Sydney Opera House

1946 English composer and conductor Eugene Goosens comes to Sydney, Australia, as the new Chief Conductor of the Sydney Symphony Orchestra. He soon begins lobbying Joe Cahill, the New South Wales premier, about the need for a world class performance venue in Sydney. Cahill has a record of sponsoring progressive public infrastructure projects, including new docks and rail electrification.

1954 The New South Wales Labor government backs a scheme to build the National Opera House, soon settling on Bennelong Point as the preferred site - a spit of land projecting into the Parramatta River occupied by a redundant tram depot.

1955 An international design competition is announced that attracts 222 entries from architects around the world. The competition calls for a large hall to seat 3,000 to 3,500 people for symphony concerts, large scale opera, ballet, etc and a small hall for 1,200 for drama, recitals, lectures and smaller scale musical performances. A late entry is by a little known 38 year old Dane called Jorn Utzon. Eero Saarinen (an internationally renowned architect) is one of the judging panel and picks out Utzon's design from those his colleagues had discarded, declaring "gentlemen, this is your winner".

1956 Sir Eugene Goosens resigns in disgrace after explicit material is found in his luggage upon his return to Australia, following a European tour and receiving his knighthood from Queen Elizabeth II in London.

1957 The judging panel awards Jorn Utzon first prize, based on a series of sketches described as 'simple to the point of being diagrammatic'. His design consists of spaces beneath a series of shells evoking the image of yachts sailing in the harbour. Based on rough estimates, his design appears to be cheaper to build than either the runner up or third placed design. Utzon is hired as design architect, responsible for delivering the whole project. Ove Arup, the head of the eponymous engineering partnership, meets Utzon in London, and it is agreed that Ove Arup and Partners (Arups) will be structural engineers. Their principal challenge will be how to construct the roof shells. In May, the Opera House Lottery is announced, to provide most of the funding for the project. Utzon visits Sydney for the first time.

1958 The NSW government approves the project, and announces an estimated cost of £3.5 million (equivalent to about A$7 million). Construction must begin no later than February 1959, putting a great deal of pressure on Utzon and Arup to translate rough sketches into workable designs. The project will be built by Australian contractors.

1959 On 2 March the inaugural plaque is installed by NSW premier Joe Cahill, who declares the Opera House will open on 26 January 1963 - Australia Day. Stage 1 (to build the foundations and the podium upon which the shells sit) is let as a fixed price contract to the lowest bidder. Construction work begins, although the design drawings for the whole building are not yet finished. Ground conditions are much worse than anticipated so far more foundation structure is required. Stage 1 is finished two years late at a significant loss to the builders. In October, Cahill dies suddenly.

1962 Utzon and Arup have worked since 1957 on ideas to convert the architect's sketches into a practical, affordable solution. At a last a practical and cost effective way to make the roof shells is achieved. The geometry is – according to legend – finally worked out by Utzon when he is eating an orange, seeing how the shell sections could be made as segments of a sphere. Stage 2 begins, to build the shells - this time under a cost plus contract. Some of the Stage 1 work has to be re-built to take the weight of the new roof solution.

© Eric Woodcock 2016 Principal sources: Flyvbjerg, B. (2005), "Design by deception, the politics of megaproject approval", *Harvard Design Magazine*, Spring/Summer, 50; Moy, M. (2009), *Sydney Opera House Idea to Icon*, Ashgrove (AU): Alpha Orion Press; sydneyoperahouse.com; Webber, P. (2012), *Peter Hall Architect, the Phantom of the Opera House*, Boorowa (AU): The Watermark Press.
Photograph: Eric Woodcock. Document version; CS – SOH - 1906

1963 Utzon moves his office to Sydney. Stage 3 begins, to build the interiors. Despite Utzon being nominally in charge, Arups finds itself paying contractors' bills and reclaiming the amounts from the NSW Department of Public Works.

1965 A Liberal administration replaces Labor as the NSW government, and questions the spending and management of the Sydney Opera House project (which is now three years late and nowhere near finished). The project is put under the control of the Minister for Public Works, who soon comes into conflict with Utzon, in particular over a plan to build plywood prototypes of the complicated interiors and his insistence on choosing suppliers rather than putting everything out to tender.

1966 In February Utzon resigns. The NSW government offers him a subordinate role as 'design architect' under a panel of executive architects, which he rejects. The Sydney Morning Herald remarks that "it was not (Utzon's) fault that a succession of Governments and the Opera House Trust ... failed to impose any control or order on the project ... his concept was so daring that he himself could solve its problems only step by step ... his insistence on perfection led him to alter his design as he went along." Utzon will never return to Australia. A panel of Australian architects, led by Peter Hall, is appointed to produce the interiors and finish the project in the face of loud protests by supporters of Utzon. It is decided that the larger hall will be solely a concert hall, and the minor hall will be for opera and ballet - despite a large opera hall being an essential part of the original brief. A theatre, cinema and library are also added (but later changed to smaller theatres). These latter changes are made partly because the original competition brief was vague about how the building was to be used.

1967 A considerable amount of structure and equipment is taken out of the major hall and scrapped. The contract for Stage 3 is awarded (without a tendering process) to a builder already involved in the project, and with no completion date specified. Work proceeds swiftly with fewer problems.

1973 The Sydney Opera House is opened by Queen Elizabeth II on 20 October. The final cost is $102 million, and it is 10 years late. No public credit is given to Utzon, Arup or Hall for their contributions. The opera house seats 1,547 and the concert hall seats 2,679. Acoustics are imperfect and backstage space is cramped - especially in the opera house. Thanks to the lottery the debt is paid off within two years. No fatalities occurred on site during construction.

1999 Utzon accepts an invitation from Bob Carr, NSW premier, to develop a Statement of Design Principles which will govern the conservation and management of the Sydney Opera House. He receives the Pritsker Architecture Prize for in 2003, and dies in 2008. Peter Hall, whose career never recovered from his controversial involvement with the Opera House project, died in 1999.

2007 Sydney Opera House is declared a UNESCO World Heritage Site.

Today The Sydney Opera House is undergoing a A$250 million upgrade to improve facilities and accessibility. It remains a hugely popular place, with over 4.5 million visitors and over 2,000 performance events every year. In spite of its troubled creation, it is estimated to have been worth over $6 billion in terms of building Australia's global identity and visitor economy.

© Eric Woodcock 2016 Principal sources: Flyvbjerg, B. (2005), "Design by deception, the politics of megaproject approval", *Harvard Design Magazine*, Spring/Summer, 50; Moy, M. (2009), *Sydney Opera House Idea to Icon*, Ashgrove (AU): Alpha Orion Press; sydneyoperahouse.com; Webber, P. (2012), *Peter Hall Architect, the Phantom of the Opera House*, Boorowa (AU): The Watermark Press.
Photograph: Eric Woodcock. Document version; CS – SOH - 1906