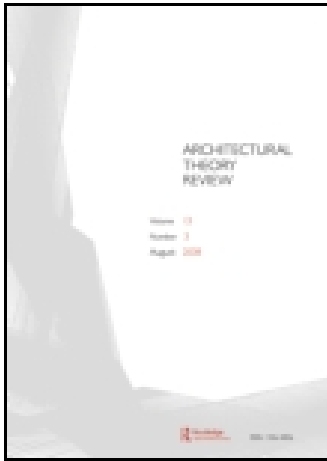


This article was downloaded by: [North Dakota State University]

On: 23 October 2014, At: 15:32

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Architectural Theory Review

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/ratr20>

Romanticism Revisited: Jørn Utzon's Sydney Opera House

Philip Drew

Published online: 18 Apr 2008.

To cite this article: Philip Drew (2007) Romanticism Revisited: Jørn Utzon's Sydney Opera House, Architectural Theory Review, 12:2, 121-145, DOI: [10.1080/13264820701730868](https://doi.org/10.1080/13264820701730868)

To link to this article: <http://dx.doi.org/10.1080/13264820701730868>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

Romanticism Revisited: Jørn Utzon's Sydney Opera House

PHILIP DREW

Complex and mysterious, the Sydney Opera House is gloriously elusive. It is something very rare: the intersection of early 19th century Romantic ideas that elevated feeling, intuition and individual genius, and mid-20th century Modernism standing for a rational acceptance and assimilation of industrialism, standardisation with an abstract mass-production aesthetic.

Evidence supporting this is found in Utzon's reference to the Gothic church, his fascination with remote exotic sources and fascination with the primitive in his development of the 'additive architecture' principle, but most tellingly, the importance given to nature and landscape as a source of poetic metaphors. This combination of a Romantic orientation and Modernism is understandable only in terms of his special Scandinavian heritage. The collision resulted in a powerful, but ultimately flawed outcome to the extent that Utzon failed to fuse the emotional with the rational dimensions but in his defence, it has to be said that this is a widespread failure that has carried over into the present day. This is the great drama we experience at Bennelong Point, which is made all the more poignant by our sympathy with his aims and the unconscious recognition that in some fundamental way, the goal was unattainable.

Like a great tide on the turn, the focus of philosophical enquiry began to change from the objective to the subjective, and a new generation began to explore the potential of emotion rather than obedience, of sufferings, sorrows and fear, as well as joy, of the humble and natural instead of sophistication, of the idiosyncratic instead of the ideal. . . . Not since the Renaissance had such a profound change come over the Western consciousness. . . . Romanticism emphasized individual experience, feeling and expression.¹

Corresponding author: Philip Drew, e-mail: pdrew@idx.com.au

ISSN 1326-4826 print/ISSN 1755-0475 online

© 2007 Taylor & Francis

DOI: 10.1080/13264820701730868



Figure 1 "Looking at a gothic church, you never get tired, you will never be finished with it.": East end flying buttresses of Notre Dame Cathedral, Paris, 1163 AD. (PD 693).



Figure 2 The white tiled roofs of the Sydney Opera House, 1957-1973, reflect the sky. (PD 3057).

Therefore, instead of making a square form, I have made a sculpture—a sculpture covering the necessary functions, in other words, the rooms express themselves, the size of the rooms is expressed in these roofs. If you think of a Gothic church, you are closer to what I have been aiming at.

Looking at a Gothic church, you never get tired, you will never be finished with it—when you pass around it or see it against the sky. It is as if something new goes on all the time and it is so important—this interplay is so important that together with the sun, the light and the clouds it makes it a living thing.²

Romanticism

Jørn Utzon's justification of his Opera House in terms of the unfinished quality of a Gothic cathedral is quite revealing when compared to the aesthetic objectives of early nineteenth century Romanticism. His ideas also disregard classical balance and harmony, in order to emphasize the dynamic shifting atmospherics and engage with the building's surroundings. Utzon could be the painter Turner in his glorification of light. Moreover, his choice of a Gothic paradigm is entirely consistent with Romanticism's nineteenth century revival of Gothic. Utzon presents striking, if unexpected, affinities with early Romantics such as Victor Hugo, Viollet-le-Duc. He prefers the humble and natural to the



Figure 3 National Romanticism made its appearance in Martin Nyrop's huge Copenhagen City Hall, 1892-1906, and in this modest shelter for a jetty opposite Utzon's grandmother's house at Alsgarde. (PD 15 436).



Figure 4 Jensen Klint and Kaare Klint's Grundvig's Church, 1916-1940, strongly inspired by late Gothic, market town churches, is one of the final examples of National Romanticism. (PD 15 281).

ideal, the subjective to the objective. Whilst still holding on to central ideas of Modernism, he departs in quite radical ways that, at that time, scandalized mainstream modernists.

Romanticism is an elusive phenomenon.³ It seems to slip through our fingers and needs to be approached with caution, all the more so, when attempting to place a work within its orbit that was created 110 years after the collapse of Romanticism.

Romanticism was important in painting, and even more prominent in music. Most writers proclaim literature as the primary 'Romantic' form, emerging as early as the 1750s. In Britain it received great

publicity with William Wordsworth's *From the Preface to Lyrical Ballads* of 1798. It has been the habit of some to separate the Romantics from their predecessors by a stark emphasis of feeling and expression, but this had more to do with their propaganda than with reality. Descartes in the 1630s, and his British philosophical opponent John Locke in 1688, both insisted on personal grounds of experiential knowledge. The picture that emerges is one of a long preparation and equally long winding down to Romanticism. This makes it hard to point to a beginning and an ending, but the core period is usually agreed to extend from 1798 to 1846.

Utzon was dedicated to the ideas of the Modern movement but this meant different things depending on where you were situated. His approach was the product of the Scandinavian wing of the Modern movement which possessed its own unique traditions and history. Works such as the P. V. Jensen Klint Grundvig Church (1913, 1921-1926) tied, as it was to craft production, represented a half-way house with a demonstrable Romantic bias. The Netherlands, notably Michel Klerk (1884-1923) in Amsterdam, exemplified a Romantic plasticity that cannot be ignored in the Danish context.

What should we call Utzon? Is he a Modern architect and functionalist? It might seem so, but that did not fool his contemporaries. Does the Sydney Opera House belong to a new category: Romantic—Modernism? Where precisely does he sit? Should one file the work under the heading of organic architecture? Organic architecture is as resistant to definition as Romanticism.

How does one explain the strong whiff of Romanticism in a great major work that is ostensibly an icon of Modern architecture?

The explanation, I would suggest, is that long after Romanticism ceased to be a leading force in European cultural life, its residue or its the dying reverberations continued to inspire artists and musicians. The First World War was a cataclysm that provoked a massive welling up of ideas and violent feelings that brought Romanticism to the surface, along with much else. Romanticism never really ceased as an influence in the arts. Scandinavians existed on the periphery of the war as bystanders but they were not insulated from its consequences. The confusion following the peace of 1918 broke over them and infected them in diverse ways as the waves spread outwards. The end of the Great War witnessed a revival of national consciousness which the Napoleonic wars in combination with Romanticism had awakened more than a century earlier.

