YORK CONFERENCE
NEW BUILDINGS IN HISTORIC SETTINGS:
EXAMPLES OF DEFINING THE PRINCIPLES
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INTRODUCTION

I have chosen museums as the principal building typology upon which to describe our interventions in Europe, as well as elucidate the theme of this conference "NEW BUILDINGS IN HISTORIC SETTINGS". I will also make reference to other cultural buildings.

The last decade, architecturally speaking will, I am sure, be looked back upon as one the great eras of museums.

The late Victorian era may to some be the high period of museums, but there can be no denying the recent impact of these typologies on post-industrial society. Many architectural masterpieces have been realised, whether renovations, as recycled buildings, extensions or whole new ones. These museums are the Kings, Queens and sometimes Aces in each city's hand as these cities vie with each other across the western world for attention. Museums have become barometers of a city's, and in some cases of a country's cultural virility.

I hope that my talk will be able to cast some half-light on distant horizons as well as seek intelligent strategies to this important aspect of contemporary life.

We have been fortunate to have been very closely involved in mainland Europe, particularly France, and its cultural regeneration during the decade of the bicentenary of the Revolution.

However, of no less importance to me, personally, has been our commitment to Britain, in the cultural domain during the same period. But, in France and elsewhere our energies have materialised, while in Britain we've realised only one cultural project, and that somewhat controversially. I do believe this reflects in some small way the different attitudes towards modernity, and attitudes in and towards Europe; [although it probably also reflects our own approach too].
Museums have a particularly unique characteristic. They have natural and recognisable hierarchy of perception. Most are object based, whether as art, anthropological, ethnological, technological or archaeological. This is the intimate scale, the personal and private contact.

All are, or should be more than mere containers of these objects. This is an internal spatial experience, usually shared with others and very much part of the visitor's objective. Some people consider this as a more important aspect of museum design than the individual display on the basis that one is very quickly intellectually and emotionally saturated after studying only a few artefacts.

Museums should be public architecture. As such they can be perceived singularly as the art and science of building for a specific human purpose, that of storage and exhibition of objects and artefacts. They exist, publicly in their own right.

Museums, by their very importance as municipal or national repositories of collective memory are more often than not, sited prominently, and as such are a dominant component and even generator of a particular urban composition.

They are stimuli for regeneration of local areas as well as city monuments, and as important venues for human encounters, especially for visitors.

THE MARKET

The desire, indeed perceived need to attract as many visitors as possible has revolutionised museums. The days when they were frequented by the researcher, the odd school party, the Sunday family are very distant indeed. Today, clean shoes become trainers, the walking stick, the rucksack.

This revolution has had a dramatic impact on the spatial programmes of museums, on the very nature of their organisations and indeed, in many instances, on the very role for which they were created.

Most dramatic, perhaps, is the ability of these buildings to simply accommodate the flow of visitors, and from a marketing view, hold them long enough without boring them, such that they spend at the book store and shops, but short enough to allow more visitors in.

Accommodating has meant, for existing museums, extensions, remodelling, renovation and refurbishment. Entrance lobbies have become “acceuils” - welcome halls, to collect and distribute the visitor; cloakrooms have become "hangers", preceded by security check lines; ticket desks have become information and /or orientation centres and toilet facilities are now on a par with those associated with stadia.

And of course all "serious museums" boast their restaurant, cafeteria, temporary exhibition galleries, lecture auditoria, conference facilities. And these in turn, dancing to the market clock are available out of hours for private use and city functions.

Temporary exhibition space and marketing leads to more transportation needs within the building. Wider corridors, packaging and unpacking areas, transitory storerooms, increased media space and publications libraries. Truck parking, increased public access and transitory artefacts leads to increased security arrangements and security accommodation. Security leads to more sophisticated technical installations which lead to increased staff and maintenance costs. The upward spiral of complexity, of skilled management resources and, ultimately revenue to compete nationally and internationally, demands very serious appraisal, now. Such a revolution, in the last 20 or so years, if it continues, must lead to a certain level of saturation, and of cultural institutions becoming bankrupt or becoming PLC's quoted on the world’s stock exchanges, and subject to the vagaries of such markets. Museums have become such big business that some of the larger ones are inevitably going to lose all sense of direction and of their intrinsic value.

LA VILLETTE

A setting for modernity.

Who would have thought that the largest abattoir in Europe, less than 20 years old would have become the largest Science Cité in the world. The competition, held when Giscard d'Estaing was President of France included 2 interesting and diverse "requirements". One, overtly, the existing structure (in reinforced concrete) should be kept, (although this did not include the unique aspects of the design, the anti-slip bovine ramps) and two, covertly "je ne veux pas que les gens viennent en basket" (V.Gd'E) (basket refers to basketball shoes).

I mention the former requirement as illustrative not of conservation for historical reasons, but for economic reasons. The second, I mention for historical reasons - a desire by the then President to maintain the "place and image" of national museums as centres of high culture. I suspect that Beaubourg, having removed "the high steps to culture" still grated with President d'Estang. The desire for the visitor to have clean shoes and tie still lingered on.

