood as a four-dimensional painting, a play of moving outlines that change with every season and every year, but always come to rest in the reflecting waters of the lake, the pivot of the entire composition. By a process of eliminating and amending, he designed a scene in which nature's abstract beauty can flourish.

In Brown's park drives the scenes are connected to each other in the form of a mannerist arabesque which, in itself, anticipates movement. Thus Harewood takes on the form of a 'cinematographic' composition, pointing the way to the urban circulation pattern.

Brown's landscape, circa 1781.

1 Harewood House
2 All Saints' Church
3 Harewood Castle
4 Harewood Village
5 Stank
6 Harewood Moors
7 Wharfe
8 Eccup Beck/Stank Beck
9 Sugar Hill
10 Harewood Lake
11 Boathouse
12 Cascade
13 Kitchen garden
14 Stables
15 Dickenson's Pond
16 Long Ing Pond
17 Trout ponds
18 Piper Wood
19 Belt
20 Ha-ha
21 Stud Farm
22 Home Farm
23 Park Farm
24 Harewood Lodge
25 Harewood Drive
26 Lofthouse Lodge
27 Lofthouse Drive
28 Park landscape
29 Enclosures

Harewood House. (Thomas Malton, 1788)



Repton's additions, circa 1800.

1 Harewood House
2 All Saints' Church
3 Harewood Castle
4 Harewood Village
5 Stank
6 North Park
7 Stud Farm
8 South Park
9 Carr Park
10 Carr House
11 Grey Stone Pasture
12 Harewood Drive
13 Cricket Ground
14 Temple (Carr, circa 1785)
15 Lofthouse Grange

Harewood House, with terrace. (Photo J.K.M. te Boekhorst)

Hawkstone

A kind of turbulent pleasure between fright and admiration.

Dr. Samuel Johnson, after visiting Hawkstone in July 1774

Hawkstone lies between Shrewsbury and Whitchurch, on the A49 to Liverpool and Manchester, in rough sandstone hills with steep slopes and deep ravines that jut out above the Shropshire Plain. Along with Hackfall and Piercefield in Gloucester, Hawkstone is one of the few landscape gardens that can rightly be termed 'picturesque' and was one of the most visited gardens in England at the end of the 18th century.

Hawkstone Hall, west front, 1720.

The creation of a place worth seeing

Hawkstone lies on the Welsh borders, since time immemorial the disputed boundary area between the English Midlands and the highlands of Wales: traces of fortifications from the Bronze and Iron Ages can still be found. William the Conqueror dispensed land to powerful barons who built fortresses, often founding settlements or boroughs at the same time. Hawkstone Hall was first mentioned in the preserved Pipe Roll of 1185 – an ancient annual record kept by the British Treasury – as a stronghold of Roger de Hauckestan.

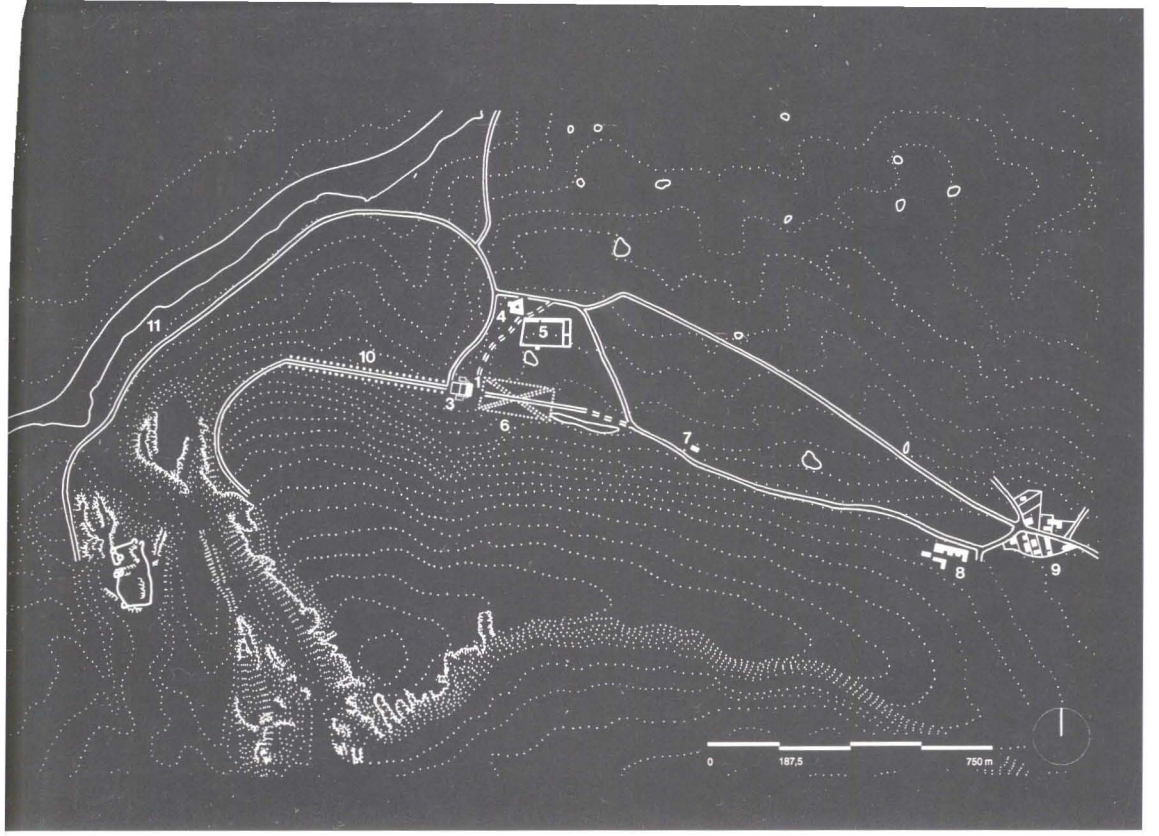
In 1227, at the time of Henry III, Henry de Audley acquired the Manor of Weston and the right to build a castle. Red Castle, belonging to the Manor, was built on a solitary steep-sided cliff that was only accessible from the south side and already had military importance during the Iron Age. The Audley line died out and by the end of the 16th century the castle was a ruin. In 1556 part of the estate came into the possession of Rowland Hill via Thomas Lodge of London. Three generations of the Hill family had led a quiet existence until through the efforts of Richard Hill (1655-1727), or 'The Great Hill' as he was known, they rose through the ranks of the aristocracy.

Rowland Hill (1705-83), 1st Baronet, inherited the estate in 1727 and together with his son Richard created the landscape garden. In 1756 Red Castle was added to the land at Hawkstone. Richard Hill (1732-1809), 2nd Baronet, inherited the estate in 1783 and immediately set about extending the landscape garden with great gusto. By his death in 1809 Hawkstone was one of the sights of England, visited by droves of people who often stayed for a few days.

Rowland Hill (1800-75), 4th Baronet and 2nd Viscount, had the house remodelled and extended the parkland. His extravagant lifestyle led to the estate's demise. In 1895 the effects of the Hall were auctioned and the house lay empty until 1906

Topography.

1 Hawkstone Hall
2 Weston
3 Marchamley
4 Hodnet
5 Shawbury
6 Wem
7 Prees
8 River Roden
9 River Tern
10 Soulton Brook
11 Bailey Brook
12 River Duckow
13 Hawk Lake
14 The Mount
15 Citadel
16 Bury Walls
17 Castle Hill/motte & bailey
18 Tithe barn
19 Dovecote
20 Moat



Hawkstone Hall, 1727.

1 Hawkstone Hall
3 Forecourt with lions
4 Hawkstone Park Farm
5 Kitchen Garden
6 Parterre
7 Ranger's Lodge
8 Hawkstone Farm
9 Marchamley
10 Elm Avenue
11 Hawk River/Lake

The geology of picturesque England.
H = Hawkstone (after Appleton, 1986)

when it was sold together with the park. In 1926 the Hall and Hawkstone Park Hotel were sold to the congregation of the Redemptorist Fathers, who built a church on the south side of the house in 1932. Land near the hotel is now a golf course. In 1990 the owner of Hawkstone Park Hotel began restoring the most important buildings on the hills of the park. In 1993 the park reopened.

Hawkstone Hall, 1724-83

Hawkstone Hall, built of brick around 1700 in a depression at the foot of Terrace Hill, lies on the borders of the badly drained Shropshire Plain. No use was made of the hill to direct the view northwards towards the plain. Instead the house, built in different phases, looks out along the hill. In 1721 two forecourts were built, which disappeared again during the next building phase, and a parterre was laid out at the rear. In 1723 a new farmhouse was built north-east of the house and a formal approach with elm plantings. Along Terrace Hill paths were laid out, while on the slope of the path to Grotto Hill a Summerhouse and a Cold Bath were built.

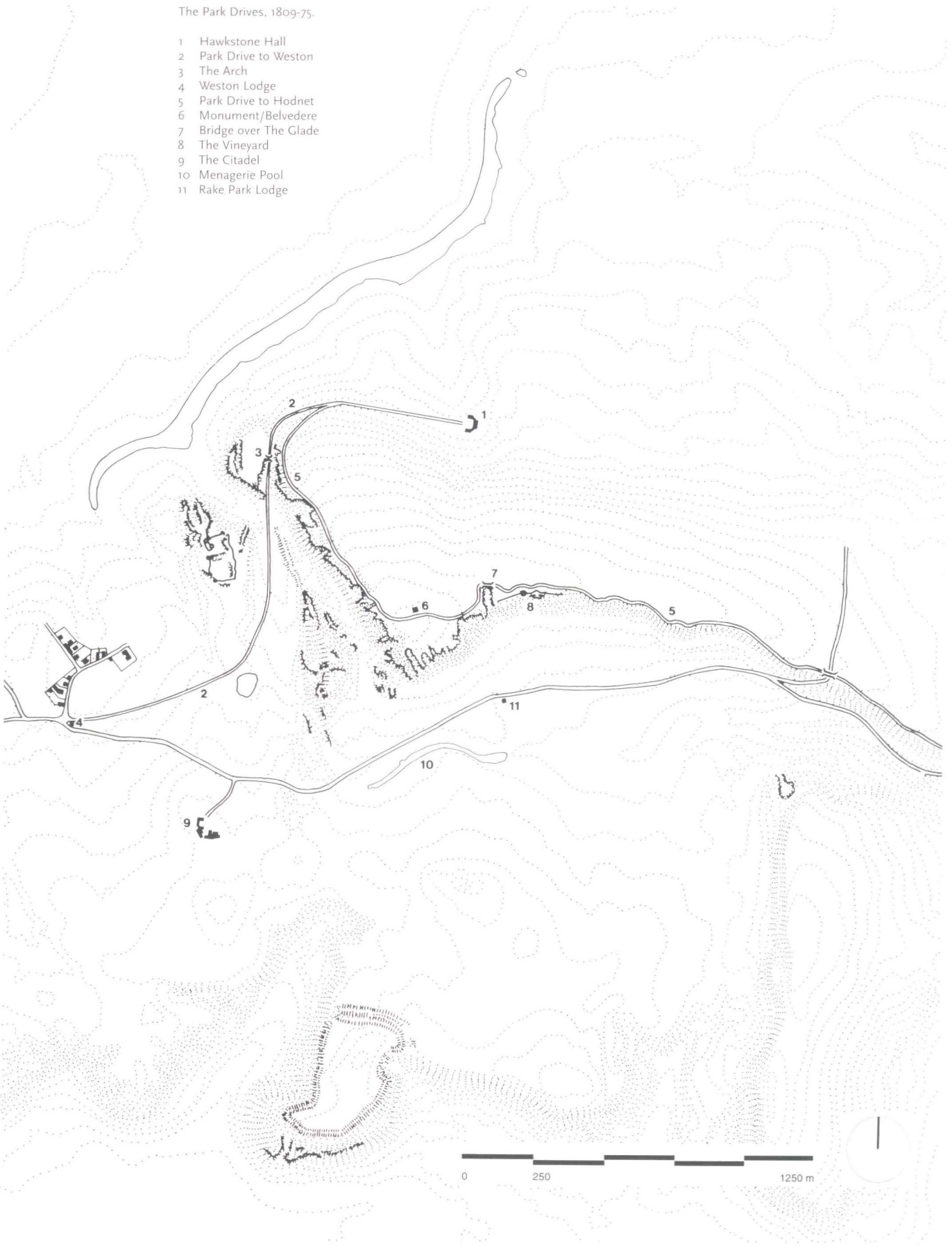
From the house the spectacular steep ledges of the four hills cannot be seen; the horizon is formed by a wooded ridge. Hawkstone Hall was reached from the east via Hodnet and Marchamley, while north of Grotto Hill it was linked to Weston.

The landscape garden, 1783-1809

The core of the landscape garden was formed by four sandstone hills, 220 metres high, that dramatically rise above the seemingly endless Shropshire Plain, some 80 metres above sea level. Hawk Lake or Hawk River, which has a serpentine form, was made between 1784 and 1787 by William Emes, a follower of Brown. The lake has an unusual shape, about two kilometres long and roughly 40 metres wide, and does not function as a reflecting pool – its surface can hardly be seen from the house – but was intended for boating. As part of the composition, the lake's shape is extremely effective. It lies like an eyebrow around one end of the garden, linking the house with Red Castle Hill and thus visually integrating the contrast between the horizontality of the Shropshire plain and the steep ledges of the hills into the garden.

The Park Drives, 1809-75.

1 Hawkstone Hall
2 Park Drive to Weston
3 The Arch
4 Weston Lodge
5 Park Drive to Hodnet
6 Monument/Belvedere
7 Bridge over The Glade
8 The Vineyard
9 The Citadel
10 Menagerie Pool
11 Rake Park Lodge



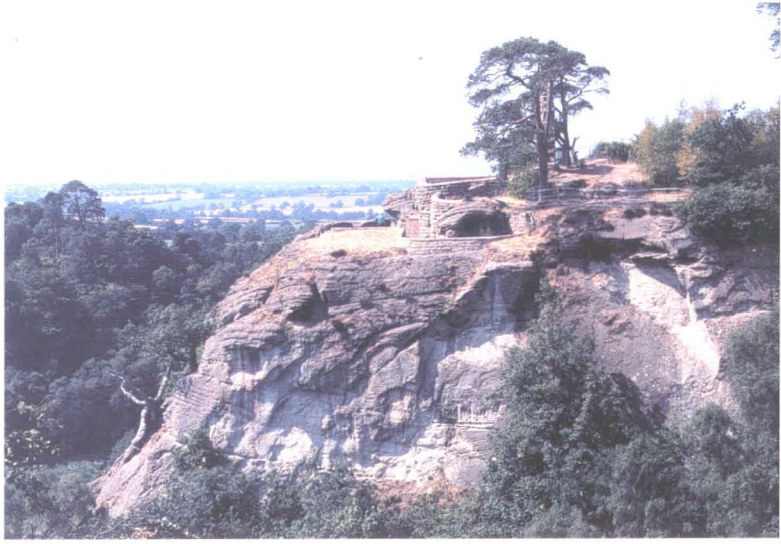
There was a boat to ferry guests from the Inn around the lake so that they could admire the spectacular rock formations. It was also equipped with a canon to enable the sound to be heard reverberating against the rocks. Between Grotto Hill and Red Castle Hill there was originally a side lake that was separated from the lake by a dam, and over which the road from Weston went. This part has disappeared possibly because it did not hold water very well.

The scenic walk

Sir Richard extended the circular walk and landscape garden as well as embellished it with several themes. Originally, the design was similar to that at Stourhead. The walk began at Hawkstone Hall from where the unsuspecting visitor, arriving via Hodnet and Marchamley, could not entirely see the steep ledges, which only came into view when standing on the edge. In 1790 Hawkstone Inn (now Hawkstone Park Hotel) was built at the west entrance of the garden to accommodate the ever-growing stream of visitors. This inn, with a commanding view of the steep ledges, marked the starting point of the route through the park, so that the original effect of the surprise was lost. Visitors could take the circular walk via Grotto Hill, Fairy Glen and Terrace Hill, where the Hermitage was located, to the Menagerie and back. Various other day trips and walks could be made, including one to Bury Walls. Many points of interest along the way were directly linked to the natural landscape, such as a vista, a rare planting or an unusual type of rock.

The Grotto

The Grotto, high in the hill, was dug out by Sir Rowland, possibly on the basis of an existing one, and was opened in 1783. Originally, the hill was ascended from the west side, past the Temple of Patience at the foot, which became commonly known as Gingerbread Hall. Later an entrance at Terrace Hill was made. Sir Richard had The Cleft, a narrow cave on the north-east side of the hill, made deeper and a tunnel dug out to the grotto, the inside of which was lined with cinders from Darby's new iron foundry in Coalbrookdale. After an adventurous exploration of the grotto, the visitor emerged onto a 'balcony' and was suddenly confronted with the Awful Precipice, a ravine on the edge of the plain. Grotto Hill was crowned by a ruined Gothic arch as an eye-catcher, through which the visitor had a view of the fortress to the south.



View of Grotto Hill. (Photo B. Kwast)

The steep hill.

Awful Precipice. (Photo B. Kwast)

Terrace Hill

On the ledge of Terrace Hill, not far from Grotto Hill, was a hermitage inhabited by the 'venerable barefooted Father Francis', a genuine recluse equipped with the traditional *vanitas* symbols, who spoke a cautious *memento mori* to visitors. After 1800 he was replaced by a slot machine and later still by a guide who played the role of a recluse. In 1795 an obelisk was erected on Terrace Hill in memory of Sir Rowland Hill, the founder of the dynasty. The statue on the column looks north across the Shropshire Plain.

Hawkstone Park 1809-75

In 1832 new Pleasure Grounds were laid out with the help of William Gilpin. The scenic drives of the 2nd Viscount incorporated the landscape around the steep hills into the design of the landscape garden. In 1853 a new approach was made from Weston, through a ravine between Grotto Hill and Terrace Hill. Along the upper edge of the terrace and the southern steep edge an avenue was laid to Hodnet. Two wrought-iron bridges spanning the Glade at the Vineyard and a ravine at Marchamley Hill were needed for this. The link with Weston on the south side of Hawk River was kept as a public road (this now runs via North Lodge and Hawkstone Abbey Farm on the north shore of the lake). On the south side was the route to Hodnet running along the Menagerie Pool, the obelisk at Terrace Hill and the citadel.

See and shiver

The scenic walks at Hawkstone can be seen as the last phase of a development that started with the circuit walk around Home Park at Stowe and, via the classic trip around Stourhead Lake and Brown's belt, gradually became detached from its original social significance. The relatively small and elite gatherings of the early 18th century, the heart of social life at the country estate, made way for hordes of urban tourists who visited Hawkstone from afar for a few days' guided tour: a foretaste of the mass recreation of the 19th-century metropolis.

Swiss Chalet and New Park Drive. (Photo B. Kwast)

New Park Drive, in the direction of The Arch. (Photo B. Kwast)

Approach drive and house. (Photo B. Kwast)

Chatsworth

There is no one whose name will be so permanently associated with Chatsworth as Paxton.

