

Aalto through young Utzon's eyes:

The role of Alvar Aalto in developing the artistic maturity of Jørn Utzon

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Introduction

The work of Alvar Aalto (1898-1976) is known to have played an important role in the artistic development and maturation of Jørn Utzon (1918-2008), as Utzon had openly and repeatedly admitted his learning from Alvar Aalto. In spite of this, Utzon's lifetime writings, including his manifestoes and architectural publications, had never been clear in documenting the architect's perception of Alvar Aalto and his work. Consequently, the precise relationship between these master architects, young Utzon's perception of Aino (1894-45) and Alvar Aalto's work, and his interpretation of their ideas and ideals in his own architectural work, have not been elucidated.¹ To this end, this article aims to reconstruct the communications and relationship among them during the late 1940s and early 1950s by surveying and comparing their architectural collections, as well as sourcing anecdotal evidence from interviewing Utzon's former colleagues.

This study observed various evidences demonstrating that young Utzon had meticulously studied Alvar Aalto work, as shown through Utzon's collection of photographic images and publications, as well as his study excursions to the Aalto's completed buildings. Based on these materials and observations, this study constructed a series of thematic and analytical comparisons between the studied work of Alvar Aalto and young Utzon's own architectural work. It found analogies in built form between their works, as the basis for asserting young Utzon's learning from Alvar Aalto. Such analogies also further explained why young Utzon was interested in the work of Alvar Aalto and how young Utzon expressed and articulated the learnt concepts in his architectural creations.

It is worth-noting from the outset that it is not the intention of this article to promote or portray the exclusive role of Alvar Aalto in young Utzon's architectural career, in isolation from other

potential sources of inspiration and influence. Indeed, Utzon is known to have received diverse ideas and ideals from European and world building cultures, with several specific links between Utzon and East Asian building culture having been carefully explored in recent scholarly work. However, potential influences from other building cultures remain unknown and await detailed historical investigations, making it difficult for this article to critically and comparatively address their influences in young Utzon's work relative to those from Aalto. Meanwhile, Utzon's lifetime writings, including his manifestoes and architectural publications, had not been clear enough in documenting his perception of Alvar Aalto and his work. Notwithstanding the challenges in building full body of evidence on the direct ideological influences from Alvar Aalto in Utzon's early career, the observed analogies of built forms between their work, as presented in this article, form a significant part of the nexus of influences young Utzon received from the revered master architect, which he subsequently transformed into his own distinctive architecture language.

Indeed, young Utzon did not simply imitate the architectural manners of Alvar Aalto. Young Utzon seemed to have interpreted the received inspiration and influences from Alvar Aalto within the foundation of his own belief and interests, while assimilating other influences. Thus, the differences in implementations of the 'shared' concepts between these master architects illuminate their distinct design approaches and intentions. These differences deliver a way to re-access both of Alvar Aalto and young Utzon's architectural thinking and philosophy with three important outcomes. First, they characterize Alvar Aalto's work with several thematic approaches to design. Second, they construct the evolution of young Utzon's architectural approach with several important design principles and inspired architectural idioms. Third, they provide a channel to understand how the legacy of Aino and Alvar Aalto was translated and further transformed by Utzon to catalyze his artistic maturity in architectural creations.

Young Utzon's early encounter of Alvar Aalto

Young Utzon's first encounter with Alvar Aalto was at the Royal Danish Academy of Fine Art, while Aalto was delivering a guest lecture at the School of Architecture in the late 1930s (F., Tobias, personal communication, 2009). Alvar Aalto's lecture must have left a strong impression on Utzon and stimulated him to undertake study of Aalto's work in the late 1930s, including Viipuri Library (1933-35), the Finnish Pavilions at the 1937 Paris World Exposition, and the 1939 New York World's Fair through his own collection of publications.² In 1945, with the financial support from a Danish scholarship for young talents in architecture, Utzon became an employee at Aino and Alvar Aalto's office in Helsinki. Although Utzon only had worked for the Aalto couple for a very short period of time from October 25 to December 5, 1945, this important experience allowed young Utzon to gain first-hand insights into the Aalto couple's seminal projects on site. These included Villa Mairea (1937-1939), Sunila Pulp Mill Housing

and Town Plan at Kotka (1936–1939), Paimio Sanatorium (1928–1933), Turun Sanomat newspaper offices (1928–1929) and Terrace housing at Kauttua (1938–1940) (see Figure 1). Meanwhile, at the Aalto couple's office, young Utzon was working on the plan for the Apartments at Vaasa (1944–1947) for Strömberg Company.³