When the socialists were elected in 1981/2, I was invited to a weekend think tank to participate in the redefinition of this "Science Museum". "En basket" became a key phrase in that the outcome of that weekend was to set in motion the active participation of industry in realising the project; the desire that the children of France should be 'connected' with the new named Cité by telecommunications reaching all schools and further education establishments; and that the Parc should be a place of activity and calm belonging to the locality and not just a landscaped setting for a Science Castle.

Modernity had replaced historicism, not in the content of the new building, but in an acceptance of the current social actuality of France, nationally, locally and individually. Modernity did not seek to impose, but to respond to the present and in order to provide for the future.

By invitation, our role as Rice Francis Ritchie, was to innovate, to bring prestige to France "pushing" its industry, notably in glass and fabric technology, to a leading European position and in the process produce elements of the building which would be didactic. The elements we designed were markedly to the fore - the main facade to the parc and the roof of the acceuil - the huge entrance foyer. As pieces of architecture they remain to some extent distant from the renovated slaughterhouse, but become coincidentally also museum objects in themselves. The energy, and commitment of those government officials directing this construction project of £ 400m+ (1982) was extremely impressive, and their brief to us generous.

It was impossible for us not to be motivated and at no time did the fact that we were "foreigners" influence a single decision taken by them. In some part, our work has helped put French glass building techniques on a par with any in the world, and they export a new light transmitting structural fabric in strong competition to those fabricated in the States.

LE LOUVRE

"and will Revlon add to the smile of the Mona Lisa ".

More than any other architectural intervention since Beaubourg (Centre Pompidou), and more powerfully symbolic to many more people worldwide has been the realisation of the Pyramid at The Louvre.

During my time as a Director of Rice Francis Ritchie our first direct encounter with this proposition of I M Pei was upon receiving a package of drawings from the Etablissement Public du Grand Louvre (EPGL) in 1985. These drawings were the scheme designs of the proposed structure and glazing system prepared by I M Pei's consultant Canadian Engineers. We were asked to give our independent opinion of them. I well recall that Peter Rice and Henry Bardsley at RFR were impressed by the conceptual integrity of the proposed structure, while both myself and Martin Francis were a little disappointed by the relative banality of the glazing system. The latter appeared to us as a conventional structural silicone curtain wall system used on medium high rise American skyscrapers. Of interest, was the fact that neither Pei nor his engineers were engaged on the basis of a full detail design contract? A few lines sufficed as our reply to the EPGL.

Within a few months, we were again contacted by the EPGL to design and erect, for a short period, a full scale mock-up of the Pyramid sufficient to show its scale, overall and principal geometry and subdivision.

The mock-up was to be assessed principally by President Mitterand, Jacques Chirac (Mayor of Paris) and I M Pei. I remember suggesting to Peter Rice and Martin Francis that we obtain the signatures of all 3 on our drawing showing the proposed mock-up to ensure that Pei considered it as representative of his design, and that both political figures knew in advance what to expect and that it had Pei's approval.

It carried, as you may well imagine, a very real potential to back-fire on I M Pei and President Mitterand in particular, and give ammunition, if required, to M. Chirac. If it did back-fire, then a scapegoat would almost certainly need to be found.

As the mock-up design evolved, it became more and more apparent, from those we knew in the political arena that the Pyramid project was not some grandiose or architectural ego-trip of either President Mitterand or I M Pei. It represented the symbolic luminous tip of the iceberg of a very major restructuring of The Louvre Museum concealed below ground; 50,000m^2 of new space; and that its political image belonged to all the French people. At this time, this message was distinctly subliminal. The mock-up would offer the opportunity for critics from all fields to realise exactly what was proposed for the Louvre's central urban stage and whether or not it was a viable proposition to celebrate the 200th anniversary of the Revolution.

To me it was this concept, not the Pyramid itself, which lay behind the singular visualisation of the Louvre's transformation and modernisation to accommodate the public in the 21st century.

The mock-up, in Kevlar cable lifted as a single net by a remote mobile crane was successful, although we did have to add pipe insulation just before the official party arrived, as the Kevlar cable was almost invisible against the sky.

Inevitably a few years of public commentary ensued and particular quotations have imprinted themselves on my memory "Rien ne se fait sans un scandale", the translation of which is "Nothing really worthwhile in France happens without scandal", "One can criticise the Pyramid and still remain a good Frenchman". This perception recalls and confirms the essence of the project - to intervene majestically and magnificently in the very heart of pre-revolution France. I believe it was Louis XIV who commenced The Louvre as a Palace, who said "L'Etat c'est moi"

Personally, I admire the pyramid as a formal and symbolic representation within the expansive courtyard, although I have two small regrets - the glazing and the entrance to the Pyramid. RFR were asked to refine the engineering of the Pyramid structure, at the time when the successful French contractor CFEM was completing the engineering design and calculations. (This situation arose because Pie's engineer was not contracted initially to carry out a full service).

