LANDSCAPE ISSUES

ROBOTS IN THE OFFICE: DEVOLVING LANDSCAPE ARCHITECTURE TO ALGORITHMS

Some time ago in the mid 1980s, I attended a conference at the University of Strathclyde in Glasgow, concerned with the application of the nascent computer technology to landscape architecture. Under the name *Green Chips*, it was purportedly the first conference of its kind to be held in Britain and it heralded a number of new developments and practices in what came to be known as computer-aided design. Up to then, few if any landscape offices had embraced computers except perhaps in general 'house-keeping' management roles: word processing, job specification and billing on spreadsheets and some early plant selection databases. Computing machines were getting cheaper, mostly IBM clones, the so-called 'personal' computers. Apple had yet to make a significant appearance. The 'old guard' of landscape architects were quite reluctant to submit their creativity to a machine, let alone abandon traditional drawing boards to an untested and expensive alternative, even on a wave of a perceived paperless office future.

Since those days, not only landscape architecture but most human activities have been affected to an unforeseen degree by what can now be called the digital technologies. In fact it is virtually impossible to escape them. Most visible are the ever-present mobile phones. Access to the internet is seen as a human right. Yet in the aftermath of the Cambridge Analytica revelations, where personal 'data' were harvested for subsequent commercial, even political, reuse, it is not difficult to appreciate the reluctance of those 'neo-luddites' who harbour an instinctive distrust of technological innovation. Celebrities such as Paul Merton have even announced they don't own a mobile phone and have come off Facebook and Twitter. Children are being encouraged to eschew screentime to reconnect with their real world.

On the other hand, technology has clearly brought a wealth of benefits to our private, social and work-related lives. In the field of landscape architecture, computer-aided design (CAD) software has replaced some of the most monotonous, soul-destroying drawing activities: accurate graphical constructions, repetitive placement of tree forms, general rendering and shading. In my own area of geographic information systems (GIS), I have seen the acquisition and application of location data in mobile devices, car satnavs and personal fitness trackers transforming the way we see the world and navigate through it. Landscape architects have been grateful beneficiaries of these global resources enabling them to investigate site conditions anywhere in the world, to superimpose thematic maps exploring relationships and modelling future landscape changes in two- and three-dimensions. Currently the excitement is with the use of immersive systems, virtual and augmented realities, cinematic animations and algorithmically

managed parametric site analyses. Just study the cutting-edge exemplars in Amoroso's recent book *Digital Landscape Architecture Now.*

I once promoted the idea that landscape designers should willingly embrace computing technologies, not by merely being trained users of the programs but by being educated in the appropriate use of the technology. The practitioner I had in mind was one who was both fairly competent in CAD, GIS and image visualisation programs as well as informed enough to know their limitations and potential. Knowing when to use and when to discard them. But in today's commercially-pressured world, it is difficult to forgo the promotional advantages of automated systems, of customised programs that do the analyses for you, provide design solutions and generally save time. They seem to relegate your human creative input to a minimum.

It is a rare office these days where you can still see drawing boards (actually being used). So too in our university course studios. Landscape architects in practice and in training all undertake their tasks and assignments in front of computer screens. And this is not necessarily a bad thing. Software packages offer consistent precision and quality little matched by traditional methods. As computers have become more sophisticated and complex, so too have they become, paradoxically, increasingly user-friendly and easier to use. Fewer commands, more automation, more time saving. But are we becoming deskilled in the process, from the very essence, the *sine qua non,* of landscape architecture?

The question posed in the title of this piece alludes to the current debate about all things robotic, smart systems and artificial intelligence (AI). What is a robot anyway but simply a computer-controlled machine designed for a certain task. Will the increasing use of robots result in the loss of jobs? Inevitably yes. As we have seen, first those involving repetitive procedures: supermarket checkouts, auto-baristas serving coffee, border passport checking using face-recognition algorithms, ordering and having delivered online shopping. Then the upper level jobs requiring knowledge and experience will probably go. Might these include designers of all professions?