Young Utzon seemed to be deeply impressed by Alvar Aalto's work. After meeting with Mrs. Maire Gullichsen (1907–99) – the co-founder of the Artek furniture company – in Finland in 1947, young Utzon met Le Corbusier at Paris to seek for a chance to bring the Aalto couple's exhibition to Paris.⁴ Back to Denmark, Utzon decided to write an article on the Aalto couple's work in Danish journal *Byggeforum* in 1948.⁵ In preparing for this publication, Utzon wrote to Aino Aalto requesting for photographs of their housing schemes.⁶ Young Utzon further helped the Aalto couple and the Museum of Decorative Art in Copenhagen to arrange the exhibition of their work, and the exhibition was opened on January the 23rd, 1948 (Schildt, 1994, p. 300).⁷ Also in the same year, architect Richard Neutra (1892–1970) planned to visit the Nordic countries, Utzon and his Norwegian friend – architect Arne Korsmo (1900–1968) – suggested that Neutra should visit Finland and meet with the Aalto couple. In his correspondence to Alvar Aalto, Utzon noted that *“Finland would be the most important country for him [Neutra] to visit if he wants to have the right image of Scandinavia”*.⁸ In the late 1940s, young Utzon seemed to have taken on a role as an ambassador for the Aalto couple in Denmark, and his letters to Aino and Alvar Aalto surviving in today's Alvar Aalto Museum record his admiration for and friendship with the Aalto couple.⁹ These letters demonstrate that young Utzon had a close relationship with the Aalto couple, rather than just professional acquaintances.

After Utzon's short practice at the Aalto couple's studio and before his working trip to Morocco in 1947, he returned to Copenhagen and established an architectural firm with his colleague – Tobias Faber (1915–2010) (F., Tobias, personal communication, 2009). Together, these two young architects wrote their first manifesto *“Tendenser i Nutidens Arkitektur [Tendencies in present-day Architecture]”*, published in *Arkitekten* in 1947 (Faber and Utzon 1947: 63–69). In this statement, they rejected the outdated functionalist approach to design and rejected the historical style of architecture (Faber and Utzon 1947: 63–69). They were searching for the “organic” building culture exemplified by the vernacular buildings around the world, as well as the work of Frank Lloyd Wright (1867–1959) and Alvar Aalto (Faber and Utzon 1947: 63–69). In total, they presented 27 images. These images included Alvar Aalto's 1930 Turun Sanomat newspaper offices, 1936 “Savoy vase” – glass object for Iittala – and 1939 Sunila Pulp Mill (1939) (see Figure 1). The first two images were lifted from the article – “Alvar Aalto” – written by Harmon Hendricks Goldstone in 1939 *Magazine of Art*, and the last image came from the photographs sent by Aino Aalto directly.¹⁰

Unfortunately, this joint publication was marred by accusation of plagiarism because Faber and Utzon included 7 images from Swiss-born architect Albert Frey's (1903-1998) *In search of a living architecture* (1939) without proper attribution, although they did acknowledge the inspiration received from Wright and Alvar Aalto (Chiu, 2008). This scandal forced Faber and Utzon to abandon their joint architecture practice. In fact, this incident almost prevented Utzon from receiving any work (F., Tobias, personal communication, 2009). Probably due to this drought of work, Utzon wrote a letter to Alvar Aalto requesting a position to assist him with the student dormitory project - the Baker House - at MIT in the United States.¹¹ However, Alvar Aalto declined this request, and Utzon embarked on a study tour to Paris before returning to Denmark, from whence he ran his own office at Hellebæk (F., Tobias, personal communication, 2009).

In addition to Utzon's 1947 article that clearly presented his perception of Alvar Aalto's work, the architect also frequently and publicly delivered his admiration for and appreciation of Aino and Alvar Aalto's joint career (M., Peter and L., Richard, personal communication, 2009). However, Utzon's own words never clearly articulated the precise role of Alvar Aalto's in his early career (Moller and Udsen, 2004). Fortunately, today, Utzon's own "Aalto" folder, that includes all collected materials related to the Aalto couple's early work, has survived the test of time and been kept in *The Utzon Archives*. This folder comprises more than 13 publications and 150 photographs. The publications were mainly extracted from architectural periodicals and booklets, written in English, Finnish, Danish and German, and covering the Aalto couple's seminal work from the 1930s to 1960s. The photographic images included Utzon's own photographs taken in Finland from the late 1940s to early 1960s, and the ones sent by Aino Aalto in 1947.

It should be noted that, young Utzon also greatly admired the work of Frank Lloyd Wright, Le Corbusier and Mies van der Rohe (Weston, 2002). Utzon studied their work onsite during his study trips in the late 1940s and early 1950s. However, in today's surviving collection of Utzon's architectural career, there is no similar "folder" presenting his close study of these masters' work. Moreover, Utzon only had experiences of working with the Aalto couple and expressed a clear intention to continuously working with Alvar Aalto. This important relationship seems to explain why Utzon's "Aalto" folder includes the sketches of his analytical study of the Aalto couple's work, as well as for his own architectural creations. These important materials closely present young Utzon's learning from Alvar Aalto's work. More importantly, as the detailed records of Utzon's personal learning process, these materials serve as a foundation for clarifying the role of Alvar Aalto in young Utzon's architectural creation, as well as for tracing the evolution of his architectural approaches from the 1940s to early 1960s.