The boundaries around Romanticism are ill-defined so it would be wrong to assert that Romanticism ended in 1846. Movements which stressed the role of feeling, sentiment and emotion as the essence of communication were bound to be stirred up in the aftermath of such a dire calamity as World War One. Scandinavia generally, and Denmark in particular, was fertile ground. It was to be expected that some element of Romanticism would attach itself to the Danish approach to Modernism. We see evidence of this in such important civic monuments as Arne Jacobsen's Århus town hall (1937) and Vilhelm Lauritzen's Radiohus (1945). In Germany, Expressionism preceded the Modern movement and infected its early development up to 1922.

Romanticism was part of the wider Scandinavian stylistic legacy of National Romanticism which affected Norway, Sweden, Finland and Denmark in the 1890s. Utzon's youthful development occurred in the shadow of this nationalist inflection of Romanticism which he breathed in unwittingly and which tied him to the ghost of national Scandinavian aspirations.

Utzon and Romanticism?

Stylistically, Utzon related to Romanticism in a number of ways and on a variety of different levels. This is never explicitly acknowledged by Utzon, but then, Utzon only rarely gives his references and has been very adept in avoiding deeper critical scrutiny.⁴ He understandably resists categorization. Nevertheless, the combination of Romanticism beside the prevailing functionalist thrust of International Modernism, however loose and unlikely it may seem, was extremely unusual in mid-century.

The Romantics fiercely avoided theorizing and so does Utzon. In music generally, neither the composers nor performers, and least of all audiences, engage in 'theoretical' talk about music. Similarly, Utzon rarely explains his reasons for doing things. The Romantic affinity in Utzon's architecture and persona is self-evident, as it is in the mythology surrounding him. Both are part of the evidence. He was vulnerably underqualified intellectually and technically for the task in 1957. It is particularly difficult to connect Utzon to particular 'influences' or ideas. He was not an intellectual—more an anti-intellectual—as his complex troubled relationship to Haldor Gunnløgsson shows, who was especially attracted to remote exotic influences such as the Maya and ancient Chinese courtyard house etc. His statements about how he works are incomplete and vague; they are stated in such a way as to produce ambiguity rather than clarity. As a further complication Utzon's followers, and Utzon himself, hide the reality behind a screen of romantic myths that emphasized the image of a lone genius engaged in an agonizing struggle for perfection. This is at odds with the reality of a designer who depended heavily on his assistants to resolve difficult details, one who was often content to offer a vague poetic metaphor (beech forest, wave, gull's wing) to convey to others what was in his head.

The National Opera House competition design for Sydney in 1956, not only raised the question of a building in a marine setting, but framed it as a 'national' project that should give voice to an, as yet, vague notion of national identity. Utzon had never visited, much less, seen Australia or Sydney Harbour at first hand. This makes it all the more remarkable that he was able to impose an architectural solution that many Australians, then and now, accept it as not only in harmony with its surroundings but as richly resonant. Not only within Australia, but around the globe, it subsequently established itself as one of the most vivid and recognizable symbols of Sydney, and indeed, Australia. This is quite remarkable in view of its Scandinavian origin. It is only much later, with the emergence of a strongly expressed Australian architecture by Glenn Murcutt whose domestic corrugated iron veranda-house created a new sense of indigenous form that the contrasting Scandinavian character of the Opera House has been thrown into high relief. The failure of Murcutt to create a comparable public register to match his domestic idiom illustrates just how difficult was the challenge faced by Utzon in 1956.

Romanticism was strongly expressed in music, notably the symphony form.⁵ Utzon's unconscious coupling of Romanticism with the Modern effortlessly drew attention to this forgotten association of architecture with music. Moreover, it masked his broader failure to resolve the specific functional requirements for side stages, ease of access to the theatres, hall acoustics, even his violation of the site boundary. His cavalier treatment of specific conditions, the very sketchy incomplete nature of his presentation, which lacked essential information and was not fully worked out, was overlooked in the general enthusiasm of the jurors for what was recognized as a highly original solution that, at the time, highlighted how mundane and dull the other competition proposals were.

The discovery of landscape

The brilliance of Utzon's sculptural solution in relation to the harbour as reciprocating entities enhanced both the architecture and the water setting. It is typically Romantic in the importance given to the landscape connection and its subordination of the functional needs. All the architects who entered the competition, to varying degrees, attempted to do this. A few even designed Opera Houses to look like ships—in one instance copying the Manly ferry⁶—however only Utzon succeeded in evoking the feeling of fluidity and movement, the precise atmospherics of the building's marine setting.

Landscape lasts much longer than mankind. In attempting to make architecture part of the same time scale, we are offered the consolation of a sense of connectedness with a version of eternity, although these days landscape seems far from the immutable unchanging object it once was in the past.⁷ The relative permanence of landscape offers a consoling backdrop to rapid social and economic change.

In the nineteenth century, Romanticism lent a new weight to landscape painting that had important consequences in terms of painters such as Constable, Delacroix, Turner and Friedrich.⁸ It is a coincidence that Friedrich studied at the Royal Academy in Copenhagen (1794-1798) where Utzon trained in architecture 145 years later (1939-1943).⁹

Utzon's orientation to landscape is attributable to his Scandinavian background. In a variety of ways, his thinking is anchored in nature, something which marks him as a Romantic. Thus, Romanticism encouraged what Constable called "natural painture"¹⁰ which used direct observation as a great source of inspiration and harmony. This has direct parallels in Utzon. In explaining his approach Utzon would often refer to an observation of clouds, the sea and changes of weather, which he applied directly or as metaphors in his architecture. To that extent he is quite typical of Romanticism's emphasis on growth. Moreover, his response is 'felt' more than Rational, it is about intuition not scientific understanding of natural phenomena that is linked to indeterminate ideas about free expression.

Romanticism replaced a mechanistic universe created by Newton in his model of the solar system with an alternate model inspired by the idea of organic growth. We find just such a vision in D'Arcy Thompson's *On Growth and Form*, published in 1917.¹¹ In this connection, Utzon's encounter with the



Figure 5 The idea of additive 'architecture' originated from Utzon's admiration of the simple repetition of forms in anonymous vernacular buildings such as the Trulli houses at Alberobello in Southern Italy. (PD 2 342).



Figure 6 The Utzon-Huset or experimental house, at Herring, Jutland, 1970-1971, is a demonstration of Utzon's additive approach to form making. (PD 15 594).

Norwegian architect, Arne Korsmo (1900-1959), had an immediate and transformative impact.¹² The Romantic movement, for one thing, coincided with the rapid expansion in the natural sciences that led to important new theories.