In brief, the contractor was increasing the size of several structural members and rods, and the assembly joints were appearing crude and out of scale with the whole. We did attempt, at this stage, to influence the glazing assembly design as well. What should, in my opinion and I am sure Pei's too, have been a glass skin of exceptional finesse to match that of the structure proved impossible to influence at all. My criticisms are, perhaps, a bit mealy mouthed; but when I hear criticism that the structure is too heavy I believe that people are really saying that, from the outside it is a little heavy and not the transparent crystal it could have been. To achieve clarity much research was done to choose the type of glass and its finish. However the heaviness comes from the width of the primary glass triangulation opaque joints which are more than 150mm across, the four edged supported silicone glazing system which does not allow the glass to act structurally and of course from an understanding that the inclined polished glass surfaces will act like a mirror from most angles. I mention these technical aspects as they are so important when a concept is dependent on the quality of the details.

The entr.ance is, to my mind, visually uncomfortable, cutting out a part of the pure pyramid shape. I always wonder why there was not a gentle ramp entry which would have slipped under the base of the pyramid.

The vast public access, facilities and gallery improvements underground, which will be finally completed in about 2 years time, will have created an impressive extension to The Louvre with a single powerful statement of history as its sole urban visible intervention.

We were also asked to design 6,000m^2 of roof glazing to help create the 3 new permanent sculpture courts of The Louvre - Khorsabad, Marley and Puget, from the 2 courtyards of the old Ministry of Finance accommodation adjacent to the Rue de Rivoli. This we did from my office in London, working as consultants to Ove Arup & Partners International.

Here, where there is no perpendicular or right angle from which to start, 2 specific historical/urban constraints were applied on the design by the Bâtiment de France (equivalent to English Heritage).

The cornice line of the existing building should be maintained in order not to destroy the vertical proportions of the building façades which create the courtyards, and secondly, the new roofs are not to be visible from ground level on the Rue de Rivoli or from the Cour Napoleon. The former constraint has not posed a significant problem, but the latter did, given that the roof required clear spans exceeding 40m in some areas. This, coupled with everyone's desire to avoid casting shadows on to the sculptures at ground level, some 30m below, led to a shallow arched structure composed of slender members.

D'Alembert (18th century mathematician & philosopher) established that shadows cast imprecise edges (ie. diffused) according to the ratio of the width of the object placed in the sun's rays and the object's distance from the surface on which the shadow is cast. Our design work with Peter Rice of Ove Arup & Partners International concluded that no member be greater than 150mm diameter and that the glazing system be either frameless, and as such its surface plane would be free to position itself above the structure at whatever we felt was technically and visually correct, or if framed, then a significant space would be required in order to avoid structure and frame combining, to avoid the risk of sharper shadows on the sculptures below. Initially, we developed a framed solution, but when this part of the overall project was finally given the go-ahead in 1990, we developed a much more refined frameless solution with ceramic frit to control excessive brightness and solar gain. However, I M Pei insisted on an internal "surface" of “paralumes”, composed of aluminium tubes 25mm in diameter, spaced at 40mm centres and slotted to provide some acoustic absorption. It is an architectural device he first applied at the East Wing of the Washington National Gallery. However, because of the roof geometry of the Louvre roofs, the relatively successful light effects in Washington were not the same. This virtual ceiling, following the shallow curve of the structural arches, scatters light very differently depending on which curved surfaces are more or less perpendicular or tangential to the incoming rays. The “paralumes” increased the budget and the frameless glazing solution was dropped for economy, and a conventional framed glazing system was installed. I would have much preferred the frameless, screen printed glass surface, which in our opinion would have been more neutral and sympathetic to the existing stone façades of the buildings. The courtyards were completed in 1993.

Finally, at The Louvre, RFR designed the inverted glass pyramid, which allows natural light to flood the most westerly underground "carrefour" 100 metres west of the present Pyramid.

It is almost flush with the ground externally, like a glass lake, and hangs down into the undercroft. The glass was special - of low-iron content, rendering it almost colourless and giving the pyramid a crystalline quality. Added to this, all edges were chamfered and polished at 45 degrees, such that when sun rays strike these, rainrods, (rather than rainbows) are created across the floor and walls. It is interesting to note that shop signs, up to 50metres away can easily be seen through the glass tip of the pyramid. The space created between the stone pyramid (to prevent people banging their heads!) and the tip is one of the most “touched” areas of the new Louvre.

CENTRO DE ARTE REINA SOFIA (CARS)

This project has been the subject of long and, at times, heated discussion since the idea, launched about 10 years ago, of transforming the old General Hospital of Madrid into a centre for modern art.

The hospital building was built during the latter half of the 18th century under the supervision of Francisco Sabatini, during the reign of Charles III.

This building, classically Baroque, has a very solid structure and rigid spaces, appearing as "multi-layered barracks". The vaulted spaces on the ground level are extremely beautifully proportioned.

Its transformation occurred in 3 acts.
The first act saw the restoration and rehabilitation of the hospital, rescued from demolition by Antonio Fernandez Alba. A parallel programme to create a Museum of the Spanish People on the upper floors by Javier Feduchi and Javier Vellé s, introduced the idea of adding an additional floor, which would house the administrative offices.

