

Landscape in the house: Performances of landscape in the courtyard house

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Abstract

The courtyard house is a dwelling type as old as cities, open to sun, rain and air, and containing landscape elements; interpretation of the courtyard type challenges architectural methodology to embrace landscape ideas. The courtyard is an architectural setting where landscape elements may be said to 'perform', compounding and enriching everyday experience for inhabitants. This paper investigates how landscape 'performs' in the courtyard house in order to affirm the value of landscape not only as architectural context but as valuable and active content for architecture.

Ann Whiston Spirn in The Language of Landscape notes spatial concepts from landscape discourse, such as territory, boundary, path, etc. which she names 'performance spaces', essential to human habitats, and generated by human agency. These and other performance spaces of landscape, transposed into architecture, arguably tie together human action and landscape within architectural methodology.

While Le Corbusier incorporated landscape elements in the composition of the Villa Savoye, Alvar Aalto, in his 1926 essay 'From Doorstep to Living Room', idealized 'the unity of the room, the external wall and the garden'; throughout his career Aalto involved landscape elements and strategies in his architecture, revisiting and reworking the courtyard idea. Aalto's architectural landscape strategies in turn underlie Jørn Utzon's designs for courtyard houses embodying the performative capacities of landscape in architecture.

In recent architectural theory, Alexander observes principles or patterns of the courtyard type; Rapoport reviews problems of enclosure and landscape in the courtyard house; and Appleton's notion of 'foraging-ground' provides a framework of landscape symbolism relevant to the courtyard type.

This paper suggests that an understanding of the performance of landscape in courtyard house architecture expands an understanding of architectural aesthetics. The inclusion of landscape within architectural thinking improves understanding of architecture's mediating role between human society and the natural world.

Introduction: The courtyard house and landscape

The courtyard house is an architectural dwelling type of great antiquity, a domestic accommodation incorporating one or more roofless rooms or courtyards, where landscape elements are transplanted from the natural world.¹ Housed inside architectural space, these landscape elements from outside – light, moving air, water, plant materials – can be said to ‘perform’ active roles inside the work of architecture. In the courtyard, landscape elements act within architectural space, animating its stillness with motion, illuminating its darkness, cooling its heated masses and volumes, and putting food and other pleasures of vegetation within the domestic world.

Landscape architect Ann Whiston Spirn names numerous spatial concepts from landscape discourse – ‘territory, boundary, path, gateway, meeting place, prospect, refuge, source and sign’² – as ‘performance spaces’, essential to human needs and habitats, and generated by the biological, social and spiritual actions of people.³ The idea of landscape’s performance aspects set within architecture not only ties human action and landscape together in architectural discourse, but also reveals architecture’s task of mediating between humankind and the natural world.

Spirn also links landscape design with the performative space of theatre: ‘Theatre is both flight from reality and concentration of reality; in that paradox lies a particular parallel between theatre and garden.’⁴ Landscape elements – garden, wall, vegetation, terrace, pond, vistas, sky, etc. – set in architecture can be dramatic flights from architectural ontology, dramatic condensations of landscape concepts and their natural-world origins, within an architectural reality.

Spirn argues that the poetics of landscape materials and their sensuous qualities are significant: ‘materials arouse senses, carry meaning, pose limits.’⁵ She proposes that landscape elements (rock, air, water, fire, vegetation) intertwine with human senses to carry meaning: ‘The meanings of materials are both inherent and invented, traditional and potential.’⁶ The sensuous qualities of landscape materials would appear to hold

significances generally beyond the scope of architecture, but of considerable value to the aesthetics of architecture and the pleasure of its daily experience. The everyday domestic setting of the courtyard house has implicit social significance: the house is the centre of family living, across societies and eras.

This paper's notion of the performance of landscape differs from David Leatherbarrow's idea of architectural 'performance' used in his essay 'Unscripted Performances'. Leatherbarrow argues that a building may act 'to "house" activities and experiences', such as lectures, cooking, trials, etc.;⁷ yet he distances himself from these 'anthropological predicates', being more concerned with the performance of the architectural object, 'the reality of the building itself – especially that architectural reality that exists regardless of my interests or yours.'⁸ This paper is concerned more with human experience of landscape elements in the space of the courtyard house.

