Utzon's engagement with the cultures of Japan and China is interrogated in arguments that demonstrate the inspiration he took from calligraphy and monastery design.

Jørn Utzon's synthesis of Chinese and Japanese architecture in the design for Bagsværd Church

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Abstract

After ending his tenure as principal architect of the Sydney Opera House in 1966, the Danish architect Jørn Utzon (1918-2008) embarked upon another important project in his oeuvre, the Bagsværd Church in Copenhagen (1968-76). In contrast to the Sydney Opera House, the scholarship on Utzon's Bagsværd Church is sporadic and limited, especially as it concerns the role of Utzon's perception of Chinese and Japanese culture in the church's design. By investigating *The Utzon Archives* and the Utzon family collection of the architect's work, as well as interviewing Utzon's former staff, this article explores the impacts of received ideas and ideals of Chinese and Japanese architecture upon Utzon's church design. An assessment of the design of various spaces and forms uncovers the relationships between the Bagsværd Church and Utzon's other important projects. This suggests how the Bagsværd Church reflected the development of Utzon's architectural philosophy and design principles, particularly those seen in his Sydney Opera House project and an article entitled 'Platforms and Plateaus', which he published in 1962. As such, this paper aims to expand the methodological and theoretical framework for understanding the interrelationship between Utzon's perception of East Asian architecture and its impact on his career.

Introduction

In his essay of 1983, 'Towards a Critical Regionalism', Kenneth Frampton referred to the Bagsværd Church as a primary exemplar, briefly citing the architect's representation of 'the Chinese pagoda roof' in this project, to emphasize the importance of cross-cultural inspiration in the creation of 'critical regionalism'.[12] Peter Myers followed Frampton in his 1993 'Une histoire inachevée', arguing for the significant role that Chinese architecture played as a source for Utzon's Bagsværd Church design and further variations on the theme of Chinese and Japanese exemplars on Utzon's work follows.[3] Françoise Fromonot established the importance of the 1925 edition of the *Yingzao-fashi* (*State Building Standard*, first published in 1103 AD) and Johannes Prip-Møller's 1937 *Chinese Buddhist Monasteries* for Utzon; [4] Philip Drew pointed out the significance of the work of Chinese writer Lin Yutang (1895-1976) and historian Osvald Sirén (1879-66) as important channels through which Utzon perceived East Asian art and architecture;[5] whilst in 2002, Richard Weston has suggested *Das Japanische Wohnhaus* (1935), written by Japanese architect Tetsuro Yoshida (1894-1956), as a formational influence in Utzon's early perception of Japanese building culture.[6] However, none of these works attempt to clarify the precise role that Chinese and Japanese precedents play in Utzon's architectural career. Two more recent studies, by Philip Goad and Asgaard Andersen, have confirmed the role of Chinese architecture in Utzon's church design and have introduced new evidence and details, but there are still unanswered questions about the exact nature of these influences.[7] This paper attempts to address the detailed process of Utzon's cross-cultural practices for his design of the Bagsværd Church in order to reveal how Utzon interpreted specific ideas, ideals and artifacts from East Asian building culture.

To elucidate the above unsolved issues and examine the precise role of Chinese and Japanese architecture in Utzon's design of Bagsværd Church, the authors have consulted both the *Utzon Archives* and the family collection of material from his architectural career, whilst conducting interviews with Utzon's former assistants and his son Jan Utzon. These new primary sources have allowed the authors to review Utzon's design process critically and analyse the architect's perception and representation of various ideas, ideals and artifacts of Chinese and Japanese building culture. This paper scrutinizes the varied roles played by Chinese and Japanese building culture in the formation of Utzon's architectural creations and in bringing his architectural philosophy and design principles to maturity. It contextualizes the importance of China and Japan in relation to the evolution of his architectural career in general and his design process of Bagsværd Church in particular. It is important to note that the ideas and ideals that Utzon's derived from his perception of China and Japan were dynamic and complex. Certainly, they were not fixed and unchanging, and they played diverse roles in Utzon's architectural creations, both before and after the Bagsværd Church

project. For Utzon refining his architectural philosophy and updating his design principles was a continuous process. Although East Asian building culture was 'only' one of the key inspirational sources from which Utzon developed his church design, we argue that his growing understanding of China and Japan resulted in the transition of his architectural philosophy and design principles from the Sydney Opera House project in the late 1950s to his more synthetic and sophisticated approach to design in the late 1960s with the 'Platforms and Plateaus' theme, of which his Bagsværd Church design is a vivid presentation.

Calligraphy, clouds and Nature

Various pieces of evidence suggest that the initial ideas behind the Bagsværd Church developed directly from Utzon's 'Platforms and Plateaus' theme. His retrospective sketches of the long section of the church *[1]*, showing the cloud-form roofs and spaces, was referred to by Utzon in terms of his perception of clouds and the oceanic horizon at Hawaii *[2]*.[8] This cross-reference between architectonic forms and natural scenes directly recalls key drawings published by Utzon in his 'Platforms and Plateaus' manifesto, including two sections that indicated 'Chinese houses and temples', 'a traditional Japanese house', the scene of clouds and the oceanic horizon, and two curved roof forms in the air and a roof/earthwork juxtaposition *[3]*.[9] Utzon's words in 'Platforms and Plateaus' gave further explanation of his perception of Chinese 'roof' and 'platform' and 'a delicate bridge-like platform' of the traditional Japanese house:

> *Chinese houses and temples owe much of their feeling of firmness and security to the fact that they stand on a platform with the same outline as that of the roof or sometimes even of larger size, depending upon the importance of the building. There is magic in the play between roof and platform.*
>
> *The floor in a traditional Japanese house is a delicate bridge-like platform. This Japanese platform is like a table top and you do not walk on a table top. It is a piece of furniture. The floor here attracts you as the wall does in a European house. You want to sit close to the wall in a European house, and here in Japan, you want to sit on the floor and not walk on it. All life in Japanese houses is expressed in sitting, lying or crawling movements. Contrary to the Mexican rock-like feeling of the platform, here you have a feeling similar to the one you have when standing on a small wooden bridge, dimensioned to take just your weight and nothing more. A refined addition to the expression of the platform in the Japanese house is the horizontal emphasis provided by the movements of the sliding doors and screens, and the black pattern made by the edges of the floor mats accentuate the surface.*
>
> *An almost violent, but highly effective and wonderful contrast to this calm, linear,*