The summer exhibition at the V&A in London, *The Future Starts Here,* is celebrating the power of design to change the world of tomorrow and it showcases a range of digital appliances and projects offering benefits to our lives. Robots are there performing centre-stage. They are capable of learning by experience, clearly a human trait. But how near are we to making a machine that can do all the things we can do? According to Rory Hyde, the exhibition curator, "The robots are coming, but not that quickly". In the field of landscape architecture, we have to be prepared for this change but I just wonder how we should strive to maintain the human touch in creative activities. In situations where we need to stop and think, to deliberate or even reflect on our decisions. Then there is the whole ethical dimension that needs careful consideration. Can we trust a robot to make the right decision? Is it consistent, honest and truthful? Can we trust an algorithm? AI is too important to be left in the hands of a machine.

URBAN TALES: TRANSFORMATION PROJECTS FOR THE FLAMINIO AREA IN ROME

Paola Guarini [(1)]

We call the area included within the bend of the river Tiber the Flaminio district, starting from the ancient Porta Flaminia, the actual Porta del Popolo, that is a gate in the Aurelian Walls which delimit the historic centre of Rome. Defined as a suburban area, almost free of construction and destined for agriculture, it experienced its first urban development starting from the end of nineteenth century and has continued up to the present day. Even today it is an area in great transformation. Perhaps we can say that it is one of the richest areas of modern and contemporary architecture in Rome and where the most recent architectural and urban project competitions have been held.

Another aspect to underline is that this area has very particular morphological characteristics. The river Tiber is the main geographical component that gives the shape of the district, drawing an almost perfectly semi-circular bend (Fig 1). It is bounded by natural hills: the natural reserve of Monte Mario to the west and the Villa Glori, the Monti Parioli cliff and the Villa Borghese to the east. It is an area spatially defined by natural features and lies outside the Aurelian walls. The name of the area originates from the ancient consular via Flaminia, built in the middle of the 3rd century BC and being the main entrance from the north to the city.

During the Renaissance some important projects were realised here: the Villa Giulia by Vignola, the Fountain of Giulio III by Ammannati and the Church of Sant'Andrea by Vignola. We can also see the construction during this period of numerous suburban villas that will characterise the area until the middle of nineteenth century.

In the modern era the first significant urban planning proposals in the area consist of the three Valadier projects of the early 1800s, during the Napoleonic administration of the city. All three proposals, although presenting different configurations, are based on conceiving the line north of via Flaminia as a large boulevard for pedestrians, horses and carriages with a complex system of gardens and public spaces. It refers to a French
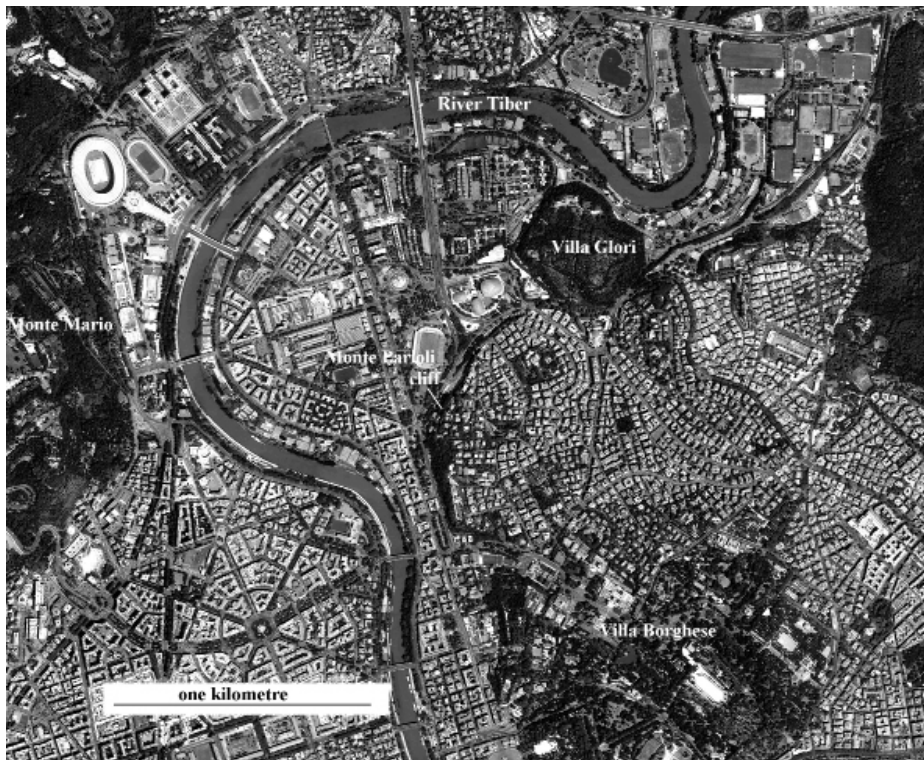
Fig 1: Satellite image of Flaminio (c) Google, 2016