This argument is illuminated by Spirn's sense that landscape performance spaces are 'basic to human habitats', and is informed by John Dixon Hunt's suggestion that the designed landscape needs 'an addressee . . . a spectator, visitor, or inhabitant, somebody to feel, to receive, to sense its existence and its qualities.'⁹ This ancient, pre-urban drama of humankind encountering nature's providence and ruthlessness – performed and re-performed, or latent and waiting to be performed, in the courtyard space – makes the courtyard house a valuable and interesting vehicle for studying landscape connected with architecture, to enable and develop new understandings of architectural history.¹⁰

History and the courtyard house

Norbert Schoenauer dismisses Abbé Laugier's notion that 'a man invented the primitive rectangular hut'; he maintains that 'the earliest huts were round and most likely built by women' – at least a quarter of a million years ago.¹¹ Ten to twelve thousand years ago, four alluvial regions – the Tigris and Euphrates, the Indus, the Nile, and the Hwang Ho and Yangtze valleys – supported the earliest cities. Rather than round huts, angular courtyard houses suited the first cities, for likely reasons: dwelling density; privacy and security; a pleasing micro-climate of plants and water; and religious symbolism of paradise.¹² Ardalan and Bakhtiar observe that the Persian garden and courtyard are concepts of paradise:¹³ the *bagh*, the open garden, is the royal park, 'a supreme luxury';¹⁴ its spatial complement is the *hayat*, the enclosed courtyard of the caravanserai, the mosque and the family house. The courtyard comprises a 'more feasible urban form,

capable of providing that basic contact with nature'.¹⁵ The courtyard type is found in the earliest settlements – Mohenjo-Daro, Cairo, Isfahan, Beijing – and later in Greece and the Roman Empire. In the West the courtyard or atrium vanished from European house architecture after the fall of Rome, and was succeeded in the Medieval era by outward-looking individual dwellings that revealed, rather than concealed, wealth and status.¹⁶

Twentieth-century courtyard houses

In twentieth-century architecture the courtyard is found in some house architecture, including Rudolf Schindler's Schindler-Chase house (1921-22), Wright's Los Angeles houses of the 1920s, Le Corbusier's Villa Savoye (1929), and Mies van der Rohe's 'courtyard' houses of the 1930s.¹⁷ The courtyard idea was developed significantly in the 1930s by Alvar Aalto and in the 1950s by Jørn Utzon, related to ideas of landscape and nature. The work and ideas of Aalto and Utzon provide evidence to argue that the courtyard house presents a model of appropriate scale and economy, adaptable for many styles of living, and with aesthetic dividends connected with the natural world.

Utzon has outlined his interest in dealing with 'the important zone' between inside and outside: 'A very particular issue. All these transitions. From the sea to the house. From nature to man-made. From the terrace to the sitting-room, from the public to the private.'¹⁸ Learning from both Le Corbusier's freestanding boxes and Aalto's courtyards, Utzon was concerned with how 'all these transitions' might be included in the work of architecture.

Spatial transitions guide Le Corbusier's description of his early visit to the Casa Del Noce, a Pompeiian atrium house. Having entered 'the little vestibule which frees your mind from the street', he finally attains the garden, 'the climax of the journey.'¹⁹ The experience is definitive: 'At the far end is the brilliance of the garden seen through the peristyle which spreads out this light with a large gesture . . . you have entered the house of a Roman . . . you are conscious of Architecture.'²⁰ The spaces are scenes in a *promenade architecturale*, a dramatic narrative that has a garden, not a room, as its most heightened experience.²¹

The flat roof with a garden was one of Le Corbusier's 'Five Points of a New Architecture': the Villa Savoye is illustrated by Curtis as a building both set in a landscape (of vegetation, paths and sun) and containing a landscape;²² its first floor, a *piano nobile*, is a 'roof terrace, a sort of outdoor room concealed from the exterior'.²³ Samuel finds 'visual confusion' in this 'hanging garden', which is 'a very strange space full of details that

deceive the eye.²⁴ Yet its big window faces south, it contains greenery and furniture and has views beyond to distant landscape: Le Corbusier recognized landscape in architecture, and designed courtyard spaces within his architecture that contain landscape elements; His legacy inspired both Aalto and Utzon.²⁵