Courtyard as the mediator to receiving Nature

One of the earliest influences from Alvar Aalto on Utzon's work can be detected in his unrealized competition proposals in the late 1940s. Some of these proposals were conducted by Utzon and Faber as their joint work. Faber directly pointed out that Alvar Aalto's 1937 Finnish Pavilion at the Paris International Exhibition was an important role model for him and Utzon to design an institutional building complex as a synthetic whole embodied with representative built forms and further characterized by a semi-enclosed central court. (see **Figure 2**) (F., Tobias, personal communication, 2009). To Faber and Utzon, Alvar Aalto's central court with gardening design by Aino Aalto at the Finnish Pavilion taught them how to create an intimacy between the building complex and nature via an articulated gardening design. To them, the Aalto couple's design delivered a very important philosophical concept: architecture should be a mediator for human beings to receive nature (F., Tobias, personal communication, 2009). To this point, Utzon explained during an interview in the early 2000s:

Gunnar Asplund taught Alvar Aalto that if you plant a flowering cherry tree at the foot of a flight of concrete steps, then it will be a delight to walk down those steps. I appreciated that too. And I have used it all to convey the dream that has obsessed me, of fulfilling people's desire for something good. To give people something they like (Moller and Udsen, 2006. p. 10).

The Aalto couple inspired design intention and characteristics of built form can be seen in Utzon and Faber's competition proposals for the Danish Royal Academy of Music in Copenhagen (1944-45), the Crystal Palace in London, the United Kingdom (1946), and the theatre in Randers (1947) (see **Figure 3**). Both in Utzon and Faber's initial and final proposal for the Academy, it is clear that Alvar Aalto's 1944 design proposal for the Town Centre of Avesta, Sweden, collaborated with Swedish architect Albin Stark (1985-1960), provided meaningful architectural idioms for them to formulate the school complex by applying a combination of curved roof form and angular building volume (see **Figure 4**). Moreover, Alvar Aalto's volumetric curved roof forms, skylights and gardening design, combined with the colonnade, veranda and pavement for their Finnish Pavilion at the Paris were represented in Utzon and Faber's Academic project. Later, in the Crystal Palace competition, the outdoor courts, terraces, and shaded passageways surrounded by plants were developed from similar design intentions. Meanwhile, the whole building complex, seen as Utzon and Faber's exploration of varied building types and structural systems, was directly inspired by Alvar Aalto's Sunila Pulp Mill. Similar approach can be detected in Utzon's competition design proposal for the theatre in Randers. In this case, the free-form swimming pool of Alvar Aalto's Villa Mairea (1939) and its extended corridor connecting with the surrounding gardening designed by Aino Aalto were represented by the layout of a proposed complex and water fountain in Randers (see **Figure 3 and 5**).

In the early 1950s, Utzon studied Alvar Aalto's Saynatsalo municipal office (1949-52) both onsite and via his collection of photographs and related publications (F., Tobias, personal communication, 2009).¹² Alvar Aalto's Saynatsalo municipal office was designed with a square central court which was defined by an indoor corridor with large openings, sloped roof, and in-situ concrete walls with brick veneer and tile cladding (see Figure 6). Inside the court, there were cultivated plants, water fountain, and articulated tile, stone and brick pavements. Alvar Aalto's municipal office was one of the key inspirational sources of Utzon's courtyard housing schemes for the 1953 Skanska Hustyper competition (see Figure 7) (P., Mogens, personal communication, 2009). Based on analogous architectonic forms, Utzon's housing unit proposed for Skanska was a miniature rendition of the central court at Saynatsalo. Utzon's housing unit was defined by a square layout, and its roughly square central courtyard was surrounded by the rooms and boundary walls. To Utzon, these walls served as a decisive boundary between the private residence and its urban surrounding, while the court, articulated with gardening design, was a mediator for human beings receiving nature (P., Mogens, personal communication, 2009). Although this competition did not bring the project to realisation, the proposal became the archetype for Utzon to develop his courtyard houses at Kingo, Elsinore (1956), Lund (1956-57), and Fredensborg (1959-65), Denmark, during his later career (see Figure 8).¹³