> *natural coloured architecture is created by the Japanese women moving noiselessly around like exotic butterflies in their gaily coloured silk kimonos.*[10]

It is clear that the play between the 'roof and platform' of classical Chinese monuments, and 'the horizontal emphasis' of space inside the traditional Japanese house, both indicated by Utzon's drawings and texts, made a strong impression upon the architect. Similar features can be detected in his retrospective sketches of the Bagsværd Church: the section shows the church's roof/earthwork juxtaposition shaping the horizontal extension of interior spaces towards its inner courtyards *[1]*. Questions can be asked of both Utzon's 'Platforms and Plateaus' manifesto and his Bagsværd Church design: - why did the architect see the expressive roof forms as the initial element for his design, and why did he refer to the roof forms as 'clouds' and then further represent them in expressive strokes of charcoal? This can be partially explained through Utzon's study of Chinese art and architecture in the early 1940s.[11]

Mit Land Og Mit Folk (1938), the Danish version of *My Country and My People* (1935), written by Lin Yutang (young Utzon's beloved Chinese writer), was important in Utzon's study of China.[12] In this work, Lin Yutang conceptualized Chinese calligraphy as 'a study of form and rhythm in abstract', the essence of Chinese art and architecture, as well as the core of Chinese culture.[13] To Lin Yutang, the irregularity and expressivity of Chinese calligraphic strokes reflected how Chinese artists were searching for and representing the organic forms and phenomena of nature, both of which expressed 'the animistic principle or rhythmic vitality'.[14] According to Lin Yutang, this important aesthetic principle of the Chinese art of writing contributed to the development of the curved roof outline, typical of Chinese architecture. Consequently, Chinese architecture can be seen as closely related to writing culture and Chinese perceptions of animate nature *[4]*.[15]

For Lin Yutang, as a synthesis of cultural and natural forms, both Chinese calligraphy and Chinese architecture served as an exemplary counterpoint to modern art and architecture, which he disliked and considered inhumane because of what he saw as their geometric rigidity.[16] More specifically, Lin Yutang condemned modern architecture for its lack of a proper expression of 'roof', an important element that he thought could transform the 'cruel' modern buildings into adored 'houses' and 'homes'.[17] Lin Yutang believed that the guiding principle of 'utility' had resulted in problems for modern architecture**,** which had itself been created without concern for human beings' psychological needs.[18] He thought that artists and architects should revitalize what he saw as inhumane modern art and architecture.[19] To this point, he argued that Chinese calligraphy was not only the essential component of Chinese tradition but also the exemplification of 'universal art' and an 'art of freedom', and could thus serve as a model for both Chinese and non-Chinese in perceiving and further

interpreting organic forms and natural scenes as an inspiration towards creating their personal artistic styles and architectonic forms.[20]

Lin Yutang's words encouraged Utzon to draw articulated calligraphic strokes with charcoal to indicate the essence of his Bagsværd Church design: its roof forms *[1]*. It seems that this parallel between roof forms and calligraphic strokes did not come accidentally. Before Utzon's church design, he had already paid special attention to designing roof forms by exploring the beauty of calligraphy. For example, Utzon's initial sketch of the Sydney Opera House suggested that its early proposed roof shells were developed from vibrant strokes of charcoal *[5]*. Utzon saw this sketch as both the aesthetic inspiration and confirmation for his creation of the Opera House. He published it repeatedly. Later, in Utzon's revised Opera House design, published as the 1958 *Sydney National Opera House* (*The Red Book*), the section of the side shell of the Opera House directly recalled the shape of Chinese calligraphic stokes *[6]*. Meanwhile, Utzon's early proposed pointed-arch Opera House roofs developed through hyperbolic geometry represented Lin Yutang's analogy between the Chinese arched bridge with hyperbolic shapes and the Chinese roof outline, an example of nature's 'dynamic principle of movement' seen in Chinese building culture.[21]

In Utzon's 1965 'Sydney Opera House' in *Zodiac 14*, an important publication showing the progress of the design scheme and roof construction for the Opera House, the architect delivered his famous phrase emphasizing the Opera House roof as being 'the fifth façade'.[22] Utzon's design intention answered Lin Yutang's criticism of modern architecture's rejection of expressive roof form – a result of its preoccupation with 'utility'.[23] Utzon revealed similar intentions in his Melli Bank design at Tehran (1959-60). In Keld Helmer-Petersen's 1959 article, entitled 'A New Personality: Jørn Utzon', he records Utzon presenting the calligraphic work of the bank's name in Persian as his aesthetic inspiration for creating the bank's suspended roof beams *[7]*. It could be argued that Lin Yutang's liberal interpretation of Chinese calligraphy not only helped Utzon with perceiving the subject as the idea for architectural creation but also encouraged him to represent Persian writing forms as a way of shaping his expressive bank roofs at Tehran.