Utzon attempted to make architecture more flexible and capable of adjustment to changing human demands made upon it through his “Additive Architecture”¹³ approach. This was based on vernacular form-making which, because it used repetitive, interchangeable units, was capable of being added to in various ways. The outcome of this search for flexibility and harmony led to simple repetitive forms that were unfinished and incomplete like African villages such as the Dogon and Italian Trulli, that are dynamic rather than static, but which were, nonetheless, are in harmony with their environment. It was a marriage of the primitive with the Modern.

Utzon constantly invoked metaphors from nature: the ‘beech forest’ for the Major Hall interior, ‘breaking waves’ in the Minor Hall, the profile of ‘gulls’ wings’ in the curve of the glass wall mullions, and the changing effect of light on the tiles which offer parallels with Impressionist attempts to register the changing atmospherics of light.¹⁴ Nature and growth are linked; the image of a world that is incomplete and hence, in continual flux, dominates his approach to architectural form. It is a fundamentally Romantic conception and the very opposite of Classical symmetry and perfection. The static apposed to the dynamic.

The Sydney Opera house appeals to the Romantic in us, to our emotions, not only through its unknowable Romantic associations and the suggestiveness of the fragmented shapes of each vault that overlay and repeat one another, but additionally, through the building’s resonance with its natural setting, its imagistic recollection of ships, sails and such like from its sculptural improvisation. This goes to the heart of its popular appeal and is simultaneously, the essence of our response to its Romantic constitution.

Music and Romanticism

After literature, it was in music that Romanticism impacted most, and exercised its most enduring influence. The music of Beethoven is Romantic to a supreme degree, especially compared to Mozart.¹⁵ But there were a great many others such as Franz Schubert, Carl Maria von Webber, Felix Mendelssohn, Robert Schumann, Frederic Chopin, Franz Liszt, culminating in Richard Wagner—the list is extensive.¹⁶ The Romantic era followed and reacted against the Classical one that preceded it. Whereas form and order characterize the Classical world, in a Romantic piece, expressive content takes precedence as it does in the Sydney Opera House, so that functional issues take on a subordinate role.

In music, art is used to escape from the increasingly unpleasant realities of life. Nature in the early nineteenth century offered another means of escape from the ugliness of industry. Homage is paid to nature and music is used to draw sound-pictures.

Of all artistic forms, the symphony is the most Romantic.¹⁷ It was also the age in which the symphony came into its own. And it was in music that Romantic notions remained embedded and influential longest. In his *Philosophie der Kunst* the Romantic German philosopher and successor to Kant, Friedrich von Schelling (1775-1854), is famous for his statement that “Architecture in general is frozen music. . . .”¹⁸ Could there be a more resounding description of the Sydney Opera House than that—the tiled roofs as frozen music. Its composition is the opposite of the Classical, being typically Romantic in its irregular mysterious assembly of spherical shapes that rise to a crescendo, the motif repeated in the second roof, with its prelude placed out in front.

Philosophically, Romanticism disdained ordinary “Rationality” and elevated the directly intuitive, even mystical, apprehension of the world in its place. Romantic philosophy aimed at a progressive series of surmounting oppositions or contradictions as its organizing principle. Once again, turning to the Opera House, the most fundamental opposition or contradiction is the dialectical sandwich of the roof and platform—one heavily anchored to the earth, the other lightly floating, rising skywards on the air so it is separated by a vacant interval that is filled by fantasy and human activity.

Expressionism in architecture, which seeks through its choice of forms to convey feelings and emotions in an abstract sculptural format, has affinities with Romanticism and, not by accident, arose in Germany.

Something further needs be said about this connection between Romanticism and music and the Sydney Opera House because, this affinity with Romantic composition elicits in the observer a deeper profoundly emotional connection between the monumentality of the architecture and music at an abstract sculptural level. It simultaneously manages to be Modern, to the extent that it utilized the most advanced structural technology—shell concrete and prestressed variable-section folded concrete—with a Romantic approach to the planning and organization of the forms. This is a source of conflict because one is Rational, whilst the other is intuitive and emotionally complex. There were bound to be problems as a consequence in reconciling the two disparate modes—thinking and feeling. The problematic history of the project is no accident. But in terms of communication and our response to the building, there were significant positive gains.

The lure of the primitive

A feature of Romanticism was its love of the primitive.¹⁹ This was about the love of the unknown that pointed forwards to the discovery of a new artistic future as much as it looked back to the past.

Romanticism’s love of the primitive is manifested in Utzon’s discovery of vernacular architecture and its use as a metaphor for his development of his ‘additive architecture’ approach based on repetitive standard units suitable for industrial factory production. His interest began with Bernard Rudofsky’s *Architecture without Architects* (1964) exhibition at the Museum of Modern Art in New York in November 1964 to February 1965, which led to the 1970 publication of Utzon’s ideas on “Additive Architecture.”



Figure 7 Utzon's interest in the primitive found an outlet in his adoption of the ancient Chinese courtyard house type as the basis for a series of housing experiments, namely the Kingobusene Housing Estate outside Helsingør, 1957-1960, and later, in the luxury Fredensbørg housing, 1962-1963, illustrated. The repetition of variations of the same plan type anticipated Utzon's later theory of additive architecture. (PD 15 549).

Vernacular architecture not only supplied a model of autonomous architectural production for Utzon, it also offered him a model for an anonymous aesthetic, that eliminated the personal that did not depend on the intervention of the architect's sensibility. Early on, Utzon proposed a "kit of parts" approach to complex problems based on an analogy with the telephone receiver.²⁰ The vernacular architecture analogy was updated and realigned with the anonymous standard products of the industrial age in much same way that Le Corbusier previously hypothesized about the emergence of the *objet* type.²¹

Pressed by Ove Arup to standardize the concrete formwork for the roofs, in 1960 Utzon adopted a spherical geometry to replace the structurally superior parabolic and elliptical solutions. This change confirmed his abandonment of the shell roof solution and represented a regression to an ancient symbolic form of domed space.²²

The connection of vernacular architecture to Romanticism finds echoes in Jean Jacques Rousseau's championing of the primitive, but it is at the same time contrary to Romanticism's emphasis of individual experience and of a unique personal voice. Yet for all that there is no question of the uniqueness of Utzon's voice.

Romanticism promoted revivalism—most notably of medievalism and the Gothic.²³ The revivalist movement in painting had its parallel in architecture. The Romantics professed a fascination with the Middle Ages and this subsequently led to the revival of the Gothic. Victor Hugo was typical. His novel, *Notre Dame of Paris* (1834), immersed itself in the spirit of the Gothic which Hugo personified in the figure of the grotesquely deformed hunchback who lived high up in Notre Dame Cathedral.²⁴ Romanticism however, did not limit itself to Gothic, it was also fascinated with the distant past. This translated to the Maya for Utzon.