Act two saw the dividing up of the ground and basement in order to accommodate a café and restaurant (by André Ricard), and auditorium and projection room (Bach and Mora) and shops (Torres and Lapeña). The proposed exhibition gallery did materialise. The building opened to the public in 1986.
The final act to transform the remainder of the hospital into a National Art Centre with a permanent collection was undertaken by the Madrid architects Antonio Vazquez de Castro and José Luis Iñiguez de Onzoño, and was inaugurated on the 1st November last year by Queen Sofia and King
Juan Carlos.

The permanent art collection was to be modern. There was some debate as from what date the collection should begin, but in principle it is from the mid 1930's, and a key painting, Guernica painted by Picasso in 1937, was planned to be transferred from The Prado's annexe, effectively giving the collection its starting point.

Castro and Onzoño, proposed to cover the central courtyard to create a central reference space and vertical public circulation to upper floors. This proposal was considered too bold and too risky and was finally rejected, prior to our involvement.

It was at this stage, with works having commenced on transforming the upper "barrack rooms", that we were first approached - by the main contractor Huarte in February 1989. In Spain, it is incumbent upon the contractors to achieve the results.

The architects had discussed with several Modern Art Museum directors in Europe the essential characteristics of contemporary art galleries, and their conclusion was that their intervention and architecture should be minimalist. They and Huarte directors were familiar with our glass structures at La Villette, which were designed in 1982 and completed in 1986. However, Huarte came to see us on their own initiative as it was evident to them that satisfactory progress in resolving and realising the vertical movement of the public was a major problem.
In fact, the first conversations we had with them in London revolved around their desire to have the La Villette glass system. However, and our response was to design a tailored solution, with the architects, unique and appropriate to the new Centre of Modern Art and its setting.
To Huarte, it appeared that our design concerns would only create further delay and risk. We concluded a contract within a few days, having met the architects in London in between.

The contractor insisted on a contractual clause whereby we would not be paid the full fee for our design services to them if it proved impossible to find a sub-contractor in Europe capable of constructing our design. We accepted, in order to create immediate confidence and trust.

Much of the political manoeuvring by Huarte and the architects to convince the Ministry of Culture to accept the design of our proposed glass towers happened without our direct involvement.

The positioning of the towers was subject to urban planning constraints, their appearance in front of this listed hospital and how they would relate to the wider context, as well as the detail of resolving the entries into the wall of the hospital.

We were asked by Huarte if we could, within a week of our agreement, establish the position and design of the foundation structure for all 3 towers. This, without detailed passenger flow analysis, hence no lift sizing; whether they would be hydraulic (La Villette) or electro-mechanical, whether top or bottom driven; air conditioned spaces or not; and with no clear design of the hard landscape area at ground level.

We understood that the urgency was to enable Huarte to convince the Ministry of Culture that progress on the vertical circulation had dramatically improved to the point where they had begun to build (i.e. pour concrete) the solution!

Together with John Thornton's team at Arup, we allowed margins in the foundation design and were able to make quick strategic decisions. These, however, influenced irrevocably the designs.

There are 2 towers for public access and one for servicing the new centre. The latter had a particularly unique requirement, to provide a lift to take Guernica in and out of the building. Guernica is 3.5m high x 7.82m, unpacked, and determined the size of this tower.
Our conceptual design approach evolved after we had released foundation data to Huarte. Initially, we felt that minimalism dated from the early 60's in art, and that perhaps the Ipswich office building, on which I had been involved at Fosters, represented a built end game of minimalism. So, in order to address this expressed wish, we investigated the idea of creating complexity from a composition and juxtaposition of individual minimal components.

We also felt that the immense 'gravitas' and horizontality of the hospital building, should keep its strength and character, and so the idea of working in contrast to it, thereby reinforcing the building's intrinsic character seemed totally appropriate. This would also allow the tower designs to have their own character - of lightness and verticality.

In essence, our concept was to create towers representing modernity (responding to the hospital's new use) - suspension and transparency in contrast to gravitas and solidity.

Modernity would be represented by technology - state of the art glass suspension, by the minimalism of the individual components, by being didactic in the sense that the construction and functioning of the towers could be understood and be tactile, and as an overall composition in the square as symbols of the regenerated hospital.

Their performance was to ensure effective movement for thousands of visitors a day.
We sought to achieve a degree of transparency that reduces visual impact from outside and allows uninterrupted views from inside, both when waiting and, more spectacularly, when riding in the lifts - a pause to make visual contact and re-orientate yourself with the world outside the museum.

Translating these conceptual objectives required us to visually investigate one further proposition the design language through which all the elements could be related to each other and overall to the existing building. This was drawn from the existing surfaces and profiles - the walls, the stone window frames, and the circular steel window bars. We concluded that “plates” - reference to surfaces held the most interesting solution, and led us to investigate the intrinsic nature of manufactured materials from which the towers could be made.
We also felt that this proposition of planarity had a relationship to Guernica, which can be “read” as a "collage" composed of black, grey and white "superimposed flat cut outs".