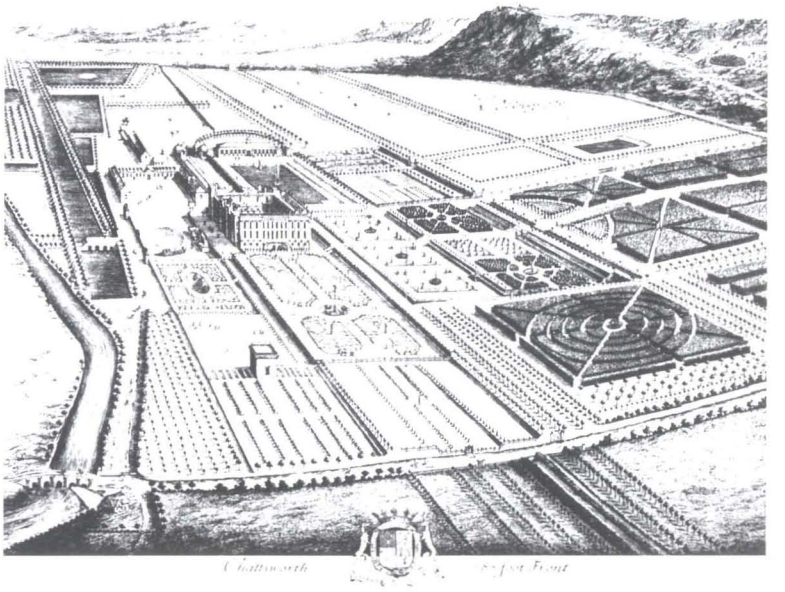
The 7th Earl on Paxton's death in 1865

Chatsworth lies along the River Derwent in the Peak District, 20 kilometres south-west of Sheffield. The garden covers some 42 hectares, while Chatsworth Park is now around 440 hectares. The garden became famous in the 19th century: Charles de Saint-Amant, director of the Tuileries in Paris, for instance, compared it to Versailles. In our own age Chatsworth is one of the most visited and popular gardens in England.

The layout for Chatsworth dates back to the 17th century. The landscaping of Lancelot Brown from the 18th century did not play a decisive role in the ultimate form of the garden. Joseph Paxton succeeded in enlarging the 18th-century concept of the landscape garden while making use of the technical advances of the Victorian Age.

An oasis in the rough landscape

Sir William Cavendish (1505-57) was one of the agents of Henry VIII during the dissolution of the monasteries and was married to Elizabeth Barley (c. 1527-1608), also known as 'Bess of Hardwick'. He purchased the Chatsworth estate in 1549 from the Leche family and began building a new house in 1552. In 1608 Chatsworth came into the possession of their son William, who became 1st Earl of Devonshire in 1618. William, the 4th Earl, who had been raised during the Protectorate under Cromwell, was later made the 1st Duke of Devonshire by King William III. The 4th Duke (1720-64), an influential Whig, married Charlotte Boyle in 1748, the heiress of the 3rd Earl of Burlington, so that her inheritance came into the possession of the Cavendish family.



Bird's-eye view from the south. (Leendert Knyff, 1699)

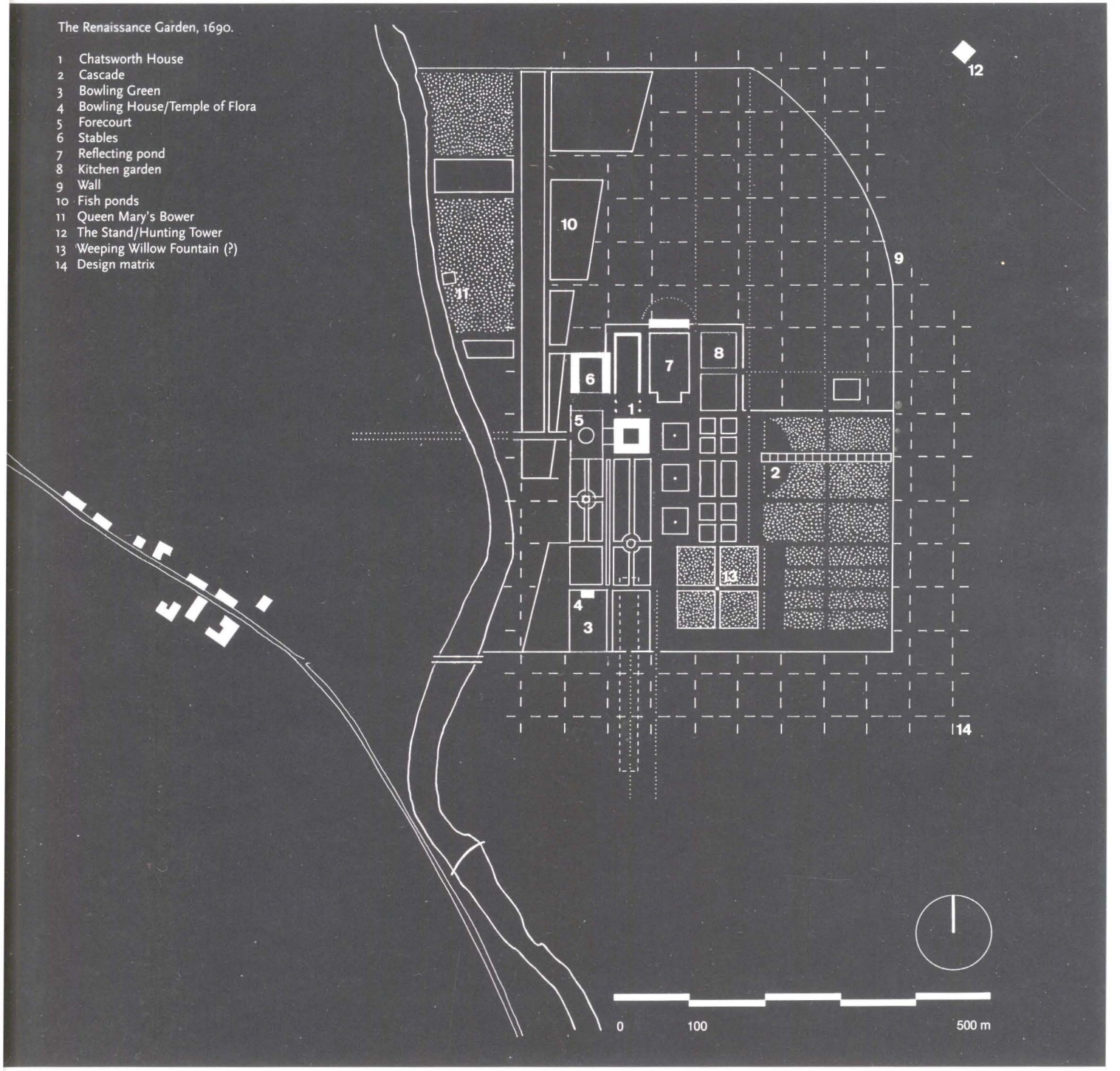
The 6th Duke and his gardener

William Spencer Cavendish (1790-1858), the 6th Duke, inherited Chatsworth in 1811. Within a few months he began working on new plans for the estate, together with Jeffry Wyatville (1766-1840) and later Joseph Paxton (1803-65). Chatsworth became his life's work; the improvements were to preoccupy him for the next 47 years.

Joseph Paxton began as head gardener at Chatsworth in 1826 when he was 23 years old. He remained there for 35 years and from there developed into one of the most influential landscape architects of the Victorian Age, a worthy successor to Humphry Repton and John Claudius Loudon. Paxton possessed remarkable botanical knowledge and an exceptional imagination. He worked within the existing stylistic conven-

The landscape morphology.

1 Chatsworth House
2 River Derwent
3 Bar Brook
4 Emperor Lake
5 Drains East Moor



The Renaissance Garden, 1690.

1 Chatsworth House
2 Cascade
3 Bowling Green
4 Bowling House/Temple of Flora
5 Forecourt
6 Stables
7 Reflecting pond
8 Kitchen garden
9 Wall
10 Fish ponds
11 Queen Mary's Bower
12 The Stand/Hunting Tower
13 Weeping Willow Fountain (?)
14 Design matrix

tions, his greatest talents lying in combining design, science and technique. He was an innovator in constructing buildings, machines and waterworks, such as the Great Conservatory at Chatsworth, the forerunner of his world-famous Crystal Palace built at Sydenham for the 1851 World Exhibition.

Landscape morphology

The Peak District consists of lime-deficient igneous rock and slate dating from the Pre-Cambrian and Palaeozoic ages. The resulting landscape is bare and inhospitable, with steep hills rising to 300 metres. The garden lies at the foot of Millstone

View over the Cyclopian Aqueduct across Brown's landscape.

Grit, a steep hill of impermeable rock which forms the basis of the spectacular waterworks at Chatsworth. The Derwent lies about 100 metres above sea level at Chatsworth, while the difference in height between the South Lawn and the Hunting Tower, at the top of the hill, is roughly 100 metres. On the plateau of East Moor are the peat moors and downs, the extensively used grasslands. Derwent valley has an irregular shape with a steep east hill.

The present road network follows the Derwent in a mainly south-north direction. Earlier on, Chatsworth was reached from the east side, via Chesterfield across East Moor. The trip took one through a barren and boggy area; arriving at the escarpment at the edge of the plateau, the traveller saw Chatsworth below in the valley, lying at his feet like an oasis. The road descended the hill and emerged at the rear of the cascade house, where one then had to circumscribe the south side of the garden along Holmes Lane. At the Derwent one turned right before the bridge into the approach drive that went up to the west forecourt. In 1761 Brown designed the present approach (Park Drive) through the village of Edensor along the western boundary of the estate.

The house

The house of Sir William Cavendish and Bess of Hardwick had four corner towers and diagonally placed turrets at the central entrance gate, surrounded by a wall with roundels and

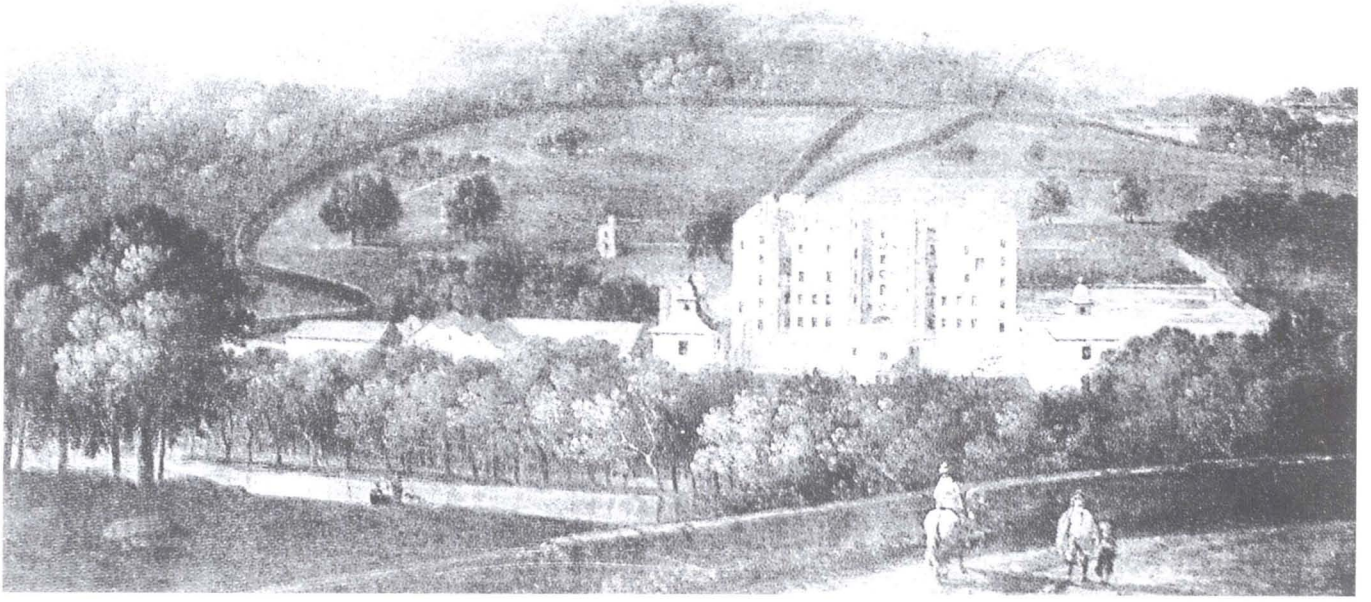
The Cyclopian Aqueduct with waterfall, from Stand Hill.

square defence towers. In 1685 the 1st Duke commissioned William Talman, a new, relatively unknown architect, to design a new south front. Talman's pioneering design for an English country house consisted of two storeys on a rustic foundation. In 1687 the Tudor lodges in front of the west front were replaced by a classic courtyard. There was now a marked difference between the west front and the new south front, and attempts were made to create a more unified whole, probably with the help of Thomas Archer. Under the 4th Duke, James Paine (c. 1716-89) demolished several smaller buildings on the north side of the house and made a new entrance with a triumphal arch on the axis of the north front.

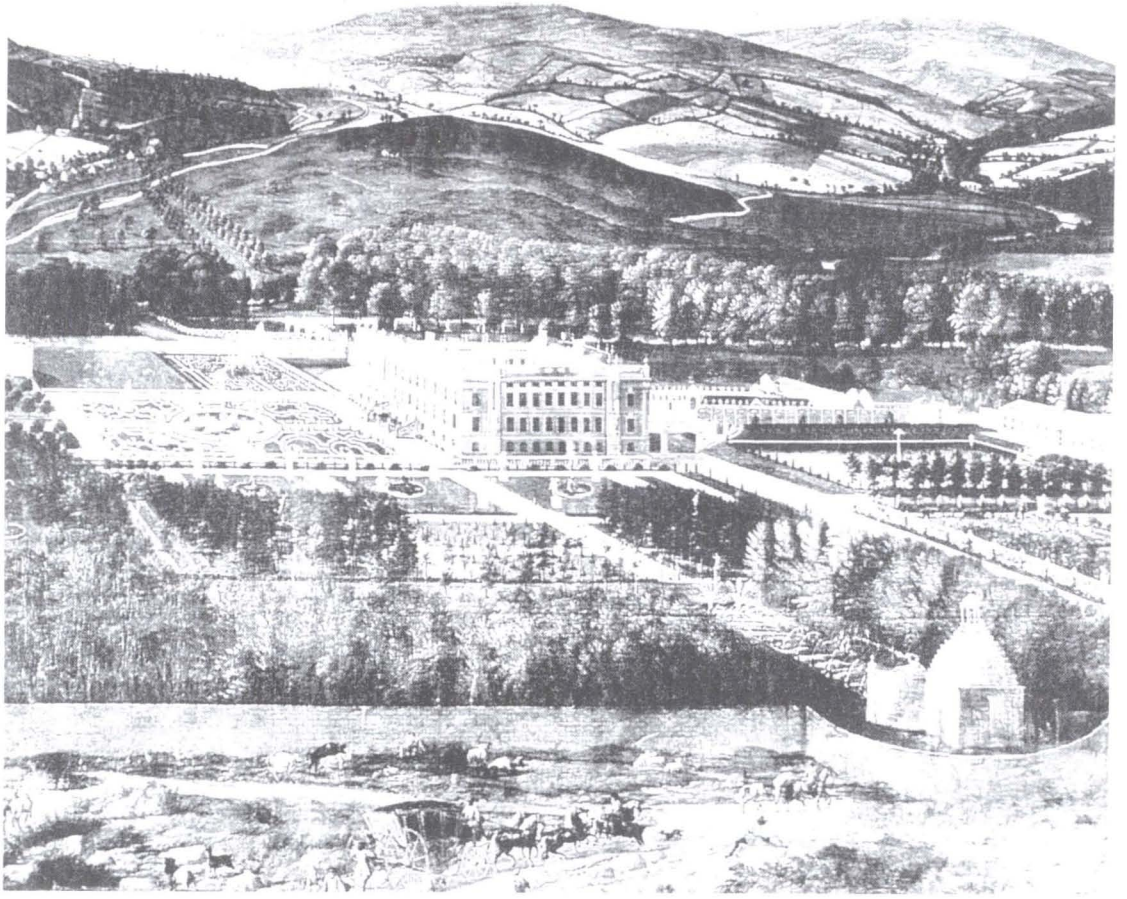
In 1816 the 6th Duke had the east side rebuilt by Wyatville (then still Jeffry Wyatt). Paine's service wing had not been designed to be seen from the new northern access road and detracted from the grandeur of the entrance court. Wyatville designed a new façade with a larger entrance screen consisting of a porch and lodges next to the existing gate by James Paine, which was pulled down. In 1827 the house, with an orangery added between the Theatre Tower and the Sculpture Gallery, took on its present-day outline.

The Renaissance garden of 1690

It was in 1560, eight years after the rebuilding of the house had begun, that there was first mention of a garden. Later in 1636 it was described in a poem by Thomas Hobbes, *De mira-*



Chatsworth in the time of Elizabeth I. (Richard Wilson)



Bird's-eye view from the west. (Sieberechts, 1710)

The Cyclopian Aqueduct with waterfall, from Stand Hill.

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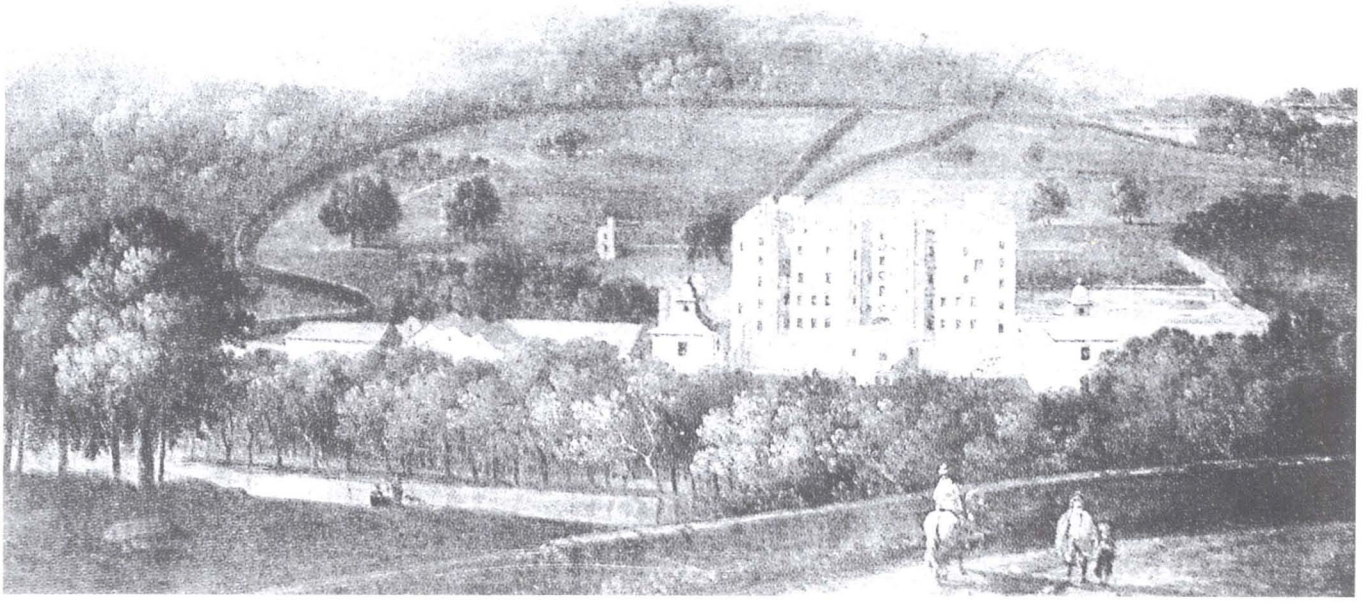