Jean Jacques Rousseau's romantic idealization of the "noble savage,"²⁵ signified a retreat back to a primitive golden age before human nature was as yet unspoiled by civilization when people were innocent and free from civilization's enslaving leg-irons. Utzon's emphasis on the vernacular seeks to sidestep the modern challenge of functional complexity and replace it with a simpler, autonomous aesthetic.

In other ways, Utzon demonstrates his Romantic credentials via a wide-ranging eclecticism. This is little remarked on because it detracts from counter claims that stress the unique genius and originality of his architectural vision. Utzon was no scholar or historian as shown by his travels: Utzon's interpretations spring more from his own personal reactions and experiences and much less from archaeological knowledge. In consequence he is guilty of numerous errors of interpretation. With his cine-camera, he is a Romantic tourist much more than an informed observer. His insights are mostly valuable in terms of what they tell us about Utzon.

Thus, Utzon's explanation of the Maya temples that captivated him in 1949, ignores the fact that the forest was cleared when they were constructed.²⁶ His explanation about the pyramids rising above the forest roof is nonsense. His use of Japanese and Chinese models follows another Romantic fiction. Utzon interprets what he sees in terms of his own chosen themes of platform and roof and thus presumes that history was similarly directed! Utzon's eclecticism is a symptom of his underlying Romanticism inasmuch as revivalism was such a key feature of Romanticism. The recreation of the Maya sacrificial monumental staircase, down which bloody human sacrifices were thrown is bizarre in the modern context even for opera!

The Romantic hero

One of the most dangerous Romantic legacies is the glorification of the artist as a free spirit, rebel, outsider, leader, part of an *avant garde* who is judged solely on his originality, integrity, personal response, and suffering for all these things.²⁷ The Romantic hero myth is dangerous because it releases the artist from the rules that govern the rest of society and excuses, and often promotes narcissistic behaviour. The artist's sole responsibility is to his art. In Utzon's case, it brought him into direct conflict with his client.

Utzon does not fit the Romantic template of the wild bohemian. By contrast with the likes of Lord Byron or Shelley, he is a conservative with his life anchored to his wife and children.²⁸ A very typical law-abiding Dane who never starved in a garret. The factor that does fit the Romantic stereotype is his

reclusive anti-social life style. His preferred environment is close to nature, not the city. He is a Romantic hero to the extent that he suddenly emerged from relative obscurity as the youthful winner at 38-years-of-age, of an international architectural competition. His obvious good looks and personal charm vaulted him into the public eye as a kind of male Cinderella figure. The later tragedy, his drama filled conflict with the Minister for Public Works, Davis Hughes, who readily filled the role of persecutor and ignorant philistine, cemented this romantic image of the lone architectural genius struggling against enormous odds to save his glorious architectural vision. The fact that the story is more myth than true, did not diminish the perception because it slotted readily into the romantic stereotype of the isolated artist. But unlike earlier nineteenth century romantics such as Lord Byron, Utzon went on to live a very comfortable life on the sun drenched tax haven of Mallorca. He did not die horribly of marsh fever at Missolonghi fighting the Turks as did Byron. The absence of key parts of the romantic myth has not proved deleterious to the myth. If anything, his anti-social isolation to exotic places and refusal to cooperate with the media increased, rather than diminished, the aura of the romantic hero in retreat.

The romantic stereotype arose almost spontaneously as Utzon's followers and supporters sought to contextualize the political struggle with the NSW Government and Works Minister, Davis Hughes, during the 1966 crisis. Sydney opinion was split between those who considered that Utzon was irresponsible and unable to solve the architectural problems he had created, and his supporters who saw him as a persecuted genius; he was compared to Michelangelo, with the Minister as Pope Julius II, in their dispute over the completion of the Pope's tomb. The reshaping of events in Sydney to fit earlier historical client/architect disputes unconsciously elevated and shaped the Sydney drama by clothing it in Romantic myth with its recall of familiar clichés.

Romanticism may additionally be understood as a revolt against received ethical and aesthetic standards. People who are dissatisfied with the present find in Romanticism a congenial reinforcement supporting their own revolt. Utzon's architectural values are only in part a revolt against the industrial aesthetic of Modern architecture. As a member of the Third Generation,²⁹ Utzon sought to modify certain aspects of its programme which would allow him to approach problems in his own way by invoking biological, landscape and vernacular models that widened its scope in practical ways as well as adding a richer more diverse set of the meanings through the replication of standard objects.

In the years since, journalists and the public alike have preferred to see Utzon as a persecuted, reclusive Romantic hero. He is no Rodolfo from *La Bohème*: for one thing he has received more prize money for the poetic idea of the Opera House than he was paid in architectural fees. With the exception of the author, no one has bothered to ferret out the financial details of Utzon's departure or determine why he was so adamant about withdrawing. Instead, the same story is repeated with variations—but it is essentially the same story—the Minister is the villain and Utzon is the hero. His self imposed seclusion on Mallorca and hostility to inquiries support the tragic picture. This impression is reinforced over the years by his reluctance to explain or go into the details of his behaviour. In the end his withdrawal from life and from society is the chief evidence from which his reputation as a mythic Romantic hero has

been adduced.³⁰ The less people know the more they invent explanations to fill the empty spaces he has left with constructions of their own. In this way Utzon has served the myth when a full detailed account would have dispelled it.

Utzon longed to be seen as an artist. It influenced how he drew and partly explains the absence of specific detail from his plans, his preference for soft 5B pencil outlines, his salt-shaker sketches executed on restaurant table cloths denote a fertile artistic vision in contrast to the hard precision of engineering.

Romantic Modernism

There are two aspects to Romanticism: his work and his character as a person. Romantic artists and musicians were the first celebrities. Romanticism supplied the public with its image of how an artist lived and what the artistic life should be like. In history, it came to be identified with music and musical forms. The abstract Romantic sculpture design of the Sydney Opera House which Utzon gave us re-discovered this connection with music. Much as Romanticism had previously allied itself to National aspirations to describe and symbolize a Scandinavian identity, Modernism contained within it the possibility of Romantic Modernism. An interpretation of the functionalist creed that included recognition of landscape, human feeling through expressive forms whose jumping off point is function, but which have a living quality that is quite different to the mechanical forms of functionalism.



Figure 8 The Forest Crematorium at Stockenvagen outside Stockholm, Sweden, by Erik Gunnar Asplund, 1939, exemplifies Scandinavian sensitivity to landscape with the cross placed in the distance. (PD 304).

Several factors in Utzon's Modernism suggest Romanticism. The importance of vernacular architecture, exotic and ancient sources drawn from Maya temples, China, Japan and Isfahan, such a mixture of uniquely expressive ingredients in the sculpting of the Sydney Opera point to Romanticism. Utzon belonged to a Third Generation of Modern architects. His architectural maturity followed the first wave in time to react against the classical/rationalist foundations of this prior generation. The new machine forms were too sterile, too detached from ordinary people's lives, for Utzon. They needed to be opened up. Utzon's intuitive response was to humanize Modern architecture, to include history, and give it a human impress that softened its harsh Neoclassicism with a countervailing anti-classical Romantic interpretation.