Staggered, curved and fan-shaped plan presenting metaphorical nature

From the 1940s to 1960s, Utzon proposed various courtyard housing schemes. Despite the variations in detail, interior layouts and site conditions, Utzon consistently organised the housing units with a staggered arrangement (see Figure 8). This allowed his housing schemes to sensitively respond to the surrounding landscapes and urban contexts on an intimate human scale. More importantly, this made the housing complexes being constituted by a series of representative clusters, allowing Utzon to present the shapes of organic forms, as well as the primitive human settlements (F., Tobias, personal communication, 2009). The staggered plan, as one of Utzon's most important architectural idioms in his early career, was directly inspired by Alvar Aalto's work in the 1940s (P., Mogens, personal communication, 2009). Indeed, the application of a staggered plan was a common feature of the Aalto couple's work in the mid-1930s: the Aalto couple's own house and studio (1936), Alvar Aalto's Finnish Pavilion in the World Exposition at Paris (1937) and competition entry for the Tallinn Art Museum (1937) (see Figure 2 and 9). This was the result of the Aalto couple's interest in Japanese architecture in general and Tetsuro Yoshida's representation of the Katsura Imperial Palace which was characterized by a staggered plan (see Figure 10) (Chiu, Niskanen and Song 2017). Utzon received Yoshida's 1935 book - *Das Japanische Wohnhaus (The Japanese House and Garden)* - from the Aalto couple as a personal gift in 1945 for his shared interest in Japanese building culture

(F., Tobias, personal communication, 2009). Indeed, Utzon paid special attention to the Katsura Imperial Palace (Chiu, Goad, Myers and Kilincer, 2018). This can explain the result of his competition entry for the Forest Pavilion in Hobro Wood (1946), Central Railway Station, Oslo, Norway (1947, collaborated with Arne Korsmo), Business School in Göteborg, Sweden (1948) and the early scheme for his own house at Hellebæk (1950) all of which consistently applied the staggered plan with a series of representative architectural elements to make the building complex as a synthetic and organic whole.

Seen from Alvar Aalto's work in the early 1950s, the staggered plan became an important strategy for him to conduct varied urban planning projects. In his planning proposal for Säynätsalo in Finland, which Utzon meticulously studied, the staggered plan was shaped by a series of representative buildings to sensitively respond to the diagonal axis of road and the orientation of each building. Utzon applied a similar strategy in his 1948 competition entry for the development of Vestre Vika in Oslo, Norway (**see Figure 11**). The Vestre Vika plan later became the precedent of Utzon's planning scheme for his 1953 Skånska Hustomer competition entry for low-cost housing in Scania, Sweden (**see Figure 7**) (F., Tobias, personal communication, 2009). This typical composition was repeatedly applied in Utzon's varied courtyard housing schemes in Kingo, Denmark (1956), and in Bjuv (1956) and Lund (1956-57), Sweden (**see Figure 8**).

Utzon's staggered plans closely presented his design intention for mimicking the shape, movement and growth of an organism, as well as expressing the metaphor of nature (F., Tobias, personal communication, 2009). With the same design intention, Utzon adapted Alvar Aalto's articulation of free-form shape (F., Tobias, personal communication, 2009). Utzon studied Alvar Aalto's free-form ceiling of 1935 Viipuri Library, the curved profile of swimming pool, studio and concave sculpture on the fireplace in Villa Mairea (1939) (**see Figure 5**).¹⁴ Utzon was also familiar with Alvar Aalto's Finnish Pavilion at the World's Fair in New York in 1939, where 'the Northern light walls' were installed with timber segments (**see Figure 12**).¹⁵ In the same year, Alvar Aalto finished the Forest Pavilion for the agricultural exhibition at Lapua, Finland (1938), where the straight surfaces alternated with circular segments of a 200 cm standard radius. Besides the architectural design, Aino and Alvar Aalto presented their articulation and characterization of curved forms in their design for Artek furniture with bent plywood elements, and glass object for Iittala with the signature lake-shore inspired undulating shape (**see Figure 13**).

Utzon's work in the 1950s and early 1960s clearly present his adaptation of Alvar Aalto's articulation of free-form shapes. In his housing competition in Viborg, Denmark (1944), the curved outline of low residential housing units represented Alvar Aalto's "Northern light walls"

on an urban scale. In Utzon's housing competition in Bellahøj in 1945, the shape of the community centre was reminiscent of Alvar Aalto's Forest Pavilion (see Figure 12). In Utzon's competition entry for Aalborg Convention Centre (1945), Frank Lloyd Wright's organic geometric composition and the monumentality of Chinese city walls in Imperial Beijing were fused in one and alternated with curved outline (Chiu, Goad and Myers, 2017, and Chiu, 2016). In Utzon's competition for housing in Skøyen-Oppsal, Oslo, Norway (1952), combined with the inspiration received from Alvar Aalto's student dormitory - Baker House - at MIT (1949), and Le Corbusier's urbanization project for the city of Algiers (1930), the Aalto couple's glass vases and Alvar Aalto's Forest Pavilion seem to have served as a foundation for Utzon to apply the geometric principle for the project. Similar free-form shape was applied again in Utzon's competition entry for the administration centre in Marieberg, Stockholm, Sweden (1954). In Utzon's Middelboe House (1955), the precast concrete units within an articulated post-and-beam system were directly inspired by his study of Japanese architecture.¹⁶ The fish-head kitchenet combined with dining table was reminiscent of Alvar Aalto's curved forms seen in Villa Mairea.