Lin Yutang's ideas can also be observed in Utzon's second stage design for the Sydney Opera House, especially its interior. In the 1960s photograph taken by Arne Magnussen, Utzon is shown presenting the study model of the plywood box beam scheme of the Minor Hall acoustic ceilings and walls, together with an enlarged photograph of Chinese calligraphy *[8]*. The dynamic forms of Chinese calligraphy provided the impulse for Utzon to create a series of plywood elements with identical curved patterns for organizing the organic and lively whole *[9]*. Lin Yutang's emphasis on the importance of nature's 'animistic principle or

rhythmic vitality' in Chinese art and architecture can be paralleled in Utzon's analogy between his proposed acoustic ceilings and walls at Sydney and the formation of winds and waves. As Utzon explained *[10]*:

> *The invisible wind works up the water forming the surface into waves, varying winds – varying waves, but always of the same character.*
>
> *The character, the style, has developed from a series of shapes in combination, all with the characteristic of water, waves – waves within waves – the water that breaks, foams, etc.*[24]

Although the cloud-like plywood-box-beam scheme of Utzon's Opera House was never realized, its geometric principle became the precedent for the cloud-like shell roof of the Bagsværd Church *[11]*. This analogy between the Bagsværd roof shells and Utzon's perception of 'clouds' closely reflected Lin Yutang's conceptualization of the role of nature in the psyche of Chinese artists. For Lin Yutang, Chinese calligraphy, like Chinese architecture, painting and literature, is a medium for artists - individualists possessing a higher morality and expressing the 'grandeur' and 'myriad forms' of nature with which they always felt intimate.[25] For Lin Yutang, there were two reasons for Chinese artists always being intimate with nature: one was due to a search for 'moral elevation' with their antipathy to urban culture; and the other was that nature could chasten an artist's spirit that had been exhausted by city life.[26] These ideas of Lin Yutang were similar to Utzon's design inspiration for the Bagsværd Church, received from his experiences of the beach at Hawaii and soon after his unfortunate forced departure from his position as principal architect for the Sydney Opera House. As Utzon explained:

> *The inspiration for the form and the architecture came from a wonderful visit, not once, but several times, to a vast sandy beach on one of the Hawaiian islands Oahu, on the windward side, where the trade wind ceaselessly comes from California many thousands of meters above the sea, like a completely steady breeze, and from early morning it increases in strength until 11 o'clock so that you can lean against it – otherwise you simply don't know the peace that wind gives – and sometimes it brings some clouds with it, and then the light and the sun fall through the clouds down on to the sand.*
>
> *It's wonderful. It's a natural space that gives a profound spiritual peace, and spiritual peace is just what this is. It's the happiness in living, it's the joy and the gratitude.*[27]

According to Utzon's sketches, the architect intended to share the perceived natural phenomena in Oahu beach with people entering his church *[2]*. His design intention can be seen to parallel Lin Yutang's humanistic conceptualization of the ultimate purpose of Chinese

art and architectural practices, which was, to bring nature back to those had been constrained in their urban habitats.[28] This suggests that the Bagsværd Church was Utzon's spiritualization of perceived natural phenomena: a sacred place set in an urban environment for people to approach a metaphorical and healing nature. Utzon also proposed patterns of fish and birds next to the cross in his early study of the church's altar screen, further emphasizing natural phenomena within a Christian setting as well as alluding to traditional Christian symbols *[12]*.

Chinese and Japanese architecture studied in section

Utzon represented 'Chinese houses and temples' as a monumental roof/earthwork juxtaposition without any columns in-between. This conception was based on an understanding of Chinese building culture which he arrived at largely through the study of the works of his mentor, Finish-born and Sweden-based art historian Osvald Sirén (1879-66).[29] Sirén's works emphasized the roof and podium as the two most important elements of Chinese architecture, with the columns occupying an inferior role, both in terms of visual and structural expression.[30] His books included descriptions of the Chinese roof – an expressive and flexible wooden construction system of stepped-beams that could be extended or adjusted to various situations *[13]*.[31] Sirén argued that the sectional drawing was crucial for studying the architectonics of Chinese architecture in general and its roof forms in particular.[32]

Sirén's conceptualization of Chinese roof was served as an ideological foundation for Utzon studying the subject through his 1925-edition of *Yingzao fashi* (*State Building Standard*, first published in 1103 AD), a book that Utzon had acquired during his 1958 trip to China.[33] The twenty-two sectional drawings of varied building types in the 1925 edition of *Yingzao fashi* formed its largest chapter and indicated how flexibility of roof form and interior space could be achieved by adding representative roof elements, such as beams, purlins, rafters and bracket units, and simultaneously reducing the number and the height of columns *[14]*.[34] By studying Sirén's work and the *Yingzao fashi*, the initial ideas of Utzon's Bagsværd Church design were developed by organizing and articulating a series of representative roof forms, each with their own architectonic expressivity and flexibility *[1]***.** This further explains why Utzon intended to reduce all columns in the church's major rooms to a minimum *[15]***.**

A similar design intention can be seen in Utzon's Melli Bank project and the early design for his own house at Bayview (1963-65), New South Wales, north of Sydney *[7, 16]*. Utzon's surviving sketches of the Bayview House show clearly the analogy between the Chinese stepped beam roof frame and the house's proposed prefabricated U-shaped plywood-sheet-bent beams clad with aluminum – the prototype of the acoustic ceiling of the experimental

theatre at the Sydney Opera House *[17]*. In both cases, the roof beams had large spans and the animated roof shapes were composed by differing heights of roof beams. Arguably, based on the analogy of roof forms and their compositions, the basic concept of Utzon's Bagsværd Church roof system is directly derived from his unrealized Bayview house design, while the curved shape at Bagsværd was more related to his proposal of plywood box beams for the acoustic ceilings of the Sydney Opera House *[*9, 11*]*. According to surviving archival materials, Utzon was developing this plywood experimental structure for the roof form of a new housing prototype in the mid-1960s *[*18*]*. Unfortunately, when Utzon left Sydney in 1966, he was denied the opportunity to assess the Australian bent sheet-plywood product. This resulted in Utzon transforming the curved form of the plywood elements into a shell structure formed by in-situ sprayed concrete at Bagsværd, a move that recalled his early proposal for the Sydney Opera House shell roofs *[*6, 15, 19*]*.