Before proceeding farther, something needs to be said about the Romantic content of the Sydney Opera House and how this relates to historical Romanticism. The legacy of German Expressionism has led some critics to compare Utzon's original sketch proposals to fantastic Expressionist form studies done after 1920 by Bruno Taut and Hermann Finsterlin.³¹

Utzon's design of the Sydney Opera House was greeted in some quarters as a betrayal of Modern architecture. Frank Lloyd Wright, whom Utzon visited and with whom he shares similarities, condemned his competition scheme. How does the design measure up to Modernism and why were the elder statesmen so critical? Why did Utzon's design provoke such extreme criticism? Was it the yoking of Romanticism to Modern architecture? In essence the criticism was about the role of Rationalism. His critics were outraged because the forms he proposed were more expressive, more sculptural than functional. But was it that simple, was something more at stake?

The design at first glance seemed to betray Functionalist expectations that its form should respond to the functional programme; that what you saw, the driving idea, instead of being an efficient machine for the performing arts, was merely an intriguing piece of monumental sculpture. The strength of the symbolic component seemed to override its expression of function and the activities inside it. The roofs were meant to transmit an emotional message about the spaces they covered. Their fantastic shapes even had covert sexual overtones that went much farther than the building's use as a performing arts centre for opera, theatre and ballet. This was recognized by the public as well as by critics at the time, who interpreted the roofs as connecting the building to its harbour setting by evoking unconscious memories of water and sailing boats, sails, hats. Even turtles copulating! It was this expressive component that particularly irked mainstream Modernists.

At a technical level, the Opera House conception made the most of cutting edge shell concrete,³² folded pre-stressed concrete beams technology, prefabrication and standardization, plywood acoustic shells within the interiors, stage lift machinery in place of side wings to the stages. All of which was deployed within a Romantic framework. In terms of technology, it was Modern but the shape was Romantic in its expressiveness and, for this reason, we are justified in calling Utzon's conception both Romantic and Modern in the same breath. Utzon's conception was essentially different from the customary strain of Modernism to the extent that it mixed rational functionalism associated with Modern architecture, with Romantic Expressionism that was discarded by the Bauhaus in 1922.

The fusion of two mutually opposed ways of thought explains the Opera House's popular appeal. Had it been a simple functional work it is doubtful whether it would have been nearly so successful. Only in Antonio Gaudi do we discover something remotely comparable, but Gaudi arose from a quite different pre-industrial milieu. Hans Scharoun³³ comes closest but Utzon and Scharoun are very far apart in other ways. Scharoun, technically, and Alvar Aalto who directly influenced Utzon, are more convincing as architects. If it is possible to point to a single mentor it is Aalto, whose landscape inspired forms are similarly, irregular, complex and expressive.

Modernism in the twentieth century, it can be claimed, has its roots in the restless energy and inventiveness of Romanticism.³⁴ For Utzon, realignment with Romanticism was not such an unlikely accident, especially when confronted by similar Scandinavian responses which softened Functionalism with an admixture of Scandinavian colour. Needless to say, tracing Romantic lineage through the highly complex vagaries of Modern art and architecture is as difficult as it is challenging. It is also rewarding, because the result in the end, is an avenue to explain the enduring emotional impact of the Sydney Opera House, which extends beyond the politics surrounding its creation.

What is the place of the Opera House in twentieth century Modernism? In a whole variety of ways it is Expressionist. The jagged roof silhouette is uniquely expressive—even idiosyncratic—yet it is also organic in the ten-fingered sense applied by Frank Lloyd Wright. But does this accurately describe Utzon's anonymous non-style? The category I favour most, that comes nearest, is Romantic—Modernism. By this I mean an architecture that is essentially Modern in its pursuit of standardization, a machine aesthetic and mass production, but which, simultaneously sought to humanize the extreme rationalism of the industrial programme embedded in Modernism by combining it with a Romantic emphasis on individual experience, poetic feeling and expression. To this, Utzon adds personal references to ancient architecture, the Maya temples of the Yucatan in the platform. Even his choice of a shell concrete roof succeeds in being both *avant garde* and Romantic. It is the simultaneous synthesis of the Romantic with the Modern that makes it such an iconic and special work in the history of Modernism, and such an exception to what was happening at that time.

Even a cursory comparison with another equally famous contemporary sculptural masterpiece—Le Corbusier's Ronchamp chapel in 1956—makes it immediately apparent that we are dealing with something iconoclastic and paradoxical that challenges the foundations of Modernist beliefs. Yet, as well as challenging, it advanced Modernism in a new direction by incorporating and honouring individual feeling, something which was rejected in 1922 with the triumph of Rationalism.

How does one explain the sudden presence of Romanticism in Utzon? Is it a Scandinavian legacy from 'National Romanticism' that was rooted in the cultural climate of the 1890s; did it arise from Romanticism in art which Utzon encountered in his contacts with such Scandinavian artist mentors as Paul Schrøder and Carl Kylberg? National Romanticism was briefer in Denmark than in Sweden, but Utzon's stay in Stockholm and his exposure to Ragnar Östberg's Stockholm Town Hall (1909-1923) was a defining experience. As an architect, Utzon was a product, not merely of his Danish training and

culture, but of a wider encounter with the Scandinavian experience. Such Northern Romanticism coincided with the need to define a uniquely national identity that lingered on and inflected Modern architecture in the north, whether in Finland or Sweden or Denmark.

Just as Romanticism reacted to the Neo-classicism that preceded it, it can be argued that Romantic Modernism is a response to the Rational Modernism of the 1920s and 1930s. Thus in place of the French Revolution³⁵, the Second World War shook up Europe just as thoroughly as the French Revolution did—possibly more so—and had similar lasting consequences in the renewal of conservatism during the 1950s.

If Utzon is accepted as a Romantic–Modernist, then the Sydney Opera House assumes a new particular historical significance as a watershed work that cracked the backbone of Modernism. But is this going too far? Is the design really that revolutionary a change of direction, or was it little more than a reassertion of something earlier on, an undercurrent waiting to surface. These are the choices.

Nationalism and Romanticism

The philosopher, Johann Gottfried Herder (1744-1803), was interested in language and considered that a people's thought and culture were accessible only through its language.³⁶ He singled out folk song for special study. Nations were like individuals and possessed a 'character' that was similar to some great plant which would gradually unfold itself through history. This 'character' possessed features that existed in embryo at the time of its origin. It was the first step on a tragic path.

The Romantics extended the idea further and held that great art was the expression of overall greatness in a nation, thus, a painter such as Albrecht Dürer faithfully represented the German character.³⁷ It was only a small step to feature architecture in the same stream of national character and greatness.