Our first design proposal, attempting to respond to these conceptual directives, also sought a strong "image" component. I again proposed an interpretation from Guernica - the woman holding the lamp, and the flames emanating from the burning building. This form was translated as the profile for the main steel columns, set perpendicular to the building's façade, with external lifts running up between them. It was concluded that this was too expressive and the external lifts would be too difficult to maintain.

The exploratory models which we made made us very aware that the underside of the link floors to the building would be very apparent surface elements of the composition, being seen clearly by people walking in the square. Our response was to design them as simple plane surfaces, picking up on the horizontal lines of the hospital.

In summary, all the components of the towers are made of planes - the main vertical steel structure, the floors, the glass, the stainless steel glass suspension fittings and the internal fittings which transfect the wind loads.

The only components which are circular are the suspension rod assemblies (referring to the security bars of the hospital windows and the notion of enlightenment, or freedom, expressed by the spatial separateness of them) and the top structural arrangement from which are hung the rods. The halo is the track for the maintenance cradle.

The basic principle of glass support separates clearly the external system carrying the weight of glazing and the internal system which restrains the glazing against horizontal wind loads.

The entire glass envelope to each tower is suspended by stainless steel rods from roof level. Each panel of glass is individually supported, so that differences in thermal expansion between steel and glass can be spread evenly across all joints between panels.

Uniquely, the “corner” wind loads are transmitted through the vertical edges of adjacent corner glass panels and back to the main structural frame. Secondary vertical structural members resist wind loads between floors of the link to the building. The size of each glass panel was determined by a geometric ratio between the glass size, the arrangement of the wind load fixings, economic glass thickness, structural module and heights between floors.

Given the demands of a rapid programme, the glazing method uses an established and tested system of glass fixing. The method of suspension is more innovative, but uses simple components designed to allow easy monitoring of quality and rapid manufacture in the quantities required. However, it is unusual to place the vertical load carrying components on the opposite side from the wind transfer components - necessitating machining glass sheets from both sides.
This resulted from our initial objectives to achieve didactic and tactile qualities in the design.
Public and professional reaction to the glass towers has been extremely positive. In fact, as yet, we have heard no negative criticism. I believe that their relationship to the existing

hospital is successful, and the evident enjoyment people obtain from both the sensational views and the intricacies of the assembly suggest that as a contemporary image, they are now an integral part of Madrid's heritage.

NATIONAL MARITIME MUSEUM: GREENWICH

Late in 1984 we were approached by Dr. Neil Cossons to look at the possibility of creating a National Museum of the Boat at Greenwich, containing model displays, replica reconstruction workshops and archaeological research laboratories.
In economic terms, it offered to the local community and to the National Maritime Museum a real opportunity to create and increase their local economies by ensuring that visitors stayed on both sides of the river and would encourage the idea of a day out at Greenwich.

We developed two principal aspects to this project which have relevance to the subject of this conference.
The first relates to landscape and the appreciation of the former Greenwich hospital and Queen's House.
The site for the project was Island Gardens at the tip of the Isle of Dogs peninsular, opposite the hospital. This is a municipal garden, enjoyed by the local community and a rapid Kodak stop for tourists to take the "Canaletto photo" of Greenwich.
The garden's present landscape quality is established by two generations of mature plane trees; those planted by Greenwich Hospital when it owned the land before it became a municipal park, and those planted at the turn of the century by the local authority. Its weakness lies in the municipal layout of flower beds, its seating to enjoy the view of Greenwich which is too low and cuts off the river, and the river edge railing through which the seated viewer must gaze.
Our concept aimed at creating a great view of Greenwich, whilst conserving and even enlarging the landscaped park for public enjoyment. To this end the design is half in and half out of the ground thereby allowing the river to become the stage, and the Greenwich buildings the stage set, and is an exercise in the art of land movement design.

The second aspect relates to who can be instrumental in conservation and for what motives.
It was much regretted that 2 particular individuals on the Isle of Dogs decided to block the project, despite support for the project by the local authorities, the newly arrived LDDC, the National Maritime Museumand the local Christchurch community. They were suspicious of the LDDC, felt that Greenwich was reaching back across the river to take back land, and would not tolerate seeing a riverside park being dug up. They brought sufficient pressure on the LDDC for them to abandon support for the project, which effectively pulled out part of the financial plug. Ironically, a few years later both worked for the LDDC, and later one for Canary Wharf.

I consider that the important points of this project are the visual distance that design in conservation contexts can take, and how these can influence the basic concept and subsequent design detailing, and that landscape in itself can be renovated or transformed to overall cityscape advantage, and also subtly clothe a large building - in this case a museum.