Despite the analogy between the roof forms of Chinese architecture and the Bagsværd Church, the church's architectonic formation of floor and wall was more related to Utzon's perception of Japanese architecture. Utzon's had studied Japanese houses and gardens from the 1940s. He visited the Japanese tea house and garden, *Zui-Ki-Tei* [*Home of the auspicious light*] at the Museum of Anthropology at Stockholm in 1942 and this stimulated his early interest in Japanese building culture.[35] In addition, the travel writing, *Den Gyllene paviljongen, minnen och studier fraån Japan* [*The Golden Pavilion, Memories and Studies from Japan*] (1919) by Sirén and *Das Japanische Wohnhaus* (1935) by Japanese architect Tetsuro Yoshida (1894-1956) provided Utzon with a means to closely study the symbiosis of Japanese houses and gardens, inspiring Utzon's subsequent study trips to Japan in 1957 and in the early 1960s.[36]

Yoshida's drawing of a Japanese house was the most authentic precedent for Utzon's sketch of 'a traditional Japanese house' in 'Platforms and Plateaus' *[*3, 20*]*. Both illustrations stressed 'a horizontal emphasis' of the Japanese house by indicating its raised wooden floor with large horizontal sliding doors and windows. In *Das Japanische Wohnhaus*, Yoshida conceptualized the symbiosis between architecture and landscape, especially represented by the numerous illustrations of Katsura Imperial Villa and Japanese houses.[37] Inspired by Yoshida's work, Utzon visited Katsura Imperial Villa and Japanese gardens in the early 1960s and was stimulated by its complex of various structures and its carefully orchestrated landscape surroundings.[38] This encouraged Utzon to pursue an intimacy between building and landscape in his Bagsværd Church by articulating large openings with wooden fenestration facing the inner courts *[*15, 21*]*. Moreover, the echo of restraint, evinced by Japanese houses and gardens and especially encapsulated in Yoshida's emphasis on the refined aesthetics of vernacular forms and tea houses, can be found in the details of Utzon's unpainted furniture, timber doors, door frames and window mullions at Bagsværd.

The German scholar Heinrich Engel's 1964 book *The Japanese House: A Tradition for Contemporary Architecture* was an extended study of Yoshida's *Das Japanische Wohnhaus* and left a strong impression on Utzon.[39] Both Yoshida and Engel portrayed the Japanese house as a total design embodied through standardized and modularized timber frame elements, especially seen in the arrangement and constitution of floor patterns and columns *[22]*. Similar characteristics were represented in Utzon's design of the Bagsværd Church in which its ground floor was composed by standardized concrete planks, columns and panels with a grid system *[23]*.

Utzon's Bagsværd Church was not the first time the architect had applied pre-fabricated concrete elements in his creation. His 1953 Middelboe House at Holte, Denmark, was his first realized project constructed mainly with pre-fabricated concrete elements. Its post and beam construction with an elevated floor was directly inspired by his reading of Yoshida's *Das Japanische Wohnhaus*.[40] Later, in Utzon's design at Bayview, the house was to have prefabricated concrete load-bearing wall elements. However, before being forced to leave Sydney, his experiment with pre-cast concrete elements was not successful. Utzon was forced to abandon the earlier scheme and replace it with a frame-panel system that had in-situ concrete columns and horizontally laid precast concrete planks *[24]*. This new system represented his understanding and reinterpretation of columns and cladding elements seen in Japanese vernacular tradition as documented in Yoshida and Engel's work. This further informed the eventual design for the Bagsværd Church, which gradually became a combination of Japanese-inspired precast concrete elements defined by a grid system to form a floor and a Chinese-inspired curved in-situ concrete shell shaped by a series of cylinders to form a roof.

The dualistic built forms

The roof/earthwork juxtaposition of Utzon's Bagsværd Church was closely aligned with his concept for the Sydney Opera House *[25]*. For Utzon, the juxtaposition of the Opera House roof forms and urban-scale podium presented his idea of 'counterpoint':

> *Counterpoint between the plateau and the roof is strong: the heavy mass of the plateau and the light sculptural roof.*
>
> *The difference in character of the two components forming the building, the massive and imposing base, and the light and graceful shells on top of it.*[41]

Utzon's idea of 'counterpoint' at Sydney indicated his intention for embracing dualism. He designed the exterior cladding to emphasize the contrasting characteristics of roof and

podium:

> [*...the podium's*] *uniformity with the cladding will help to give the rock-like character desired for the base, as a contrast and anchor to the soaring roofs.*
>
> *The precast granite elements [of the podium] are needle hammered to give a slightly matt surface in contrast with the shiny roof tiles.*[42]

Utzon's dualistic design concept can be traced back to the designs of his own house in Hellebæk (1952) and the Middelboe House (1955). Utzon explained his use of loadbearing yellow brickwork for the walls and podium at Hellebæk, which contrasted with the black painted timber frame of the roof form, with reference to Chinese dualism as expressed by the juxtaposition of two distinct architectonic formations:

> *In traditional Chinese architecture, the constructions are all visible; the elements have been divided up into male, bearing, and female, borne, and this system is also carried through in the treatment of colour.* [43]

Later in the publication of his Middelboe House in 1955, Utzon again emphasized this notion of dualism:

> *The constructive elements have been stressed by strong colours: black and red together with the very distinct reinforced-concrete construction emphasizing the relation between the carrying and the carried elements.*[44]

The analogy seen in Utzon's dualistic design concept re-confirmed the importance of Sirén's writings in influencing Utzon's architecture.[45] For Sirén, Chinese architecture was a synthesis, presenting the creative forces of Yin and Yang, an idea that he explained in *The history of early Chinese art: Architecture:*

> *One may trace in their architectural activity just as well as in their pictorial and decorative arts a striving to express something of the life-impetus, the movement or the creative forces (Yin and Yang) which they found everywhere, though such endeavours are, indeed, modified by practical and constructional ideas.*[46]

In *Billeder fra Kina*, Sirén further explained Yin and Yang as two combined and contrasting elements:

> *Chinese call the positive creative principle - Yang principle. It represents light, heat, sun and all that these concepts with productive power in both spiritual and material respects. The opposite principle is Yin, which is negative, representing the darkness,*

> *earth, moon, a suspension or absorbing force, in contrast with the power of positive energy. Yang principle is symbolized by the dragon, Yin by the tiger; the colour of the former is orange, the latter is green or deep blue. When these two basic elements are brought into harmony, happiness and prosperity prevail in the Middle Kingdom and the people live in peace.*[47]