Alvar Aalto: doorstep, courtyard and living room

Alvar Aalto celebrated the ambiguity of Le Corbusier's Pavillon de l'Esprit Nouveau (1925) in his 1926 essay 'From doorstep to living room' – a manifesto that foreshadowed later architectural strategies: 'Is it a hall, beautifully open to the exterior and taking its dominating character from the trees, or is it a garden built into the house, a garden room?'²⁶ Fresh from his Italian honeymoon, Aalto urged a new synthesis of indoors and outdoors, gardens and rooms, to reinvent Finnish domestic architecture – by 'fitting the building into the landscape better', and ensuring that 'the interiors of the building open outward'.²⁷

Aalto chose as illustration a Fra Angelico *Annunciation*, 'because of the harmony between the figures and the forms of both the building and the garden.'²⁸ He admired the painting's ideal unity of room, wall and garden, and the figures in the portico composed 'so as to give the human figure prominence and express her state of mind.'²⁹ Curtis suggests that for Aalto, buildings were 'intermediaries between human life and the natural landscape', and that the courtyard was a basic social archetype, a kind of 'harbour'.³⁰ In three works, the Helsinki house (1937), the Villa Mairea (1939) and the Muuratsalo summerhouse (1952), a partly enclosed courtyard space is interposed between an L of relatively ordinary rooms – although the Villa Mairea has an extraordinary living area, 'a forest architecturally transformed'³¹ – and a landscape beyond. Each courtyard included wholly different structures (respectively garden, pool, firepit), was dominated by different materials (grass, water, brick) and enclosed by different boundary elements (wooden rails, stone fence, brick wall); these courtyard spaces are animated with landscape elements or fragments abstracted and concentrated from natural, urban and vernacular sources.

Near Aalto's Helsinki house, his Munkkiniemi studio (1955) contains an extraordinary courtyard, conceived and made literally for performance – 'available to all associates for lectures, good fellowship and recreation.'³² The studio's meeting room, physically seated on a natural granite bench, looks through a large curved wall of windows to a miniature Classical theatre with stone steps, surrounded on three sides by white buildings, open on

its left flank to garden and trees, and taking advantage of the site's south-facing slope. Not only natural elements and seasonal changes, but also human performers – including Aalto himself – were to animate the enclosed outdoor space.

Jørn Utzon: squares, courtyards, streets and gardens

Jørn Utzon spoke in 1988 of contrasting lessons about inside-outside spatiality learned from Le Corbusier and Aalto:

A significant change has been the rediscovery of the open spaces between buildings, such as squares, courtyards, streets and gardens, in contrast to the previously prevailing view held, for instance, by Le Corbusier. There was a concentration on the house itself as an isolated, detached building in a park, something you could walk around.

In reality Aalto was quite without such prejudice. Numerous times in his projects he has shown us the relation between buildings, squares and open spaces. He often built complexes around an inner patio, around an open courtyard . . . If these 'in-between' spaces are treated as an inseparable part of the whole concept, the experience provided by the architecture is greatly enriched.³³

The opportunity for landscape performance in patios and open spaces was demonstrated in Aalto's house architecture, which influenced Utzon's courtyard houses. Jaime Ferrer Forès observes the connection between the two, noting that in Utzon's work the courtyard 'enhances the transition between the building and the landscape as a way of grounding the building in the place.'³⁴ Utzon wrote that 'the courtyard is the centre of family life';³⁵ he used the square courtyard plan to locate people in a particular place in two Danish projects, the Kingo houses at Helsingør (1957-59) and the Fredensborg terraces (1965).³⁶ The Kingo houses engage with a propitious landscape of lake, slopes and levelled ground; the Fredensborg development, a retirement community for Danish expatriates, has a 'green fingers' site plan, with interlocking fingers of housing and green space over a grassed slope. Preceding and underpinning these two projects are the drawings and text for the unbuilt housing project for Skåne (1953), where Utzon used narrative and drawings to sketch a community of characters whose lives and passions were housed in versions of the square plan courtyard house.³⁷

Utzon described his design method to a group of Danish students:

. . . the most important thing of all, which is that you are able to imagine a life lived by people before you begin to design the house . . . If I'm to design a room or something or other, then I sit down and think that, first of all, in some acceptable order, we have to arrange chairs where those people are to sit. If they are to sit around a large round table, then you make sure there is overhead light on them, and you open up a crack so they can look out over the countryside on one side. In that way you can slowly form an idea of a room or a house by always trying to see how the people who are to live in a house work or sit together or alone.³⁸

Utzon's design process was to dream up people living in rooms, at tables in kitchens, in trees, in sheds, in yards; he oriented their rooms and designed their windows for views and for natural light. These design acts were fundamental to Utzon's process of locating people in the landscape.

Utzon's Kingo houses

The Kingo houses appear plain, without architectural flamboyance; Rafael Moneo says that 'Utzon's architecture cannot really be called theatrical. Yet it is a splendid framework for us to live in and from which to observe the outside world.'³⁹ Each compact house is a vessel of modular rooms facing frontally into walled outdoor space. Oriented for light, warmth and views, each house serves as a habitable sunny buttress from which to enjoy and live in the garden and view the 'borrowed scenery' in the middle and far distance to the south, seen over walls and through stepped breaks in the walls.⁴⁰ House plans demonstrate repeated basic modules (bedroom, kitchen), and improvised designs of living spaces and bedrooms.⁴¹ This is an architectural design process which considers and brings together ancient models, people's lives, and natural site, to make settings for contemporary life – rather than a 'Nordic genius for the sensitive handling of locale, landscape, light and natural materials', as Curtis has hesitantly generalized.⁴²

Entry is into the northeast or northwest elbow of each house (according to orientation), with bath, heating, kitchen and entry hall efficiently occupying the corner of the L-plan house; bedrooms extend along the east-facing wall, living areas open to the south. Room forms and enclosure exploit the principles of Utzon's own 'Expansiva' modular planning and building system.⁴³ Views and access extend through generous windows and doors. A

replanted 'wilderness' landscape of grasses, shrubs and mature trees thrives just outside courtyard walls.

The house acts as a vessel for living, a hull or protective 'husk' – deriving from the Germanic etymology of *hus*, house.⁴⁴ This compact 'housing' is embedded with spaces, implements and machines for living; beyond its indoor zone, but within the house walls, the drama of people, climate and vegetation is performed through days and seasons. This zone can also be seen within Jay Appleton's notion of *foraging-ground*, that 'outer zone of our habitat' to which humans are attached, between house and landscape.⁴⁵

The outward visual connection through the wall recalls both the Japanese garden's trick of *shakkei* or 'borrowed landscape', using neighbouring or distant trees as part of a vista, or the Chinese garden's element of 'borrowed scenery', *jie jing*, a view of a greater landscape of water, forest or mountains, within or beyond walls.⁴⁶ This outward view to south, east or west, enabled by stepped plans and elevations, distinguishes Kingo from traditional walled courtyard houses, closed to the outer world; it also sets Kingo apart from Aalto's singular examples, where the outer corner is built up as at Muuratsalo, or left open for the viewer's gaze to wander into the forest, as at the Villa Mairea.⁴⁷ Utzon uses (perhaps borrows) the physical matter of the built community as an asset for individual experience: neighbouring high walls give shelter and privacy; when boundary walls are cut away to frame views and access, the drama of landscape is multiplied, achieving social openness and the aesthetic dividend of vistas of horizon and sky.

Chinese gardens are also characterized by walls – defining, enclosing and protecting the garden, and differentiating it from the outside world.⁴⁸ In prospect-refuge terms, Appleton describes the garden wall as 'the most potent refuge symbolism associated with the garden'; real or imagined *refuge* is reinforced by a tall, solid garden wall.⁴⁹ At the same time, openings in a garden wall both symbolize and achieve good *prospect*: they appear to have the potential to offer valuable outward views, and they also attract the eye outward, framing a vista through the solid barrier of the wall.⁵⁰