THE MERIDIAN PLANETARIUM

Remaining in Greenwich, an idea, again originating from Dr. Neil Cossons, in 1985, was to bring the top of the hill - the Royal Observatory - into the 21st century and to re-celebrate Greenwich's unique position in space and time. The last observatory building dated from 19th century. The landscape was designed by Le Nôtre, who apparently on seeing Greenwich and the completed park for the first time remarked that he was completely unaware that there was a hill!
The site considered the most appropriate was the hollow behind Flamsteed House and the Great Equatorial Building. We felt that this discreet site could accept a spherical sculpture, perhaps bronze and certainly having gravitas, within which would be a revolutionary planetarium, based on a full spherical projection system. Negotiations with the Royal Parks Commission and the new director of the National Maritime Museum, Mr Richard Ormond, finally broke down after 2 years when we were informed by the Royal Parks that no new buildings would be considered within any of the Royal Parks in London.
However, at this time an interested group came together, now a registered charity call The Society for the Meridian Planetarium at Greenwich, who were enthusiastic about the idea. They, having engaged us as their architects, have sustained their interest and desire to see the project realised.

It was clear to us that an alternative and suitable site needed to be found if the project would have any chance of being realised. Symbolically, this site ought to be on or touching the Meridian Line.
We searched north and south exploring possibilities and finally, we mentally rolled the sphere down the meridian line from the top of the hill, finding no ideal site to match that behind Flamsteed House, until we arrived at the bank of the River Thames, adjacent to the London Transport Generating Station and Trinity Hospital.
In 1991 the Anchor Iron Wharf site, used as a scrap metal yard by London Iron & Steel was vacated. In 1992, an outline planning application was submitted and granted with the approval of English Heritage, for a non-reflecting white glass sphere, whose internal architecture exists as projected light information about our universe, and the external architecture at night is equally a display of information - possibly as a reference to the earth - created by a network array of diodes behind the glass surface. The project has outline planning permission, the full backing of LB Greenwich, and a very impressive list of patrons. The society applied for a millennium funding in 1995. It was rejected - the commission describing it as “not sufficiently distinctive” and the design not sufficiently advanced.
I admire the tenacity and continuing commitment by a group of interested lay people and their supporters to achieve a remarkable and quite unique educational facility, but it is also testimony to the difficulties we face in Britain in innovating and developing 21st Century cultural facilities.

THE NATURAL HISTORY MUSEUM : ECOLOGY GALLERY

"The age of the interactive dinosaur"
I will read the notes I made in 1990, when we finalised and agreed our concept with the Museum:-
Firstly, no one can fail to appreciate the beauty, skill and wit of Waterhouse's Natural History Museum. Equally, no one can fail to recognise the invested energy of the Victorians in this part of London and their desire to illuminate and inform visitors, whether national or foreign, of the treasures of the world. Today, no one can deny the importance of informing the visitor of the immense wealth and beauty of the planet as we now know it, and of the fragile balance of man's relationship with it. This is the essence of the exhibition on Ecology.
Our design for the structure of this exhibition has been informed by three principal considerations:

1. The importance of the Ecology 'messages' to be conveyed to the visitor and our modest role in providing 'the structure' for it, as our brief from the British Museum (Natural History) expressed "create a charismatic structure for the Ecology Gallery".
2. Waterhouse's Architecture, his linear symmetrical planning, his spaces and their sequence, that this building is listed Grade 1, and the details, both informative and witty which decorate the steel armature of the building.
3 The exhibition is scheduled to run from 1991-2001.

These informed the following pre-conceptual guidelines:

1. Do not touch the fabric of the building, with the exception of the floor.
2. Respond to the linear clarity of the gallery spaces.
3. Enjoy the spatial qualities by allowing the visitor to perceive it, not only from the floor level, but also within the volumes.
4. Highlight the details Waterhouse layered on the building, which includes those difficult to see high up, on the walls and column heads.
5. Establish a clear visual dialogue with Waterhouse's architecture.
6. Ensure that the focus and perspective of the gallery is not destroyed.
7. Attempt to create the opportunity for the visitors to see out of the main windows and for sunshine to come in.
8. Symbolically and emotionally create an awareness of fragility and man's view of himself/herself at the apparent centre of the ecological balance.
9. Offer the exhibition designers the opportunity to create an exciting uni-directional route and sequence of exhibitions in space using contemporary presentation methods.
10. Allow for simple servicing and potential to change the exhibition material without disturbance.

Our design response has sought, and we believe succeeds in addressing the aims of the British Museum (Natural History) as outlined above, without altering or touching in any way the fabric of the building, and in 10 years can be demounted , leaving no trace whatsoever on the building.

In our view, our proposal is in the spirit of the original intent of Sir Richard Owen in commissioning the building, which was to bring to the general public, in a modern way, the latest understanding of the natural world. He also sought that light should be from the top, not directly overhead, but from the junction of walls and roofs. This is exactly the location we have selected for the artificial light source which is diffused through the glass walls with decreasing intensity towards the floor, yet illuminating the column heads and ceiling through the central axis of the exhibition.

We have noted from the early design drawings by Fowkes, and later by Waterhouse, that the east and west galleries were column free, and where columns existed they were placed at the perimeter of the galleries. It appears that the late decision to add a third floor to these galleries was resolved structurally and economically by the addition of columns down the centre of the galleries, which was not the original intent for these gallery spaces.