Romanticism not only championed the individual, it saw nations in similar terms as corporate entities with individual characteristics. It is not surprising, in retrospect, that Romanticism led to, or fed ideas of national identity, and that, from this architecture should later become an expressive vehicle of national identity. The Gothic revival comprised elements of nationalism in the North in England and Germany. It was only a short step for architects to adopt features from the past and elevate them so they could be read as statements or emblems signifying a distinct national personality. To some extent, this is precisely what Alvar Aalto achieved for Finland by his use of Karelian vernacular. Ever since its independence, Finland was subject to intense pressure from Russia and this intensified the search for national identity. It was within this pressure cooker that Aalto's architecture was born.

The Sydney Opera House as a work of Romantic modernism

Romanticism is elusive and difficult to define. It assumed so many different and opposed forms, but there was a common starting point in its emphasis on a new way of feeling, and its focus on the

individual and freedom. This left a lasting legacy that has since defined artistic activity and given us our image of artistic genius as a lone, misunderstood isolated individual battling against settled established taste whose recognition and triumph is delayed to after his death.

There are clear traces of Romantic ideas, practices, beliefs in Utzon's behaviour and design approach which often sat uneasily with Modernist trends. The application of such ideas to the Sydney Opera House may seem a long stretch since they trace their origins to a period more than a century-and-a-half earlier. Yet trace them we must since they explain so much about the conflicts and problems which beset Utzon and his collaborators. These Romantic affinities also help account for the popular appeal of the building over fifty years, and the persistence of Romantic myths surrounding the building and its construction. Unlikely as it may appear, at least initially, Romanticism offers a very fertile line of inquiry.

It has been remarked that Romantics later in the nineteenth century used their art not to explore life but to retreat from it. The reclusive side of Utzon to a considerable extent reflects this retreat from society.³⁸ Utzon has resisted answering urgent detailed questions on the conception of his design, the nature of his collaboration with Erik Andersson, the fate of his financial records, and why, against all the advice he received he went ahead and withdrew from the Opera House project, only to agree to return in 1998, under similar conditions to those offered him in 1966.

Romanticism, especially in poetry following publication of Goethe's novella *Die Leiden des Jungen Werthers* in 1779, did much to popularize suicide.³⁹ Both Utzon's brothers committed suicide, Erik in 1955 and Leif in 1964. This family instability may be a factor contributing to his isolation and alienation. One of the most arresting features of Utzon's life is his self-imposed isolation from society. He appears to be happiest living alone following his own interests like the early nineteenth century Romantic painters Casper David Friedrich and Joseph Mallord William Turner. He is happy in his own company. Clearly this has Romantic parallels.

Faced with difficult or intractable situations Utzon's predictable response is to withdraw; this has occurred on two important occasions, in 1966 in Sydney and 1978 in Kuwait. Each time his withdrawal proved tragic in terms of the architectural outcome and implies a certain brittleness in his personality.

While he was in Sydney, Utzon was accused of being a dreamer and this agrees, at least superficially, with the Romantic stereotype. The split of dreamer and pragmatic realist under the pressure of political events pushed Utzon into the dreamer's corner. It may be about survival but it also undermined the attempt to unite what a great admirer, Sigfried Giedion, called the greatest challenge facing the modern world, the synthesis of feeling and thinking.

Giedion was concerned by the split between thinking and feeling in the West:

In the nineteenth century the paths of science and the arts diverged; the connection between the methods of thinking and methods of feeling was broken. The mutual isolation of these two kinds

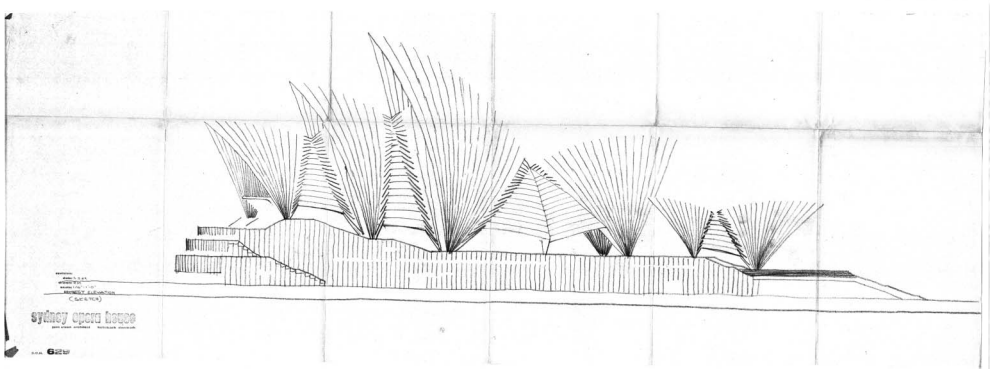


Figure 9 In December 1960, Utzon was still struggling to find a suitable structure for the Opera House roofs. In SOH 404, Yuzo Mikami showed two concrete shells separated by radial beams which rest on impossibly pointed pedestals.

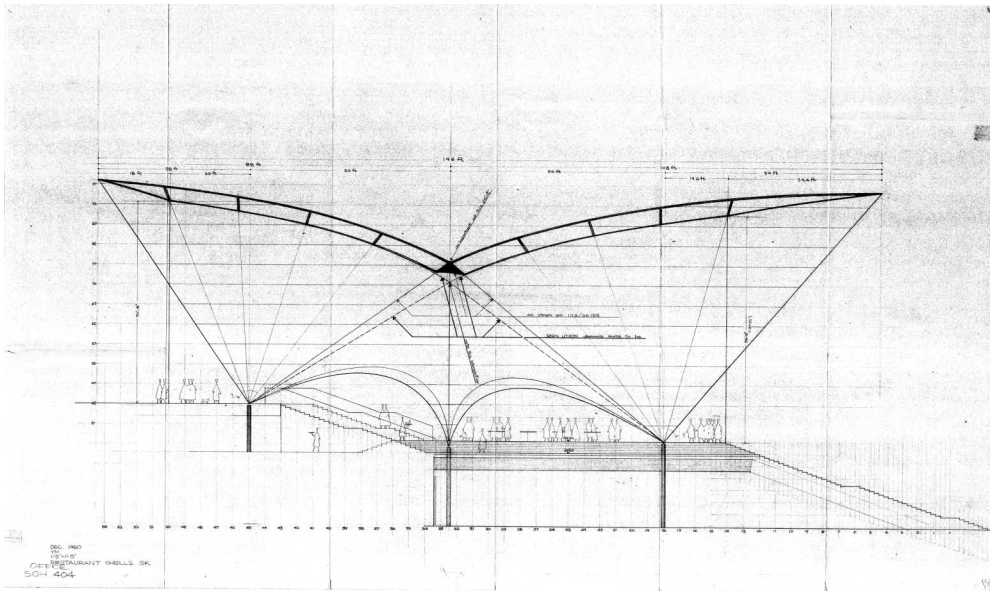


Figure 10 In SOH 629, dated March 1962, the patterning of the tiles is still at an early stage of investigation. (Mitchell Library).

of enterprise, far from being a consequence of their different natures, is a phenomenon peculiar to the nineteenth century and responsible for much about its culture that is otherwise incomprehensible.⁴⁰

Utzon would probably have agreed with Giedion when he stated that, “Construction was, as it were, the subconscious of architecture; there lay dormant in it impulses that only much later found explicit theoretical statement.”⁴¹

This was the crucial challenge confronting Utzon in working with Ove Arup (1895-1988), not only did the pair need to find construction solutions they also needed to ensure these solutions were aligned with Utzon’s aesthetic aims.