Utzon's beloved Chinese writer Lin Yutang also conceptualized Chinese architecture with similar concepts in *My Country and My People*.[48] For Lin Yutang, Chinese architecture could be seen as a synthesis of contrasting built forms. For example, the curved roof was combined and contrasted with the vertical and angular columns below. In city planning, the central axis of Imperial Beijing was in contrast with the asymmetric layout on its two sides.[49]

The concept of Chinese dualism and its exemplification in architectonic formation became one of the rationales behind Utzon's sketch of two twisted floating forms symbolizing his design concept in 1962 'Platforms and Plateaus' *[3]*. Although Utzon seemed to never deliver a clear explanation for this sketch, by implication it was aligned with his representation of 'Chinese houses and temples', as a pair of distinct forms combined and contrasting with each other. Utzon's dualistic formula can be further detected in his representation of nature in 'Platforms and Plateaus' manifesto: the clouds were set against the oceanic horizontal *[3]*. At the same time, the title of 'Platforms and Plateaus' revealed Utzon as embracing dualism in his architectural philosophy in which 'platforms' were referred to as artificial podiums; and 'plateaus' as natural highlands: he perceived his work as the synthesis of apparent antitheses - nature and culture.

Utzon's roof/earthwork juxtaposition at Bagsværd can be argued to represent both Sirén and Lin Yutang's ideas, as well as his dualism encapsulated in 'Platforms and Plateaus' theme *[11, 15]*. This important dualistic concept also appears to have nurtured Utzon's aesthetic principle of articulating the spaces inside his Bagsværd Church. The bilaterally symmetrical building footprint enfolded an asymmetric interior spatial arrangement whilst, in the major rooms, the roof shells symbolically represents clouds and the side corridors (all glazed) were literally without roofs, allowing people to see the sky. From the perspective of architectonic details, at Bagsværd the rough patterns of the timber formwork of the white painted roof shells were in deliberate contrast to the smooth surface of precast concrete elements that constituted the unpainted wall and frame elements *[19]*.

The hierarchy of spaces and built forms

Following the Chinese-inspired dualistic design principle, Utzon not only divided his Opera House forms into the roof and podium but he also shaped its interior with two distinct zones:

> *In the Sydney Opera House scheme, the idea has been to let the platform cut through like a knife and separate primary and secondary functions completely. On top of the platform the spectators receive the completed work of art and beneath the platform every preparation for it takes place.*[50]

However, in reality, Utzon's ideas of 'cutting' his Opera House into upper 'primary' and lower 'secondary' zone seemed to not perform perfectly for many reasons. By dividing the 'primary' and 'secondary' spaces in this way, the connection between the two zones relied largely upon the facility's service cores. In particular, since the two side-by-side Main Halls of Utzon's Opera House were designed without side stages due to the narrowness of the site at Bennelong Point, it was necessary to create the special stage machinery for facilitating the performances *[25]*. This added special challenges to designing the two Main Halls and elevated building costs. Meanwhile, the extruding monolithic volumes of two stage towers – 'secondary' spaces - standing on top of the Opera House platform – 'primary' zone – appeared to blur the principle of Utzon's functional dichotomy. Some may further question why Utzon proposed the experimental theatre inside the Opera House podium - the 'secondary' zone. This too seemed to be against his stated design principles.

Indeed, similar circumstances were detected in Utzon's 'Platforms and Plateaus' projects proposed in the late 1950s and early 1960s. Many of these projects were shaped with an approximately square layout and a central court, as seen as the competition proposal for the Market in Elineberg (1960), the High School in Højstrup, Elsinore (1958-1962) and the World Exhibition at Copenhagen (1959) *[26]*. Utzon appeared to have sensed the difficulties in accommodating specific programs and functions required in these institutional projects whilst articulating a pure dualist arrangement, set between roof and podium. For example, in the case of the High School in Højstrup, the tall angular residential tower was not incorporated within the expressive roof/earthwork juxtaposition. Meanwhile, on the podium at Højstrup, it was difficult for Utzon to formulate a coherent structural system of roof forms that embraced the main auditorium, galleries and classrooms. In the case of the World Exhibition at Copenhagen, difficulties seen in his design for Sydney Opera House also appear: the 'primary' theatres on top of the podium were literally open to their outdoor surroundings, and one side of the 'secondary' zone within the podium was totally without any opening. Moreover, it would have been impractical for Utzon to arrange all auditoriums on one side of his podium and all atriums on the other in order to fully satisfy his dualistic aesthetics.

From multiple perspectives, Utzon's design for the Melli Bank (1958) presented an important

transformation of his dualistic design principle and became a key precedent for the Bagsværd Church *[27]*. With the two side walls shaping a narrow front and a long depth, the ground floor of the bank design presented a hierarchical spatial transition from inside to outside, and from the 'primary' domain in the front, to the 'secondary' zone in the back. With the suspended roof beams above and grand staircases below, the bank's ground floor directly recalled Utzon's sketch of people ascending and descending between a roof/earthwork juxtaposition that was intrinsic to his theme of 'Platforms and Plateaus' *[28, 3]*, as well as his sketches of people descending to the oceanic horizon 'inside' his Bagsværd Church *[2]*.

Utzon's continuous study of the building complexes of Chinese 'houses and temples' served as one of the important inspirational sources for making his dualistic organization of spaces and forms sophisticated and hierarchical. The plan of the Supreme Harmony Hall, the front hall of the three large halls at the centre of Forbidden City of Imperial Beijing which Utzon studied during his 1958 trip to China, served as a geometric principle for the design of the ground floor of the Melli Bank *[29]*.[51] The Hall's two side galleries further inspired Utzon to shape the bank's 'secondary' zones with a similar formation by allocating its 'primary' space at the centre *[27]*. Moreover, Utzon's articulated spatial transition at Melli was aligned with his onsite experiences of the court of the 'Three Large Halls' in Imperial Beijing, as well as other monumental building complexes in China.[52] These building complexes are shaped by side galleries and have narrow fronts and long depths. They are organized around a ceremonial central axis and have a passage that interconnects with a series of hierarchical monumental roof/earthwork juxtapositions, defining the large public domain at the front and centre and a small private area at the back and two sides *[29]*. Such spatial and organizational devices characteristic of monumental Chinese building complexes, were represented in Utzon's designs for the Zurich Theatre (1964-70), the Madrid Opera House (1964) and the Wolfsburg Theatre (1965) *[30]*.