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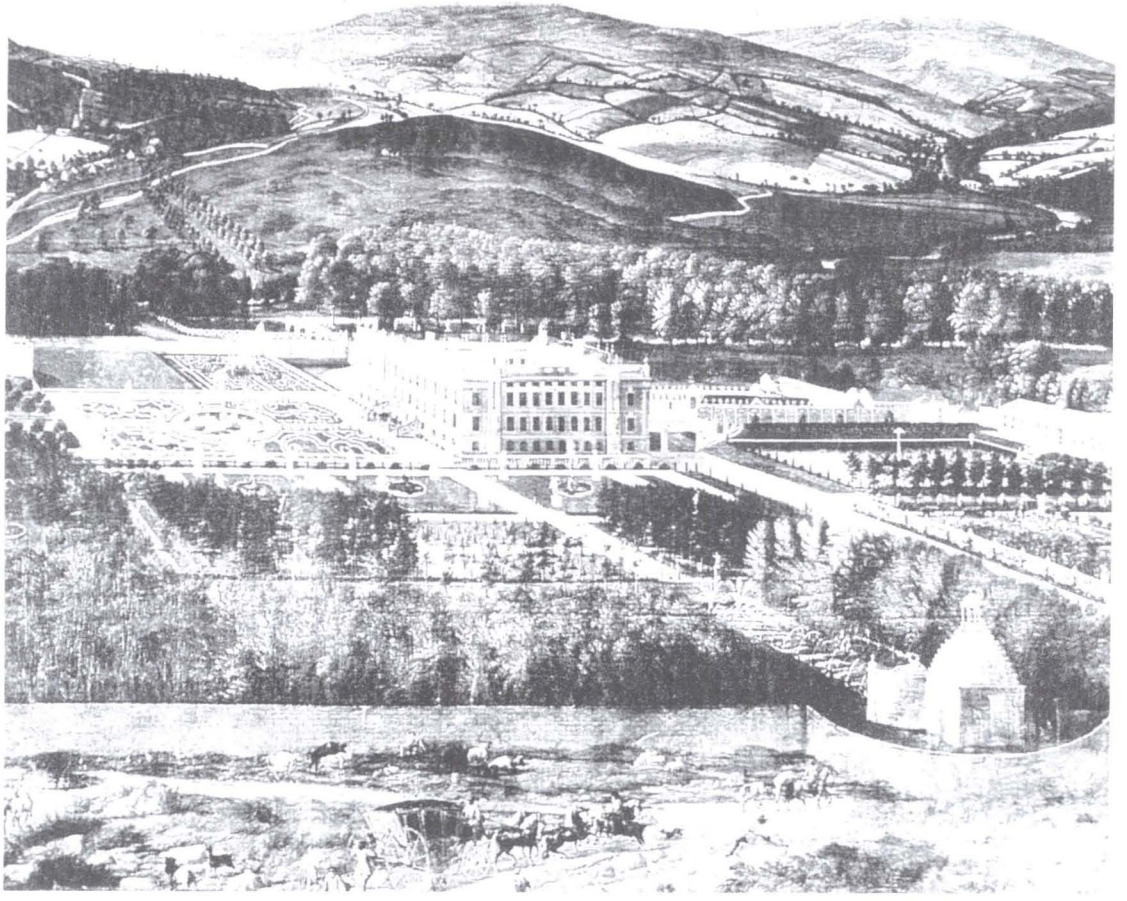


Bird's-eye view from the west. (Sieberechts, 1710)

bilis pecci, as 'the wonder of the Peak', so called because of the miraculous transformation of a desolate wilderness into a paradisiacal garden. There are no known drawings or illustrations from which the garden can be faithfully reconstructed, though the level terrace of the South Lawn and the retaining wall on the west side date from this time. The Hunting Tower was placed around 1580 on the highest point of the eastern steep edge of East Moor, at an angle to the Elizabethan house. In 1688 the 1st Duke commissioned George London and Henry Wise to design a formal parterre with a bowling green on the south front of the new forecourt, to which Talman added a bowling green house (Flora's Temple, now at the north entrance of the garden) in 1695. In 1694 the Great Parterre followed, from which a few parts have been preserved.

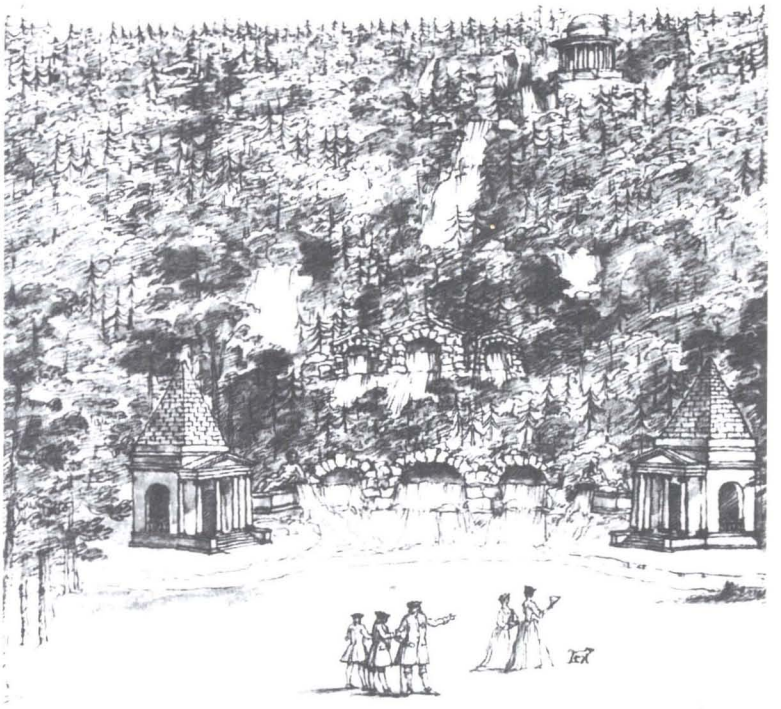
The design matrix

The layout of Chatsworth was formed by a rational square grid, parallel to the course of the Derwent and the edge of the escarpment of East Moor, based on the size of the house. When compared with Blenheim estate, it would seem that the use of a design grid must have been mainly an idea of Henry Wise. The rational matrix, upheld in Brown's landscape garden and Paxton's Victorian design, was again the co-ordinating structure for the further extensions.

Zoning

The arrangement of the garden and the avenues in the parkland outside the garden were designed on the lines of the matrix. The estate was enclosed by a wall which also incorporated a part of the parkland on its north side. The actual garden within this was bounded by a second wall and divided into three north-to-south areas of parterres, lawns with fountains and orchards, as well as a *bosco*. On the north side was an enclosed courtyard, flanked by a reflecting pool.

In 1696 the Frenchman Grillet, a pupil of Le Nôtre, designed the cascade, comprising 24 steps of irregular length, on one of the lines of the matrix. The cascade house, built by Thomas Archer (1668-1743) in 1703, contained an ingenious system of water jets and water games in the dome and the floor of its interior. In 1702 the canal pond, some 100 metres long, was dug out of a hill which had formerly restricted the view from the house across the valley. The level of the pond is about 10 centimetres higher than the South Lawn, so that the house seen from the south side appears to rise out of the water.

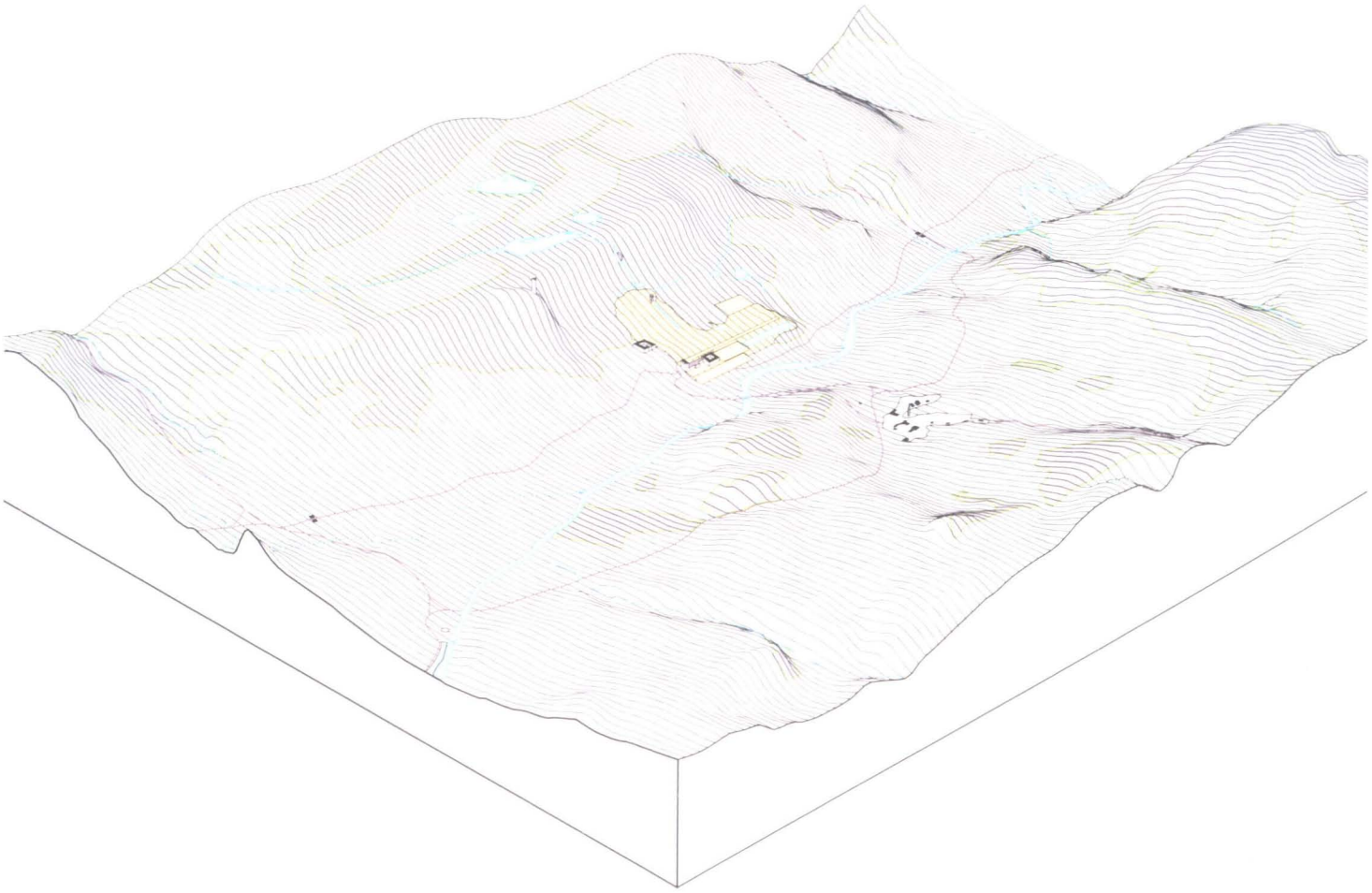


Proposal for a cascade in Stand Wood. (Kent, 1740)

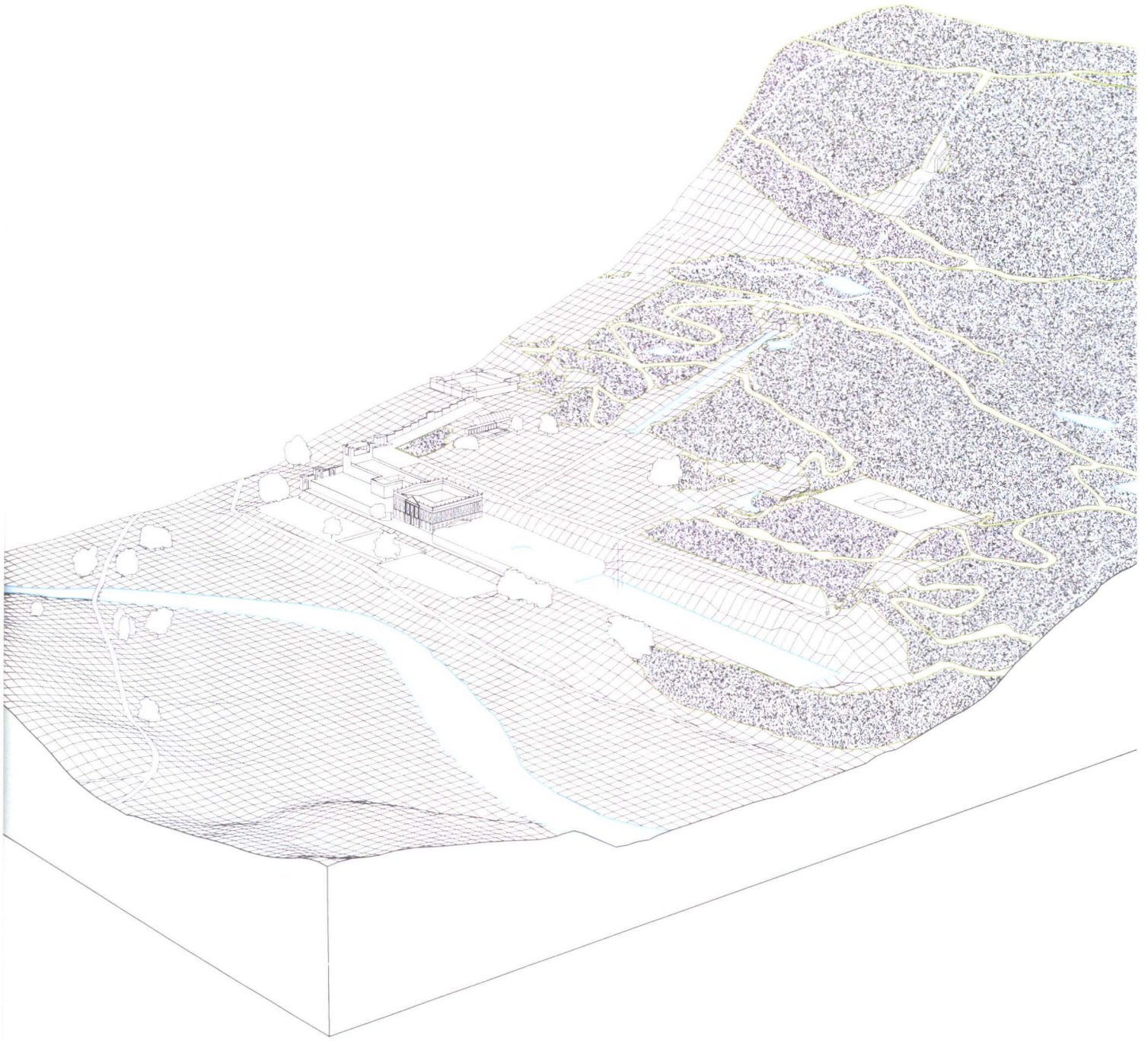
The landscape garden of 1756

Around 1740 William Kent proposed a large cascade and various temples for Stand Hill, but this was never carried out. In 1756 Lancelot 'Capability' Brown was commissioned to replan the garden. Paine designed new stables on the north side of the house in 1763, while the fish ponds on the west side were drained. The Derwent, which had hardly played a role from the viewpoint of the garden, was widened by building a dam, and the bend in the river on the north-west side of the house was lengthened to improve the view.

Around 1761 Brown designed the new Park Drive along the western boundary of the estate. Arriving from Beeley, the visitor was led through the rolling landscape, across Paine's new bridge, to the north entrance, where there was a view of the house and garden against the backdrop of Stand Wood. The part of Edensor village which was in the direct line of vision of



The situation of Chatsworth in the landscape morphology of the Peak District.



The layout of the garden against the edge of the plateau.

The landscape garden, 1756.

1 Chatsworth House
2 Edensor
3 Stand Wood
4 New Piece Wood
5 Lindup Wood
6 Park Wood
7 Park Drive
8 Lodges

the house was pulled down, while the entrances at Beeley and Baslow had gates and lodges built. The parterre around the cascade was changed into the rolling Salisbury Lawns and clumps of plantings linked it with Stand Wood on the hill.

Brown added many tree plantings. He created a woodland area not only of Stand Hill, on the east side of the house, as a new backdrop but also of New Piece and Lindup Wood on the hills of the south-west side. Thus the desolate hills of East Moor on the east side disappeared from view. This panoramic design increased the visual unity of the parkland, though at the expense of visual contrasts.

The Victorian garden, 1826-50

Joseph Paxton, who came to work at Chatsworth later than Wyatville, took the existing garden, including the Broad Walk from 1820 (which according to the 6th Duke was 'Wyatville's first great hit out of doors'), as a starting point: neither the garden nor the parkland were redesigned (aside from Edensor, which was probably not Paxton's idea). Paxton placed the emphasis on newly acquired 19th-century techniques and the sharply contrasting visual effects of the picturesque. At the same time, however, the garden became more firmly anchored in the original design matrix.

The Victorian garden, 1826-50.

1 Chatsworth House
2 Theatre Tower
3 Wyatville entrance gate
4 Temple of Flora
5 Broad Walk (Wyatville, 1820)
6 Conservative Wall
7 West Parterres
8 Emperor's Fountain
9 Blanche's Vase
10 Great Conservatory
11 Wellington Rock
12 The Strid
13 Azalea Dell
14 Pinetum
15 Grotto + Pond
16 Spectacles
17 Willow Tree Fountain
18 Willow Tree Pond
19 Cyclopian Aqueduct
20 Cascade Pond
21 The Stand
22 Emperor Lake
23 Swiss Lake
24 Home Farm
25 Edensor

The Cyclopian Aqueduct and Emperor Fountain

The Cyclopian Aqueduct is situated in line with the existing cascade, facing Stand Wood, and therefore follows one of the most important lines of the design matrix. In this way Paxton introduced a much larger scale into the garden, as well as achieving a new balance with the Derwent valley, the deer park and Edensor village on the other side. This went hand in hand with a stunning visual effect: when seen over the cascade, the aqueduct's column of water appears to tumble from the sky.

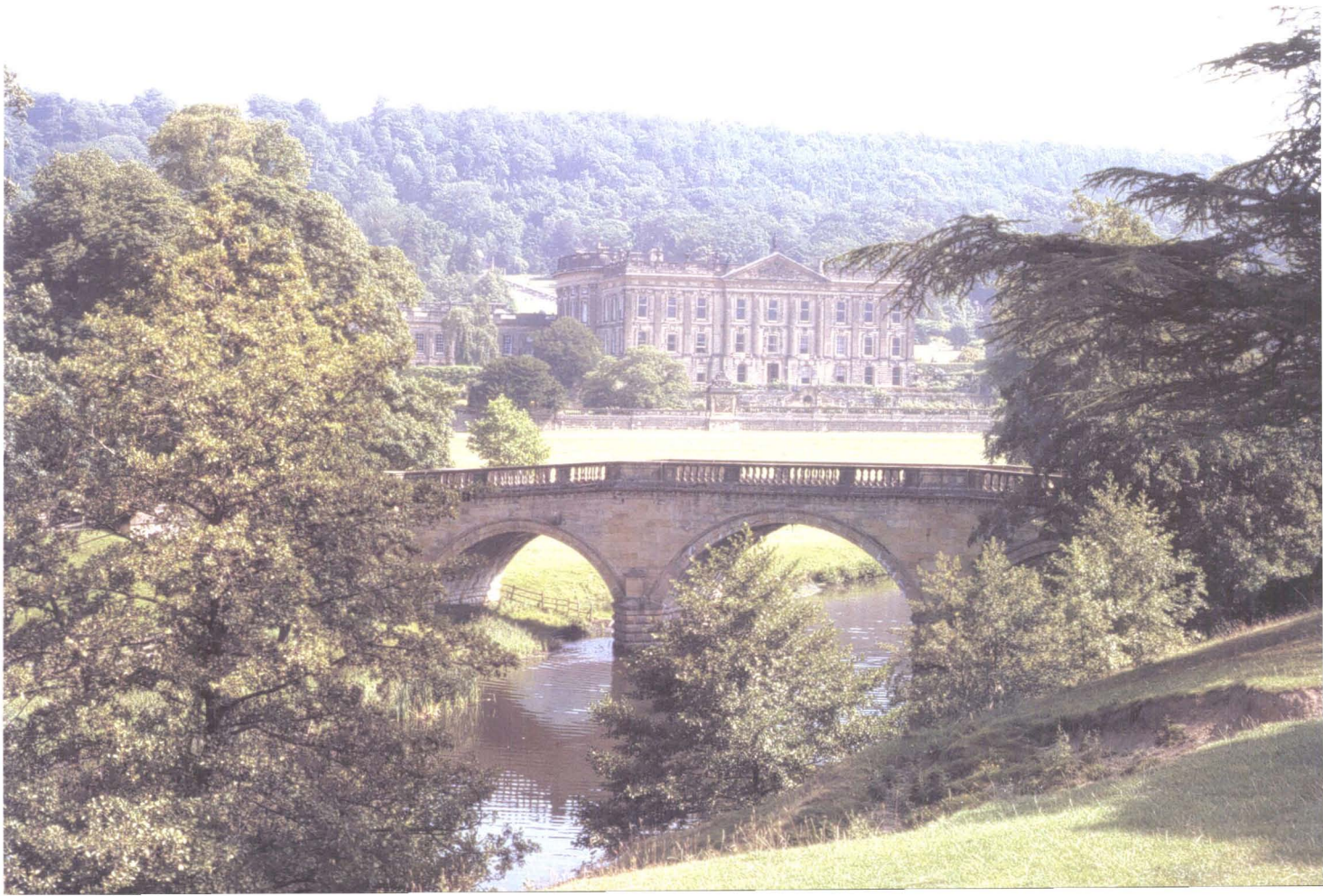
Paxton designed the Emperor Fountain in the canal pond to mark the visit of Tsar Nicholas II of Russia in 1843, but the visit never took place. Lake Emperor was made on East Moor, a reservoir covering two hectares and fed by drains in the moor. The water was transported via a watercourse 2.5 kilometres long, hewn out of the rocks, and double-acting valves set it at the correct pressure. The natural water pressure was sufficient for a fountain that threw a water jet 280 feet (80 metres) high.