model and represents the historical connection with the territory north of the Roman walls and with France.

During the nineteenth century, this vast bend in the river Tiber was already imagined as a park or green settlement, whose form was clearly defined by the geometry of the river and by the rectilinear axis of via Flaminia.

Since 1870, when Rome became the capital of Italy, the area began to develop an industrial character due to some industrial construction outside the Porta del Popolo – the slaughterhouse, the gasometer, and the storage of (animal-powered) trams and then electric cars – and later during the early 1900s, industrial settlement began in the bend of the Tiber on via Guido Reni. This period marks the beginning of the urbanisation of the area.

The urban arrangement of the area is shown in the 1909 Sanjust general town plan of Rome (Fig 2). The plan draws not only built lots on the west of via Flaminia but also connections with the other side of the river over numerous bridges that were not built but proposed. The residential
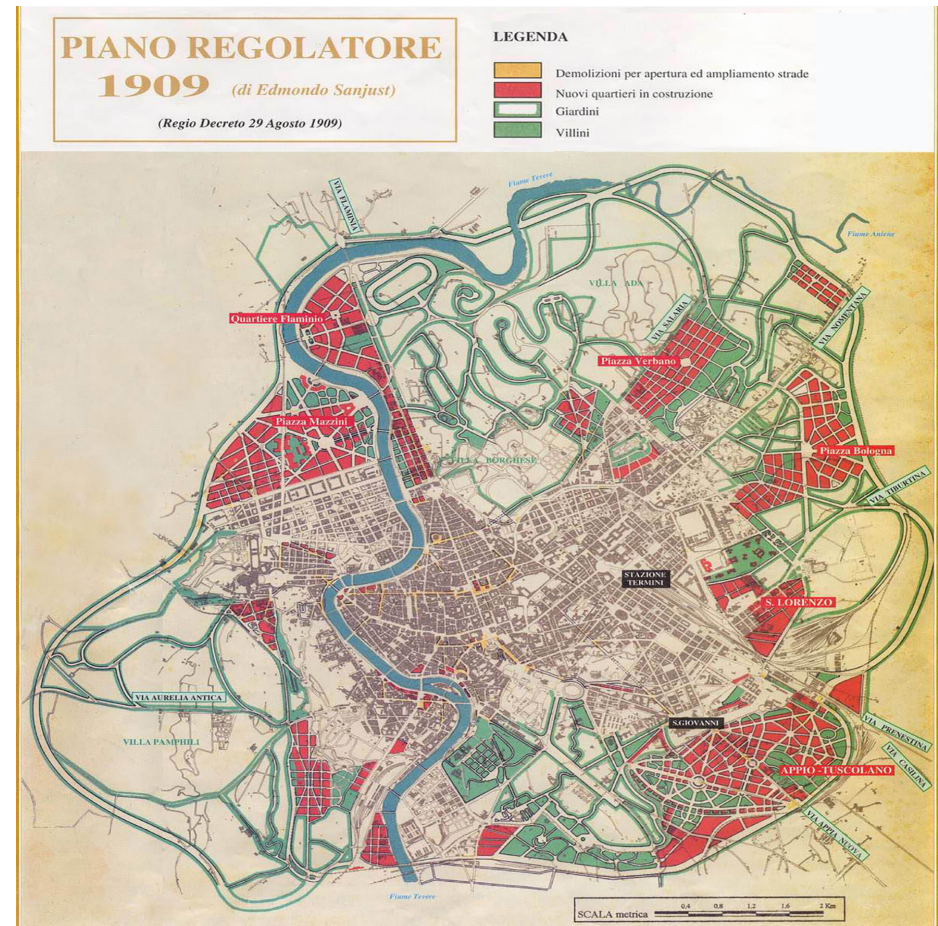