In the designs of these three theatre projects, Utzon created a series of interconnected courts, atriums and grand staircases located on a central axis leading towards the main auditorium. These 'primary' spaces were surrounded by 'secondary' rooms, such as side galleries and backstage areas, and all were shaped within a complex that had a narrow front and a long depth. This simple planning logic made Utzon's three theatre buildings capable of receiving mass audiences within the 'primary' domain at the front, whilst the preparatory work for the performance was accommodated in the 'secondary' areas at the back. Between the 'primary' and 'secondary' area of each building complex, there was a hierarchical spatial transition shaped by a series of Utzon's representative roof forms above a monolithic earthwork. The stage inside the main auditorium was the culmination of the whole spatial transition. Comparing this with Utzon's Sydney Opera House design, one of the most significant

changes detected was that the architect rotated the orientation of the main auditoria and placed their backstage areas at the back of the building complex. This allowed visitors to easily approach the main theatres without turning their approaching orientation and passing by the stage towers. Meanwhile, the staff and performers were provided with a sufficient 'secondary' zone behind the stage.

Importantly, these three theatre projects presented the evolution of Utzon's design principle: the distinct roof/earthwork juxtaposition has been gradually transformed into one single system coordinating the whole building with representative components. In this case, the Wolfsburg project presented a clear modularity and composition principle for producing the standardized elements both for its roof and podium. Despite the fact that none of Utzon's theatre projects were realized, his Bagsværd Church was the synthetic conclusion of these early designs. The main church at Bagsværd was symbolically a 'theatre', and its altar was the 'stage' with a series of 'secondary' rooms behind *[*15*]*.

The architectural idioms of Chinese Buddhist Monasteries

In 1958, one year after his visit to Japan, Utzon entered Chinato embark on a two-month study trip. He stopped in Hong Kong on his way back to Denmark, where he bought two copies of Danish missionary architect Johannes Prip-Møller's 1937 *Chinese Buddhist Monasteries*.[53] This book provided insights into Chinese Buddhism and documented buildings and monastic life in southern China. Utzon had visited and studied some of the documented monasteries during his trip.[54] These circumstances allowed Utzon to develop a deep understanding of the religious formula of Chinese Buddhism which also served as an underlying theme to his Bagsværd Church design. Today, a few sketches of Utzon's church design for Bagsværd still survive in his copy of *Chinese Buddhist Monasteries.*

Arguably, the *Feng shui* principle of Buddhist monasteries in southern China was followed by Utzon: the church's main entrance and front court were carefully manipulated to face a small existing pond in a nearby neighborhood. Rhetorically, the Bagsværd Church was set on a waterfront and with a picturesque site, like *Ch'i Yuan Ssu* 祇园寺 [Zhiyuan Monastery] represented by Prip-Møller's photograph *[*31*]*. Utzon planted birch tree and grass to surround his church with a view to reinforcing its isolation and sacredness against the site's urban setting. This resonated with the phenomena of Buddhist monasteries located at their remote sites and as represented in Prip-Møller's photographs.

The plan of the Bagsværd Church shows certain similarities to Prip-Møller's drawing of Wen Shu Yuan 文殊院 [Wenshu Monastery] in Chengdu, Sichuan province, a site that Utzon visited during his trip to Sichuan in 1958 *[*32*]*.Wen Shu Yuan's narrow front and long depth in plan was mirrored at Bagsværd and the interconnection between the monastery's main halls

and courts which are both surrounded by side corridors and secondary buildings, inspired Utzon's similar arrangement. His understanding of the base of Pu Tung Ta 普同塔 [Putung Tower, the rudimentary tower for urns] in Pao Kuang Ssu 普光寺 [Puguang Monastery] helped him to envision the precast concrete panels and columns to shape the church's walls *[33]*.

Prip-Møller's section of Ku Fang □ 房 [store rooms] and Tung Pan Tang □ □ □ [accommodation] in Hui Chu Ssu 慧居寺 [Huiju Monastery], which emphasized a wooden roof frame spanning two load-bearing walls, may also have been the precedent for Utzon's shell roof at Bagsværd, suspended between two stepped concrete walls *[34]*. Moreover, the formation of the gabled roofs to the side corridors surrounding the church recalled the roof tile cladding of the side walls of Hui Chu Ssu *[35]*. Utzon's glass roofs to the church corridors may also have been the result of his study of Prip-Møller's photograph on 'Corridor between Abbot's Quarters and Ko Ching' *[36]*. Utzon's corridors were semi-detached from outdoor phenomena – only the sky was present. While these corridors were designed with their hierarchical roof forms, overall, Utzon's Bagsværd Church was symbolically represented as a large Buddhist complex composed of various small buildings.

At the entrance court of Utzon's Bagsværd Church, the expanded corridor surrounding the edge of building was created for dividing and further enclosing the outdoor space. A similar layout can be seen in Prip-Møller's photograph of a 'court in front of Fa Tang 法堂 [the Hall of the Law]' at Ting Hui Ssu [Tinghui Monastery] *[37]*. The corridor wall directly in front of the church's main entrance was Utzon's 'spirit wall', as a protection against evil spirit in a typical Buddhist monastery setting *[32, 38]*.[55] Utzon's projecting eaves, paved portico and timber pivotal doors with lattice screens surrounding the front court also recall the West Abbot's garden of Wen Shu Yuan *[39]*. The square parterres and hard pavement of West Abbot's garden were further represented by Utzon's design for the front court at Bagsværd.

