University of Westminster, Department of Architecture
BA1 Cultural Context 1A: Modern Architecture

FAITH

The Architecture and Engineering of The Snowdon Aviary at London Zoo. Cedric Price and New Technologies

"***To paint the portrait of a bird,***
Paint first a cage with an open door"[1]…

Somewhere, between poetry and Kenneth Snelson's sculptures I tried to find the place of the Snowdon Aviary, in the cultural context of the early sixties, looking for architect's concerns and expectations.

This period wasn't just about Pop Art. "*It was a decade of revolutionary aesthetics where politics, sexuality and performance were all burst open and re-examined*"[2]. Discovery of new materials, new technologies and scientific achievements caused substantive changes in approach to contemporary issues, including architecture. This was a period in which architecture was expected to be seen as a social art, when investigation, research, theory and explanation were paradigmatic concepts among both students and practitioners. On the other hand, whereas the aeronautics, electronics and heavy engineering industries have pioneered both new materials and techniques, architects have been slow to learn from others and have been almost wholly inactive in initiating new materials, techniques and methods. The bulk of the profession has remained with the comparatively simple games that can be played with the old, safe, simple pieces – steel, glass and concrete.

The following paragraphs attempt to answer few questions: is Snowdon Aviary a work of art, an everlasting architectural structure or a technological symbol of the sixties? Was Cedric Price a juggler theoretician of consumerism, a futurist architect or a visionary scientist, with faith in new technologies?

In 1960, the Royal Zoological Society empowered Lord Snowdon to design a new aviary able to enclose the greatest possible volume, be easily recognized and requiring minimum maintenance. The precise form that finally envolved can now be seen next to the calm and quiet Grand Union Canal, in Regent's Park. (fig.1)

The new aviary has to plot and to arouse public interest, providing a large habitat for various bird species. The project proposed by Cedric Price and Lord Snowdon has proven to be a challenge, and soon they need help from the most innovative company in the UK at that time - Felix Samuely & Partners, where young engineer Frank Newby was working. As Newby said, it was a new and interesting field for everyone: "*I'd became interested in discontinuous compression, or tensegrity, when I spent time with Buckminster Fuller in the States in 1953 and felt that it might produce and interesting solution. We began to play around, looking at tensegrity forms with isolated triangles, sitting in other triangles with cable connections.*''[3] Soon, the two architects have seen their proposal materialized, the first major architectural tension structure to be built in the UK, since Powell and Moya's 1951 Skylon at the Festival of Britain.

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[1] "***To paint the portrait of a bird***" - *Jacques Prévert: 4 February 1900 – 11 April 1977), French poet and screenwriter.*
[2] *C.P. "**Beyond High-Tech**", L'Architecture d'Ajourd'hui, December 1980*
[3] "***Engineers and Architects: Newby + Price***", *AA files, no.27, 1994, Summer, p. 25-32*