In Alvar Aalto's application of free-form shape in varied design projects, the curved profile was formed as a fan-shaped composition, with radiating lines presenting their most synthetic approach. Utzon seemed to have learnt this very specific architectural idiom (F., Tobias, personal communication, 2009). For example, Utzon's competition design for the high-rise residential tower in Bellahøj, Copenhagen (1945), was the result of his study of Alvar Aalto's housing competition entry arranged by the HAKA construction company, Helsinki (1940) (F., Tobias, personal communication, 2009). In both cases, the two residential units were arranged side by side to form a triangular outline with a fan-shaped footprint of walls. Utzon's 1945 preliminary proposal for the crematorium in Denmark was characterized by radiating walls emanating from the main chapels embodied with tiled sloped roof forms. The walls were the result of Utzon's study of Alvar Aalto's design for the engineers' row house in Sunila in 1937 (see Figure 14), where the straight radiating walls were applied to fuse the landscape and housing units into one. The roof forms were Utzon's imitation of Swedish architect Sigurd Lewerentz's Chapel of Saint Gertrude (Sankt Gertruds kapell) in the Eastern Cemetery (Östra kyrkogården), Malmö (1943), which Utzon studied onsite in 1945.¹⁷ There is no doubt, Gunnar Asplund's (1885-1940) crematorium located at Woodland Cemetery is the precedent of Utzon's chapel that embodied a gradually inclined slope toward the altar. In Utzon's competition entry for the Crystal Palace (1946), housing scheme in Borås (1947) and in Morocco (1947), the fan-shaped composition organized as part of the spreading building complex was the common element among these projects (see Figure 3). These compositions later became the model of Utzon's configuration for the urban-scale podium of the Sydney Opera House: the two curved extruding ends formed within a fan-shaped profile (see Figure 15).

From metaphorical nature to animated organism

While Utzon adopted Alvar Aalto's architectural idioms, especially seen as his representation of curved free forms formulated as a fan-shaped composition, it is important to note that Utzon applied his perceived idioms with a very personal intuition. Comparing with Alvar Aalto's presentation of the metaphorical nature by applying the curved free form, such as "the Northern light walls", Utzon adopted the curved form as the way to present the physical forms of organism (F., Tobias, personal communication, 2009). With his early study of D'Arcy Wentworth Thompson's (1860–1948) *On Growth and Form* (1917), Karl Blossfeldt's *Urformen der Kunst* (*Art Forms in Nature*, 1928) and *Wunder in der Nature* (*Magic in Nature*, 1942), and Hans Ludwig Oeser's *Wunder der grossen und Kleinen Welt* (1937), Utzon was fascinated by organic compositions from the natural world and conceived his work as the expression of the movement, body and vitality of living creatures (Weston, 2002). This resulted in Utzon's planning scheme for the building complex in Vestre Vika, Oslo, Norway, and the housing complex in Arnebraten, Oslo, in 1951, where the tree-branch-like paths were combined with the clusters of housing units, rhetorically presenting the tree leaves (**see Figure 11**). A similar design intention can be detected in Utzon's 1953 competition proposal for the Langelinie Pavilion in Copenhagen, Denmark – a giant plant with multi-projections (**see Figure 16**). The structure was reminiscent of the studied laboratory tower of Wright's Johnson Wax building and the mushroom column at Alvar Aalto couple's Turun Sanomat newspaper offices, combined with the inspired interior setting – inclined wooden panels between the ceiling and walls - from the Aalto couple's Savoy restaurant at Helsinki.

In 1946, Utzon delivered his chair design – *Grete* - for the Modern Furniture Competition organized by the Museum of Modern Art in New York, USA (**see Figure 17**). Although this design was conducted after his study of the Aalto couple's Artek furniture through its catalogue¹⁸ (**see Figure 13**), the characteristics of Utzon's furniture closely presented the architect's distinct approach from the Aalto couple's work. Utzon's furniture design presented more of his articulation of bent plywood elements, as well as their representative patterns and composition, especially comparing to how the Aalto couple had put their efforts to simplify the joints for production process and for reducing its cost. Meanwhile, Utzon's design directly presented more of the body of animal and further represented the dynamism of its movement with a bilateral-symmetric composition. At the same time, Utzon's design showed a sense of classicism by applying curved forms within a square outline, as well as a sense of gravity by emphasizing the bearing and borne elements.