Utzon's stepped wall openings were intensely and laboriously considered. Utzon worked with Jørn Palle Schmidt, both inside each courtyard, considering planting, views, orientation and exposure, and outside, estimating the form, heights and overall visual effect of the walls in the landscape, designing each wall profile at Fredensborg.⁵¹ Weston notes Utzon's process: 'courtyard walls were individually designed by sitting in each

space and assessing its specific opportunities and constraints in terms of views, privacy, protection from wind and exposure to sun'; the result of this direct participation, adds Weston, 'has an effortless ease and naturalness rarely encountered in housing designed on a drawing-board.'⁵²

On a topographically rich site, silhouettes and shapes of bounding walls are seen together with house outlines, and with the cross walls, rooflines and chimneys of other houses. Yellow-ochre bricks would help render light wall surfaces against dark trees and rooms and mottled terra-cotta roofs, while shadows cast shapes on bounding walls.⁵³The controlled unity of this externally viewed composition recalls Utzon's interest in Le Corbusier's 'buildings to be walked around and looked at', as well as his fascination with the unified earth buildings of the Berber settlements of the High Atlas in Morocco.⁵⁴

The Kingo dwellings are almost a kind of anti-house: the combination of square footprint, L plan, limited materials, skillion roof, constrained area (15m by 15m square block, 102 m² house), and external extravagance reduced to wall height and opening, entails an external uniformity and an internal regularity of dwelling design. Faber notes Utzon's fascination with some 'very simple and brief' old Turkish building regulations: 'in a hilly country, no-one is allowed to block the view of existing houses'; in addition, 'all family houses should have a completely private courtyard that no-one else could look into.'⁵⁵ Utzon anticipated that these two principles would offer character to the whole development and safeguard individual houses. The development continues to be also carefully regulated and monitored, in its overall form, wall cutouts and silhouette, and also in terms of design, details, colour and planting maintenance.

Few Kingo house interiors are photographed in the literature, compared to the many images showing children, animals, courtyard gardens, vegetation, lake and seasonal changes. These houses offer low-key performances as objects – they are more a generic hull, or a primordial genotype, resembling the Nubian courtyard houses or the Beijing *siheyuan* which inspired Utzon for this project.⁵⁶ The house embodies and realizes the elemental purpose of sheltering people living in an accommodating place; the courtyard, with landscape abstracted and performing inside, and glimpsed beyond, realizes Utzon's ideal of a 'centre of family life'.

Theory and the courtyard type: Rapoport, Alexander, Appleton

The courtyard house has also attracted occasional theoretical attention over recent decades. Amos Rapoport considers problems of traditional and contemporary versions of the courtyard type; Christopher Alexander describes 'patterns' or principles of the courtyard type; while Jay Appleton considers the associated ideas of foraging-ground and *hortus conclusus* related to house and courtyard spaces.

In a recent paper, Rapoport is interested in clarifying questions about the nature of dwellings, and tries to define what is actually meant by 'courtyard housing'; he reviews the courtyard house type in terms of privacy, access, space use, and climatic performance, and defines the type against the freestanding house, an emerging emblem of individual wealth and status in developing countries.⁵⁷ He argues that the sustainability and performance of the courtyard house, and its future survival, are linked to culturally specific variables, 'a rigidly maintained set of rules (whether of behaviour, roles, space use, organization of time, privacy, etc.) which make such systems work, but which may be increasingly difficult to maintain today.'⁵⁸ Rapoport, generally pessimistic about the future of the courtyard house in a modernizing world, does not mention the courtyard houses of Aalto or Utzon. And although landscape-related aesthetics are not within his method, Rapoport praises the universality of the courtyard house across localities, social settings and eras, and endorses the type's potential as a model for dwelling: 'I would suggest that anyone could live in an ancient Greek house'.⁵⁹ An unnamed Greek village is depicted in Utzon's *Additive Architecture*, where the whitewashed walls and courtyards of its timeless courtyard dwellings repose with natural, vernacular and architectural elements: with beach, hillside, horizon and sky; with paths, stairs and terraces; and with the ruins of an ancient acropolis and temple on the hilltop above.⁶⁰

Alexander, in *A Pattern Language* (1979), in the pattern 'Courtyards Which Live', diagnoses shortcomings of contemporary courtyards: insufficient ambiguity, too few doors, too much enclosure.⁶¹ He recommends certain courtyard principles: space for 'the many different positions one can take up in each courtyard, depending on mood and climate'; courtyard edges and corners 'ambiguous and richly textured'; and 'in some places the walls of the building open, and connect the courtyard with the inside of the building, directly'.⁶² These landscape-related patterns, recalling the Fra Angelico *Annunciations*, both suggest, and empathize with, human activity. Weston observes that Utzon's Can Lis house, Majorca (1971) 'abounds in Alexander's "patterns"',⁶³ in Utzon's

courtyard houses, patterns can also be found, performing and gaining aesthetic dividends in domestic space.