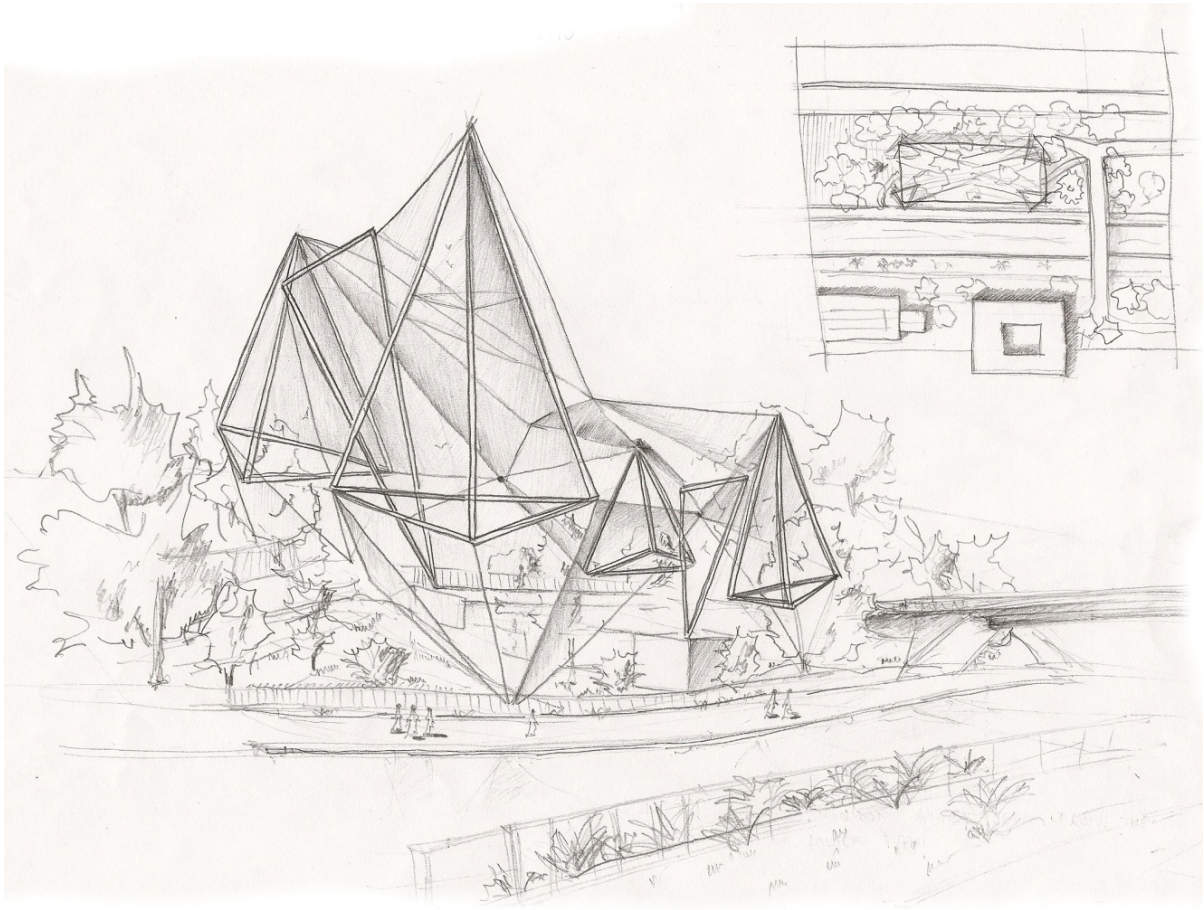

Fig.1

Successfully solved problems, involved in Snowdon Aviary, are proof of Price's confidence in new technology and young engineers' courage in dealing with new, nonconformist, architectural proposals. A summary of these issues: "crystalline" metal pavilions, connected by a mesh envelope enclosing a 45-metre long column-free space; relatively transparent; maximum free-flight volume, with multi-level perches at both ends, minimum maintenance required. On the other hand, the function – to intrigue and interest the public, and birds are difficult to see at the distance – so their container becomes their advert.

Another problem was the necessity of an upper path on the north side of the aviary and a lower path along the south side, both close to the cage to afford close views. Also, viewers would enter the cage via a bird proof doorway at the end (fig.3), and then wander along a meandering raised concrete walkway allowing them to observe the birds and enjoy the artificial climate (fig.4). Another part of the Aviary where cooperation between engineer and architect resulted in a unique solution was the suspended walkway. In order to make it possible for visitors to watch the birds nesting in the high retaining wall between the two levels in the aviary, Cedric and Lord Snowdon devised an angle route which allowed support from on the wall at only two points.