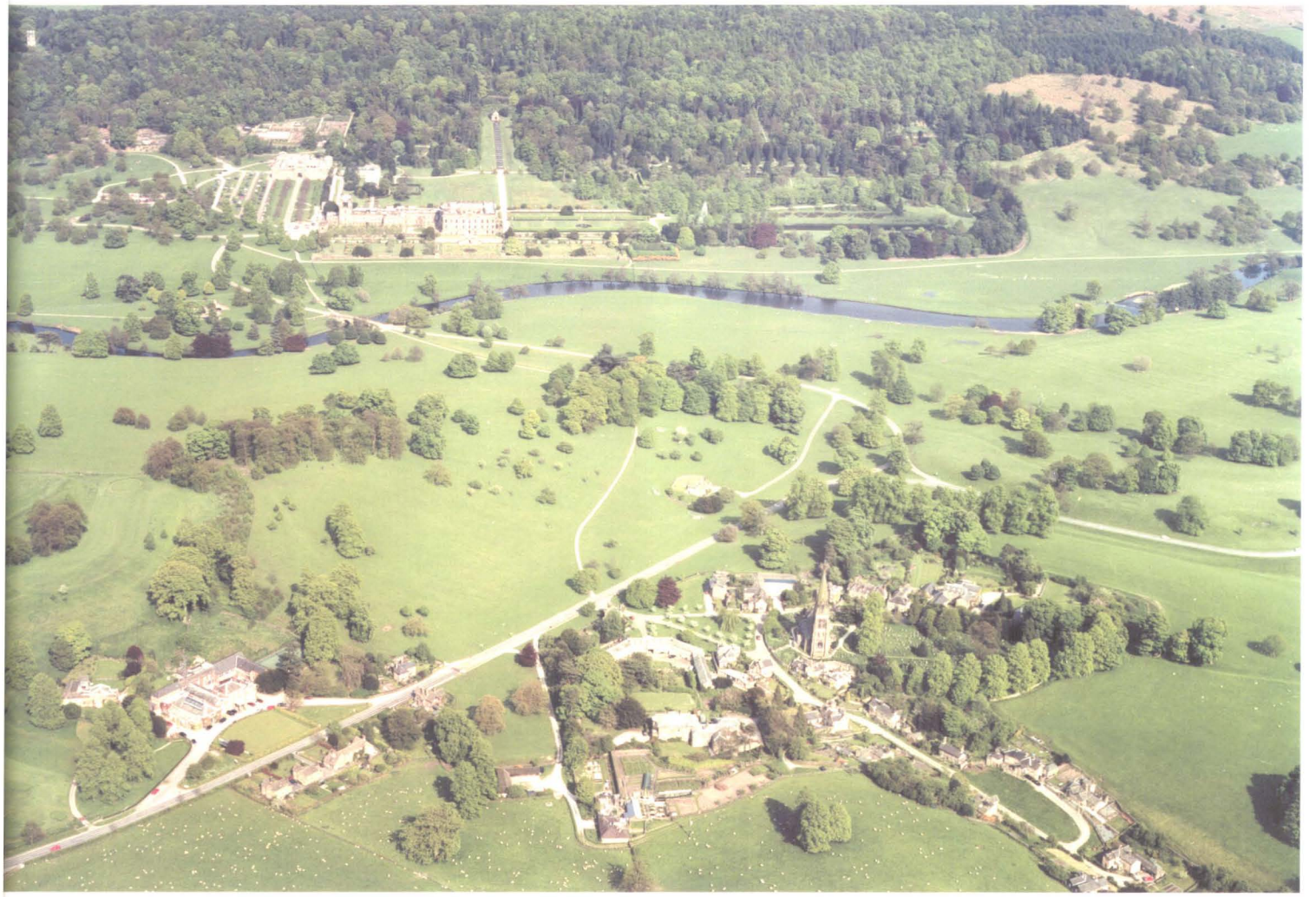
Wellington Rock and The Strid

In 1842 there was still no trace of the Alpine landscape and rockery that today faces Stand Wood. The sheer size of Paxton's creation of Wellington Rock with its gigantic rockery is far

Chatsworth from the west, 1993.

The house seen over Paine's bridge.





Edensor, Deer Park and garden against the background of Stand Wood and the East Moor. (Aerial photo P. van Bolhuis/Pandion)

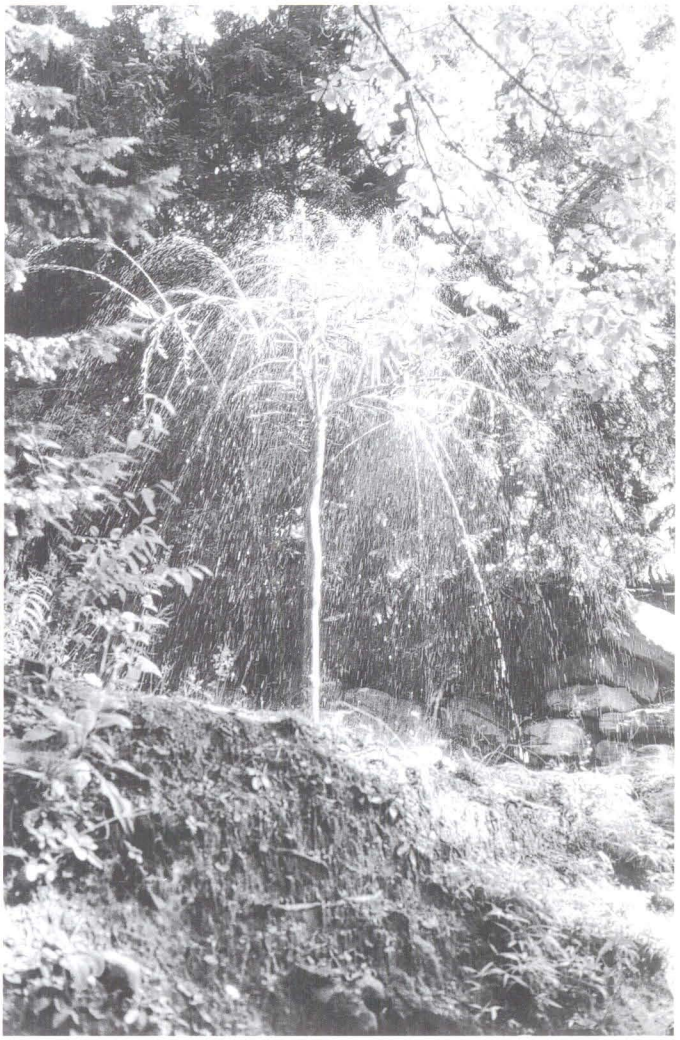
removed from the rock garden that took hold in the landscape garden during the 18th century. Paxton's main concern was not the plants but the composition or picturesque assemblage of the natural rocks. An artificial waterfall, 15 metres high, tumbles from Wellington Rock and flows into Strid Pond, named after a small ravine at Bolton Abbey in Yorkshire. Thus a wild landscape was again represented in the garden.

Conservative Wall and Great Conservatory

Within a few years Paxton had turned Chatsworth House into a centre for botanical research. Expeditions were made to North and South Africa as well as to the Far East to collect specimens. Along the north garden wall Paxton made the Conservative Wall, a series of wooden wall cases for growing plants. The most spectacular was the design for the Great Conservatory (The Lily House), a huge greenhouse covering 3,000 square metres, built of glass, wood and cast iron between 1836-40 by Paxton and Decimus Burton (1800-81), after years of experimenting. It was here that the *Victoria Regina*, an enormous tropical water plant that since then has become a familiar attraction in botanical gardens around the world, bloomed for the first time in England.

A small underground train delivered the coal to stoke the kettles used to heat the greenhouse, made visible in a grotto south of The Strid. The smoke was carried away by an underground chimney to Stand Wood. Paxton expanded on the

The end of The Broad Walk, with Blanche's Vase.



The Weeping Willow.

duality between the utopian ideal of the greenhouse and the technology that lay behind it. The chimney was transformed into a monument and became part of the pine gardens. In 1916, when Britain was at war, the authorities did not allow it to be stoked, and thus it meant the end for the tropical plants. The greenhouse was torn down in 1920.

Pinetum and arboretum

In 1829, 3.5 hectares of parkland to the south of the garden were enclosed and Paxton began laying out a pine garden. In 1835 the arboretum was designed according to a botanical classification system. Paxton created a hermitage where a fish pond had earlier marked the boundary between the garden and the surrounding park, and left the skeletons of dying oak trees that had once been part of medieval Sherwood Forest.

Edensor

Old Edensor village, located to the east of Brown's Park Drive, lay in the way, and disrupted the Arcadian image of the park landscape on the other side of the Derwent. Around 1840 the ancient village was pulled down and replaced by a picturesque model village designed by Paxton. This was concealed between two transverse valleys of the Derwent and was linked via a gatehouse to the park landscape where cattle grazed. Paxton lies buried in the churchyard of Edensor, from where Chatsworth can be seen.

The water system

The waterworks at Chatsworth suggest those of Villa Pratolino in its heyday. Paxton was a technical genius at employing various water forms, such as a spring, waterfall, mountain stream, cascade and fountain. The mannerist tradition of his illustrious predecessors Isaac and Salomon de Caus and Stephen Switzer had an unexpected sequel.

The rainwater of East Moor was collected via drains in Emperor Lake and Swiss Lake and, by natural water pressure,

The Strid.

Cascade seen from Cascade House.

fed the cascade and fountains at Chatsworth. There are three water sources that flow from the plateau to the Derwent: the cascade, the waterfall of Wellington Rock and The Strid, and the stream from Grotto Pond. These three lines of water come together in the garden culminating in a play of fountains and reflecting pools. Of special note is the Weeping Willow, a fountain designed in the form of a weeping willow tree, with fine water-bearing copper tubes as the twigs.

The apotheosis of 300 years of garden design

Chatsworth is the garden of all gardens, magnificently regular and with an unrivalled wealth of detail and contrasts. Paxton provided a definitive synopsis of the entire visual spectrum of the 18th-century landscape garden. One therefore has to regard Chatsworth as a capstone in the development of pictural landscape design.

Chatsworth is characterised by the multiple layers that have formed it. London and Wise created an oasis on the bank of the Derwent, which has always formed the heart of the garden. Brown understood that the discrepancy between the low-lying garden and the surrounding hilly landscape (still partly wild at the time) was an essential feature of Chatsworth. He draped a park landscape around it, which also encompassed the other bank of the Derwent. The valley of the Derwent and Stand Hill were thereby included in the composition, but the contrast was softened.

Paxton took this as a starting point. By making this contrast more pronounced across the entire reach of the 18th-century park landscape without destroying it, he created a visual synthesis which surpassed the dialectics of Brown's composition. Paxton used the instrumentarium developed at Chatsworth in the design of urban landscape parks, for instance Birkenhead Park, at Liverpool. His experiments, perhaps more than Repton's design technique, laid the foundation for controlling the landscape architecture of the urban design.

Regent's

The universe turned a corner in Upper Regent Street. I think the moment that I approached Regent Street for the first time, from Piccadilly Circus, was decisive in my life. I know for certain that I was deeply moved and thought, 'This is what a street ought to look like'.

Kees Fens, *Lof van de bocht*, 1992

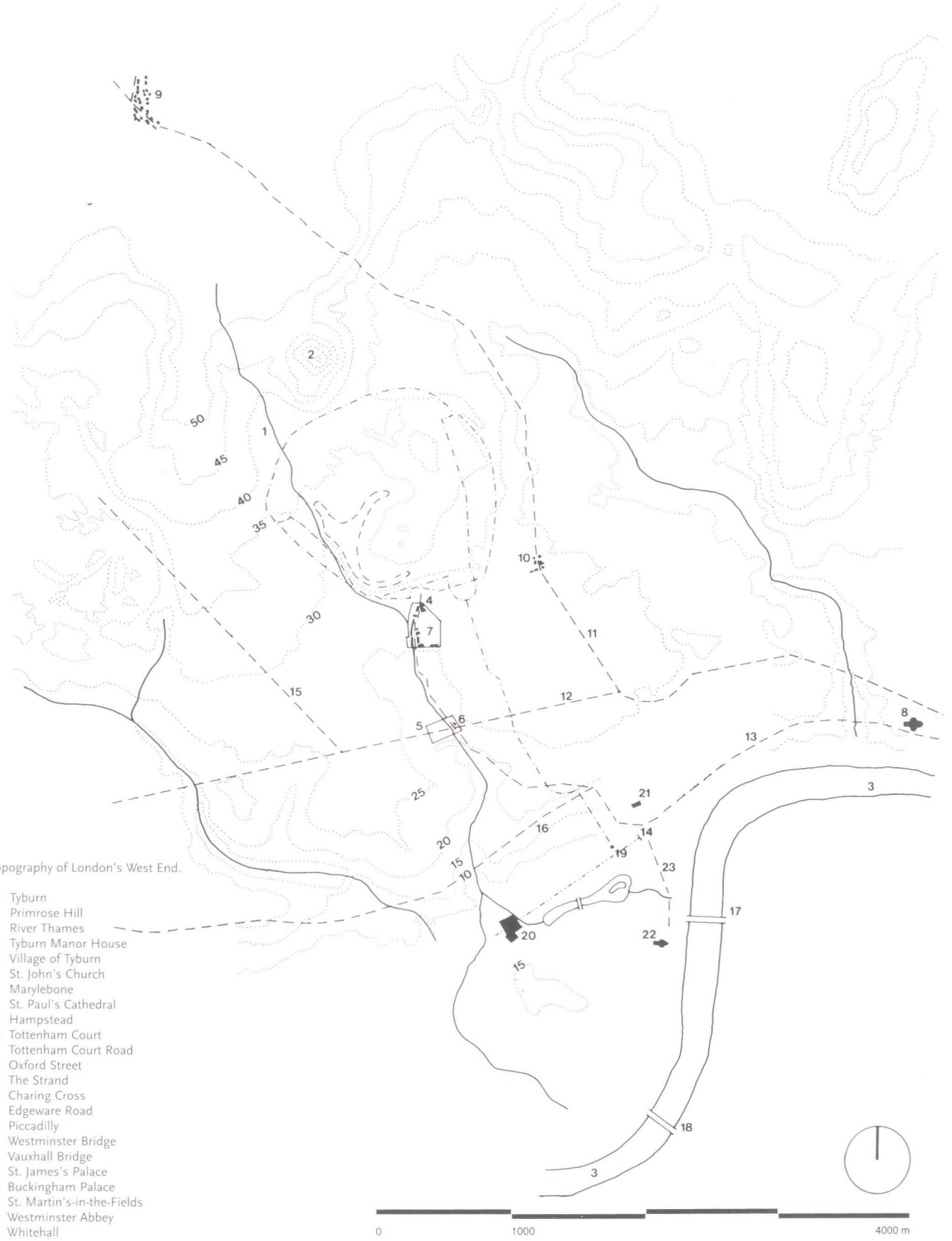
London, 1843. (From *Rare Engravings*)

Regent's Park lies in London's West End, about three miles north of St. Paul's Cathedral. Around 1810 the park became part of an extensive and ambitious plan which also included Regent Street and St. James's Park, one of the most important metropolitan projects of the first half of the 19th century. The design can be traced back to a landscape architectonic transformation of both the man-made landscape and the existing urban fabric. The most important objective of this Grand Design was to reorder the relationship between the royal palace, the centre of government, and the built-up urban areas of Mayfair and Westminster (the western section of London). A second objective was to restore contact between the centre and the agricultural landscape north of Westminster by fixing the edge of the city and thus bringing the growing metropolis under control.

From hunting park to urban landscape

Paradoxically enough, precisely as a consequence of the small size of the defended city (the Roman *urbs*), in the Middle Ages London developed into what Rasmussen has termed a 'scattered city', a city outside the walls consisting of various 'townships' grouped around the two poles of London and Westminster. Westminster, which according to one theory arose from a place where in earlier times the king administered justice in an open-air court, became the seat of government. Gradually, the most important governmental institutions, such as the Royal Treasury and the Supreme Court, and finally the Parliament, were moved to Westminster.

The royal game parks, including Windsor Great Park and Marylebone Park, which would later be transformed into Regent's Park, all lay on the west side of London. From the earliest days the nobility also lived to the west of London along the Thames, particularly in Richmond, or in what is now the West End. Later, government ministers and secre-



Topography of London's West End.

1 Tyburn
2 Primrose Hill
3 River Thames
4 Tyburn Manor House
5 Village of Tyburn
6 St. John's Church
7 Marylebone
8 St. Paul's Cathedral
9 Hampstead
10 Tottenham Court
11 Tottenham Court Road
12 Oxford Street
13 The Strand
14 Charing Cross
15 Edgeware Road
16 Piccadilly
17 Westminster Bridge
18 Vauxhall Bridge
19 St. James's Palace
20 Buckingham Palace
21 St. Martin's-in-the-Fields
22 Westminster Abbey
23 Whitehall

Topography of Marylebone Park.

1 Marylebone
2 St. Mary-on-the-Bourne
3 Tyburn Manor House
4 Marylebone Pleasure Gardens
5 New Marylebone Church
6 Gravel Pit Field
7 Willan's Farm
8 Kendall's Farm
9 The Jews Harp
10 Green Lake
11 Boundary of Marylebone Park Estate
12 Tottenham Court
13 Tottenham Court Road
14 Portland Road
15 Mayfair
16 New Road
17 Edgeware Road

taries, high-ranking civil servants and wealthy burghers also gravitated there. In contrast, the City of London developed as a commercial centre. The area between London and Westminster was gradually filled in, but a certain polarity continued to exist, and was even intensified by later industrialisation. The West End remained an elite area; the docks and industrial areas developed in the East End, toward the sea along the Thames.

The castles and country houses along the Thames for the most part were located on visually strategic spots, on the 'foothills' that fringe the broad Thames valley. They not only looked out on the Thames but eventually, with the development of belvederes higher in the hills, also had views of each other and of the dome of St. Paul's Cathedral, which marked the centre of London. The visual network of this country estate landscape, reminiscent of that around Florence and in Rome's Tiber valley, dominated the long stretch of the Thames westward. Marylebone Park was a hunting reserve without a country house, and was not part of this country house landscape. Because of its strategic location with regard to the seat of the court, Carlton House, the centre of government in Whitehall, and the centre of London, it was nevertheless the obvious place for an urban transformation.