Inside the main church, Utzon's precast-concrete-assembled altar and its brick screen were his representation of the marble ordination platform and its lattice screen wall inside Hui Chu Ssu *[40, 41]*. Moreover, the open-air platform and its surrounding brick screens in Hui Chu Ssu can be read as the precedent for Utzon's combination of stereotomic elements and their in-situ-assembly for his altar design. The decorative patterns of clouds on Hui Chu Ssu's platforms may have also served as another inspiration for Utzon shaping the geometry for Bagsværd Church's shell roofs *[42, 11]*. The 'clouds' observed at the beach of Hawaii might be matched against the clouds of a Chinese monastery.

Conclusion

Utzon's initial ideas for the Bagsværd Church were developed from the dualistic set of roof

form and earthwork. The church's roof forms, constituted by an in-situ concrete shell structure, were closely related to his understanding of Chinese architecture and his unrealized plywood-box-beam scheme for the Sydney Opera House. The panel-frame system of the church's earthwork was seen to be related to Utzon's knowledge of traditional Japanese houses and their design principle of modular and standardized elements within a floor grid system. At the same time, Utzon's roof/earthwork juxtaposition at Bagsværd presented his Chinese-inspired dualism and represented the design principle of his unrealized theatre projects explored in his early manifesto 'Platforms and Plateaus'. In these projects, Utzon's dualistic setting of roof and earthwork was transformed into a sophisticated hierarchical organization of representative forms and spaces to accommodate the complexity of large institutional buildings. These important but never realized theatre projects became precedents for Utzon's Bagsværd Church, which was further enriched by Utzon's understanding of Chinese Buddhist monasteries, a topic introduced to him by Johannes Prip-Møller.

Significantly, Utzon's Bagsværd Church design presents the received ideas, ideals and artifacts of China and Japan encapsulated in a dynamic complex. They played diverse roles in Utzon's Bagsværd Church design, as well as in other important projects before and after. These projects and Utzon's growing understanding of Chinese and Japanese building culture closely reflected how his architectural philosophy was nurtured and why his design principles changed, especially in the transition from the Sydney Opera House project and 'Platforms and Plateaus', a revolutionary theme which his Bagsværd Church design vividly presents. Thus, acknowledging Utzon's perception and representation of Chinese and Japanese architecture acts to contextualize and heighten the significance of Bagsværd Church in the evolution of his architectural career.

Notes

[1] Kenneth Frampton discussions, Helsinki, 2015; Kenneth Frampton, 'Towards a Critical Regionalism: Six Points for an Architecture of Resistance', in *The Anti-Aesthetic: Essays on Postmodern Culture*, ed. by Hal Foster (New York: New Press, 1983).

[2] Ibid., p. 23.

[3] See: Peter Myers, 'Une histoire inachevée', in *L'Architecture d'Aujourd'hui*, 285 (Paris: Fevrier, 1993).

[4] Françoise Fromonot, *Jørn Utzon, The Sydney Opera House* (Corte Madera, California: Gingko Press, 1998).

[5] Philip Drew, *The Masterpiece, Jørn Utzon: A Secret Life* (South Yarra: Hardie Grant Books, 1999).

[6] Richard Weston, *Utzon: Inspiration, Vision, Architecture* (Hellerup: Edition Bløndal, 2002).

[7] See: Philip Goad, 'An Appeal for Modernism: Sigfried Giedion and the Sydney Opera House', in *The Journal of the Society of Architectural Historians, Australia and New Zealand,* Volume 8, 1997 - Issue 1, (2012); Michael Asgaard Andersen, *Jørn Utzon: Drawings and Buildings* (New York: Princeton Architectural Press, 2013).

[8] Jørn Utzon and Torsten Bløndal, *Jørn Utzon: Logbook, Vol.II, Bagsværd Church* (Hellerup: Edition Bløndal, 2005).

[9] Jørn Utzon, 'Platforms and Plateaus', pp. 113–140.

[10] Ibid., p.166.

[11] Chen-Yu Chiu, Philip Goad and Peter Myers, 'The metaphorical expression of Nature in Jørn Utzon's design for the Sydney Opera House', in *arq: Architectural Research Quarterly*, 19:4, (Cambridge: Cambridge University Press, 2015), pp. 381-396.

[12] Tobias Faber interview, Copenhagen, 2009. Tobias was a very close friend of Utzon and lived together with Utzon at Stockholm during the WW II. In 1946, Utzon's daughter was born and named 'Lin' by the architect in memory of 'Lin Yutang', according to authors' interview with Lin Utzon, Hellebæk, 2009. Through Utzon's introduction, Yutang Lin, *Mit Land Og Mit Folk* [*My Country and My People*] (Copenhagen: Nordisk Forlag, 1938), became common reading matter for both father and children, according to authors' interview with Jan Utzon, Sydney, 2008.

[13] See: Yutang Lin, *My Country and My People* (Kingswood: The Windmill Press, 1935), p. 275.

[14] Ibid., p. 280.

[15] Ibid., pp. 297-299

[16] See: Yutang Lin, *My Country and My People* (Kingswood: The Windmill Press, 1935), p. 295.

[17] Ibid., pp. 295-299.

[18] Ibid., p. 295.

[19] Ibid., p.280.

[20] Ibid., pp. 274-276.

[21] Ibid., pp. 299-302.

[22] Jørn Utzon, 'The Sydney Opera House', in *Zodiac 14* (1965), p. 49.

[23] Ibid.

[24] Ibid., pp. 166-167.

[25] Ibid., pp. 272-273.

[26] Ibid., p. 274.

[27] Jørn Utzon and Torsten Bløndal, *Jørn Utzon: Logbook, Vol.II, Bagsværd Church*, p. 116.

[28] Lin, *My Country and My People*, p. 274.