Modernism arose in the face of a great challenge to ensure that scientific and technological advances were not used in architecture without being absorbed by it. Success depended on the degree to which the engineer no longer remained subordinate to, and detached from, the architect. Both were to work together. This had been the lifelong professional goal Ove Arup set himself and it was his belief that this was indeed possible that motivated his work with Utzon throughout the Sydney Opera House.

The engineer and the architect

At the start of their collaboration, Utzon made a determined effort to assimilate what his engineer offered in the way of insight into the implications of the new advanced methods of concrete. In turn, Arup praised Utzon as an “agile and quick learner.” But at some point after his arrival in Sydney, early in 1965, Utzon concluded that Arup was his enemy. This has been explained in some quarters as being caused by the Sydney office of Arups. Its senior members formed a South African alliance, and this development was concealed from Arup in London who was unaware of what Utzon was faced with. The result, whichever way it is explained, is that Utzon was left feeling remote and isolated from his local team of engineers. Whether this is true or not, the falling out between the engineer and architect at a crucial stage was real and led to dire aesthetic, architectural and political consequences.

Once he realized what was at stake and the extreme danger it presented, Ove Arup did everything in his power to reconcile with Utzon and avert the crisis, but to no avail.⁴² To Arup (23 years Utzon’s senior), the rupture of their relationship represented much more than a professionally falling out: both were Danes and proudly so. Arup had come to think of Utzon as a son. He felt a deep emotional connection with the architect; the project and the two men’s personalities were inextricably intertwined. Arup’s lifetime professional objective had been to heal the rift between engineer and architect, between thinking and feeling.⁴³ Arup accepted, much as did Giedion, the need to heal the fundamental cultural malaise caused by the division between thinking and feeling which had arisen in the West since the end of the eighteenth century. More was at stake besides the successful completion of the Opera House. Failure for Arup, spelled not just a local disaster, but symbolized a much wider defeat—the continuing schism between art and science. For Arup, his rupture with Utzon was a great professional as well as personal defeat.

In retrospect, and with a more thorough understanding of Utzon’s deficiencies, the outcome has to be seen as, to some extent, inevitable. Utzon lacked the mathematical skills required to comprehend and solve the problem of building the shell concrete roofs, moreover, his cultural interests, variety of

scientific and artistic contacts, were much more limited than Arup's. It is easy to see, with hindsight, why Utzon failed to deal with the limits of the new shell technology, and hence, bring his dream forms down to structural reality. Imagining the impossible is one thing, but building it quite another. We tend to forget that at the time of Utzon's departure from the Opera House, most of what the public could see was not the work of Utzon but was accomplished by the engineering team led by Ove Arup. This must have added greatly to the tension between the two men. That it did affect Utzon dramatically revealed by Utzon's furious instruction to redraw Yuzo Mikami's excellent roof tile-lid layout.

Utzon's main contribution was as aesthetic controller, but even there he proved indecisive. His perfectionism often disguised indecisiveness. In the real world decisions have to be made and cannot put off. Underlying it all was Utzon's inability to quantify precisely the geometry required to build the roof as shells, and, by default, this became the responsibility of the engineer. His inability to deal with the construction issues pushed him further into the corner where his responsibility was limited to aesthetics. Had he truly believed he had solved the technical issues he would not have abandoned the project! This responsibility always remained in the hands of his engineer.

No one should underestimate the difficulty of balancing the competing demands of aesthetics, expression and construction. Utzon attempted to do so, to combine aspects of Romanticism with the most enlightened and humane features of Modern architecture, but with limited success. This is nothing to be ashamed of. It has defeated Western society since the Enlightenment era, and today, clouds our present day failure to unite the disparate threads. The gap in the meantime has widened as technology races ahead at an astonishing rate, thereby reducing of our capacity to assimilate its consequences. In retrospect, the Sydney Opera House confirmed the split between engineer and the architect which remains with us today.

Instead of narrowing the two-century old split between reason and feeling, the gap has widened; nowadays architects reduce their architecture to mere sculptures, the forms used are structurally tortured and the opposite of rational efficient construction that pursue weird geometries. Anything to increase the shock effect and brand value of the architecture.

The enduring popularity of the Opera House has diverted attention away from its synthetic failure. The structural absurdity of many Frank Gehry's buildings with their contorted structure hidden out of sight beneath shiny titanium is a tribute to what computers have made feasible, not a stamp of architectural maturity. Gehry makes no effort to ensure that art and structure converge.⁴⁴

Frank Gehry's works are unabashed sculptures whose success is measured not in terms of any rational criteria, but in the branding and free publicity that it provides.⁴⁵ Architecture has become advertising—an extension of Robert Venturi's billboard metaphor in the round writ large. Their extravagant arbitrariness is not an accident, it is deliberate, a tool calculated to turn our heads and catch our attention momentarily. The failure of architecture to heal the rift between architect and engineer is no longer important or even noticed. Little has been learned. Architects revel in their newfound celebrity status and worry about the next fashion wave to come.



Figure 11 Frank Gehry's Guggenheim Museum Bilbao, Spain, 1997, is an unabashed sculpture that ignored structure in a mad pursuit of formal novelty. (PD 16 319).



Figure 12 The incongruous addition of the Western Loggia to the Sydney Opera House, 2006, by Richard Johnson (Johnson Pilton Walker) in association with Jørn and Jan Utzon in 2006, ignored the Design Guidelines established earlier by Utzon. (PD 18 174).

Attitudes change: structures which were once considered as 'iconic' cease to be so, or are only 'iconic' for certain audiences. It is possible that the Sydney Opera House will cease to be iconic in the future. Until now, public pride has largely protected it from harsh criticism of the manifest functional deficiencies in its interior, especially in the light of several earlier unsuccessful attempts at World Heritage listing by UNESCO. Recent changes, in particular the incongruous addition of a Western Loggia-cum-restaurant is hard to justify, in so far as it ignores the geometry and paradoxical essence of the built form.

Myths release us from the need to think. This is also true of the Sydney Opera House.