Waterhouse used the space between the central columns and the external walls by placing large glass cabinets perpendicular to the latter. In our design approach we have restated the glass cabinet idea, but parallel to the external walls, creating large "glass cabinets" into which both the visitor and exhibit is invited. This design concept thus responds both to the Architecture and memory of Waterhouse's design, as well as accepting, unfortunately, exhibition designers' penchant for artificially lit space.

The exhibition envelope is a fragile and delicate hands-off conversation with Waterhouse's architecture precisely in the spirit of Ecology, and how modernity can relate to the past as well as provide an attractive and indispensable ingredient for the ecology exhibition.

The following describes some of the spatial and detail experiences the visitor might encounter whilst walking through the Ecology Gallery.

The visitor to the new Ecology Gallery will be moved by the spectacular back-lit vista to the end room. With bridges leaping across this vista, and people appearing and disappearing through the glass walls. The asymmetry of this space is created by the curved and straight walls designed to evoke the notion of the tendency of things to be continually dynamic, while striving for equilibrium.
The visitor will be able to appreciate the beautifully detailed low relief terra-cotta piers, illustrating in this East Gallery, fossils.

As the visitor begins to move down the vista, he/she is subtly drawn into the context of the exhibition by means of a layered, curved glass wall on the right, which feels like the edge of a glacier (representing water). This effect is created by the use of "Optiwhite" rear sandblasted glass, lit from behind by cool coloured temperature lamps. .

To the visitor's left, the straight glass wall is also back lit in a similar manner, but utilising warm colour temperature lamps to convey energy (fire). The very base of this wall gently undulates and flickers alluding to a lava flow coming from the floor. The dark recycled soft rubber floor represents the earth. The visitor's attention will be drawn to the first bridge above him, which is made from treated glass set onto an organic structural form, and hopefully will register this "fragile" element and the image of people in the air.

Occasionally read on the surface of the glass are quotations relating to the overall theme of the exhibition. Also individual illuminated terra-cotta reliefs depicting fossilized fish will be highlighted by means of clear zones within individual sheets of glass, drawing the visitor's attention to the decoration and wit of Waterhouse's architecture.

Above the glass walls appear the decorated column heads of the piers, illuminated by the source of light which bathes the glass walls from behind.

As the visitor moves down this space, clear zones appear on the straight glass wall, through which he/she is privileged to look into the past and the evolution of the planet Earth. The glass panels themselves are not joined to each other, helping to convey the feeling of careful balance.

(The combination of curved and flat glass walls and open joints assists the acoustic performance of the space).

The visitor will see three further bridges, and will hardly be aware until moving across them later, that they represent the evolution of man's manipulation of the planet's natural resource. At the end of the vista, the intent is that the visitor will have been gently introduced to the background and essence of ecology-interconnection and interdependence of elements both organic and inorganic.

Entering through the arch, the visitor begins a more intense exploration of the exhibition and will see a huge Quadrasphere, creating spherical images relating to the water and the oceans. Turning to the right and gently moving up an inclined route to the first "island", containing educational exhibition material, the visitor's hand will slide along a cherry handrail, which continues throughout the exhibition route. The exhibition "islands" and ramp are set away from the terra-cotta walls.

The visitor moves on, behind the Quadrasphere, to the second island, and on further up an inclined walk to cross the first bridge. Crossing it, a spectacular view back towards the entrance area is revealed. This bridge has an "earth" floor made of recycled rubber. The visitor then enters through the curved glass wall, and follows a prescribed route through the exhibition at this Mezzanine level. This area is set back from the external wall to allow the exhibition material and space to flow from floor to ceiling.

From the South Mezzanine exhibition area, the visitor moves across the second bridge, whose surface is wood, and again can enjoy the central space of the Gallery. The exhibition circuit continues along the North side in an artificially lit environment just prior to turning South across the third bridge which has a surface of metal, but still carries the tactile handrail of cherry, and suggests another pause in the visitor's journey.

The penultimate exhibition reveals to the visitor a different view of the rainforest in the main arrival area. The visitor crosses for the last time the central space, across a surface of glass, symbolically suggesting that he/she is entering the final phase of the exhibition, both with an "optimism" and also a sense of the precariousness. The glass floor is decorated with ginkgo biloba and chestnut leaves which suggest a continuation of Waterhouse's idea; the (asymmetric) ginkgo leaves, being a simple form and sole survivor of a genus hundreds of millions of years old, and the bilateral symmetric chestnut leaves being a complex leaf form of much more recent times (tertiary geologic epoch).

The final part of the exhibition is about the future, both its concerns and its optimism.

This journey which explores ecology, also explores the architecture of Waterhouse in a unique way.

ALBERT CULTURAL & SPORTS CENTRE

We were the only non-French team invited to compete in a limited international competition in November 1990 to design a Cultural and Sports Centre in Albert, Northern France. Our submission was unanimously selected by the jury.