Fig 2: Sanjust general town plan of Rome

neighbourhood is characterised by different types buildings: court blocks, intensive complexes and palazzine (apartment buildings).

With the International Exposition of 1911, the area defined its character as a centre for sports and leisure: the Parioli Hippodrome (inaugurated in 1911, closed in 1929) and the National Stadium were built. At the beginning of the first world war the industrial areas of via Guido Reni were converted to military use including the construction of a pair of symmetrical barracks along via Guido Reni.

The General Plan of 1931 (by Piacentini and Giovannoni) confirms the residential configuration of the area in the bend of the river on the west of via Flaminia. On the slopes of Monte Mario, between 1932 and 1938, the

Foro Mussolini sports complex (the actual Foro Italico complex), by Enrico del Debbio, was constructed. In addition the Duca d'Aosta bridge was built, connecting the new sports complex to the Flaminio area. After the break of the second world war, the 1960 Olympic Games opened a new phase of urban transformation of the area.

It was necessary in just four years to equip the capital with all the facilities for the sporting competitions. The most complex problem was to offer accommodation to more than eight thousand people including athletes, organisers, coaches and press representatives. The Villaggio Olimpico (1958-60 – by Cafiero, Libera, Luccichenti, Monaco and Moretti) was built. It represents one of the most significant examples of modern urban complexes realised in Rome, the style adhering to the principles of the Modern movement. Following the Olympic Games, houses were assigned to state employees.

Sports facilities such as Palazzetto dello Sport (1956-58) and Stadio Flaminio (1957-59) were built, so confirming the sporting priority of the area since the beginning of century. The project of Palazzetto was conceived and designed by the architect Annibale Vitellozzi and the engineer Pier Luigi Nervi, to accommodate sports such as basketball and weightlifting. The prefabricated cover made entirely of reinforced concrete and supported by 36 Y-shaped pillars is a very interesting feature (Fig 3).

Fig 3: Palazzetto dello Sport, 1956-8 (photo: Maurizio Alecci, 2012)

Fig 4: Elevated concert halls of l'Auditorium della Musica (see note 3)

The new Stadio Flaminio was built on Stadio Nazionale ground, designed by architect Antonio Nervi with the engineering-structural project of his father Pier Luigi Nervi. The football stadium could accommodate about 50,000 people and also included four gyms, a swimming pool, bar, changing rooms, first aid facilities. The structure is completely of reinforced concrete. At the same time the Corso Francia viaduct was built (1958-60), being conceived as a new entrance to the city from the north to replace via Flaminia.

For a long time Flaminio suffered abandonment and under-utilisation. Starting from 1994 a new interest in this urban sector emerged, as evidenced by the numerous design competitions held here from that time till today. At the beginning of 1994 the Auditorium Parco della Musica international architectural competition was launched. The project proposals express two principal different approaches: the first one underlines the relationship with the Flaminio district, the second one looks for a continuity with the Villa Glori. The competition was won by Renzo Piano whose proposal (Fig 4) finds a conciliation between the two approaches. It includes an artificial hill as an extension of the Villa Glori and three concert halls embrace a large *cavea* (2) open to the Villaggio Olimpico.