First it was Utzon's supporters, but they have now been joined by others with vested interests, notably the Sydney Opera House Trust since 1998, which has used the association of Utzon's name as a shield against further criticism of its changes to the building. The Romantic baggage attached to Utzon and the Opera House obstructs attempts to write a factual account of its history, which would be more fascinating than the myth because it is true.

It is unlikely that the primacy of the Opera House will be challenged in the near future. There is only one Sydney Opera House. No other building is likely to occupy so central a site at the front of the CBD surrounded by Sydney Harbour. For three decades Melbourne has attempted unsuccessfully to raise a monument of similar potency. At some stage, the shortcomings of the Opera House will have to be addressed and a more realistic appraisal developed to replace the present Romantic mythology that currently clouds it, so its faults can be corrected so it functions well as a performing arts facility in the 21st century. A new objectivity is called for based on sound historical research. Understanding the distorting role played by Romanticism will be a part of this. Rather than being less interesting, there is every likelihood that the true factual story will be more interesting than the myth.

Endnotes

- 1 David Blayney Brown, *Romanticism*, London: Phaidon, 2001, pp. 9-10.
- 2 Jørn Utzon, *Zodiac 14* (June 1965): p. 49.
- 3 David Brown, *Romanticism*, p. 16.
- 4 William Vaughan, *Romanticism and Art*, World of Art, London: Thames & Hudson, 1994, p. 11.
- 5 Vaughan, *Romanticism and Art*, p. 267.
- 6 George Molnar (1910-1998) was involved in two schemes, the first in association with Stephenson and Turner, and one he submitted himself which he construed as a Manly ferry.
- 7 Vaughan, *Romanticism and Art*, p. 216.
- 8 Hugh Honour, *Romanticism*, London: Allen Lane, 1981.
- 9 Vaughan, *Romanticism and Art*, p. 143.
- 10 Vaughan, *Romanticism and Art*, p. 184.

- 11 D'Arcy Wentworth Thompson, *On Growth and Form*, an abridged edition by John Tyler Bonner, 3rd ed., Cambridge: Cambridge University Press, 1961.
- 12 Christian Norberg-Schulz, *Arne Korsmo*, Oslo: Universitetsforlaget, 1986. Read in particular the introduction by Utzon dated April, 1985, on pp. 8-9.
- 13 Jørn Utzon, "Additiv arkitektur," *Særtryk ARKITEKTUR*, 1 (January 1970): pp. 1-48.
- 14 *Zodiac* 14 (1965).
- 15 Vaughan, *Romanticism in Art*, p. 246.
- 16 Stanley Sadie with Alison Latham (ed.), *The Cambridge Music Guide*, Cambridge: Cambridge University Press, 1985, pp. 281-365.
- 17 Vaughan, *Romanticism and Art*, p. 267.
- 18 Honour, *Romanticism*, p. 119, and Ted Honderich, *The Oxford Companion to Philosophy*, Oxford, UK: Oxford University Press, pp. 800-801.
- 19 David Blayney Brown, *Romanticism*, London: Phaidon Press, 2001, p. 422.
- 20 *Zodiac* 14.
- 21 Le Corbusier, *Towards a New Architecture*, translated by Frederick Etchells, London: The Architectural Press, 1970.
- 22 E. Baldwin Smith, *The Dome: A study in the History of Ideas*, Princeton, NJ: Princeton University Press, 1971, pp. 8-9. Smith observed that "The hemispherical shape, which is today so commonly associated with the dome, undoubtedly acquired its geometric curve largely from the theoretical interests of the Greek mathematician's and the practical considerations of Roman mechanics." Utzon's reversion to a spherical surface for his shells, and his rejection of Ronald Jenkins' pursuit of elliptical and parabolic profiles, can only be interpreted as a return to the older Greek geometry which had little relevance to modern structural solutions but was of great significance symbolically.
- 23 Vaughan, *Romanticism and Art*, pp. 100, 121.
- 24 Victor Hugo, *Notre-Dame of Paris*, translated by John Sturbock, Harmondsworth, Middlesex: Penguin Books, 1978. The Introduction, pp. 7-24, is of special interest in drawing attention to the fact that Victor Hugo was the first French writer to campaign in favour of the Gothic: "Hugo redeems it not simply with his applause and the attention he pays to its visible merits, but also presents it with the Romantic spirit of the age...", p. 17.
- 25 Honderich, *The Oxford Companion to Philosophy*, p. 780.
- 26 Jørn Utzon, "Platforms and Plateaus: Ideas of a Danish Architect," in *Zodiac* 10 (1959): pp. 112-117.
- 27 Brown, *Romanticism*, p. 410.
- 28 Rupert Christiansen, *Romantic Affinities: portraits from an age 1780-1830*, London: Pimlico.
- 29 Philip Drew, *Third Generation: the changing meaning of architecture*, New York: Praeger Publishers, 1972, pp. 44-57.
- 30 Vaughan, *Romanticism and Art*, p. 280.
- 31 Ulrich Conrads and Hans-G. Sperlich, "Phantastische Architektur: Unterströmungen in der Architektur des 20. Jahrhunderts," *Zodiac* 5 (1955): pp. 116-147, notably, fig. 4, p.121 (Herman Finsterlin, Formstudien). Also, Herman Finsterlin, *Erotische Miniaturen: Verwandlungen des Zeus*, Stuttgart: Conterra Verlag, 1970.

- 32 Shell concrete was all the rage in the 1950s because it was so sculptural and at the same time, structurally 'pure', but its popularity plunged dramatically in the 1960s in the wake of the problems with the roofs of the Sydney Opera House and has been neglected since then.
- 33 Margit Staber, "Hans Scharoun: Ein Beitrag zum Organische Bauen [A contribution to organic building]," *Zodiac 10* (1959): pp. 52-93.
- 34 Brown, *Romanticism*, p. 409.
- 35 Brown, *Romanticism*, p. 412.
- 36 Vaughan, *Romanticism and Art*, p. 107.
- 37 Vaughan, *Romanticism and Art*, p. 107.
- 38 Brown, *Romanticism*, p. 412.
- 39 Christiansen, *Romantic Affinities*, p. 55-6, 81-3.
- 40 Sigfried Giedion, *Space, Time and Architecture: the growth of a new tradition*, 5th ed., Cambridge, Mass: Harvard University Press, 1966, p. 182.
- 41 Giedion, *Time, Space and Architecture*, p. 183.
- 42 Peter Jones, *Ove Arup: masterbuilder of the twentieth century*, London: Yale University Press, 2006, pp. 228-230.
- 43 Jones, *Ove Arup*, p. 244-247.
- 44 Joan Sabaté, "Transforma la Materia: Libertad formal y razón técnica en el Guggenheim," *Arquitectura Viva*, 55 (July/August 1997): pp. 38-47.
- 45 Anna Klingmann, *Brandscape: architecture in the experience economy*, Boston Mass: The MIT Press, 2007.