Geographer Jay Appleton, connecting house architecture with landscape archetypes, sees houses as ‘the nesting-places of our own species, the direct linear descendant of a phenomenon of immense antiquity.’⁶⁴ Adjacent landscape space is equivalent to the foraging-ground, ‘that outer zone of our habitat with which we enjoy an equally important if quite different relationship.’⁶⁵ Appleton argues also that humans are attached to both house and landscape ‘by deep bonds of association’ involving attraction, anxiety, repulsion and other feelings’.⁶⁶ This complex association with environment is exemplified in the enclosed garden, the medieval *hortus conclusus*:

As *hortus*, ‘garden’, it belonged to the foraging-ground . . . it was still open to the wind and the rain and its ceiling was the sky. As *conclusus* it shared the property of ‘enclosure’ with the nesting-place. Screened from prying eyes it provided a little theatre of privacy into which the domesticity of the house could overflow without conceding its protected status.’⁶⁷

In the ‘little theatre of privacy’ of the courtyard where human dramas play out in a place of open security, where landscape elements extend into the house and connect the house with the greater landscape, Appleton demonstrates complementary performances of openness and privacy, a duality essential to the life and aesthetics of the courtyard house.

Conclusion: Aalto and Utzon, landscape and architecture

The use of landscape discourse to investigate architectural history in relation to performances of landscape in the courtyard house can expand understanding of the aesthetics and significance of architecture. As Appleton has observed, ‘among the ideas which are in urgent need of reappraisal those which concern the relationship between architecture and landscape should be high on the list.’⁶⁸

This paper has suggested that an understanding of performances of landscape in courtyard house architecture expands an understanding of architectural aesthetics. The courtyard houses of Aalto and Utzon provide models for further research into the value of landscape within architectural thinking, and into architecture’s mediating role as a

discourse for understanding and creating relationships between human society and the natural world.