Marylebone

The natural landscape of western London slowly rises from the Thames river valley in waves northwards toward the plateau of Hampstead, Highgate and Harrow. Marylebone Park lay on the southern foothills of this plateau; the Tyburn River rose there. Its lower course split into two branches, which flowed into the Thames north and south of Westminster. Directly to the north of Marylebone Park lay Primrose Hill, the summit of which stands about 35 metres above the average height of the terrain.

In the centuries after the departure of the Romans, the village of Tyburn arose where the Tyburn was crossed by the old Roman road (today Oxford Street) running east and west. Around 1250 a manor house was built near by. Around 1400, as a result of new land development, the village of Tyburn moved north toward Tyburn Manor and a newly founded church consecrated to Mary. This led to a change in its name: the settlement got the name of Marybone or Marybourne, later Marylebone, probably a corruption of St. Mary-on-the-bourne, which means St. Mary on the stream.

Marylebone Park and St. James's Park

The whole area was originally a part of the extensive Middlesex Forest. After the dissolution of the monasteries by Henry VIII in 1536 it became property of the crown. Henry VIII had 223 hectares (550 acres) of it enclosed with a wall and a fence with 15 gates (the roughly circular shape of the area can probably be credited to this), and used the Marylebone Park thus formed as a hunting reserve. This situation continued until 1649, the beginning of parliamentary rule. All royal lands were sold during Oliver Cromwell's Protectorate. The forest was very soon felled for use in constructing a fleet of warships. After the monarchy was restored and Charles II ascended the throne in 1660, the area reverted to the crown and was leased out for agricultural purposes.

In the northern section of Marylebone Park the soil consists of London Clay; in the southern section this is covered with gravel from the Taplow Terrace, the high terrace of the Thames. The morphology of Marylebone Park is dominated by a ridge of hills from five to ten metres high which run down into a lower-lying, badly drained area in the valley of the Tyburn. During the 18th century most of the southern section was used as meadowland.

In the 18th century the population of Mayfair and Soho sought diversion on the then edge of the city in the southern part of Marylebone Park, among other places at an inn called

The Grand Junction Canal.

Park Village East.

Boating Lake.

The Jews Harp. In 1649 the Marylebone Pleasure Gardens were opened behind Tyburn Manor House, with a garden, a bowling green and a refreshment room. The gardens quickly became a much frequented place of entertainment, chiefly for the richer residents of Mayfair. By the end of the 18th century Marylebone was surrounded by the growing city. The glory days of the Marylebone Pleasure Gardens were then already past.

St. James's Park originally belonged to the leper asylum St. James's Hospital. It consisted of marshy meadowland with pools and clumps of trees, and was probably regularly flooded by the Thames (the Thames being a tidal river). In 1532 Henry VIII had the area drained and walled in. In 1660, under Charles II, the area was enlarged. The park was laid out, probably by Mollet, with a formal Grand Canal, in which Charles II is reputed to have swum publicly, tree-lined avenues and a mall. In 1663 it became one of the first royal parks to be opened to the public.

London estate development

With the urban expansion during the course of the 17th century a number of country homes in the immediate vicinity of Westminster and London came to lie within built-up areas. The forecourts of these country homes were subdivided into lots surrounding 'squares', open rectangular (and often actually square) spaces. The house itself retained its dominant position, while the ground around it was divided and distributed in separate lots. This model of the square was the norm for the development of Mayfair.

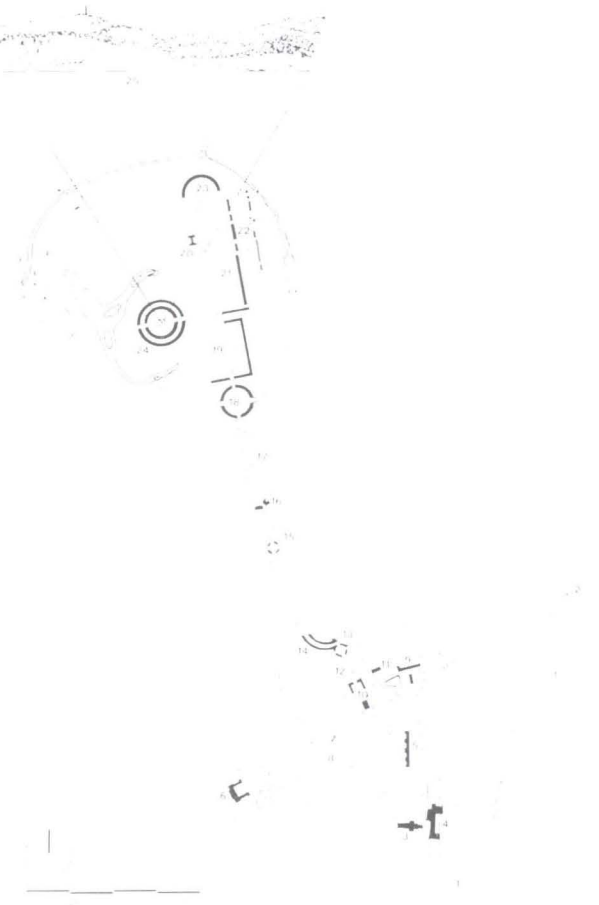
Until the second half of the 19th century the municipal authorities had hardly any role in urban development. Through the development system of the squares, residential development became a matter for landowners and speculators. Rather than selling the estates to the municipality or coming up with a plan themselves, large landowners leased plots of land to project developers, which were often combinations formed by a speculator, a building contractor and an architect. These developers divided the land into lots, built the houses and rented them out, with the objective of making as much profit as they could in a short time. After the expiration of the lease the land, with the houses on it, reverted to the landowner. The larger and smaller estates were scattered about higgledy-piggledy, unconnected with each other and without any logic in the road system.

The theatrical stage-management of public space played a central role in the attempt to break through the cramped chaos of the 18th-century city and create space for the modernisation of urban public life.

Transformation scheme.

A Regent's Park
B The New Street
C Buckingham palace
D St. James's Park
E Haymarket
F Charing Cross

1 Edgeware Road
2 New Road
3 Tottenham Court Road
4 Oxford Street
5 Piccadilly
6 Hyde Park
7 Westminster Bridge
8 River Thames



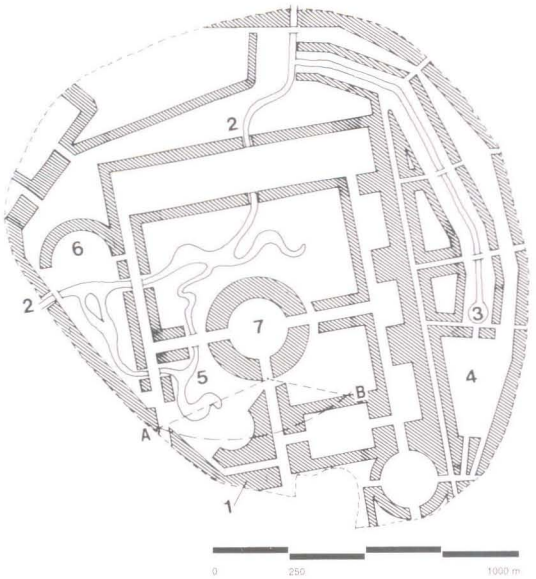
The Grand Design.

1 River Thames
2 St. Paul's Cathedral
3 Westminster Abbey
4 Houses of Parliament
5 Horse Guards
6 Buckingham Palace
7 The Mall
8 St. James's Park
9 National Gallery
10 Waterloo Place
11 Haymarket Theatre
12 Regent Street
13 Piccadilly Circus
14 The Quadrant
15 Oxford Circus
16 Langham Place/All Souls' Church
17 Portland Place
18 Park Circus/Crescent
19 The Broad Walk
20 Guinguette
21 Reservoir
22 Cumberland Terrace
23 Crescent
24 Double Circus
25 Panorama Primrose Hill/Hampstead Heath

John Nash

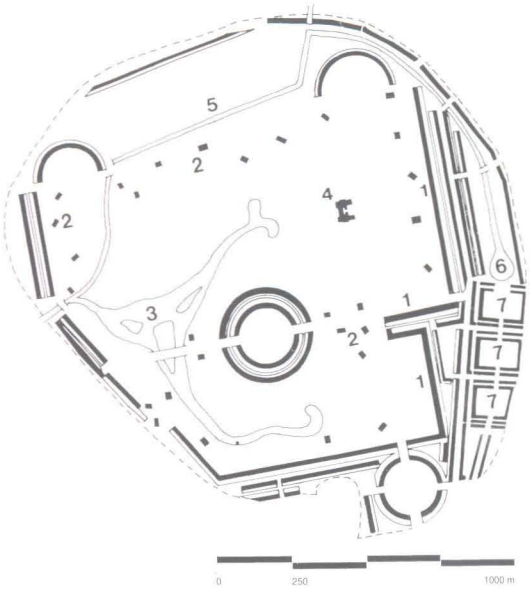
John Nash (1752-1835), the principle architect of this extensive project, was probably born in London to a craftsman's family that had come from Wales. When he was fourteen, an uncle found him a place in the offices of the renowned architect Sir Robert Taylor, where according to the customs of the time Nash did an apprenticeship of about a decade, until he went into practice for himself in 1775. In 1794 he met Humphry Repton, who in terms of both theory and practice was the most important landscape architect of England in that day. When in 1796 Repton was asked to oversee the rebuilding of Corsham Court in Wiltshire, he recommended Nash as the architect. Their collaboration lasted until 1805, and was of decisive importance for Nash's development.

As well as being an architect, Nash was a draughtsman and structural engineer; for instance, he designed and built the massive brick sewer system under Regent Street and he also designed the Highgate Archway without any special assistance.



First design (Nash, March, 1811).

1 Built-up area
2 Grand Junction Canal/Regent's Canal
3 Inbound goods terminal
4 Market
5 Ornamental Water
6 Crescent
7 Double Circus



Second design (Nash, November, 1811).

1 Terraces
2 Park Villas
3 Boating Lake
4 Guinguette
5 Regent's Canal
6 Inbound goods terminal
7 Market

Nash was already 58 years old when he began with his Grand Design, and he worked on it with unbounded energy for a period of 15 years, from 1810 to 1826. He possessed a well-developed sense for ensemble architecture and a talent for uniting various expertise and opinions in new combinations. The New Street (now Regent Street) is almost entirely his work, and in the transformation of Marylebone Park Nash was also always the one who determined the spatial concept.

The development of Marylebone Park

The idea for developing Marylebone Park came from John Fordyce, the Surveyor General to His Majesty's Revenue, of the Prince Regent, later George IV. Fordyce sought to secure the interests of the crown against those of the Duke of Portland, who owned land to both the north and south of Marylebone Park. Fordyce had an integral vision on the significance of this project for the development of London as a royal residence; for instance, among the things he considered necessary was a direct link between the royal palace and parliament building in Whitehall. He commissioned studies that would demonstrate the feasibility of this comprehensive project. Shortly before his death in 1810 he wrote a memorandum to the Treasury in which all of the basic conditions for the project were set forth.

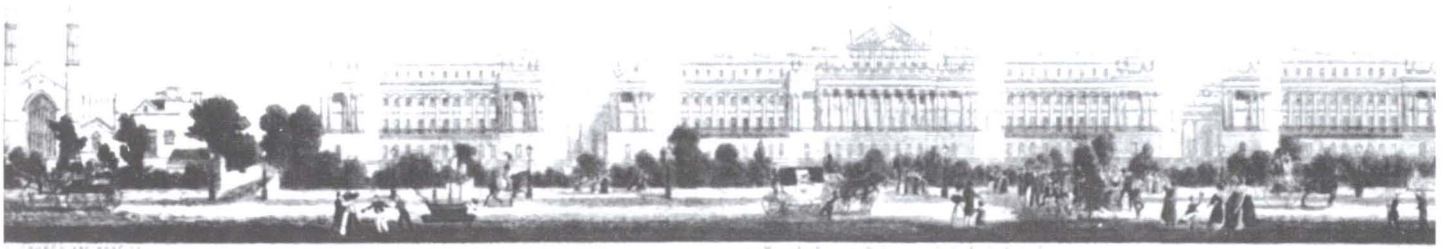
In 1811, just before the Duke of Portland's lease on Marylebone Park would expire, a permanent commission of three, recommended as early as 1793, was appointed, in which the departments of Woods and Forests and Land Revenues were united under the chairmanship of Lord Glenberrie, who received parliamentary authorisation. The development of Marylebone Park (Regent's Park) is recorded in five reports by this commission, the fifth and last of which appeared in 1826.

The transformation of Marylebone Park.

1>1a Tyburn/Gravel Pit Field > Boating Lake
2>2a Hill crest > Double Crescent
3>3a Highest point > Guinguette
4>4a Willan's Farm > South Villa
5>5a Green Lane > The Broad Walk
6>6a Marylebone High Street > York Gate
7 The Jews Harp
8 Kendall's Farm
9 Edgeware Road
10 New Road
11 Tottenham Court
12 Hampstead/Tottenham Court Road
13 Boundary of Marylebone Park Estate
14 Clarendon Square

The pastoral panorama.

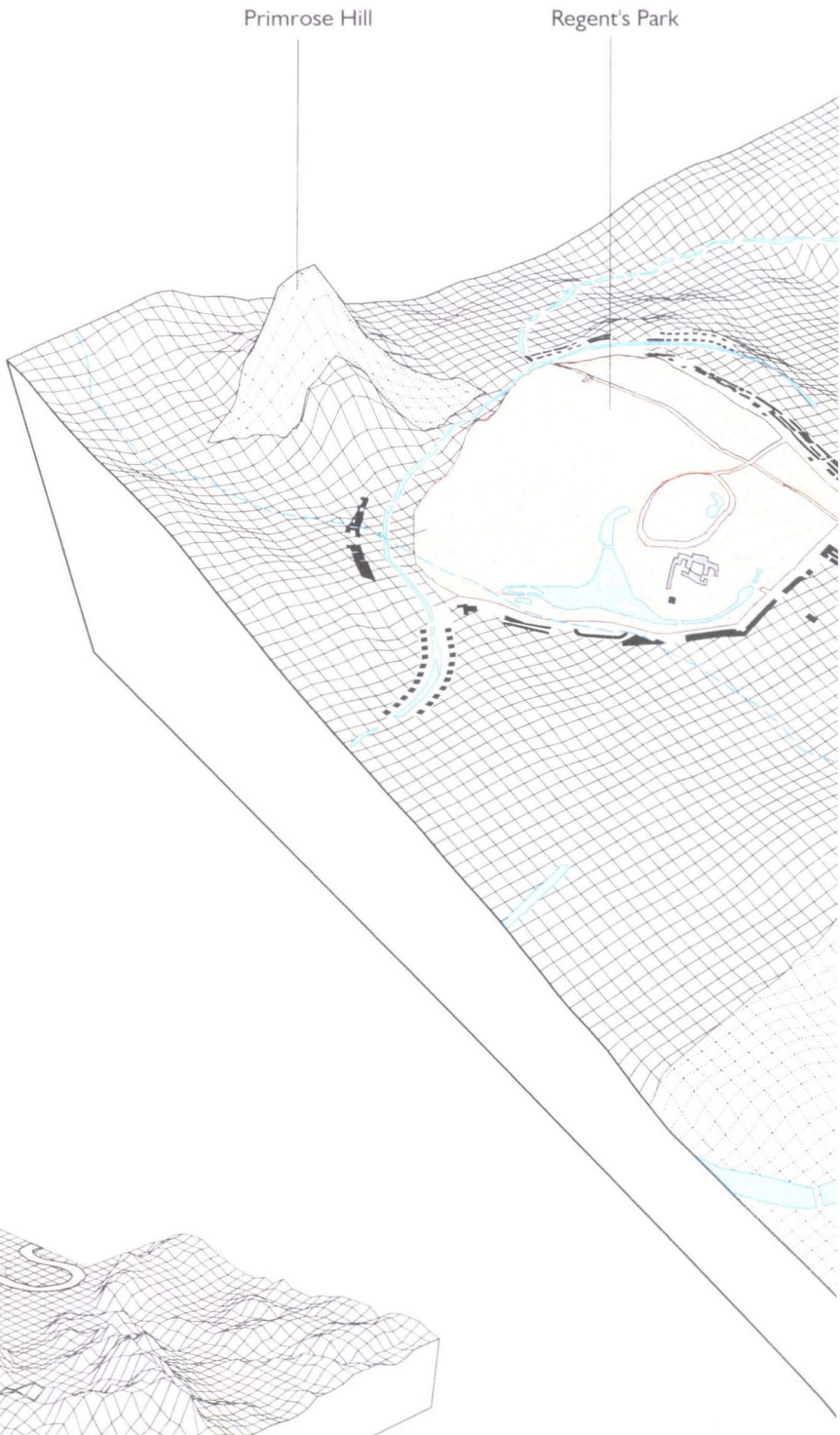
1 Primrose Hill/Hampstead
2 Gloucester Gate and Terrace
3 Cumberland Terrace