Utzon's *Grete* furniture design with the references to both nature and culture signifies the maturity of his architectural creation under the influence of Alvar Aalto's work. These design intentions further helped Utzon to develop and synthesize his personal architectural idioms

with the inspiration received from Alvar Aalto's work in two ways. One is the combination and contrast between the load-bearing walls, referring to classical monuments or primitive buildings, and their curved free form formation representing the organisms. This included Utzon's competition entry for the Aalborg Convention Centre in Denmark, housing scheme at Borås in Sweden in 1947, and design proposal for Housing complex in Morocco in 1947. These projects become the precedent of one of Utzon's most expressive work – the first scheme of Silkeborg Museum of Art conducted in 1963 – in which the free-form formation of wall was totally fused with the rhymical flow of space (see Figure 18). The other is the combination and contrast between the angular urban scale podium and the curved organic shape for the roof volume. This included Utzon's competition proposal for Crystal Palace in 1946, Theatre in Randers in 1947, and Langelinie Pavilion in 1953. The later became the fundamental concepts of Utzon's Sydney Opera House (see Figure 16 and 19). The urban scale podium presents the classical earthwork seen in the building culture of China, Mexico (Maya) and India. The shell roof expressed the configuration of organism and its movement and vitality.

Alvar Aalto's contribution to Utzon's Sydney Opera House Design

Today's archival collection demonstrates that Utzon had studied three important realized projects of Alvar Aalto's office in the late 1940s and early 1950s, namely, Saynatsalo municipal office (1942-47), Helsinki University of Technology main building in Otaniemi, Espoo (1949-1955), and Alvar Aalto's studio in Munkkiniemi, Helsinki (1954-56) (see Figure 6, 20 and 21).¹⁹ Utzon had studied these three projects onsite with his own camera and through related publications. The architectural idioms and characteristics of built forms of these three projects, arguably, contributed to Utzon's early schemes for the Sydney Opera House (1957-66) in five ways (see Figure 15 and 19).

The first is that these three projects were symbolically embodied with an urban-scale earthwork where the main building volume was standing on. The earthwork was articulated to represent and further dramatize the site topography. Rhetorically, this created a contrast between the lower heavy dark earthwork and upper light bright building volume. This juxtaposition seems to encourage Utzon to create an urban scale podium with sandstone cladding to emphasize the peninsular site of his Opera House – the Bennelong Point, where the initially proposed light shell roofs were combined and contrast with it, as the architect explained:

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 (Utzon,

2002).

Utzon's idea of "counterpoint" further resulted in his proposal for 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 (Utzon, 2002).

The second is that the major hall of Alvar Aalto's three projects were characterized by large and expressive roof forms, and their minor rooms were embodied with subordinary roof forms. Meanwhile, each of the roof forms was synthesized and representative to the others. This created a clear hierarchy of architectural forms and spaces externally and internally. This also emphasized the contrast between the monolithic podium and hierarchical roof forms. This seems to have become one of the aesthetic principles for Utzon's formulation of the Opera House roof forms, in which his three groups of representative shell structures were separately referred to the Major, Minor Hall and the restaurant – all standing on a massive podium (**see Figure 19**).

The third is that Alvar Aalto's three projects were formulated with a distinct processional movement. In this case, the users would enter the building from a lower level, while the major hall was on the highest level. The indoor and outdoor staircases of these three projects were served as a key factor to formulate a continuous path in the public domain. This led the users to reach the highest level while changing their direction of movement before entering the major hall. Once they had arrived at the major hall, they would start to descend. This distinct sequence of movements with changing heights and directions can also be seen in Utzon's Opera House, where, before the patrons changed their orientation and entered the two auditoriums, they would first reach the highest level of the Opera House podium to view the magnificent scenery of Sydney Harbor (**see Figure 15**).

The forth is that Alvar Aalto's three projects presented a similar concept to organize the interior spaces with a dualistic principle. Basically, the smaller and more private areas were arranged into lower levels and embodied with lower ceilings, while the bigger and more public areas were organized into higher levels embodying with higher ceilings. This seems to nurture the principle of Utzon's spatial division for his Opera House into two distinct areas according to "primary and secondary functions", as the architect explained:

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 (Utzon, 1962).

The final is that Alvar Aalto's three projects delivered some ideas for Utzon to articulate the built forms of his Opera House. The amphitheater-like outdoor space at the courtyard of Aalto's studio and the auditorium room at Helsinki University of Technology with the amphitheater-like seating arrangement were the precedent of Utzon's two Main Halls of the Opera House (see Figure 15, 20 and 21). The roof structure of the main auditorium at Helsinki University of Technology further inspired Utzon's early scheme for the acoustic ceilings of the Major Hall in his Opera House where the main structural elements radiate from the stage to reinforce the geometric principle of the seating plan (see Figure 22) (P., Mogens, personal communication, 2009).

Plan for the new centre of Helsinki and "Platforms and Plateaus"

In 1961, Alvar Aalto presented the plan for the new centre of Helsinki (1959-81). The plan aimed to create a new city centre for Helsinki around the Töölö Bay area. Alvar Aalto's plan featured an iconic Terrace Square and a series of imposing monumental cultural buildings on the eastern coast of Töölö Bay (see Figure 23). The Terrace Square was a triangular open plaza with a tripartite deck for car parking, and the buildings were raised by columns to allow car circulation. Of this row of cultural buildings along the shores of Töölö Bay, Finlandia Hall (1967-71 and 1973-75) was the only one to be built. Despite this, Finlandia Hall closely presents the continuation of Alvar Aalto's design intentions and architectural idioms seen in the Saynatsalo municipal office, Helsinki University of Technology main building in Otaniemi, and Alvar Aalto's studio in Munkkiniemi. Alvar Aalto's Finlandia Hall further presents both of his urban and architectural design, characterized by the urban-scale platform or podium to organize and further separate the movement between cars and pedestrians.