The centre includes a 600 seat theatre, capable of combining with an international size gymnasium to receive exhibitions, banquets and other cultural events, a small conference centre, and an exhibition gallery.

Albert is a town almost totally rebuilt after the 1st World War, containing many examples of brick and render Art-Deco buildings. The town has a very apparent colour palette of red & white.

The new centre is adjacent to the main town square, the town hall and school of music.

The concept for the design is based on the evolution of the town from its agricultural origins - the traditional courtyard farmhouse; through the emerging metal industries at the turn of the century to its present day industry, in particular aeronautical engineering (Aerospatiale). I termed this conceptual approach “acropetal” - from the botanical meaning “developing from below upwards” (Greek *akron* + L *petere* to seek)

We decided to express modernity as continuity, not rupture, through the use of stack-bonded machine made red brick, and linear white lines through a combination of glass (white light at night) and white stone. These alluded to the farm courtyard. We introduced an open entrance court as an ante room before entering through doors to interior spaces.
Above the brick walls is a layer of metal composed of metal roofing. Above this, separated by glass is the roof which appears to float above the building. The roof is composed of both metal roofing and fabric panels.

The first theatrical event took place in January 1993.

TERRASSON CULTURAL GREENHOUSE

A six hectare park called Imaginary Continents, conceived by Paysage Land/Kathryn Gustafson and interpreted in collaboration with Ian Ritchie Architects, opened to the public last year. The park is on a very prominent steep north facing slope overlooking the town of Terrasson-La-Villedieu, in the Périgord region of France. This town, on the river Vézère, which runs into the Dordogne, is a significant and beautiful historic town constructed almost entirely of stone.
The park design originates from historical, landscape and social research of the different intellectual, cultural and spiritual landscape expressions found in selected landscapes throughout the world. This has been interpreted as an environmentally sensitive and subjective composition of fragments, employing a contemporary visual and environmental language, of nature (forest, prairie), agriculture (canal, rose garden, plant nursery) and architecture (greenhouse, amphitheatre, town). Visitors will experience time through materials (earth, vegetation, water and minerals), the senses (smell, taste, touch, colour and sound), and through geometry (points, lines, markings, perspective). Garden or landscape, through the routes of the park, these different scales reflect those of the gardener and the geographer.

The 'Greenhouse' Fragment is a composition with the natural topography of the park, seeking the sun from above the hill, and is spatially experienced from three distinct points of view within the park. It first appears from below, its gently curving gabion stone wall suggests both the enclosure of space and the design management through stabilising walls of the steeply sloping site; this principle is extended as functional lines within other areas of the park. It is next seen tangentially to its roof surface of glass, appearing as a virtual lake, reflecting fragments of the town and distant and close landscapes. From within, the greenhouse is defined by the gabion wall and glass roof; the spatial experience of its volume and changing levels of light reveal the interplay of three performance area - the citrus tree promenade, a sunken exhibition/theatre and an information gallery. There is an intentional architectural expression of sophisticated material processing and structural performance (the glass roof), juxtaposed with an unprocessed material - the gabion stone wall. These two elements remain physically and structurally independent; though combine to create the microclimate of the greenhouse. The gabion stone was sourced from a local quarry and the manner in which we have employed it introduces modernity - being a new method of stone wall construction adding to the types from which the town has been constructed over the centuries such as dry stone, timber frame stone fill, rough stone mortar jointed and ashlar.

CONCLUSION

In conclusion, I would like to put forward the following thoughts to the conference.
Intervention of the new in the context of the old: a tentative panoramic manifesto towards conservation at the dawn of the 21st century with particular relevance to museums:

1. Establishing unambiguously the central role of the individual museum.
2. Understanding the importance of its collection in the cultural heritage of the country.
3. Developing the architectural design on the basis of its collections.
4. Responding to our own wider culture, our own time and technology.
5. Being conscious of the solid tradition we are building on, but avoiding nostalgic indulgence.
6. Identifying clearly whether what is required is a new building, an extension, a renovation or a transformation.
7. Understanding what is and what will be permanent, and what is temporary.
8. Avoiding improvisation by training of managers in the art of obtaining excellent advice.
9. Clarifying the roles of each interventionist in the process, whether it is new building or renovation and ensuring that all unjustified prejudice, be it psychological or professional, is removed such that all understand that it is our collective cultural heritage, past and future, which is at stake. The future being what we do today.
10. Being sure that both short and long term objectives are realistic and achievable.
11. Being sure to finish what is started by being prudent about programming, but never forgetting that it is the future we are building.
12. If in doubt, don't! "noble sacrifice being the art of leaving things as they are" Gombrich.
13. Re-examine the value system which has so forcefully put cultural property into the economic market place.

I believe that the examples I have shown allow different but legitimate responses, for example:
- an architecture of contrast (Madrid),
- an architecture of integration (Greenwich National Maritime Museum)
- an architecture of contrast and integration (Louvre) are all.

We are very happy working in Europe, not forgetting that Europe includes Great Britain, and we look forward to appropriate and intelligent conservation.