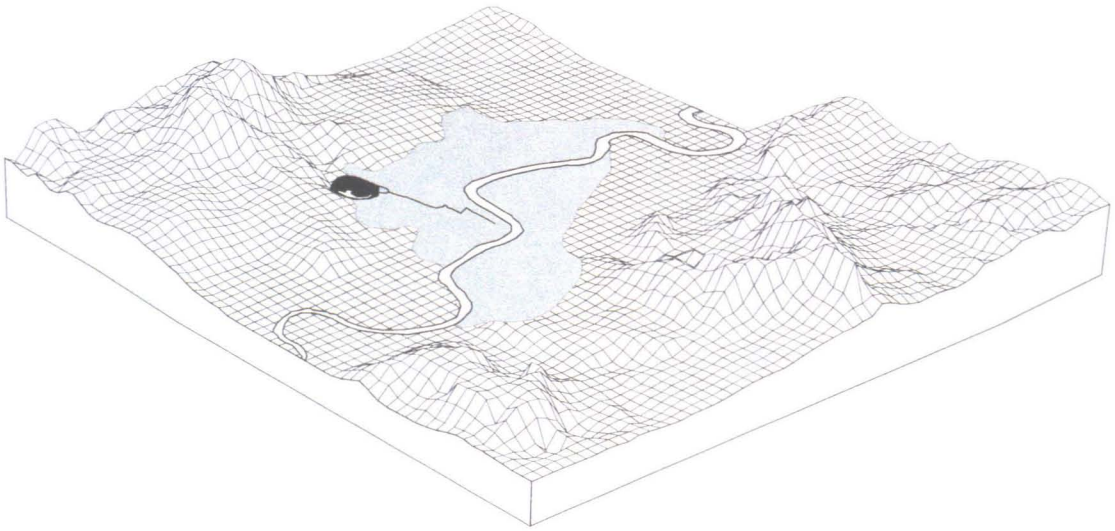
The Grand Design

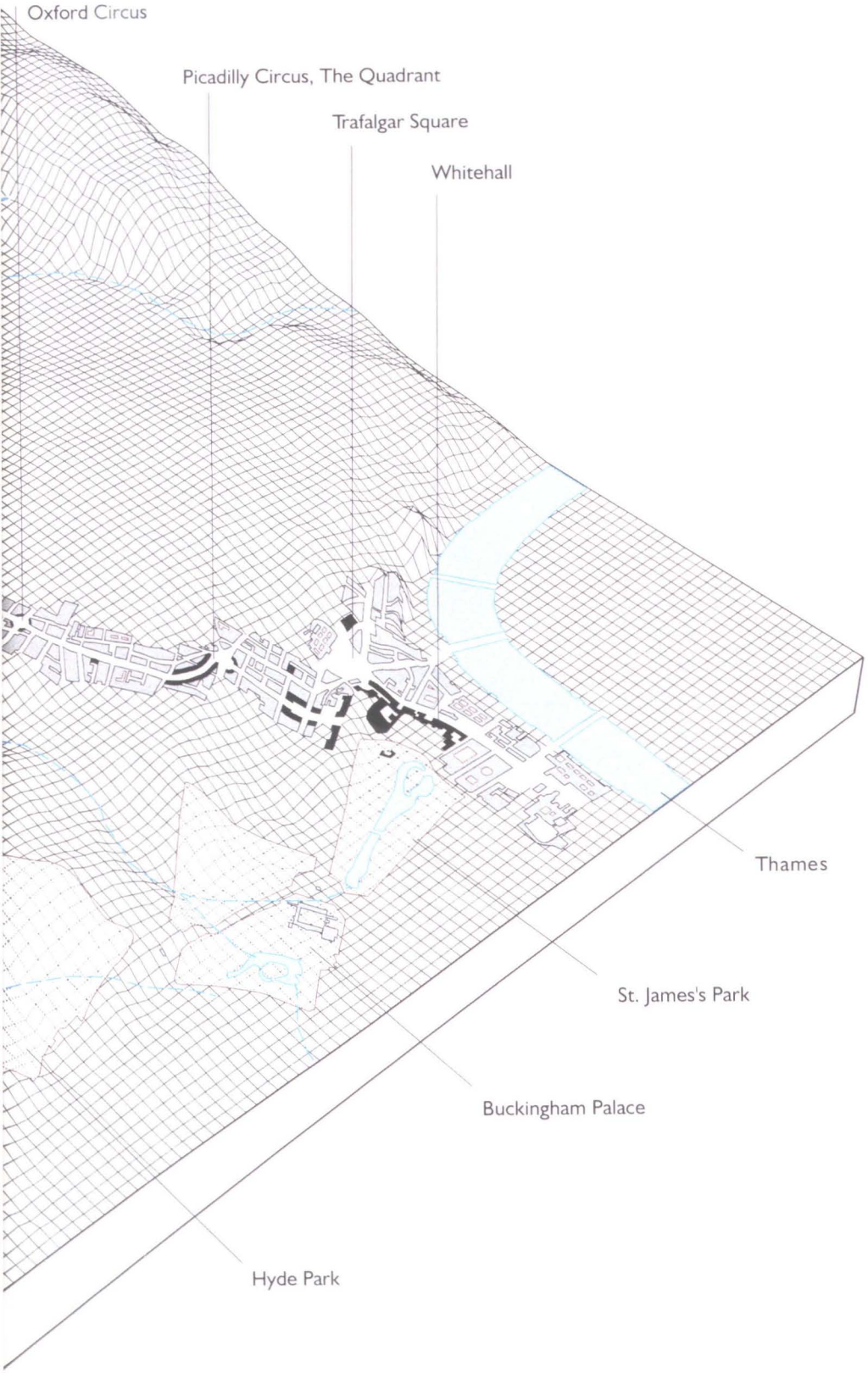
Nash's design implied a transformation of the existing landscape and urban pattern. This transformation took place in four phases. The first phase began with Regent's Park. In Regent's Park the new residential buildings and park together formed a theatrical landscape; Nash called this ensemble the Theatrical Panorama. In it he made use of the 'palatial style' that had been developed in Bath over seventy years before, in which the exclusivity of the country house had been transformed into a collective residential building.

The second phase was formed by New Street, the link between the royal palace and the new residential area. The third phase was initiated by the construction of a new palace after the coronation of the Regent as George IV in 1820, and included the stage-managing of the most important ceremonial government buildings on the opposite side of St. James's



The Grand Design in the morphology of the Thames Valley.




Oxford Circus
Picadilly Circus, The Quadrant
Trafalgar Square
Whitehall
Thames
St. James's Park
Buckingham Palace
Hyde Park

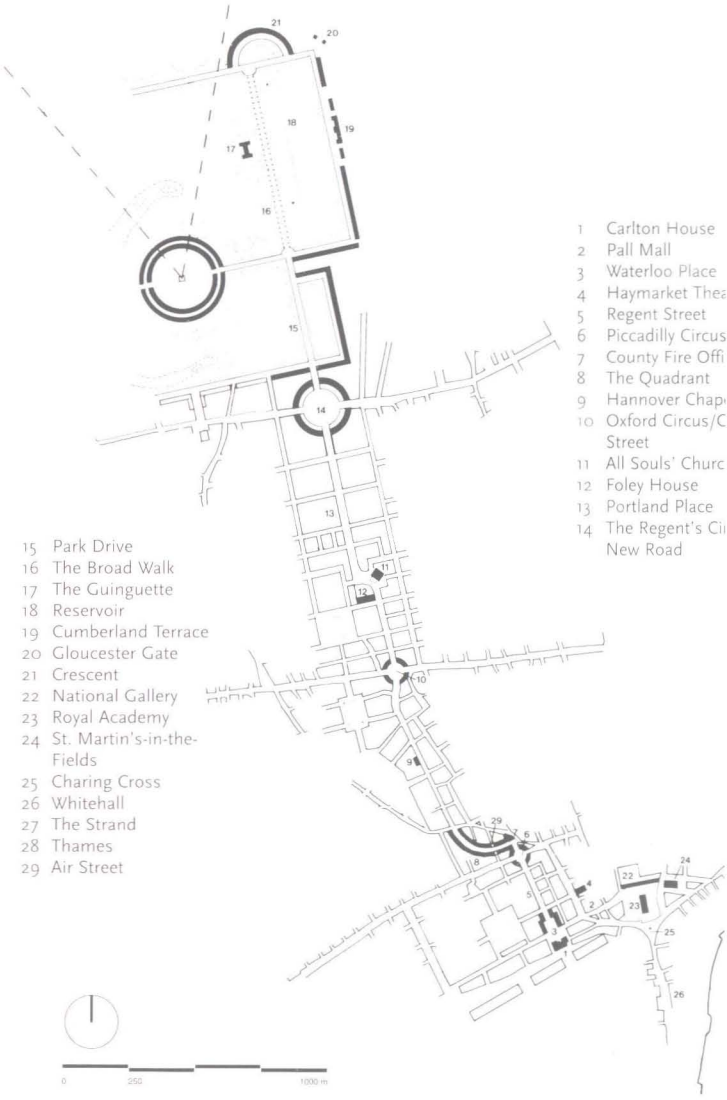
Park (Horse Guards, designed by William Kent with John Vardy around 1750, the Royal Mews, the Admiralty and the Houses of Parliament). The fourth and last phase, included in the commission's final report in 1826, consisted of the reorganisation of Haymarket and Charing Cross and a new link with the area around St. Paul's Cathedral.

The transformation of the landscape

By damming the Tyburn, the boggy area near Willian's Farm was magically transformed into the Boating Lake, analogous to 'Capability' Brown's reservoirs. The double circus (today the Botanical Garden) was placed on the top of the central hill as the visual centre for the Park. South Villa was a charming transformation of the striking siting of Willian's Farm. The country road between Marylebone High Street and Willian's Farm was transformed into York Gate; the new Marylebone Church was given a classic portico by Nash and used as a backdrop. Green Lane returned as a promenade in the design, under the name of The Broad Walk. At the point where The Broad Walk cuts through the ridge of hills, Nash designed a summer pavilion for the Prince Regent (The Guinguette) opposite Cumberland Terrace, on both sides of a *bassin* (the drinking water reservoir for the new community). In this Nash utilised all the morphological and topographic characteristics of the existing man-made landscape, with the exception of the Primrose Hill belvedere, which because of the ownership relations at the time could only be involved as a observation point in the development of Marylebone Park.

Staging the Theatrical Panorama

Nash's first sketch designs from 1811 already reveal the germ of a new approach to his assignment. This plan was no continuation of the pattern around Cavendish Square, but in the words of Nash was an 'exclusive, self-contained residential area'. It is urban in character, apparently based on the studies and plans of George Dance, who as early as 1767 had designed a miniature triad of square, circus and crescent for London, on the model of the triad in Bath. These architectural forms enclosed park-like inner courts with villas. In the centre of the composition a double circus was designed, with a national monument devoted to British heroes, analogous to the British Worthies at Stowe. The Boating Lake is noteworthy, adapted from a plan by John White from 1809, as it is the ingenious integration of the Grand Junction Canal, intended to link western London around the city with the eastern docklands. According to Nash the passing boats were to create a lively picture.



Scenography of the Triumphal Avenue.

The second version (after several intermediate versions) shows a decisive reversal. The image shifts in the direction of the landscape garden; the number of villas is reduced from 56 to 26 (of which ultimately six were built), and generally the building density is diminished. The Boating Lake becomes independent as the visual centre of the landscape composition; the Grand Junction Canal is laid along the edge of the area. The differentiation of building forms, which was to be still further worked out in later versions, transforms the urban block arrangement of the first design into a 'park city'. In this the landscape is dialectically placed in opposition to the architecture of the residential buildings. This produced the synthesis of the English landscape garden and neo-classical Regency architecture, in which the 18th-century typology of Bath was elevated to metropolitan scale.

The various residential buildings were related to one another visually; they were at the same time both stage and decor. Nash deliberately took this ambiguity between seeing and being seen to its fullest development. Seen from the villas the terraces formed the urban horizon; the Park Villas and Park Villages along the Regent's Canal in turn formed the rural decor for the terraces and circuses. Park Road offered a changing perspective on the Theatrical Panorama and the landscape.

The direct confrontation of urban residences with the landscape (the 'Bathonian concept') was a break with the existing pattern of Mayfair. The terraces and villas each had their own pleasure grounds and an unobstructed view of the Park. In the 'open market' section on the east side of the Park for the working population and service personnel Nash made use of variations on the repertoire of spatial forms that one finds elsewhere in Mayfair: places, squares and streets. In a higher sense, the visual contrast between the 'city' and the 'landscape' in the New Street and Regent's Park was perhaps taken to its conclusion, but at the same time the functional opposition was abandoned. With this the foundation was laid for the design of the metropolis as a continuum of city and landscape.

Waterloo Place seen in the direction of the then Cariton House.

The scenography of New Street

A first sketch design by Nash from 1812 included the section between Carlton House to the south, near St. James's Park, and Portland Place, an already existing street bordering on Regent's Park, in one monumental composition. In it the New Street was conceived as a classical 'straight' street with continuous colonnades, and connected with important streets by means of rectangular or round plazas (Oxford Circus, Piccadilly Circus), sometimes with a statue in the middle. The second design, from 1814, is a pictural composition (a 'winding road'), modelled on Oxford High Street. At the north end the design was expanded to include the entrance to Regent's Park; at the south end a link to Whitehall and the old city appeared next to Waterloo Place, the formal 'Grand Place' in front of Carlton House. In this plan Nash developed a firmer grip on the relations among the most important components of the Grand Design.

The New Street thus initiated a three-part transformation of the existing pattern in Mayfair. The first aim of the traffic breakthrough in the street pattern of Mayfair was to have a direct link between Whitehall and Regent's Park. For this some streets were replaced (for instance, Swallow Street by The Quadrant); others (Portland Place, for example) were included in the design. Furthermore, the New Street formed a

Waterloo Place seen in the direction of the County Fire Office.

The Quadrant with the County Fire Office.

A Terrace, seen from the Park.

The entrance to Chester Terrace.

The Broad Walk.

new metropolitan axis on the boundary between the old, dense and poorer section (Soho) and the richer, newer one (Mayfair). Nash reorganised the relation between these two sections by inserting his street into the fabric of the existing city as a theatrical 'set piece'. The street and circuses were, so to speak, the stage on which London's population could present themselves; the façades, gates and monumental buildings were the decor that hid the poorer streets and opened up access to the richer squares.

A third important aspect of the New Street was the link with the landscape outside London. Formerly the population of Soho had gone out of the city via Portland Place and then on via Green Lane to The Jews Harp Inn. The Triumphal Avenue between Carlton House and the monarch's summer palace (Guinguette) now added a ceremonial aspect to this, a 'royal' transformation of the historic link between the city and the landscape. The scenography of the New Street gave the illusion of a spatial continuity; one walked slowly from the centre on the Thames upward, as it were, out of the city to an Arcadian landscape in the hills.

Nash used no trees in his design for New Street, as Alphand would do in his design for the boulevards of Paris forty years later. The bayonet-like turns that were necessitated by adaptations to the existing situation were articulated architectonically with the aid of a number of 'inserts' from the visual arsenal of the landscape garden. At Piccadilly Circus, for instance, like a grotto the County Fire Office formed the visual limit to the view from Carlton House over Waterloo Place and along Lower Regent Street. The building was given five (today three) gates, one of which afforded a picturesque glimpse into the old city. The connection between Piccadilly and Regent Street was formed by The Quadrant, a quarter circle that Nash could only realise by himself purchasing the adjoining buildings, having them demolished, redrawing the lot lines and building and selling the houses on them.

The spatial effect of the intersection with Air Street is achieved by means of arch-shaped gates in the frontage along the street. The north end of Upper Regent Street is visually defined by the semi-circular colonnade of All Souls' Church, comparable with the Rotunda at the end of the Great Lime Cross Walk at Stowe. The street is connected with the already existing Portland Place by means of a bayonet; in turn, the south end of Portland Place is visually defined by Foley House. At the north Portland Place ends in The Regent's Circus, which later was realised more simply as Park Crescent.

In Regent's Park the Triumphal Avenue continues as a pub-

lic promenade. This Broad Walk carries on past the Guinguette, where the Theatrical Panorama unfolded on both sides. In Nash's second design The Broad Walk visually ended in a crescent, which at the same time was intended to frame the pastoral panorama to the north with its view of Primrose Hill.

The capstone

With the death of the old king, George III, in 1820, and the coronation of the Regent, the Prince of Wales, as George IV, the construction of a new palace became urgent. Regent's Park and the New Street had brought about such a far-reaching reordering of Mayfair that an upgrading of the royal palace was also considered necessary. The decision was made to rebuild Buckingham House, where the new king had been born.

The landscape stage setting for Buckingham Palace in turn stimulated a reordering of the relationship between the palace and the governmental centre around Whitehall. In 1814 the Treasury extended the commission to redesign St. James's Park. Buckingham House lay at the end of the already existing Mall, at the 'hinge' in the already existing series of parks including St. James's Park, Palace Gardens/Green Park, Hyde Park and the gardens of Kensington Palace. This position meant the new palace was at a greater distance from Whitehall and the headquarters of the royal bodyguards, the Horse Guard. This placed the palace, as it were, in opposition to the government buildings, with St. James's Park as the public landscape between them. A logical consequence was the landscape setting of Whitehall. Nash transformed the former canal, after an earlier proposal from 'Capability' Brown, into a Serpentine Lake with an asymmetrical form, which on the eastern extreme is somewhat widened, with receding planting, in order to frame the panorama of Whitehall as seem from Buckingham Palace and the park.

The formal relation between Buckingham Palace and Charing Cross (today Trafalgar Square) and the Strand is determined by the Mall, a bowling green which appears already on a drawing by Bridgeman from 1725. The old Carlton House was demolished; a stair with the later added Duke of York's Column served as a transition between Regent Street, the Mall and St. James's Park. A consequence of the choice of the Mall as the main axis of the composition (the Mall in fact runs at a slight angle to the façade of the palace) is that the relation of Buckingham Palace with Whitehall had to be completed with a diagonal. The crescent and terraces designed by Nash for Birdcage Walk (never realised) were intended to strengthen this diagonal as a second important axis in the composition.

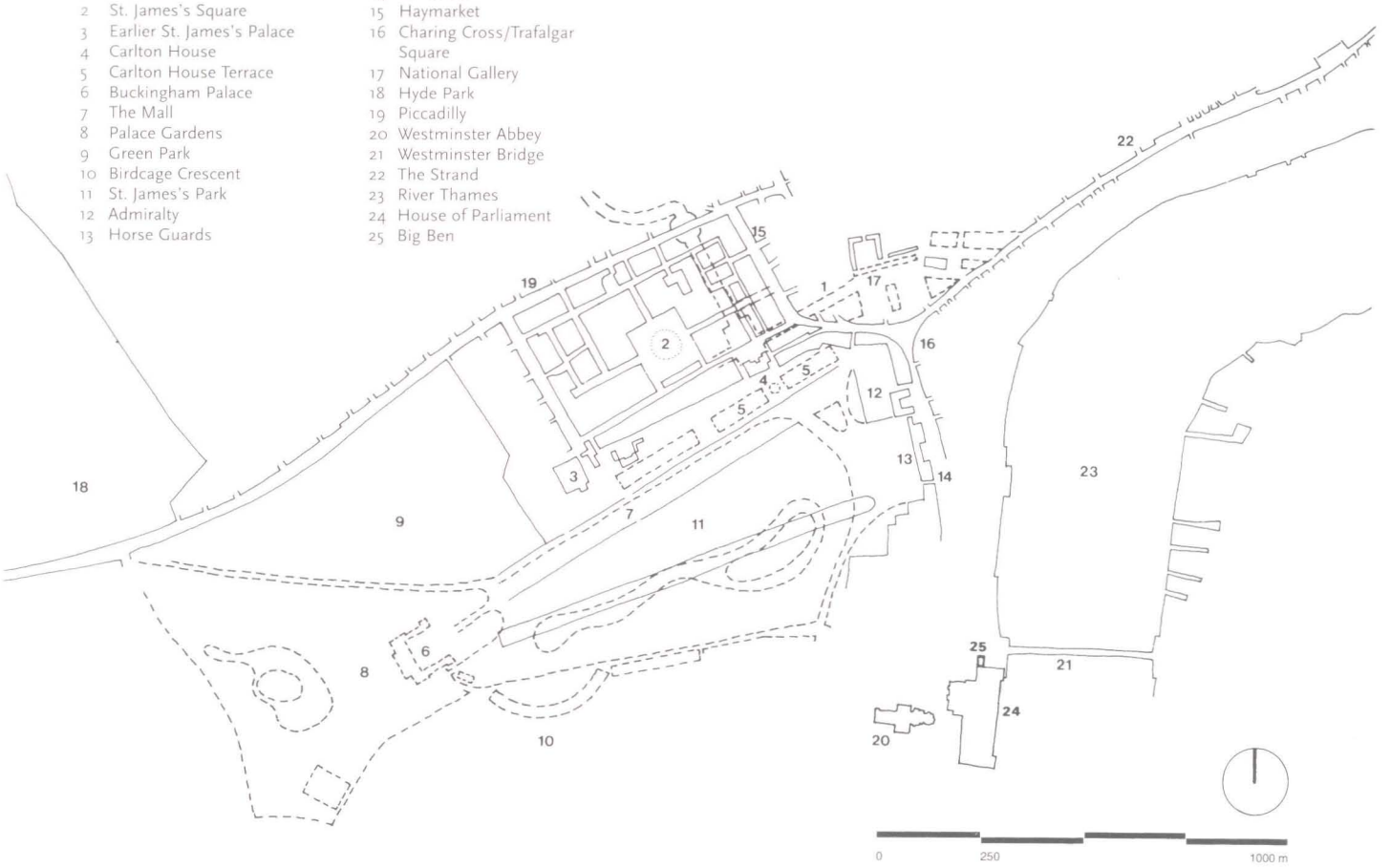
Stair near St. James's Park, on the site of the old Carlton House.

The Quadrant.