Endnotes

- ¹ Norbert Schoenauer, *6000 Years of Housing*, revd edn (New York: Norton, 2000/1981).
- ² Anne Whiston Spirn, *The Language of Landscape* (New Haven: Yale University Press, 1998), p.121. For discussion of performance, space and meaning, see pp.121-132.
- ³ Spirn, *The Language of Landscape*, p.121.
- ⁴ Anne Whiston Spirn, quoted in Meto J. Vroom, *Lexicon of Garden and Landscape Architecture* (Basel: Birkhäuser, 2006), p.138.
- ⁵ Spirn, *The Language of Landscape*, p.101.
- ⁶ Spirn, *The Language of Landscape*, p.100.
- ⁷ David Leatherbarrow, 'Unscripted Performances', in *Architecture Oriented Otherwise* (New York: Princeton Architectural Press, 2009), p.45.
- ⁸ Leatherbarrow, 'Unscripted Performances', p.46.
- ⁹ John Dixon Hunt, *Greater Perfections: The Practice of Garden Theory* (Philadelphia: University of Pennsylvania Press, 2000), p.218.
- ¹⁰ Hunt, *Greater Perfections*, p.218.
- ¹¹ Schoenauer, *6000 Years of Housing*, pp.10, 15.
- ¹² Schoenauer, *6000 Years of Housing*, p.98.
- ¹³ Nader Ardalan and Laleh Bakhtiar, *The Sense of Unity: The Sufi Tradition in Persian Architecture* (Chicago: The University of Chicago Press, 1973), p.68.
- ¹⁴ Ardalan and Bakhtiar, *The Sense of Unity*, p.68.
- ¹⁵ Ardalan and Bakhtiar, *The Sense of Unity*, p.68.
- ¹⁶ Schoenauer, *6000 Years of Housing*, pp.217-29.
- ¹⁷ Beyond the immediate scope of this paper, it is noteworthy that enclosed courtyards appear in the domestic work of significant Australian architects, including Robin Boyd, Roy Grounds, Harry Seidler, Bill Lucas, Bruce Rickard, Ian McKay, Richard Leplastrier and Glenn Murcutt. In Brisbane, projects, buildings and writings by Karl Langer in the 1940s and, more recently, Donovan Hill, present local versions of the type; see Karl Langer, *Sub-tropical Housing* (St Lucia, Brisbane: The University of Queensland, 1944).
- ¹⁸ Jørn Utzon and Henrik Sten Møller, 'Conversations', in Henrik Sten Møller & Vibe Udsen, *Jørn Utzon Houses* (Copenhagen: Living Architecture Publishing, nd), p.25.
- ¹⁹ Flora Samuel, *Le Corbusier and the Architectural Promenade* (Basel: Birkhauser, 2010), p.67.
- ²⁰ Le Corbusier, *Towards a New Architecture*, trans. Frederick Etchells (New York: Dover, 1986/1931), pp.182-83.
- ²¹ Samuel adapts Gustav Freytag's five-part dramatic arc (influenced by Aristotle), used by playwrights, film makers and others for narrative structure, to interpret Le Corbusier's *promenades architecturales*. See Samuel, *Architectural Promenade*, pp.66-67.
- ²² William J. R. Curtis, *Modern Architecture since 1900*, 3rd edn (Oxford: Phaidon, 1996/1982), p.277.
- ²³ Curtis, *Modern Architecture since 1900*, p.278.
- ²⁴ Samuel, *Architectural Promenade*, p.120.
- ²⁵ See Alvar Aalto, 'In Memoriam: Le Corbusier', in *Alvar Aalto in his own words*, ed. Göran Schildt, trans. Timothy Binham (Helsinki: Ottava, 1997), p.248. Weston outlines relations between Utzon and Le Corbusier from 1958-1964, and describes Utzon's affinity for Le Corbusier as 'a hitherto neglected key to understanding his work', in Weston, *Utzon*, pp.28-30.
- ²⁶ Alvar Aalto, 'From doorstep to living room' (1926), in *Alvar Aalto in his own words*, p.52.
- ²⁷ Aalto, 'From doorstep to living room', p.50.