In 1962, after studying the plan for the new centre of Helsinki at Alvar Aalto's office and via related publications,²⁰ Utzon launched his 1962 "Platforms and Plateaus: Ideas of a Danish architect" manifesto (Utzon, 1962, p. 113-140). This was Utzon's statement for arguing that proposing urban-scale "platform" or "plateau" can create elevated civic plaza for pedestrians and for car circulation and parking beneath it in the center of traffic-congested European cities. Utzon seemed to fully agree with Alvar Aalto that verticality and volume of the proposed mega structure were crucial for separating the movement between pedestrians and cars and for re-creating the senses of city centre, as he explained in "Platforms and Plateaus" manifesto:

Some of my projects from recent years are based on this architectural element, the

platform. Besides its architectural force, the platform gives a good answer to today's traffic problems. The simple thing that cars can pass underneath a surface, which is reserved for pedestrian traffic, can be developed in many ways.

Most of our beautiful European squares suffer from cars. Buildings that 'spoke to each other' across a square, either in axis systems or in balanced composition, are not corresponding anymore because of the traffic flow. The height of the cars, their speed and surprisingly noisy behavior make us keep away from squares, which used to be restful places for walking.

In some of the schemes shown there are various traffic layers under the platform – for covered pedestrian intercommunication, for car traffic and for parking. The buildings stand on top of the platform supporting each other in an undisturbed composition (Utzon, 1962).

"Platforms and Plateaus" was also served as the retrospective manifesto of Utzon's Sydney Opera House design, as he explained:

As shown here in the schemes for the Sydney Opera House [...], you see curved forms, hanging higher or lower over the plateau. The contrast of forms and the constantly changing heights between these two elements result in spaces of great architectural force made possible by the modern structural approach to concrete construction, which has given so many beautiful tools into the hands of the architect (Utzon, 1962).

However, it is clear that Utzon did not actively articulate his Opera House podium as the solution for the traffic-congested Sydney in which there was no single parking space in his competition scheme for the Opera House. Utzon seems to have used the Opera House podium only for emphasizing the processional movement of visitors, instead of dealing with the car traffic onsite. This emphasizes the role of Alvar Aalto's plan for the new centre of Helsinki in the maturity of Utzon's "Platforms and Plateaus" theme. In this case, Utzon's design proposal for the Zurich Theatre (1964-1970) closely represented Alvar Aalto's concepts in which the Theatre's podium was intentionally designed to be incorporated with a bus terminal and underground parking spaces (see **Figure 24**). Unfortunately, due to Utzon's forced resignation from his position as the architect in chief of the Sydney Opera House in 1966, his Zurich Theatre project was canceled by the local government (P., Mogens, personal communication, 2009). Although most of Utzon's "Platforms and Plateaus" projects and the major scheme of Alvar Aalto's Helsinki plan were never realized, the shared concepts between these two architects could still be seen from the iconic roof/earthwork juxtaposition of today's Finlandia Hall and

the Sydney Opera House (see Figure 25). In both cases, the horizontal urban-scale platform was designed for receiving a mass of people to allow them entering the main auditorium under a sculpture roof via a processional movement.

Conclusion

Young Utzon's personal relationship with Aino and Alvar Aalto closely presented his understanding and admiration of their work. Utzon's architectural publications and creations further revealed the architect's learning from Alvar Aalto who played an important role in the maturity of his architectural philosophy and design. Alvar Aalto's articulation of idea about courtyard – a place for receiving nature, especially seen in the Finnish Pavilion at the Paris International Exhibition and Saynatsalo municipal office, was the precedent of young Utzon's design proposals for varied courtyard housing schemes and institutional buildings in urban areas. Alvar Aalto's specific architectural idioms - staggered, curved and fan-shaped building plans – were inspired young Utzon to represent the organic forms and natural phenomena via similar layouts. This resulted in the configuration of Utzon's Sydney Opera House podium where the fan-shaped north edge was characterized by two extruding curved podiums. More importantly, Utzon's adoption and further articulation of curved building plans and earthworks finally resulted in the expressive free-form roof with curved profiles in his Langelinie Pavilion and the Sydney Opera House.