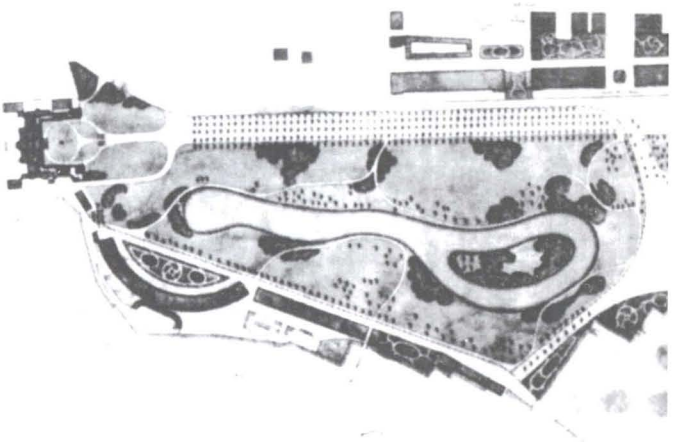
Upper Regent Street with All Souls' Church.

Transformation scheme St. James's Park.

1 Pall Mall
2 St. James's Square
3 Earlier St. James's Palace
4 Carlton House
5 Carlton House Terrace
6 Buckingham Palace
7 The Mall
8 Palace Gardens
9 Green Park
10 Birdcage Crescent
11 St. James's Park
12 Admiralty
13 Horse Guards
14 Whitehall
15 Haymarket
16 Charing Cross/Trafalgar Square
17 National Gallery
18 Hyde Park
19 Piccadilly
20 Westminster Abbey
21 Westminster Bridge
22 The Strand
23 River Thames
24 House of Parliament
25 Big Ben



The final piece in the Grand Design was an improvement in the relation of Regent's Park, Buckingham Palace and Whitehall with the old city, the Strand and St. Paul's Cathedral by means of the reconstruction of the region around Haymarket and Charing Cross (the area east of Haymarket was royal land). This proposal, included in the final report from the commission in 1826, was only realised in part. Nash's idea was to extend Pall Mall beyond Waterloo Place to Charing Cross, and thereafter, with a bend, past St. Martin's Church, to come out on the Strand. This would have considerably improved traffic circulation. Charing Cross (now Trafalgar Square) was intended as the new cultural centre of the city, a square surrounded by important public buildings and institutions, which would strengthen the formal relation between Whitehall and Regent Street.



Nash's design for St. James's Park.

View of Horse Guards from St. James's Park.

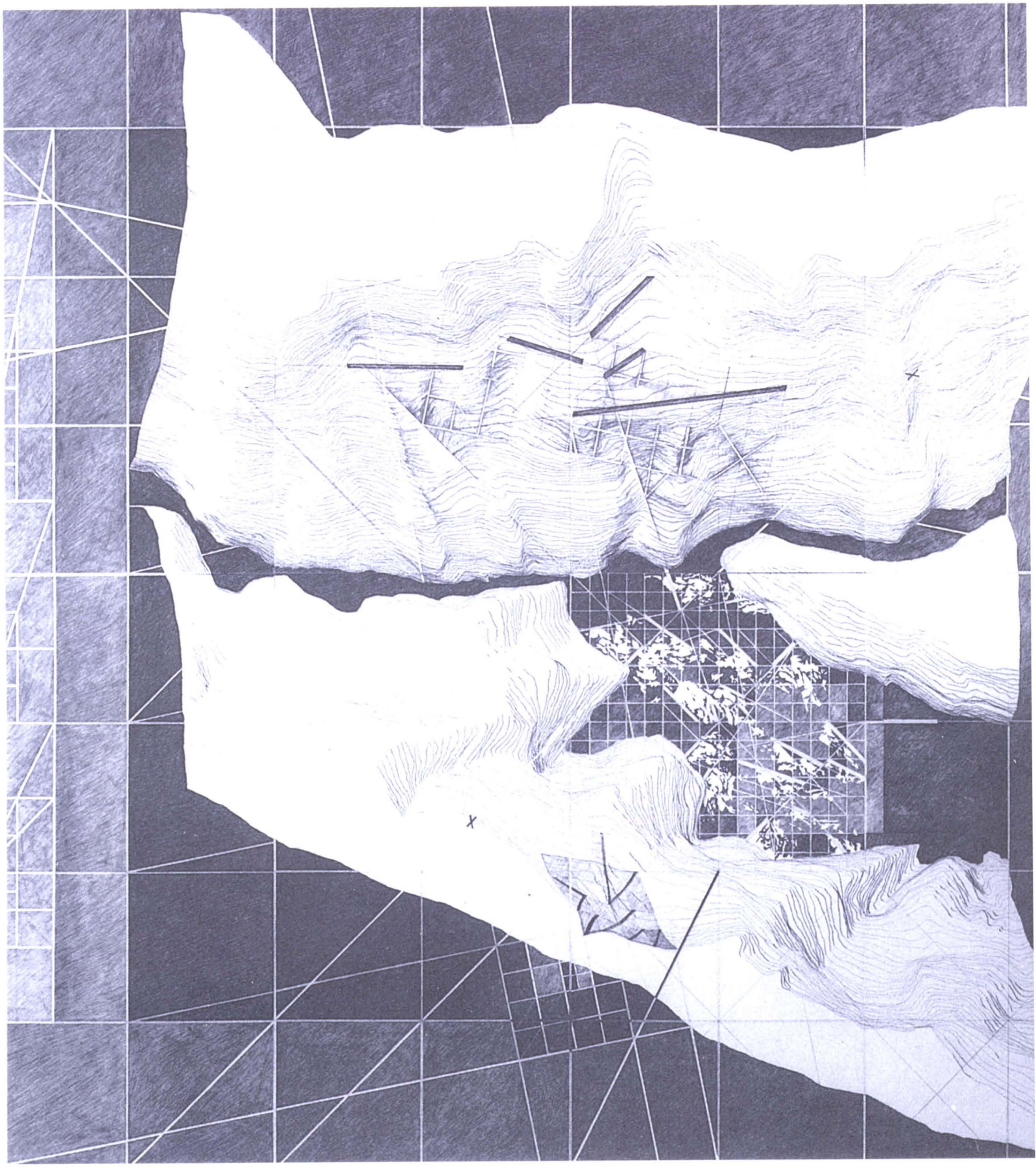
The urban transformation of the landscape garden

John Nash's design stood in the landscape architectonic tradition, in which the architectonic relation between the city and landscape is worked out. In that sense the Grand Design can be compared with the Piazza della Signoria and Giorgio Vasari's Uffizi in 16th-century Florence and with André Le Nôtre's visual axis in 17th-century Paris that connected the Louvre with the Seine river landscape via the Place de l'Étoile.

In the 'landscape theatre' of Regency London the possibilities for pictural design on a metropolitan scale were tested for the first time. The Grand Design is testimony to a visionary power; despite all the architectonic simplifications, wear and tear and increased traffic, Regent Street and Regent's Park still are among the most important public spaces of metropolitan London.

The project never became what Nash saw in his mind's eye. Within several decades this ambitious and 'definitive' project was overtaken by time, even before it was entirely realised. With the arrival of the railway and industrialisation the configuration of the metropolis was already being changed drastically. The Grand Design, with its urban theatre, was in a deeper sense the final chord of the 18th century, a look back to the century of the Enlightenment, in which landscape architecture had played such an important role.

Nash's design has nevertheless had great influence on the development of urban design in the second half of the 19th century, first in England, and later across Europe. Forty years later, under Haussmann and Alphand, Regent Street found its successors in the boulevards and promenades of Paris, embellished with trees and parks. The importance of landscape architecture for the stage-managing of urban public life was demonstrated all the more with this design.



Jardin élémentaire. (Michel Desvignes)

Landscape Architecture

Gardens are the laboratories of the landscape... These prototypes are reference points and the marks which we establish in a contemporary landscape over which we have no control.

Desvigne & Dalnoky, *The Landscape*, 1995

In antiquity the 'holy way' through the landscape referred to Elysium and the dwelling place of the gods. In Christian tradition the garden was the metaphor par excellence for paradise, the origin of the human world. In addition, it represented an experimental architectonic tradition in which the *horror vacui* was overcome and space was mastered. The architectonic concept of the landscape has gradually been further opened up, enlarged and deepened. Architecture and landscape ultimately came together in the perspective of landscape architecture.

The design research of this book makes it possible to formulate the object, method and reach of landscape architecture more sharply. Landscape can be defined as a space in time, in which the fundamental concepts of time and place are processed. From the analysis we gain a coherent picture the specific design instruments and the layers involved in landscape architectonic design. We will denote this coherence as the landscape architectonic grammar.

From a comparison of designs, landscape architectonic transformation emerges as a key concept. The composition scheme of a villa makes it possible to penetrate to the core of the composition. This allows the designs to be placed in various series – respectively a typological and a conceptual series – which reveal the development of landscape architecture.

The composition scheme of a villa makes the design usable experimentally. By means of a transformation of the composition scheme of the villa, this knowledge can be applied to new design assignments. This presupposes a model of the contemporary landscape as a formal system, and a further differentiation of landscape architectonic research.

The villa also represents a quality of landscape that is captured in the landscape architectonic composition in a careful balance among the essential elements of the landscape. From this perspective, the designs from this book can be employed as qualitative models for the design of contemporary landscapes.

The landscape architectonic object

A number of conditions distinguish the landscape architectonic design from the merely architectonic. It is always contextual, connected with the spatial and temporal aspects of nature, with the physical environment, with the topography of the landscape as it has previously been formed, and with the scale of space in landscape. Each landscape architectonic design finds its origin in the morphological characteristics of the natural landscape, for instance in its location along the sea, on a hill, on a plain or along a river. The concept of nature therefore plays a central role in landscape architectonic design. Nature has been interpreted differently in successive cultural eras, depending on the state of the natural sciences and on social developments.

During the Renaissance the idea arose that an ideal system of proportions, a rational system of dimensions and ratios, could be derived from nature, a system within which the relation between man and nature could be perfected. The design of villas also reflected the spatial unity of the city and landscape with nature. In the Renaissance garden, virgin nature was an essential component of the *décor* of the villa, and thus of the experience of the aristocrat during his stay in the countryside. Humanistic poets like Petrarch wrote of Virgil's Arcadia and the mythic nature in the world of the gods.

In the formal French garden, nature was dissected into contrasting formal categories such as the parterre, *tapis vert* and woods, and rearranged as a symbolic system, ranked according to increasing degrees of naturalness. In this way nature 'from spring to ocean' was represented in the garden as though in a scientific system of classification, and was worked out in the garden as an image of the cycle of life (birth-life-death). The spatial hierarchy and the formal control of nature reflected an absolute understanding of space and time.

The Enlightenment brought a development from formal to functional thinking. That was to a certain degree a return to the Greek concept of nature as cosmos, now however not as a living being, but as a system. An insight developed, based on the natural sciences, into the processes that governed nature and society. The sciences were the rational measure of the world order; nature was the moral mirror of society. Art and culture were represented in the landscape garden through classical buildings; nature was treated as a living organism, which in its physical form and vigour was placed over against art. Conservation found its first expression in the 18th-century English landscape garden in the deer park.

These developments in the concept of nature, and the changes in thinking with regard to the landscape architectonic object that they caused, can be traced back to differing notions of time and place.

Time

The structure of time can be analysed into various time dimensions or time scales, which all in one way or another are represented in the design. The geological time scale (or that of natural evolution) reveals itself in the solidified forms of the natural landscape, for example in striking geological formations of various age, and in the results of erosion such as plateaus, ravines, river valleys cut into the landscape or, in low-lying country, river deltas and Holocene coastal plains.

The development of the man-made landscape and human habitations takes place in the time scale of human history and culture. This expresses itself in settlements, canals, roads, woods and parks, but also in monuments such as tombs, temples, memorial obelisks and triumphal arches, in open-air theatres, and galleries with art collections and rarities, and in a deeper sense too in ceremonies and processions.

The natural cycle of the seasons is expressed in barns and hunting pavilions, or can be read out of garden architectonic elements such as floral borders, solitary trees and works of art. The cycle of day and night, between the extremes of light and dark, can be followed in the gradual change in the way light falls on clumps of trees and water features; the hours can be measured with the aid of the shadows and a sun dial.

Place

The interrelation and articulation of two essentially different concepts of space and place, *topos* and *locus*, play a large role in this.

The classic origin of the concept of *topos* is anchored in Greek mythology and refers to the sacred landscape, the dwelling place of the gods. It is a magical/mythological understanding. The sacred or mythic landscape is labyrinthine, infinite and without scale. It has no geometric limits. Its time is that of creation. The *topos* is connected with the holy route.

The classic origin of the concept of *locus* is anchored in the *templum*, the mythic cross at the centre of the layout of Roman cities, oriented to the North Star (north/south) and the course of the sun (east/west). The *templum* was the holy place in the design matrix of Roman exploitation of new areas, which was oriented to the morphology of the landscape. The *locus* is defined geometrically; it is a spot in the rationally ordered, man-made landscape, to which distance and the measurement of time is related.

These two different concepts of space and place are set alongside and over against one another in villa architecture. Even more strongly, in a deeper sense they presuppose one another; control through measurement necessarily raises the question of chaos. This theme is worked out in the tension between the *amora bosco*, an older, labyrinthine park that was used for hunting, and the rational foundation of the ceremonial garden.

In the 17th-century French garden, this contrast was the basis for the plan. The central space was absolute and infinite; the garden was an unchanging stage. The visual conquest of space was expressed by the spatial flight of the mirror axis and the system of avenues. Space became architecture. Labyrinthine space was pushed out of the garden by the baroque violence of the mirror axis, but lived on in the magical tradition of the water works and the secretive games in the surrounding *bosquets*.

In the 18th-century landscape garden the *topos* came to life again. The mythic landscape was projected onto the natural morphology and once again confronted with the rational foundation of architecture. This confrontation can, for instance, be read in the use of a topographical design matrix by Bridgeman in the expansion of Stowe.

Topos and *locus* merged in the *genius loci*, the visual qualities of the place in the landscape. In *An Epistle to Lord Burlington*, Alexander Pope wrote in 1731, 'Consult the Genius of the Place in all / That tells the Waters or to rise, or fall... Calls in the country, catches opening Glades...' Nature was space.

The landscape as space in time

One can point to these notions of time and space explicitly in many of the designs discussed here; in others they remain implicit, interwoven as they are with the tradition of garden architecture. The control of space was a strong motive, and

expanded itself to a larger scale with the employment of increasing numbers of new tools. In the rediscovery of the *topos* in English landscape architecture, the control of the various time scales also became an explicit part of the designer's task.

This expression of time and place is a distinguishing characteristic. An awareness of process is fundamental for landscape architectonic design. This involves not only the design of the architectonic space, but also a formative process, for instance the erosion of the landscape or, on the contrary, the genesis of a landscape, the development and design of the man-made landscape and, at the same time, the colonisation of the urban landscape. Landscape architectonic design approaches the landscape as a space in time, as a space that is subject to natural cycles, and moreover that is in development.

Landscape architectonic grammar

The analysis also produces an image of the specific design instruments of landscape architecture and the composite nature of, or multiple layers in, the design. At various abstract levels it clarifies the theoretical and technical aspects of the landscape architectonic form. Moreover, it reveals the generative aspects of the design. One could therefore term this whole a landscape architectonic grammar.

The layeredness of the landscape architectonic design

The landscape architectonic design activates the elements of the landscape and brings them into a new balance. It reassesses the system of forms, references and meanings, and in this way gives new content to the landscape form. This aspect is fundamental to the question of whether a new landscape is created, in the proper meaning of the word.

In order to be able to distinguish the various processes of the landscape architectonic design from one another we will make use of a theoretical model that was developed by the German architectural theorist Paul Frankl. He distinguished four aspects or processes that determine architectonic form, and that can be 'read in reverse' by the observer (in this or a different order): purpose, spatial form, plasticity and external appearance. These four aspects lay out the relation between the architectonic design and its perception in a systematic way and afford insight into the spatial dynamic of the design.

According to Frankl the purpose (*Zweckgesinnung*) indicates if the design is functional (or actually, is intended to be functional), in the sense that the programme has its own expression and contributes to the form. The spatial form indicates whether there are combinations of space, a sum of spaces (addition), or a division of a limitless space (subdivision), or either a static or dynamic arrangement of space. The plasticity or mass-form, the envelope covering the space, indicates to what extent there is a centre of force to be discovered in the design that holds it together, whether the lines of force in the construction of the design have an autonomous expression and represent the dynamic of a 'stream'. The appearance (colour, texture, incidence of light) can be simple or complex, one image or many images.

In a similar way the landscape architectonic design can be conceptually anatomised into various aspects. In general these can be denoted as the geometric basic form or basic plan, in which the topography of the natural landscape and the man-made landscape are rationalised and activated. The spatial form is the architectonic form and spatial effect of the three-dimensional landscape space, through which spatial dynamics are created. The metaphorical structure is the form in which the metaphorical images of the natural or man-made landscape are adapted and come together with elements of the urban programme and metaphorical-spatial references. The aspect of time is expressed here. The form of the programme brings the divisions in the landscape and the architectonic expression of the programme into relation with the pattern of movement in and through them.

Geometry and basic form

In the Renaissance villa the division of both the basic layout and of the vertical elements was determined by an architectonic matrix. The dimensions of the areas are derived from a measurement scheme of squares. The rational matrix is laid conceptually over the natural landscape. The components of the landscape which fell within the matrix were ordered geometrically.

In the French formal garden one line of the matrix was differentiated as the axis of symmetry. The given asymmetry of the terrain was brought into visual balance with the mirror symmetry of the garden by means of compositional corrections. The formal design rules were played out against the natural morphology. A balance was sought between the autonomy of the garden design and the irregularity of the landscape context.

The English landscape garden shows a relativisation of the geometry of the basic plan which goes still further. Ordering by means of a matrix changes into a linking of rational and formal compositional fragments, held together by the natural geomorphology. The geometry maintained itself as a 'hidden order'. The basic geometric plan of the garden 'dissolved' into the physical-geographic lines of force of the natural landscape and thereby formed an indissoluble unity.

The spatial form

The spatial construction of the Renaissance villa was that of a peep-show. The walls of the villa were breached, the horizon formed the visual boundary. The *integrazione scenica* with the surrounding landscape, which lay outside the reach of the matrix, was created by means of framing natural and urban panoramas. The most important spatial characteristic of the French baroque garden is a central mirror axis on which a new perspectivally manipulated reality was conceived and controlled. The areas of the design matrix, linked successively to one another, were corrected by means of perspective in order to make the visual range as great as possible. The mirror axis became an independent element, creating an architectonically constructed panorama and a telescope directed to the horizon. The English landscape garden developed the idea of flowing space, the spatial dynamic that is inherent in landscape morphology. In the English landscape garden the surrounding man-made landscape was involved within the range of the plan by means of panoramic composition. The house was no longer the centre of the composition, but one of the ornamental elements. The spaces of the garden and the surrounding landscape were seen in motion; the route was an important connecting system in a pictural landscape composition.

The metaphorical structure

'References backwards, allusions forwards,' wrote Gerrit Komrij in his essay on the art of the garden. Here he touches on the core of the metaphorical-spatial process in landscape architectonic design. The metaphorical structure of the villa design must not be understood so much as iconographic, but rather as being referential and allusive. Both history and the future are imagined in the design, and connected with one another.

Elements of nature such as earth, water, plants and animals form the ornamentation of the Renaissance villa, which are coupled with paradise and classical mythology by means of mythic concepts such as the garden of Hesperides and the figure of Hercules. This process of evocation raised the enjoyment of nature to a higher intellectual and cultural plane. Garden elements such as the *bosco*, grotto, nymphaeum, cascade and reflecting pond form the mythological repertoire with which natural elements are anchored in the villa plan. The belvedere, terrace, pergola, stoa, portico and loggia refer to antique, urban architecture, with which cultural practice and the visual relation with the panorama were elaborated.