[29] This included Osvald Sirén's *The Walls and Gates of Peking, Researches and Impressions* (London: John Lane, 1924), *The Imperial Palaces of Peking* (Paris: G. Van Oest, 1926), *A History of Early Chinese Art*: *Architecture* (London: Ernest Benn Ltd, 1929), *Billeder fra Kina* [*Images of China*] **(**Copenhagen: Gyldendal, 1937) and *Kina konst under tre Årtusenden* [*Chinese Art over Three Millennia*] (Stockholm: Natur och Kultur, 1942). Sirén visited China frequently during the 1920s and 30s. He documented architecture with his camera and purchased select art works for the Swedish Crown Prince. In 1921, he travelled to China for a second time and, in Shanghai, acquired a copy of the 1919 edition of Jie Li, *Yingzao fashi* [*Treatise on Architectural Methods*], 8 volumes. He later sent this book to Utzon's uncle, Professor Einar Utzon-Frank (1888-1955), at the Danish Royal Academy, as a mark of their friendship. Sirén's frequent visits to China resulted in a series of publications on China during the 1920s and 30s. In 1924, he issued his first monumental volume - *The Walls and Gates of Peking* - with a highly preservationist, romantic tone in the text, juxtaposed with large, lavishly printed photographs and illustrations. Two years later, Sirén published *The Imperial Palaces of Peking* both in English and French, in a similarly extravagant format. In 1927, Osvald Sirén published the article 'Tch'angnagn au temps des Souei et des T'ang [Chang'an city in the time of the Sui and Tang Dynasties]', in *Revue des Arts Asiatiques*, 4 (1927), the product of his careful study of city planning in ancient China. In 1929, he published one of the early scholarly surveys of traditional Chinese art and architecture, a summary of his earlier academic writing. It appeared in English as *A History of Early Chinese Art: Architecture* (and in French translation). In 1937, Sirén published *Billeder fra Kina* [*Images of China*], both in Danish and Swedish - a sober edition of his early work on Chinese architecture for the general readers in the North. Later, confined to Sweden during the Second World War, in Sirén's *Kina konst under tre Årtusenden* [*Chinese Art over Three Millennia*], he wrote and published his first comprehensive review on Chinese Art in Swedish, see: Chen-Yu Chiu, Philip Goad and Peter Myers, 'The metaphorical expression of Nature in Jørn Utzon's design for the Sydney Opera House', in *arq: Architectural Research Quarterly*, 19:4, (Cambridge: Cambridge University Press, 2015), pp. 381-396.

[30] Chen-Yu Chiu, Philip Goad and Peter Myers, 'The metaphorical expression of Nature in Jørn Utzon's design for the Sydney Opera House', pp. 381-396.

[31] Osvald Sirén, *Kina konst under tre Årtusenden* [*Chinese Art over Three Millennia*], pp. 180-182**.**

[32] Chiu, Goad and Myers, 'The metaphorical expression of Nature in Jørn Utzon's design for the Sydney Opera House', pp. 381-396.

[33] This was done with the help of Professor Liang Sicheng (1901-72), whom Utzon had met while in Beijing, see: Chen-Yu Chiu, 'China Receives Utzon: The Role of Jørn Utzon's 1958 Study Trip to China in His Architectural Maturity', in *Architectural Histories,* (Amsterdam:

EAHN, 2016).

[34] Ibid.

[35] Chiu, Goad and Myers, 'The metaphorical expression of Nature in Jørn Utzon's design for the Sydney Opera House', pp. 381-396.

[36] Ibid.

[37] Tetsuro Yoshida, *Das Japanische Wohnhaus* [*The Japanese House*] (Berlin: Verlag Ernst Wasmuth, 1935), pp. 31-45.

[38] Else Glahn interview, Birkerød, Denmark, 2009. Glahn hosted Utzon at Japan in the 1960s and arranged tea ceremonies and building excursions for him studying Japanese art and architecture.

[39] With his sketches surviving within this book, Utzon wrote *Additive Architecture* and drew his conceptual diagram showing the system of modular and standard building elements on the first page of his copy of *Das Japanische Wohnhaus* [*The Japanese House*] to indicate the inspiration he had received from it.

[40] Jørn Utzon's own copy of the book still contains his sketches for the Middelboe project.

[41] Utzon, *Sydney Opera House: Utzon Design Principles*, p. 70.

[42] Ibid., pp. 70-71.

[43] Richard Weston, *Utzon: Inspiration, Vision, Architecture*, p. 61.

[44] Jørn Utzon, 'Huset Ved Søen', *Mobilia, 11*, (November 1955), p. 59.

[45] Chiu, Goad and Myers, 'The metaphorical expression of Nature in Jørn Utzon's design for the Sydney Opera House', pp. 381-396.

[46] Osvald Sirén, *A History of Early Chinese Art: Architecture*, p. 1.

[47] Sirén, *Billeder fra Kina* [*Images of China*], p. 12.

[48] In 1942, Utzon graduated from the Royal Academy. This was the year the troops of Nazi Germany entered Denmark which deliver her authority without any defense. Utzon and his colleagues fleet to Sweden and worked in Stockholm, a centre of Chinese archeology. While living in the neighbor of Dronttinghlm, Utzon visited the largest Chinese pavilion in Sweden - the Kina Slot, and read the Danish version of *My Country and My People*, as well as many books on Chinese art and architecture. There were two key reasons for Utzon appreciating Lin Yutang's representation of Chinese culture during the War. One was Utzon's sympathy for and empathy of China which was fighting with Nazi Germany's ally – Japanese Imperialism. The other was Lin Yutang's criticism of the cultural decadence of Western society echoing Utzon's experiences of the destructions and occupations in Europe during the war, see: Yutang Lin, *My Country and My People* (Kingswood: The Windmill Press, 1936), p. 297.

[49] Ibid.

[50] Jørn Utzon, 'Platforms and Plateaus', p. 117.

[51] Chen-Yu Chiu, 'China Receives Utzon: The Role of Jørn Utzon's 1958 Study Trip to China

in His Architectural Maturity'.

[52] Ibid.

[53] Jan Utzon interview, Sydney, 2008; see: Chen-Yu Chiu, 'China Receives Utzon: The Role of Jørn Utzon's 1958 Study Trip to China in His Architectural Maturity'.

[54] Ibid.

[55] Johannes Prip-Møller, *Chinese Buddhist Monasteries, Their Plan and its Function as a Setting for Buddhist Monastic Life* (Copenhagen and London: G.E.C. Gads Forlag and Oxford University Press, 1937), p. 7.

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