It is important to note that one of the key aesthetic principles of Alvar Aalto work in the 1930s and 1940s was encapsulated in his representation of metaphorical nature. Young Utzon was certainly inspired by Alvar Aalto's distinct approach to design. However, young Utzon also had his very personal intention to represent the physical form and composition of organism, as well as the monumentality of historical architecture, via his architectural creations. This can be revealed by his initial conceptualisation of the Sydney Opera House, where the urban-scale podium signified a monolithic historical earthwork, and the roof epitomized free-form shape of an animal. Despite this, Alvar Aalto's three seminal projects, Saynatsalo municipal office, Helsinki University of Technology main building, and his own studio in Munkkiniemi, helped young Utzon to synthesize his iconic roof/earthwork juxtaposition in the Sydney Opera House design with inspired design principles. Moreover, Alvar Aalto's plan for the new centre of Helsinki, in which he conceived urban scale platform as the solution for dealing with car traffic and re-creating civic plaza in a city centre, delivered a theoretical ground for young Utzon to initiate the 1962 "Platforms and Plateaus" manifesto with his thematic approach to design. Although major proposals of Alvar Aalto's plan for the new centre of Helsinki and Utzon's "Platforms and Plateaus" theme were never realized, their shared ideas and ideals still can be detected in today's Finlandia Hall and the Sydney Opera House.

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Competing Interests

The authors declare that they have no competing interests.

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Notes

¹ In previous scholarship on Utzon, Françoise Fromonot, Philip Drew, Martin Keiding and Kim Dirckinck-Holmfeld, Richard Weston, J.J. Ferrer Forés and Michael Asgaard Andersen, all have pointed out the important role of Alvar Aalto or Aalto couple in young Utzon's architectural career. However, none of them has delivered a detailed study of this important issue to explore the relationship between these master architects.

² Utzon's own photographs on Aalto couple's work are surviving in today's *The Utzon Archives*, Aalborg University Library, Denmark.

³ Utzon took his own photographs on his working drawings for Aalto, and Utzon's own photographs on Aalto couple's work are surviving in today's *The Utzon Archives*, Aalborg University Library, Denmark.

⁴ See Utzon's letter to Aalto couple, dated 8 November 1947, Alvar Aalto Museum.

⁵ See Utzon's letter to Aalto couple, dated 22 October 1948, Alvar Aalto Museum.

⁶ See Utzon's letter to Aalto couple, dated 22 October 1948, Alvar Aalto Museum.

⁷ This exhibition was the most comprehensive one of Aino and Alvar Aalto's work to celebrate the 25th anniversary of their collaboration.

⁸ See Utzon's letter to Aalto, dated 22 October 1948, Alvar Aalto Museum.

⁹ Unfortunately, the authors cannot find any letter from Aino or Alvar Aalto to Utzon in today's *The Utzon Archives*, Aalborg University Library, Denmark.

¹⁰ Today, the article is surviving in *The Utzon Archives*, Aalborg University Library, Denmark.

¹¹ See Utzon's letter to Aalto, dated 14 August 1947, Alvar Aalto Museum.

¹² Utzon's collection of photograph images and related publications are surviving in today's *The Utzon Archives*, Aalborg University Library, Denmark.

¹³ It is clear that Utzon received varied inspirational sources and influences for his creation of courtyard housing schemes. For example, Utzon sent his own photographs on the vernacular houses at Morocco to his beloved professor Alvar Aalto in 1953 to indicate the inspiration of his courtyard housing design. Utzon's study of Lin Yutang's 1935 *My Country and My People* further encouraged him to appreciate the privacy and individuality of family life and its needed intimacy with earth and sky. Meanwhile, Frank Lloyd Wright's Usonian house delivered a model for Utzon arranging the interior spaces of his courtyard houses. However, Alvar Aalto's Saynatsalo municipal office, an institutional building with a central court surrounded by vernacular building inspired built forms, directly provided a sophisticated architectural idiom for Utzon formulating his architectonic components.

¹⁴ Utzon's own photographs on Aalto's Villa Mairea are surviving in today's *The Utzon Archives*, Aalborg University Library, Denmark.

¹⁵ Utzon's own photographs on Aalto's Finnish Pavilion are surviving in today's *The Utzon Archives*, Aalborg University Library, Denmark.

¹⁶ Inside Utzon's *Das Japanische Wohnhaus*, the authors found the sketches for the design of Middelboe House.

¹⁷ Utzon's own photograph images on Sigurd Lewerentz's Chapel of Saint Gertrude are surviving in today's *The Utzon Archives*, Aalborg University Library, Denmark.

¹⁸ Utzon's Artek catalogue with attached sketches for the design of *Grete* is surviving in today's *The Utzon Archives*, Aalborg University Library, Denmark.

¹⁹ Utzon's own photographs and collected publications on these three buildings are surviving in today's *The Utzon Archives*, Aalborg University Library, Denmark.

²⁰ Utzon's own photograph images on the drawings and models of Aalto's Helsinki City Plan, as well as its related publication in 1961 *ARK*, are surviving in today's *The Utzon Archives*,

Aalborg University Library, Denmark.