In the formal French garden contrasting formal categories such as the *parterre de broderie* and *tapis vert* were theatrically staged in a series according to precedence, which supported the flight of the mirror axis. Metaphorical representations are mounted into this as stage scenery. The rational water stair was transformed into a series of water forms that ended in a reflecting surface of water on the horizon.

Architectonic forms and art works, as part of a series of landscape elements which also included groves of trees, water courses, lakes and bridges, were introduced into the pictural composition of the English landscape garden as 'set pieces'. These garden elements formed a new visual and metaphorical dialectic in which mythic, classic, social and natural motifs were included, including motifs from contemporary politics. The form of the terrain, the various natural formations of plants, trees, woods and natural water features replaced the formal *bosquet* and the formal water stair, and represented the natural morphology and the temporal order of nature.

The form of the programme

The Italian Renaissance villa made the Arcadian enjoyment of the landscape into a component of urban culture. The concepts of *otium* and *negotium* played an important role in this. Business (*negotium*) was done in the city in the winter; in the summer, when it was too hot, refreshment was sought in the countryside. The antique stoa, the shell for urban etiquette, debate and shaping opinions, was resurrected in the villa. Scientific and cultural occupations, hunting, agrarian production and the enjoyment of nature were connected with each other in the villa (*otium*).

The 17th-century French *résidence* was the setting for the widely ramified court culture by which the country was governed. The agrarian landscape was banished from sight; large-scale silviculture with avenues and radiating paths formed the ceremonial backdrop. The central zone of the garden was the stage on which ceremonies took place according to a fixed *itinéraire*. The programme of diversion was accommodated in the *bosquets* around it. The city and urban life were included in the *Grand Ensemble*.

The English country house accommodated the country life as an aristocratic alternative for life in the city. Less formal manners, the 'house party', permitted circulation through the various rooms of the country house. That also had its effect on the ordering of the landscape garden. The circuit walk was a direct counterpart to the circuit through the house. In time various circuits arose, coupled with the various zones in the landscape garden: on foot through the 'Pleasure Grounds', on horseback or by coach through the meadows of the estate and the wilderness outside it.

The landscape garden was an experimental economic system for agriculture, silviculture and nature conservation. Forestry was initially adjudged to be of economic importance, often from speculative considerations. New forms of hunting, such as fox hunting, arose, in combination with sport and recreation, which were to influence the design of the man-made landscape. In the course of the 18th century a scientific approach to horticulture and agriculture developed, contributing to the economy of the estate, and in part defining its design.

The landscape architectonic composition

Thus the landscape architectonic design can be understood as a design with multiple design layers and multiple layers of significance. It is therefore not just functional or technical in nature. The expressiveness of the design lies in the articulation of the various design themes or layers, in the way in which they work together to create a meaningful whole in which a balance is achieved among the different forces that determine the design. This balance does not need to be harmonious; the condition is that all the layers of the design are touched upon and have received their own expression, a 'character'. We have termed this internal coherence of the design a landscape architectonic composition.

Nature, technology and art, *otium* and *negotium*, are inseparably connected with one another in the landscape architectonic composition. The play of geometry and geomorphology, measurement and infinity, regularity and irregularity, pattern and process, art and nature, *otium* and *negotium*, monumentality and complexity against one another determines the character, the strength and the wealth of the possibilities for interpreting the composition.

The landscape architectonic transformation

From a comparison of the designs analysed, transformation emerges as an important methodological concept. In general, there are three phases distinguishable in the transformation, which are – successively – decomposition, in which the historical material is investigated and the usable elements isolated; processing, in which they are confronted anew with a given situation and a new programme; and synthesis, in which a new functional and metaphorical-spatial coherence comes into being. One can place landscape architectonic designs from various periods within this rough model of the transformation in various transformation series, each of which will illuminate a different aspect of landscape architecture. For this purpose, one must not regard these series as being arranged chronologically, but as developmental series.

Both general and specific characteristics can be distinguished in each design. For example, in the Renaissance the geometric grid of the ground plan is normative; in the English garden on the other hand it continues to exist only as a hidden order. This could be called a general characteristic. As a result of comparison of the examples with one another, both a typological and a conceptual series can be derived on the basis of these general characteristics. Nevertheless, within these general characteristics each composition differs, and specific design tools can be distinguished, from which a unique coherence of the design instruments emerges for each villa. They constitute the transferable core of the composition.

The composition scheme

We have termed the architectonic elements of the composition that play an active role in the interplay between the villa and the landscape active composition elements. The concrete form and materialisation of these elements is variable, but they can be reduced to a limited repertoire of formal abstractions. Garden elements such as the nymphaeum, grotto, spring, cascade, reflecting pond, parterre, bowling green and pergola, and architectonic elements such as the souterrain, *piano nobile*, loggia, hall, *salon*, balcony, stair, cornice or pediment, and arcade are part of this canon. They derive their special meaning from their place in the composition.

We have termed this characteristic coherence of the design instruments the composition scheme of the villa. This comprises the system of active composition elements in their specific mutual interrelationships, which is determined by the design. The composition scheme can be regarded as a reduction of an individualised architectonic system with its own 'character', in which a unique synthesis of the *genius loci*, design conventions, spatial motifs and a programme is brought into being. In this sense it represents the composition as a coherent system of unique internal rules, and thereby exposes the internal logic of the design.

The composition scheme of the villa affords an opportunity to illuminate the composition in two ways. The first is retrospective, as a manner of being able to understand the composition of the villa as a stylistic development. The second is prospective, permitting connections to be made with experimental design and research by design.

The typological series

The compositions discussed in this book can be placed in an ongoing series in which the evolution of the landscape architectonic form and the differentiation of the design instrumentarium can take shape. This series, which we are calling a typological series, offers insight into the development of the villa as a landscape architectonic type.

Within each historical period in the typological series there are four phases which can roughly be distinguished. The first phase consists of groping experiments in which a new staging is prepared. An example of this is the English landscape garden at Bramham, where experiments are made with the transformation of the grid plan. The second phase is that of the prototype, in which the mutual relationships among the composition elements become normative for a new stage design of the landscape. An example of this is Castle Howard. The third phase is that of the differentiation of the type, in which both geographic variations and the differences in the various tensions among the layers of the design are expressed. Examples of this are Blenheim Castle and Rousham. The final phase is that of mannerism, a use of the design instruments directed

toward special effects, which overstrains the elementary character of the composition until the form breaks down. Examples of this are Hawkstone and the Victorian garden at Chatsworth, in which Picturesque elements stretch the form of the landscape garden. This phase marks the end point in the development of the type.

There are three compositions which can be pointed to within the series of examples in this book, in which a new landscape architectonic principle of order is crystallised. They are characterised by their elementary and experimental character. We have therefore labelled these designs as prototypes. The composition evolved to a new theatrical form in these prototypes.

One could term the Villa Medici in Fiesole a rational prototype, in which the *villeggiatura* for the first time took form in the *villa urbana* in the hills around Florence. Vaux-le-Vicomte, Le Nôtre's first great design, can be regarded as the formal prototype, in which the ensemble architecture of the house, garden and estate fuse together into a new unity. Castle Howard, the experimental design by Vanbrugh and Hawksmoor, can be pointed to in this series as the pictural prototype in which the panoramic scale of the landscape is brought under architectonic control.

One can say that in these prototypes there is for the first time a fully worked out composition scheme in which all the elements of the staging that are characteristic for their period have been given their place. (In the case of Castle Howard this process would take 70 years.)

Looking over the examples in this book, there are two evolutions within the composition scheme that are of importance for the development of the typological series. The structure and the distribution of the active composition elements in the composition scheme differ considerably in the successive periods. In the Villa Rotunda, for instance, they coincide to a great extent with the intersecting axes of the house, creating a point-symmetrical, 'condensed' structure. In the Villa Medici they are placed in an orthogonal context, divided over the terraces. In Vaux-le-Vicomte, too, they are arranged orthogonally and divided over the whole estate. At Castle Howard they are placed in the morphology of the landscape in a configuration that extends far out over the landscape.

First, there emerges here the formation and dissolving of a centre, which can be read from the position of the house in the composition. In the development of the Renaissance villa the house shifted steadily from a co-ordinate to a central place, until in the French *résidence* it became the pivot of the whole composition. In the development of the English landscape garden we see the counter-movement; here the central place of the house is increasingly relativised, and it was included in the series of elements which ornamented the landscape. Finally, in the 19th century it even disappeared completely from the composition, as the landscape garden became the landscape park.

Second, the scale of the composition changes. In the Renaissance villa all the active composition elements were focused on the scale of the house, in principle within the reach of one glance. In the French *résidence* the mirror axis was stretched by means of perspectival correction, resulting in the active composition elements becoming larger (and more capable of manipulation) to the extent that they lay further from the house. Moreover, some elements were lifted out of the context of the garden, and accommodated separately in the *bosquets*. Others were transformed and employed in order to bring the scale of the much larger estate under architectonic control. As it were, they were moved to another visual domain. In this a second scale became apparent in the composition, for instance in the relation between the main axis, a *patte d'oie* and a system of avenues. In the English landscape garden there are even three levels of scale to be distinguished in which the active composition elements are employed. First, there is that of the house and its immediate surroundings. Second, there is that of the estate or middle plan. Third there is the panoramic scale of the landscape outside of the estate. The elements are thereby transformed both in terms of size and place. There is no longer any immediate architectonic relation among (or even possible among) these elements; visual coherence is brought about by the morphology of the landscape or by movement, for example by a river valley or by an avenue or drive. Through this the composition scheme differentiates itself into a number of separate composition schemes that in their mutual dialectic bring the panoramic scale of the natural landscape into relation with the scale of the house.

The conceptual series

One can also place the examples into the development of the spatial design, as it has extended over five centuries. This series, which we have termed a conceptual series, gives insight into the architectonic conquest of the space in time.

The stage-managing of the 15th- and 16th-century Italian villa marked a crucial phase in the development of Western European landscape architecture. On the basis of an explicitly formulated idea of nature, the surrounding landscape began to play an essential role in garden design. In this, the villa garden represented an expansion of the tradition of the medieval court or *hortus conclusus*. The relation between house, city and landscape here received its expression for the first time.

The landscape architecture of the Italian Renaissance villa displays a number of preparations for French garden design and for English landscape art. The relation of the villa with the French baroque garden would seem obvious. French garden design did make use of all the architectonic tools that were developed in the villa plans, but for all this one must not see the latter as a continuous development from the former. For the Renaissance architect the design matrix, the coherent

system of dimensions and relationships, formed a design model in which the landscape could be included in the architectonic composition of the villa through the co-ordination of elements. Even when the axis was awarded a certain degree of independence, in the Renaissance villa it remained only one of the elements whereby the plan was ordered.

In the French *résidence* the relations between the buildings, gardens and landscape were formalised with the aid of geometry and proportion, and dealt with within a perspectival concept of space, as had been done in the Renaissance villa. In the French baroque garden, however, the basic plan was subordinated to the central mirror axis on which the perspectival illusion of a harmonious landscape was conceived, and by which it was controlled. Unlike the case of the Renaissance villa, the garden was not included in a panoramic landscape; Vaux-le-Vicomte, for example, is situated in a valley. The unordered man-made landscape was excluded; nature was reordered anew as a system in the garden, and the horizon was artificially placed within the bounds of the viewing apparatus. An elaborate system of avenues linked the garden with the estate, and estates with one another and with the city, creating an architectonic *Grand Ensemble*. The urban ensemble of buildings and landscape that was normative for the spatial typology of the 18th-century city was derived from the form of the formal garden.

The links between the Renaissance villa and the development of the English landscape garden are of a different nature. The break between landscape art and the classic design system is generally explained with reference to a sentimental concept of nature and the orientation to Romantic literature and painting. But if we permit ourselves to focus on the garden as a natural tableau in which the building is one of the decorative elements, then it is precisely the similarity with villa architecture that becomes evident.

The most important change in the English landscape garden over against the villa and the French garden was the breaking up of the unity of the architectonic composition, so that the references back and forth between architecture and landscape were no longer complete within one formal model, but were brought to the level of individual experience. In the French garden the perception of the landscape was perhaps objectified in a formal model, but this remained the prerogative of the king, who as it were mediated between the individual and the landscape. In the English landscape garden, perception was individualised. Each individual looked with his or her own eyes, and with his or her own impressionability. The landscape became a projection screen for many subjective realities.

The landscape garden was the model for the design of the suburban residential environment and the landscape park, which became elements of the 19th-century industrial city. The avenue, boulevard and urban traffic pattern, even the park systems of Olmsted and others, are directly derived from historical garden concepts. Scenic drives pointed forward to the traffic systems of the modern city. This development represented the rise of a modern conception of time and space.

In a deeper sense, the classic garden was representative of the changelessness of the cosmos, a way of dealing with an eternity that repeated itself in the present. In the formal garden this order developed into an absolute concept of space and time, an invariable architectonic space over against eternally continuing, linear time. On the other hand, the projection of a future without finality, the world as a chain of changes, was reflected in the broken classical order of the landscape garden. If the Renaissance villa was still a microcosm in which the individual knew himself as sheltered within the divine governance of nature, the landscape garden already has an unsettled, proto-metropolitan character, the forerunner of a dynamic landscape in which the individual moves over great distances and lives, works and engages in recreation in different places and at different times.

Experimental landscape architectonic design

A new series of experimental compositions can be created through the transformation of the compositional scheme in confrontation with another situation. Knowledge of the villa design therefore is not only significant for landscape architectonic research, but also for contemporary landscape design, because of the light which can be thrown on the landscape architectonic dimensions of an assignment. Three aspects can be distinguished in this.

First, not every landscape design is a landscape architectonic design; one can only speak of the latter if the various layers of the design are dealt with in their mutual relationship. Second, the composition scheme of the villa has experimental significance because it offers the possibility for confronting a developed architectonic system with a landscape that is still to take on a coherent architectonic form. Finally, the villa is a qualitative model for contemporary landscape design, which permits the characteristics of the landscape architectonic composition to be used as a standard for the quality of the designed landscape.

The application of the compositional scheme presupposes a model of the contemporary landscape as a formal system. A further differentiation of the landscape architectonic research into various domains, which each will make a specific application of the knowledge possible.

The landscape as form system

The contemporary landscape is in principle to be regarded as a dynamic system that is constantly being transformed under the influence of social forces. The natural landscape was

shaped by geological processes, without the intervention of man. The man-made landscape arose from human occupation and man's cultural and technical control of the natural landscape. The urban landscape is in turn shaped by manipulation of the natural and man-made landscape by civil engineering, but has its own pattern. In this sense one could consider the landscape as an interaction between the geomorphological system of nature, the cultural/technical development and exploitation patterns of the man-made landscape, and the architectural and traffic systems of the city.

This being the case, in its form the contemporary landscape exhibits a series of strata which one, by analogy with the foregoing, can consider as a layering of various form systems. The natural landscape has an organic form which reflects its geological origins. The technological form of the man-made landscape arose from the confrontation between the natural form and the development grid, which in itself is neutral. The urban landscape has a functional form, with as its foundation a pattern of urban functions in relation to the traffic network. These form systems include both implicit metaphorical and formal elements and explicit architectonic provisions of lines, points and areas, spaces and sight lines. One could call this the architectonic form system. The point of departure for landscape transformation lies in this architectonic form system (latent or otherwise), which is perhaps more complex in nature but nevertheless is in principle comparable to that of the villa.

Theoretically, contemporary landscape design can therefore be separated into various manipulations of the landscape which are similar to those in the villa design. The topography of the natural and man-made landscape is rationalised and activated in the geometric basic form or basic plan. The spatial form activates the spatial effect of the three-dimensional landscape space. The metaphorical structure recalibrates the metaphorical-spatial effect of the natural and man-made landscape in relation to elements of the urban programme. The form of the programme creates zones in the landscape and gives an architectonic expression to the programme in relation to the traffic pattern.

Research by design

In his *Jardins élémentaires* Michel Desvigne envisaged hypothetical transformations of the Villa Medici in Rome. The natural morphology, which was dramatised into a dynamic river valley with striking slopes, was his point of departure.

The drawings observe the landscape design at a critical moment in its existence. Through the confrontation of systems cast onto one another (termed 'transgression' or 'superposition') unsuspected combinations arise that lead to a new composition. The new is not yet nameable, which means the composition, as a reflection of the various elements in their relation to one another, has the nature of a theoretical proposition.

Desvigne's study shows that there are various research domains distinguishable within landscape architectonic research. The variability of the object to be designed or investigated plays an important role in this, as do the differences in context. The object could be, for instance, a building, a programme or an ensemble, but could also be the composition scheme of a villa. The context could be the location, for example, or a particular floor plan or a part of the city, but it could also be the landscape.

Worked out on the basis of the villa design, the following scheme of landscape architectonic research is created:

		OBJECT (villa)	
		Fixed	Variable
CONTEXT (landscape)	Fixed	Design Research	Identifying Research
	Variable	Typological Research	Research by Design

The research in this book includes design research (a particular villa in a particular context) and typological research (comparison of villas in different contexts). These are the basis for two other important forms of research, respectively identifying study and research by design. The composition schemes that are uncovered in design research and typological research can be used in these.

In the identifying study, a composition scheme, whether transformed or not, can be projected onto a new landscape to be organised in order to 'test' it in landscape architectonic terms. The objective of this is to detect the hidden formal qualities of the situation or the landscape.

In research by design both the composition schemes and the landscape are transformed step by step. The purpose of this is the critical development of the internal logic of an experimental composition. Michel Desvigne's *Jardins élémentaires* is an example of this.

The villa as qualitative model for landscape design

The contemporary landscape is the result of human intervention, and in that does not differ fundamentally from an architectonic or urban planning design. It therefore must also be understood – and function – in that way. This involves the 'veracity' and 'character' of the landscape design. The model of the villa provides a creative and critical system for being able to investigate, define and develop the quality of the future landscape.

The quality of a landscape can be reduced to the classic Vitruvian standards for the quality of architectonic composi-

tion, *utilitas*, *firmitas* and *venustas*, or utility, solidity and beauty. Both the 'truth', the universal, classic condition, and the 'character', the peculiarity, the expressive content of the landscape design, are important in this. When is a design in such a state of balance that a useful, sound and beautiful landscape can come out of it? The analyses in this book teach us that this is only the case when the various processes of the landscape reinforce one another to create a new, coherent landscape architectonic composition. This touches upon all the layers of the design and they each receive their own expression or 'character'. This multiplicity of voices determines the wealth of possibilities for interpretation in the composition, and thereby the quality of the design.

Utilitas refers to the relation between *otium* and *negotium*. *Otium* is the measure for the manner in which room is made in the programme form for cultural reflection and a meaningful encounter with nature, and individual and collective forms of being outdoors, and how these relate to the *negotium*, economic utility. The definition of the public domain affords an insight into the manner in which the spatial form is balanced and geared to public functions.

Firmitas refers to the relation between stability and the openness to incorporate change. The functional stability of the programme form and the ecological stability of the spatial form are standards for sustainability. The compositional stability affords insight into the sturdiness of the composition, the degree to which it can accept spatial dynamics without breaking up.

Venustas refers to the relation between the architectonic form and the content of the landscape. The *genius loci* affords insight into the manner in which the design anchors the basic plan in the topography and connects it with the natural substratum. This is a measure of the local specificity or originality of the design. The metaphorical structure expresses the various interpretations and materialisations of nature, and is the measure for 'readability' and the degree to which the designed landscape can be experienced and understood. The spatial dynamic affords insight into the spatial effect of the architectonic composition.

The model of the villa represents an infinite reservoir of landscape architectonic concepts for anchoring these qualities in the contemporary landscape. It contains the design keys for dealing with different landscapes and placing them distinctly over against the new urban topology, through this time and place can again receive an original meaning. Thus Arcadia and metropolis could become interchangeable concepts, in a certain sense the apotheosis of the ideal of the *villeggiatura*.

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