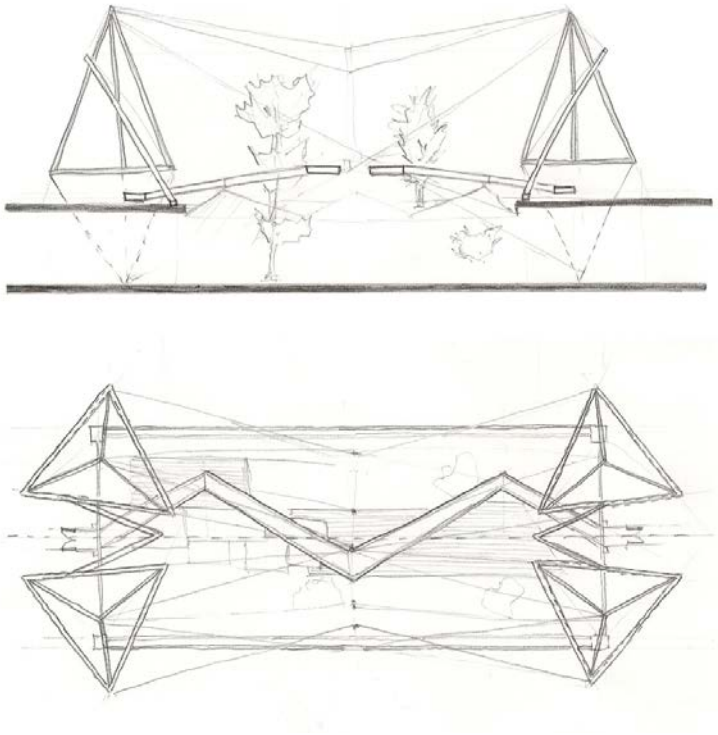

Fig.2

Fig.3

To achieve lightness of form, they rested the walkway on the wall and cantilevered it some forty-six feet in the centre line of the cage, as can it be seen in the plan and section of the building. (fig.2) The need to prevent vibration dictated the thickness of the tapered slabs, though they managed nevertheless to create a satisfactorily slender structure.

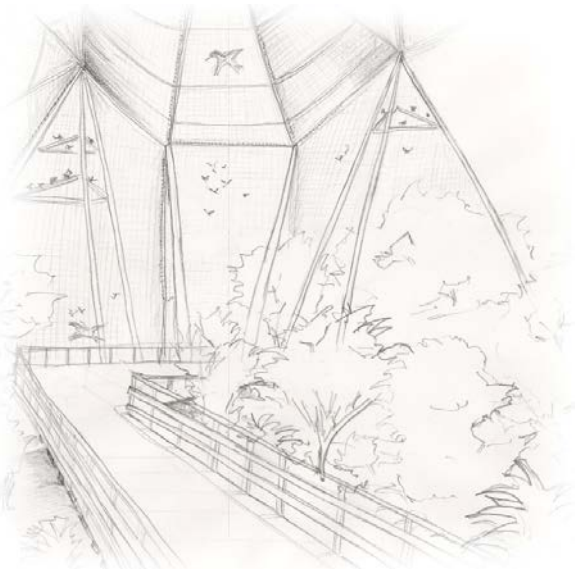

Fig.4

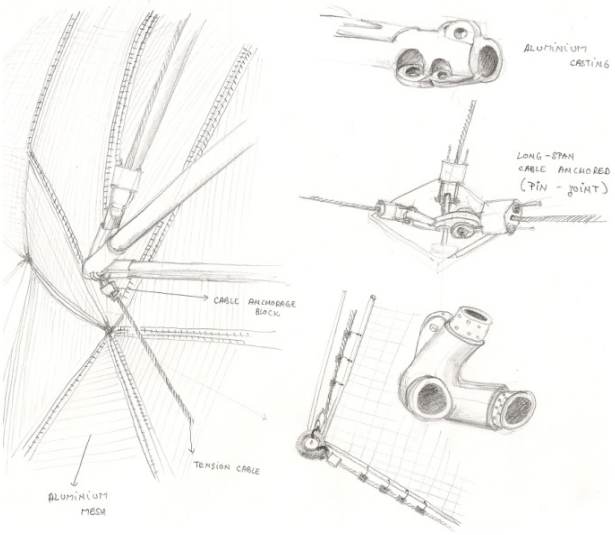

Fig.5

The result was a netted enclosure for large birds — remarkable design solution to achieve an obstacle-free volume that allowed the birds unimpeded flight. Aluminium castings, stainless steel forgings, welded aluminium mesh and long-life cable anchorages were high technology in 1962. An unforeseen problem, which took a few months to solve, was how to fix the aluminium mesh to the cables while still allowing it to rotate freely. This time engineers came up with their solutions. Unlike steel, aluminium is relatively soft, and crimped connections can transfer load. As seen in the diagram (fig.5), the method to connect the mesh to an edge-stiffener which was then fixed to the cables at intervals by simple stainless-steel elements which allowed rotation, proved to be successful.

The netting is attached to tension cables that run length-wise in the rectilinear structure. They are anchored on the ground at the corners by assemblies of tetrahedral (four-face) tubular compression structures. The “roof” consists of a pair of cross-over cables running along the apex of the enclosure, also lengthwise (fig.6). It is supported by pairs of tubular steel columns, each pair forming a giant 'V', which holds the cables in tension.