The relationship with via Flaminia is manifest through the parking areas perpendicular to the tree-lined via de Coubertin which is the main access to the Auditorium. The project changed during construction, following an unexpected discovery of a Roman villa within the site. For this reason, the concert halls level has been elevated and the cavea remained hidden in between these higher volumes, losing the visual and spatial references with Villa Glori and the Villaggio Olimpico.

The MAXXI competition for the National Museum of the 21st Century Arts was launched in 1998 and was to be located in the area of the former Montello barracks in via Guido Reni. The competition brief asked to integrate the new museum with the Flaminio district urban context, to preserve the facade of ancient barracks on via Guido Reni, and to create open spaces in continuity with the neighbourhood. It was won by Zaha Hadid. The jury chose the project not only for the creativity of its architectural solution, but also for its

potential to integrate the surrounding urban context. The outdoor space of museum, during opening hours, represents a real extension of urban public space (Fig 5).

The "Due ponti sul Tevere" [Two Bridges on the Tiber] Competition of 1999 offered the possibility for the construction of two new bridges over the Tiber. One of these is the Ponte della Musica, aligned with the via Guido Reni and representing the link between the Flaminio area and the other side of river, its right bank. Made of steel and reinforced concrete, it is reserved for cycling and pedestrian use, as well as for tram public transport. This international bridge design competition was won by the Buro Happold studio.

In the same years of these architectural competitions, the new general town plan of Rome was conceived. In particular the town plan of 2008 recognises the historical, architectural and cultural values of the Flaminio urban sector, rich in architectural works and of high landscape value. According to the plan it represents an important territorial resource of public property ownership.

The new plan envisages an area transformation through a unitary urban programme, the Flaminio Urban Project (Fig 6), in order to show the overall

Fig 5: MAXXI urban public space

structure, to verify its transformation and its economic feasibility. With the Flaminio Urban Project, the east-west axis will become the new Promenade of Arts between Villa Glori and Monte Mario crossing the Tiber at the Ponte della Musica. The Promenade of Arts links Renzo Piano's auditorium, the Olympic buildings by Nervi and the MAXXI by Zaha Hadid (Fig 7).

Recently in 2015, another international competition took place: the project for the district of the city of science. This transformation concerns the former barracks of via Guido Reni, to be used as a science museum, social housing, private housing, commercial spaces and accommodation facilities. The masterplan by Paola Viganò's Studio 015, winner of the competition, places commercial activities on via Guido Reni, while the inner area is dedicated to public services. The upper levels of buildings are intended for residential functions. The City of Science links continuously with the MAXXI outdoor space.

The interesting urban development of the Flaminio area, the presence of important modern and contemporary architecture, the particularity of its

Fig 6: Flaminio urban project: indicative outline, 2003-8 (3)

morphological characteristics and the richness of the natural landscape, have led to the development of numerous university research projects. I intend below to summarise two university research projects we have worked on, as a research team.

The first one is called *Roma Flaminio, Città della Cultura* (3) and it identifies as its theme the new auditorium square and the Olympic architecture parterre, the Palazzetto dello Sport and the Stadio Flaminio.

The first study underlines the need to resolve the integration of the auditorium with its urban surroundings. On the one hand, we have worked on the rehabilitation of this complex with the Stadio Flaminio and the Palazzetto dello Sport, looking for possible solutions of conformity of the empty space that extends from the Villa Glori to via Flaminia. On the other hand, we have studied the possible relationships between the auditorium, the Villa Glori and the public spaces of the Villaggio Olimpico, by designing a new auditorium square. Two proposals have been put forward that refer to two different morphological models: the plane and the enclosure (Fig 8).