- ²⁸ Aalto, 'From doorstep to living room', p.50.
- ²⁹ Aalto, 'From doorstep to living room', p.51.
- ³⁰ Curtis, *Modern Architecture since 1900*, pp.298-99.
- ³¹ Marc Treib, 'Aalto's Nature', in Peter Reed, ed., *Alvar Aalto: Between Humanism and Materialism* (New York: The Museum of Modern Art, 1998), p.54.
- ³² Alvar Aalto, *Alvar Aalto: Volume I 1922-1962*, ed. Karl Fleig (Basel: Birkhauser, 1963), p.248.
- ³³ Jørn Utzon, 'Elements in the way of life', interview with Jørn Utzon by Markku Komonen, *Arkkitehti*, Feb 1988, in Jørn Utzon, *Prefab: Kuwait National Assembly, Jørn Utzon Logbook Vol.IV*, ed. Børge Nissen (Hellerup, DK: Editions Bløndal, 2008), p.8.
- ³⁴ Jaime J. Ferrer Forres, 'Utzon in Muuratsalo', in *Building Designing Thinking: 3rd International Alvar Aalto Meeting on Modern Architecture*, August 30-31, 2008, Jyväskylä, Finland, edited by Kari Jormakka and Esa Laaksonen (Helsinki: Alvar Aalto Academy / Alvar Aalto Foundation, 2008), p.23.
- ³⁵ Ferrer Forés, 'Utzon in Muuratsalo', p.22.
- ³⁶ Jørn Utzon, *The Courtyard Houses: Jørn Utzon Logbook Vol.I*, ed. Mogens Prip-Buus (Hellerup, DK: Edition Bløndal, 2004). See also Jørn Utzon, *Additive Architecture: Jørn Utzon Logbook Vol.V*, ed. Mogens Prip-Buus (Hellerup, DK: Edition Bløndal, 2009), pp.14-15.
- ³⁷ Richard Weston, *Utzon: Inspiration Vision Architecture* (Hellerup, DK: Editions Blondal, 2002), pp.84-85.
- ³⁸ Weston, *Utzon*, p.411.
- ³⁹ Rafael Moneo, 'On Utzon's Architecture: Some Cordial Observations', in Jørn Utzon, *The Architect's Universe*, ed. Michael Juul Holm, Kjeld Kjeldsen and Mette Marcus (Humblebaek, DK: Louisiana Museum of Modern Art, 2004), p.89.
- ⁴⁰ Utzon, *The Courtyard Houses*; Weston, *Utzon*, pp.90-93.
- ⁴¹ Two sets of plans are re-drawn in Henrik Sten Møller & Vibe Udsen, *Jørn Utzon Houses* (Copenhagen: Living Architecture Publishing, nd), p.32.
- ⁴² Curtis, *Modern Architecture since 1900*, p.454.
- ⁴³ Jørn Utzon, 'Expansiva, 1969', in Utzon, *Additive Architecture*, text pp.132-36, illustrations pp.132-79.
- ⁴⁴ Richard Leplastrier, address to students, University of Newcastle, NSW, September 2010.
- ⁴⁵ Jay Appleton, 'Landscape and architecture', in Ben Farmer and Hentie Louw, editors, *Companion to Contemporary Architectural Thought* (London & New York: Routledge, 1993), pp.74-77.
- ⁴⁶ Cheng Liyao, *Chinese Architecture: Private Gardens* (Vienna and New York: Springer-Verlag, 1999), pp.140-41.
- ⁴⁷ Richard Weston, 'Nature and Culture', in *Alvar Aalto* (London: Phaidon, 1996), pp.114-121.
- ⁴⁸ Maggie Keswick, *The Chinese Garden: History, Art and Architecture* (New York: Rizzoli, 1978), pp.135-36.
- ⁴⁹ Jay Appleton, *The Experience of Landscape*, rev. ed. (Chichester, UK: John Wiley & Sons, 1996/1975), p.171.
- ⁵⁰ Appleton, *Experience of Landscape*, p.94.
- ⁵¹ Weston, *Utzon*, p.107.
- ⁵² Weston, *Utzon*, p.103.
- ⁵³ See extensive discussion of the topic of defining levels in architecture in David Leatherbarrow, *Uncommon Ground: Architecture, Technology and Topography* (Cambridge, MA: MIT Press, 2000), Chapter 2, 'Building Levels'.
- ⁵⁴ Utzon, *Additive Architecture*, pp.296-309.
- ⁵⁵ Tobias Faber, *Jørn Utzon: Houses in Fredensborg* (Berlin: Ernst & Sohn, 1991), p.7. Faber quotes from an uncited work by Austrian architect Roland Rainer.
- ⁵⁶ Courtyards and courtyard house types from numerous cultures are illustrated in the section 'Additive Explorer', in Utzon, *Additive Architecture*, pp.230-69. Many of the images are Utzon's own photographs.

⁵⁷ Amos Rapoport, 'The Nature of the Courtyard House: A Conceptual Analysis', *Traditional Dwellings and Settlements Review*, Volume XVIII, Number II, Spring 2007, pp.58-62.

⁵⁸ Rapoport, 'The Nature of the Courtyard House', p.64.

⁵⁹ Amos Rapoport, *House Form and Culture* (Inglewood Cliffs, NJ: Prentice-Hall, 1969), p.82.

⁶⁰ Utzon, *Additive Architecture*, p.248.

⁶¹ Christopher Alexander, et al., *A Pattern Language: Towns, buildings, construction* (New York: Oxford University Press, 1977), pp.561-64.

⁶² Alexander et al., *A Pattern Language*, pp.563-64.

⁶³ Weston, *Utzon*, p.375.

⁶⁴ Appleton, 'Landscape and architecture', p.74.

⁶⁵ Appleton, 'Landscape and architecture', p.74.

⁶⁶ Appleton, 'Landscape and architecture', p.74.

⁶⁷ Appleton, 'Landscape and architecture', p.75.

⁶⁸ Appleton, 'Landscape and architecture', p.77.