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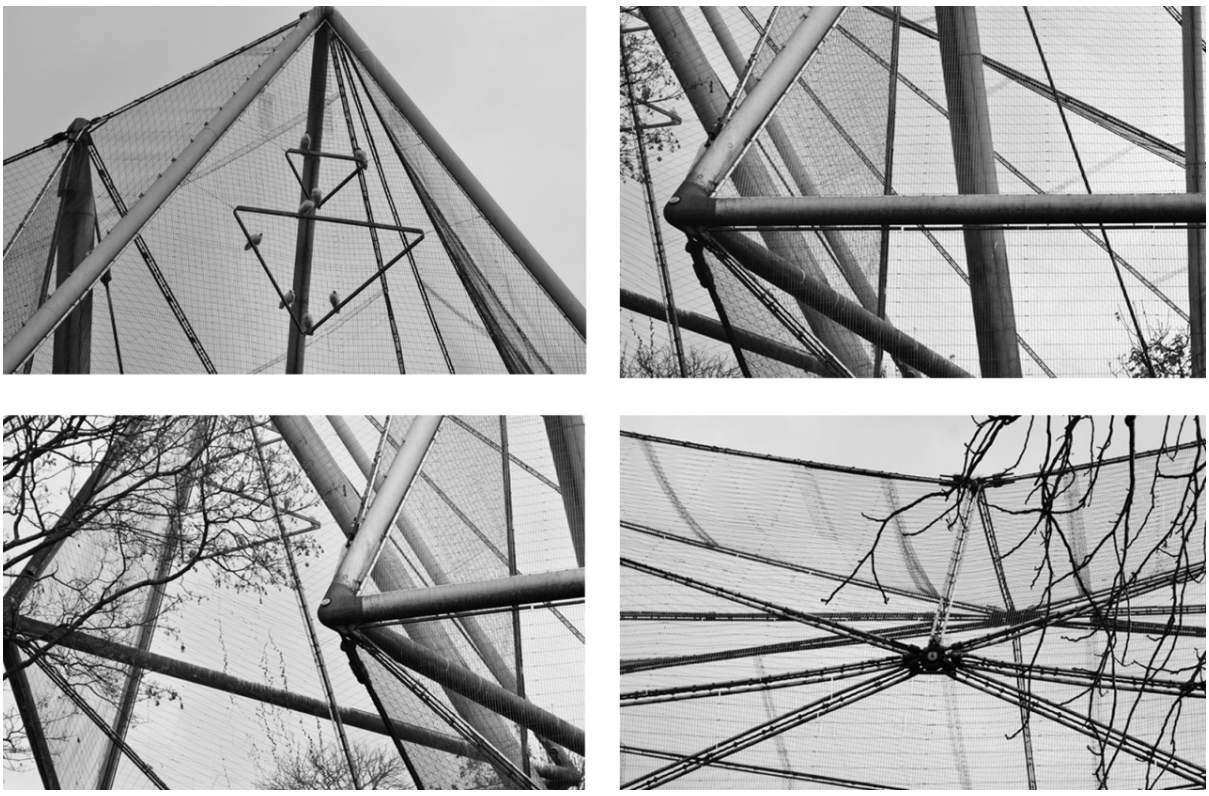

Fig.6

But it wasn't only that. For Cedric Price, new technology meant the increase of access and availability of his projects, highlighting strong relationship with technology is intimately connected with his faith of architecture. Price's ideas and works aim to relate architecture to other areas or even to dissolve it into other practices. He's idea was to break down the wall between "pure" and "applied", to bring architecture to another level – accessible and practical, with the help of new technology.

Although the popular image of Cedric Price sees him as an uneasy architectural modernist with strong disposition towards flexibility, impermanence and anything new in technology, he tented to transform architecture into a social art. Despite his fascination with technology, not as a fetish but as a means of increasing the potential for human well-being, Cedric Price tried to bring "culture" to the masses and make life easier.

He saw architecture as a political activity, concerned with who gets access to the space in which we live. As a lifelong Socialist, he believed that the architect's mission was an ethical one, concerned with the purposes and possibilities of buildings, not with conventional ideas of architectural glamour or beauty. "*No one should be interested in the design of bridges*," he wrote, "*they should be concerned with how to get to the other side.*" Cedric Price has drawn attention to the importance of time and economy. The idea that a building has a life expectancy and that important changes will occur to both fabric and function during that period, is rarely given due consideration.