Fig 7: *Promenade of Arts & Auditorium della Musica in distance (photo Maurizio Alecci)*
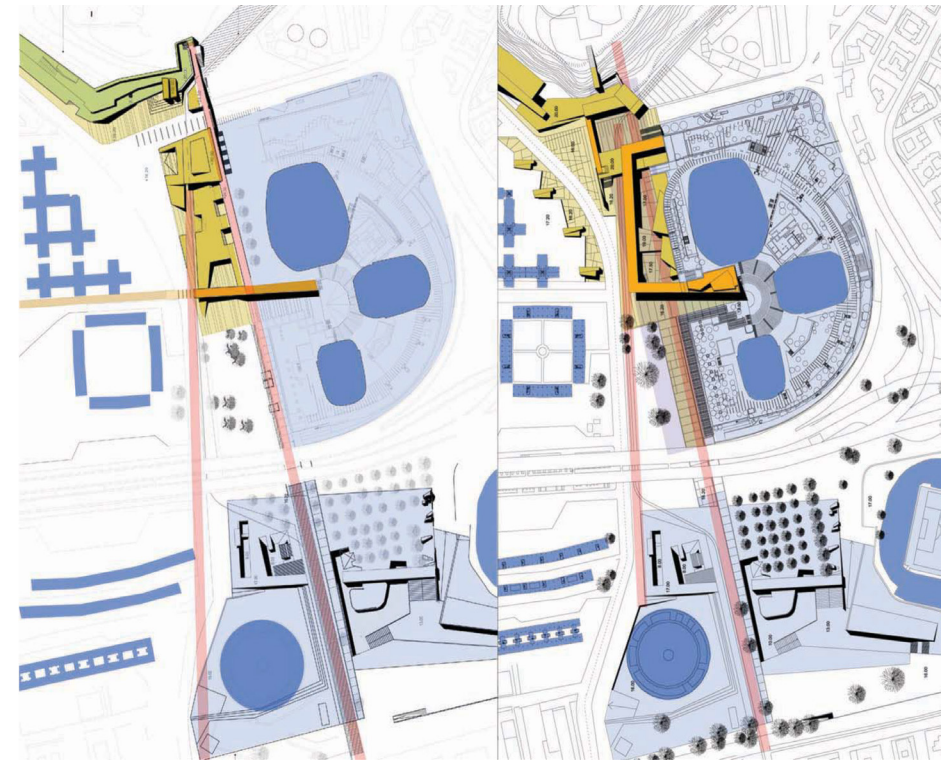
Fig 8: *University research 2002-3. design proposal. Inclusive square and inclined square*

'Piazza inclinata' [inclined square] has a sloping plane as the main element of the project. It proposes an artificial hill, with small courtyards facing spaces containing auditorium services. 'Piazza inclusiva' [inclusive square] designs an enclosure that defines an urban square, reconceiving the relationship between the auditorium and the public spaces in front of the Parco della Musica. Both proposals redesign the Villa Glori slopes. Both of them also offer a redesign of the extensive empty space between the Stadio Flaminio, the Palazzetto dello Sport and the Corso Francia viaduct. The project proposal also includes the modelling of the ground, defining a two level square, which allows the direct entrance to a station of the future underground line.

The second research study we are currently working on is called *Tra Monte Mario, Ponte Milvio, Villa Glori e Porta del Popolo. Analisi urbane e strategie di progetto per il quartiere Flaminio, distretto culturale di Roma* (4) It has the aim of identifying some urban planning themes and exploring some hypotheses of transformation. We have identified the main urban areas and the more important nodes on which the research group want to focus

attention. In addition, we have undertaken a network analysis of the roads, driveways, cycle paths and pedestrian walkways (Fig 9).