The Fun Palace design remained a dream, so Price has built a modest version at the Interactive Arts Centre in Kentish Town, which was later to have a major influence on Piano and Roger's Pompidou Centre in Paris (1971-1977). Price's first major project was made to describe a "*laboratory of fun*" and an "*university of the street*"[4], where the visitor could be stimulated or informed, could react or interact, and if none of them would fit, would be free to withdraw, and the building which can be enjoyed, added to, taken into pieces. His project from 1961 was unfortunately not built. There is a masterly grasp of the propositions of independence of structure and services, of flexibility and multiplicity in use and the anticipation of undreamt of use.

The information technology attracted Price for "*its relationship between location, communication and information*"[5]. Starting with a model of early human settlement, where information was transmitted only by voice and by foot alone, he noticed that, as these settlements have grown and become more complex, the technology had to be devised to encourage these developments. Price began by proposing to use large-scale displays, sometimes projected into the sky with holograms or alternatively, projected onto existing buildings, infrastructure faces, designed to create city-scale wall displays - a concern for the future of Pop Art, especially Robert Venturi.

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[4] *Joan Littlehoow "**A Laboratory of Fun**", New Scientist, May 14, 1964*

[5] *"**Cedric Price: Works II**", Architectural Association, 1984 republished as "**Cedric Price: The Square Book**", Wiley-Academy, London 2003*

A significant advance in the effect of information technology on architecture is Price's project "The Generator" – 1978. This project explores the notion of artificial intelligence in which the environment itself becomes an intelligent artefact. An architecture which did not simply react but which learned, remembered, when necessary re-learned, and then responded appropriately is clearly what Cedric Price approach was leading towards.

The computers initially present a preliminary set of programmes to help the visitor create an amenable environment. Then help and encourage the visitor to make the best decisions. There are also programmes to bring mobilising plant (such as the crane) into action, to create new configurations and to record such movements and assemblies.

Technology was used to produce one of Price most notable projects - Potteries Think Belt (1964), which envisaged the reuse of abandoned rail lines in the wild North Staffordshire Potteries, as a "*roving higher education facility*"[6]. Covering an area of 108 square miles, the "Think Belt" of Cedar Price has been designed to provide scientific studies to 22,000 students and restore the Potteries as a centre of science and technology. Class modules, laboratory and residential ones could be placed on railway lines and shunted in the region, to be grouped and assembled as needed. Four types of modular and disposable public housing (called, with aggressive disrespect for conventional primness, "Sprawl", "Battery", "Capsule" and "Crate") would be assembled at various points along the rail lines.

In this project the technology is used to play a critical role, meaning that it will be expected to take part in the architectural debate, perhaps though contribution, disputation or the ability to shock. Also, the technology should be well placed in a real environment from which a number of limiting constraints can be derived, as important progress items.

Despite, completing relatively few buildings, Price has had a profound influence on the architecture of the last fifty years. As Rem Koolhaas's comments that "*nobody ever changed architecture more with fewer means than Cedric Price*", his faith in new technology have permeated into the work of successive generations of architects, artists and designers. He remained a contradictory figure.

His love of paradox, his scorn of dogma and his passionate desire to improve the human condition with an eagerness to utilize new techniques and the latest technologies, weren't about the creation of architecture but also of the significance of an underlying ethic. Insisting that architecture has to be contemporary in absolute terms, he destroys any traces of the past and tries to find another role for the architect, who uses an engineer as a tool to define his dreams.

The Snowdon Aviary from London Zoo represents the symbol of feedback between Price's faith in new technology and Newby's trust in Price. Accordingly, most of his projects take the form of flexible structures that can be built, un-built, changed, re-organized, or dismantled. He was compared to Buckminster Fuller. But a more interesting contrast could

[6] *Samantha Hardingham and Kester Rattenbury, eds., "**Cedric Price: Potteries Think Belt**" (SuperCrit), Routledge, London 2007;*

be made with J. G. Ballard[7].

Architecture for Cedric Price is not only about making and playing, whether with form, colour, drawings and technology, but architecture is also about believing and confidence.

[7] *J.G. Ballard – novelist, whose most celebrated novel in this regard is **Crash**, in which cars symbolise the mechanisation of the world and man's capacity to destroy himself with the technology he creates*

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