More precisely, we have identified three main urban themes on which to develop project reasoning: the river city (A), the Flaminio promenade along the cliff (B) and the Promenade of the Arts between the Villa Glori and Monte Mario (C). These are three urban systems on which we will converge in the next phase of the work. The aim is to solve the urban relationships between discontinuous parts of the city, proposing new visions for the Flaminio area and new models of living the urban experience.
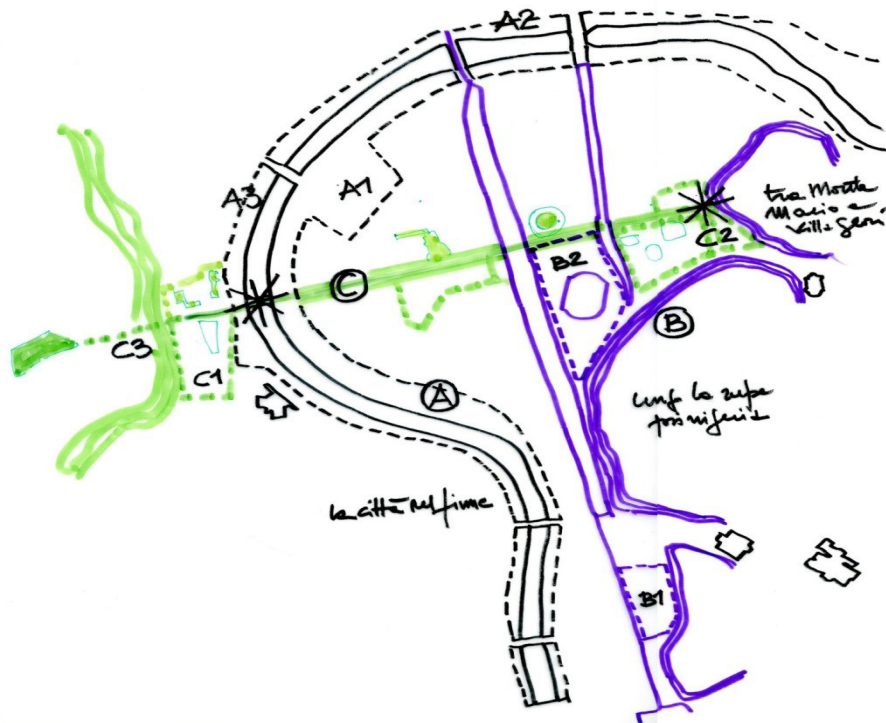
Fig 9: University research 2016-18 preliminary sketches (see text for key)

Biographical notes

Paola Guarini, graduated in Architecture in 1995 at Sapienza, University of Rome, where she also obtained her PhD in 2001. Since 2006 she has been a lecturer in Architectural Design in the Faculty of Architecture, Sapienza University. She undertakes many theoretical and practice research projects on architectural and urban design. Her field of investigation is mainly focused on the themes recovery and enhancement of the architectural and urban heritage, the intervention in sites of historical-archaeological interest, the redevelopment of abandoned areas and the reconversion of existing buildings.

It is my belief that we, as designers of the landscape, should regard our medium as a complete system. We should not restrict our designs to the limitations of the senses. At night, in particular, intuition and imagination are key components to the landscape experience. We should therefore be designing for both the daytime and the night-time, holistically. They are one.

Bibliography

Boland, M and B (1976) *Old Wives' Lore for Gardeners*, Bodley Head

Burton, J and Taylor, K (1983) *Nightwatch*, Michael Joseph

Campbell, J (1988) *The Power of Myth*, Doubleday, New York

Fieldhouse, K (1990) *Darken Our Lightness*, Landscape Design Trust

Gilchrist, C (1988) *The Circle of Nine*, Dryad Press

Katzeff, P (1990) *Moon Madness*, Hale

Llewellyn (1990) *Moon Sign Book*, Foulsham, Slough

Rush, K (1976) *Moon, Moon*, Random House, New York

Tuan, Y (1979) *The Landscapes of Fear*, Blackwell, Oxford

Zorlutuna, A (1991) *The Moon: the dark side of the landscape* (unpublished dissertation, CGCHE)

Biographical Notes

Aydin Zorlutuna was a graduate and diplomate of the Cheltenham School of Landscape Architecture. This is an edited version of his BA (Honours) dissertation which was first published in Landscape Issues in 1996.

INFORMATION FOR CONTRIBUTORS